MONTHLY UPDATE REPORT - PRIMROSE SOUTH
09-21-067-04 W4M

FEBRUARY 3, 2014

1 Introduction

The Canadian Natural Resources Limited Primrose South in situ oil sands project is located primarily in the Cold Lake Air Weapons Range approximately 65 km north-northeast of Bonnyville, Alberta. Canadian Natural operations staff discovered a flow to surface (FTS) bitumen emulsion at 09-21-067-04 W4M on June 24, 2013. The FTS area is beneath an unnamed water body within the Canadian Natural Primrose South production area.

On September 24, 2013, Alberta Environment and Sustainable Resource Development (ESRD) issued an Environmental Protection Order (EPO No. EPO-2013-33/NR), requesting the preparation of a Comprehensive Remedial Plan (CRP), as well as the preparation of a monthly progress report. This report summarizes the progress towards the realization of this plan and includes data collected and reported up to January 25, 2014. The information in this report focuses on data collected since January 1, 2014.

2 Summary of Activities to Date

2.1 Individual Plan Submissions

As required by the EPO, the CRP includes the development, submission and implementation of several specific plans. The status of these plans is indicated below:

Table 1: Components of the Comprehensive Remedial Plan

Item	Plan Name	Due Date	Submission Date	Approval Date	Implementation Start Date	Completion Date	Section Discussed
1.	**Water Management Plan for Dewatering**	September 26, 2013	September 26, 2013	September 27, 2013	September 27, 2013	October 22, 2013	2.2
2.	**Water Body Monitoring Plan**	September 26, 2013	September 26, 2013	September 27, 2013	September 27, 2013	Ongoing	3.0
3.	**Erosion and Sedimentation Prevention Plan**	September 26, 2013	September 26, 2013	September 27, 2013	September 27, 2013	Ongoing	3.2

Item	Plan Name	Due Date	Submission Date	Approval Date	Implementation Start Date	Completion Date	Section Discussed
4.	**Phase II Environmental Assessment Plan**	October 15, 2013	October 3, 2013	October 17, 2013	January 6, 2014	Ongoing	3.3
5.	**Bitumen Emulsion Delineation and Containment Plan**	October 6, 2013	October 3, 2013	October 17, 2013	October 18, 2013	Ongoing	3.4
6.	**Amphibian Salvage Plan**	September 26, 2013	September 25, 2013	September 27, 2013	September 27, 2013	October 22, 2013	Complete
7.	**Fish and Fish Habitat Assessment Plan**	September 26, 2013	September 25, 2013	September 27, 2013	September 27, 2013	October 30, 2013	Complete
8.	**Wetlands Impact Assessment Plan**	September 30, 2013	September 25, 2013	September 27, 2013	September 27, 2013	October 30, 2013	Complete
9.	**Water Body Restoration Plan**	November 30, 2013	November 27, 2013	Pending	No later than April 1, 2014	Pending	N/A
10.	**Wildlife Management Plan**	N/A	Revised Plan October 23, 2013	October 23, 2013	October 23, 2013	Pending	3.5
11.	**Waste Management Plan**	N/A	Revised Plan October 24, 2013	October 24, 2013	October 24, 2013	Pending	3.6

2.2 Water Management for Dewatering

The water body was divided in four basins as indicated on Figure 1. Basins 1, 2 and 3 were dewatered while Basin 4 is being used for water storage. Three independent pumping systems were used to pump water out of Basins 1, 2 and 3. This configuration allowed Canadian Natural to adjust pumping rates in the various basins as laid out in the approved Water Management Plan for Dewatering.

Pumping started on September 27, 2013. The volume of water pumped from each basin is presented in Appendix A. On October 22, 2013, pumping was stopped.

Between January 1 and 25, 2014, no pumping of water to surrounding areas was carried out as all water in Basins 1, 2 and 3 was frozen. Furthermore, due to freezing conditions, no fluid entered the excavations; therefore, no fluid (bitumen emulsion and surface water) was recovered from the 9-21 FTS site for disposal. The cumulative total fluid volume (bitumen emulsion and surface water) recovered at the 9-21 FTS site between July 15, 2013 and January 25, 2014 was 1,429 m^3 and the cumulative volume of bitumen emulsion recovered was 154 m^3. These numbers have changed since the last reporting period based on a reconciliation of volumes with the receiving facility.

The dewatering activities took place in accordance to the conditions specified in the Water Management Plan for Dewatering and in the Erosion and Sedimentation Prevention Plan (Table 1, Items 1 and 3).

3 Water Body Monitoring

In accordance with the Water Body Monitoring Plan (Table 1, Item 2), an extensive water quality and water quantity monitoring program was implemented on September 27, 2013. This ongoing program is tailored to the level of activity taking place at the 9-21 FTS site and complements the ongoing water quality and quantity monitoring implemented in June 2013.

3.1 Dewatering Water Quality

Weekly water sampling was ended after November 12, 2013 due to freeze-up and completion of dewatering. During the dewatering program, water quality was within *Alberta Tier 1 Soil and Groundwater Remediation Guidelines* at all sampling locations. Sampling locations are shown on Figure 2. Water samples were collected in January 2014 as part of the dewatering program; therefore, analytical results were not provided as an appendix to this report. All water quality results related to dewatering are presented in the December 2013 report.

Water quality sampling continued through January 2014 in one shallow groundwater monitoring well.

3.1.1 Dewatering Water Quantity

The amount of water pumped from Basins 1, 2 and 3 as of December 7, 2013, was 404,378 m^3. Pumping to remove water seeping into Basin 1, was discontinued after November 24, 2013 due to freezing temperatures. The locations monitored during the dewatering period are illustrated on Figure 2.

3.1.2 Surface Water Quality

Water quality samples were collected weekly from Basins 1, 2 and 3, during the dewatering period, and from Basin 4 and the downstream fen until freeze-up, which occurred between October 29, 2013 and November 12, 2013 (Figure 3). The samples were tested to ensure water quality in the receiving environment was not being affected by the dewatering operations. Water quality results are presented in Appendix B. No water quality samples were collected after November 12, 2013 from the water body or downstream fen due to frozen conditions.

3.1.3 Shallow Groundwater

Shallow groundwater quality samples were collected from one shallow drive-point piezometer well (13-DP4) on January 6 and 14, 2014 (Figure 4). A sample was also collected on December 17, 2013; however, the results were not available for the January 13, 2014 monthly update report. Water quality results are presented in Appendix B.

Water quality from the shallow groundwater locations was within freshwater aquatic life guidelines. Hydrocarbons were not detected in any shallow groundwater samples in January 2014, with the exception of low level toluene, which was measured well below the aquatic life guideline on January 14, 2014.

3.2 Erosion and Sedimentation Prevention

The dewatering activities took place in accordance to the conditions specified in the Erosion and Sedimentation Prevention Plan (Table 1, Item 3). All erosion and sediment control structures, which were set up during the dewatering program, were removed once pumping was suspended on October 22, 2013. However, containment structures, such as the aquadams located in Basin 4 and at the south end of Basin 1, will be removed in spring 2014. There were no signs of erosion or sedimentation associated with the dewatering program.

Erosion and sediment control structures are currently not required as all remedial works are being completed within the dewatered water body. Any water that was intermittently collected from the water body, after the dewatering phase was suspended on October 22, 2013, was stored in tanks and disposed offsite. Erosion and sediment control structures may be implemented during the water body refilling phase, as required.

3.3 Phase II Environmental Assessment

A plan for conducting an interim Phase II environmental site assessment (ESA) of shallow soils at the site was approved on October 17, 2013 by ESRD. The final phase of the geotechnical investigation program, which included drilling geotechnical boreholes on the surface of the frozen water body and in the fissure excavation area, was completed on January 9, 2014. The final portion of the interim Phase II ESA was also conducted from January 6 to 9, 2014.

As requested by ESRD, seven additional boreholes were drilled in the south part of Basin 3, north of the old road bed, to investigate the possible presence of surface and shallow bitumen emulsion beneath the ice. A total of 23 geotechnical boreholes, 21 Phase II boreholes and 15 probe holes were drilled.

The borehole drilling had been initiated in mid-December 2013 to investigate soil stratigraphy, to establish geotechnical soil characteristics in Basins 1 and 2, and to aid in the foundation design for the Temporary Workspace Containment Structure. All boreholes were drilled to depths ranging from 6 to 10.5 m. Borehole locations are shown on Figure 4.

Probe holes were drilled through the ice in parts of Basin 1, on January 10, 2014, to further determine the thickness of organic material and the elevation of mineral soil in preparation for designing and constructing the containment structure. The probe holes were drilled to a depth of 1.5 m beneath the ice surface.

The shallow probe hole drilling was undertaken as part of the Bitumen Emulsion Delineation and Containment Plan (Table 1, Item 4). The probe holes drilled in the southern part of Basin 1 were requested separately by ESRD in late 2013.

3.4 Bitumen Emulsion Containment

3.4.1 Identification and Characterization of Release Point for Bitumen Flow to Surface

From January 1 to 25, 2014, the following activities were carried out as part of the plan to identify and characterize the bitumen emulsion release point:

- A combination of Sno-Cat® vehicles and smaller equipment (D3 dozer) were used around Basins 1, 2 and 3 of the water body to compact the snow cover, driving the frost deeper to increase ice thickness, thus allowing access for heavier equipment. Testing of ice thickness was suspended in January 2014 due to temperatures measured below -15°C, and the last ice thickness measurement from early December 2013 indicated that the ice was at least 30 cm thick. Regular ice thickness measurements may be conducted again should temperatures go above freezing to confirm that heavy equipment can safely access the ice-covered areas.

- Excavation at the western shore of the water body, in the area of the fissures, continued over the reporting period of January 1 to 25, 2014. Further excavation northeast of the fissures suggested that the fissures have been fully exposed and delineated. An additional excavation is still scheduled near the northeast end of the fissures.

- The excavation continued to be enlarged to encompass the area required for the approved Fissure Containment Structure. Clean organic sediment was stockpiled in the scraped shoreline areas north of the fissure excavation (Figure 4, Areas 3.1, 3.4 and 3.5) pending ESRD approval for backfilling these scraped areas. Approval to backfill the scraped shoreline area was confirmed by ESRD on January 24, 2014. Approximately 2,626 m^3 of sediment had been stockpiled and sampled for analysis of hydrocarbons, as of January 22, 2014, to confirm that it was clean before being used as backfill.

- Bitumen-impacted excavated material was stockpiled in containment cells for temporary storage prior to trucking to landfill. Confirmatory samples collected in a grid pattern, from the base of the area excavated between January 1 to 25, 2014 to remove material containing bitumen emulsion and to expose the fissures, were submitted for analysis of hydrocarbons.

- Excavation of bitumen emulsion-impacted soil and ice from the mechanical soil removal and full vegetation removal and mechanical soil removal and partial vegetation removal from shoreline areas continued between January 1 and 25, 2014. These areas are north of the main excavation on the eastern and western shores of the water body (Figure 4, Areas 3.1, 3.4 and 3.5). The sediments were scraped to a depth of approximately 30 cm based on the visual observation of bitumen emulsion, and confirmatory samples were collected based on a 10 m linear grid pattern and will be tested for hydrocarbons. The bitumen-impacted soil and ice were transported either to containment Cells A and B for offsite disposal or containment Cell C for storage.

- The shoreline sediment excavation is ongoing and efforts are being made to minimize the removal of vegetative rhizomes during scraping activities. All unaffected sediment and rhizomes that were removed during scraping activities will be placed within the scraped areas of the water body along the shoreline. This will facilitate recolonization of macrophyte communities during open water conditions.

3.4.2 Containment of Bitumen Emulsion during Delineation

Due to frozen conditions and the slow seepage of bitumen emulsion from the fissure, the temporary containment of bitumen emulsion during fissure exposure and material excavation was not required. Water recovered from the excavation is currently collected in depressions within the excavation, removed by vacuum truck and disposed at the Tervita Corporation disposal facility in Lindbergh, Alberta. Between January 1 and 25, 2014 there was no water to collect due to freezing conditions.

3.4.3 Final Design for Permanent Containment of Bitumen Emulsion

The Temporary Workspace Containment Structure plan was prepared and submitted to ESRD for approval on January 17, 2014. Approval of the design was granted in an email from ESRD on January 24, 2014. The structure is to be located in Basin 1 to provide a temporary work space for completing bitumen emulsion containment berms around the fissures, as well as construction of the drilling pad. It is planned to refill portions of the water body outside of the containment structure during spring 2014.

Subsurface investigation in the water body for ESA and geotechnical purposes was initiated in December 2013 and completed in the first part of January 2014. Based on the drilling results and other considerations, the final containment plan includes the installation of a steelpile wall around the drilling pad construction area. The sheet-pile wall will be reinforced with sand-filled tote bags to ensure the lateral integrity of the containment structure.

The fissures will be contained in a sloped trench surrounded by clay berms and covered by a structure that will include corduroy (trees) and team pipes, to allow for bitumen flow to constructed sumps (extraction wells). A liner will be placed above and below the corduroy. This will then be buried beneath a drill pad scheduled to be constructed over the fissures in spring 2014. The fissure structure will be buried beneath the drilling pad.

Monitoring wells and recovery culverts will be installed through the drill pad, around the fissure containment structure and into the corduroy to allow monitoring and recovery of the bitumen emulsion seepage.

Given the current locations and lengths of the exposed fissure, the final alignment and size of the Temporary Workspace Containment Structure has been modified from that planned in the Bitumen Emulsion Delineation and Containment Plan (Table 1, Item 5).

3.4.4 Schedule of Implementation

The schedule of implementation was provided in the approved Bitumen Emulsion and Delineation Plan; there have been no deviations to date.

3.5 Wildlife Management

Wildlife management activities between January 1 and 25, 2014 included maintaining perimeter fencing; installing, maintaining and frequently relocating wildlife scare cannons; and conducting daily inspections. Large mammals are the main species of concern as most other species are not found near the site due to winter conditions.

3.6 Waste Management

Waste generated as part of the remediation program includes liquid bitumen emulsion, vegetation containing bitumen emulsion, oily absorbents, fluids and soil and sediment containing bitumen emulsion. All waste was collected in bags, bins or barrels or was trucked to lined containment cells for temporary storage. Waste is tested to ensure that it meets landfill requirements and is suitable to transport by truck. All waste is manifested for transportation and is disposed at certified waste management facilities. Soils near waste storage areas onsite are tested prior to collection and will be assessed following completion of the remediation program.

The waste management program is summarized as follows:

- Impacted soil temporarily stockpiled in Cells A and B continue to be transported to the landfill for disposal. Materials in Cell C will be transported to the landfill for disposal in spring 2014, after the material has been dewatered to meet landfill criteria.

- Trucks continued hauling impacted material to Tervita Bonnyville between January 1 and 25, 2014. During that time period, 7,022 tonnes of materials were transported to the landfill. To date, a cumulative total of 26,677 tonnes of soil containing bitumen emulsion has been taken to Tervita Bonnyville. Based on the bitumen content of the soil, a cumulative total of 93 tonnes of bitumen emulsion has been removed from the site as part of the impacted materials.

- Daily landfill composite samples and paint filter test samples were collected from soil being trucked to landfill. All paint filter tests conducted between January 1 and 25, 2014 passed, with the exception of one filter test on January 19, 2014. Material from this test represented an estimated three to four truckloads of material that was delivered to the landfill. Review of the incident indicated that the filter test was completed on a thawed sample while the material actually transported to the landfill was in a frozen state. Excavation operations were revised to ensure this issue was addressed.

4 Conclusions

The data collected up to January 25, 2014 indicate that dewatering and subsequent remediation activities have not had any detectable adverse effect on the hydrology and water quality in the surrounding environment. Furthermore, continued compliance with requirements of the EPO has been demonstrated throughout the monitoring period.

Easting (m)

520000 522000 524000 526000 528000 530000

Northing (m)

6076000 6074000 6072000

13-SG5
13-SG1
13-SG8
13-SG12
13-SG11
13-SG14
13-SG7
13-SG6
13-SG13
13-SG4
13-SG3
13-SG10
13-SG9
13-SG2

Unnamed Water Body
Basin 4
Basin 3
Basin 2
Basin 1
Borrow Pit
Ken Baker Road
Wolf River

N

- Basin Boundary
- Water Body
- Watercourse
- Direction of Flow
- Staff Gauge Location (Discontinued on October 6, 2013)
- Staff Gauge Location (Discontinued on October 23, 2013)
- Staff Gauge Location (Discontinued on October 29, 2013)
- Staff Gauge Location (Discontinued on November 5, 2013)
- Staff Gauge Location (Discontinued on November 12, 2013)
- Water Level Monitoring Location

1:30,000

300 0 300 600 m

NAD 1983 UTM Zone 12N

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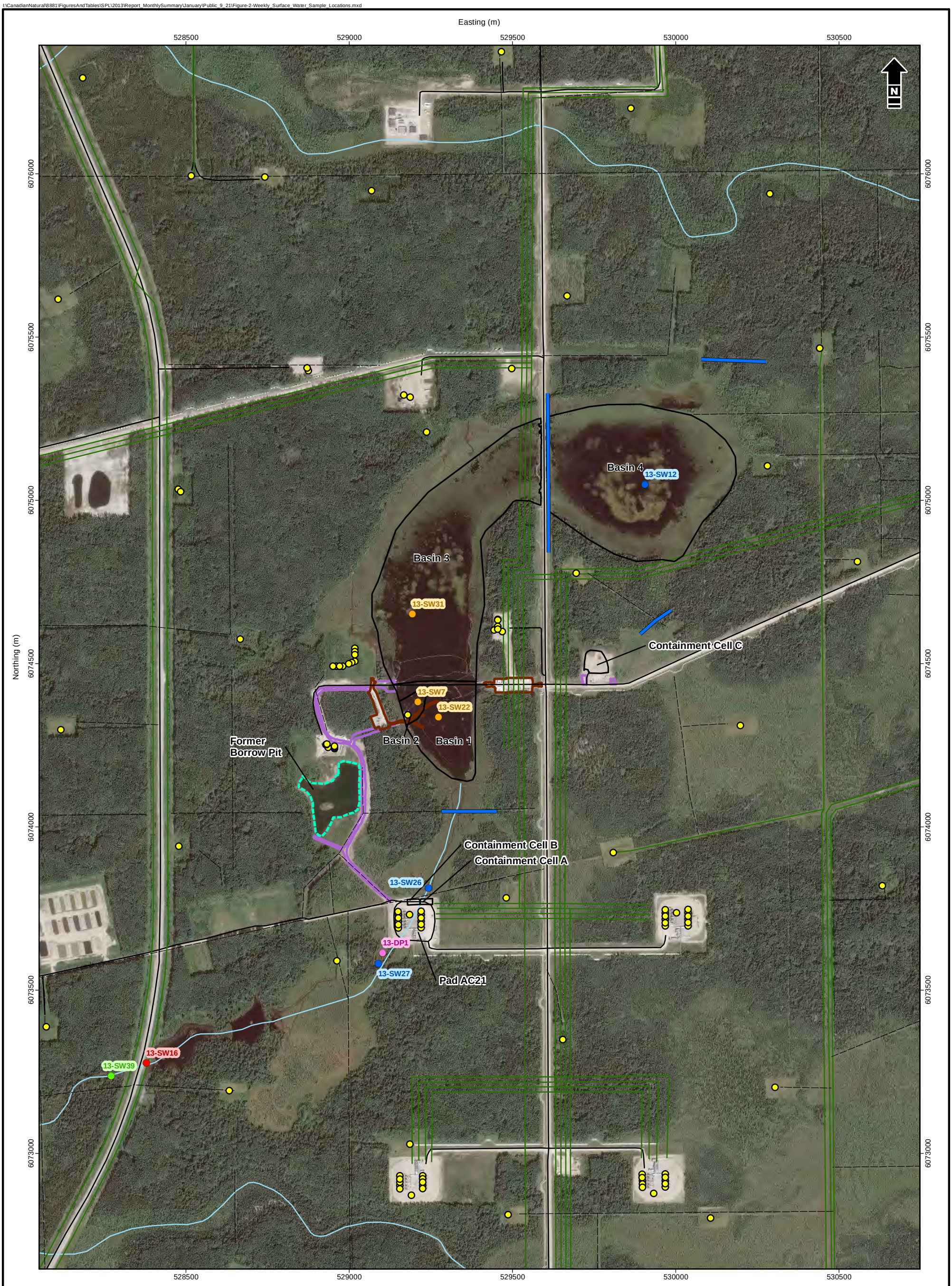
Staff Gauge, Discharge, and Water Level Monitoring Locations

Date:	Project:	Technical:	Reviewer:	Drawn:
28 Jan 2014	8881-523	A. Ward	P. Hum	R. Keller

Figure 1

I:\CanadianNatural\8881\FiguresAndTables\SPL\2013\Report_MonthlySummary\January\Public_9_21\Figure-2-Weekly_Surface_Water_Sample_Locations.mxd



- Basin Boundary
- Old Borrow Area
- Access
- Containment Cell
- Matted Area
- Watercourse
- Aqua Dam
- Road
- Cut Line
- Pipeline

- Weekly Surface Water Monitoring Location (Discontinued on October 9, 2013)
- Weekly Surface Water Monitoring Location (Discontinued on October 29, 2013)
- Weekly Surface Water Monitoring Location (Discontinued on November 5, 2013)
- Weekly Surface Water Monitoring Location (Discontinued on November 12, 2013)
- Drivepoint Piezometer Sample Location (Discontinued on October 29, 2013)
- Production Well

1:11,000 m
110 0 110 220
NAD 1983 UTM Zone 12N

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Weekly Surface Water Monitoring Locations as of January 25, 2014

Date:	Project:	Technical:	Reviewer:	Drawn:
28 Jan 2014	8881-523	A. Ward	P. Hum	R. Keller

Figure 2

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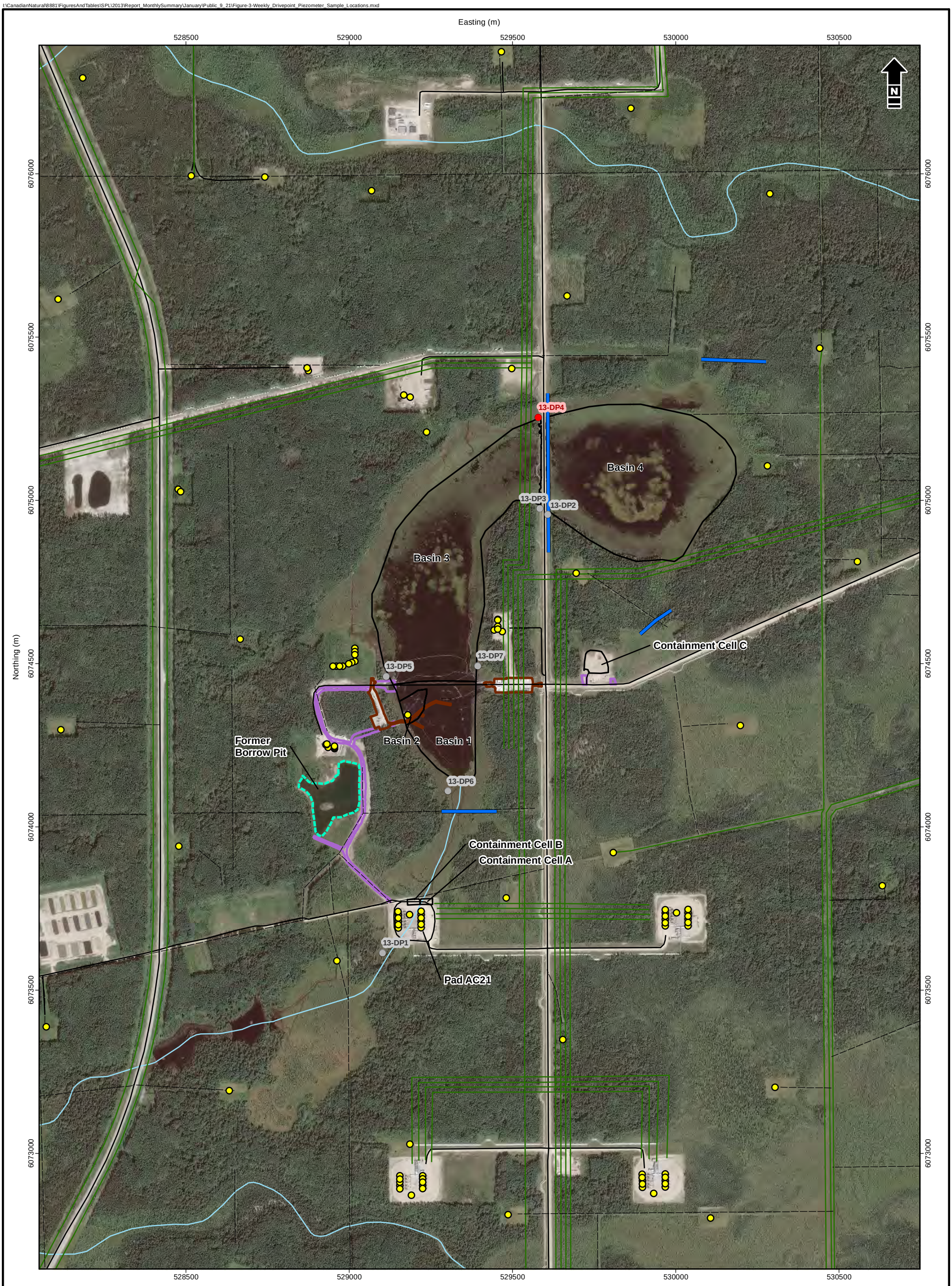

- Basin Boundary
- Old Borrow Area
- Access
- Containment Cell
- Matted Area
- Watercourse
- Aqua Dam
- Road
- Cut Line
- Pipeline
- Drivepoint Piezometer Sample Location
- Discontinued Drivepoint Piezometer Sample Location (Discontinued on November 12, 2013)
- Production Well

1:11,000

110 0 110 220 m

NAD 1983 UTM Zone 12N

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Primrose 09-21-067-04 W4M

Weekly Drivepoint Piezometer Sample Locations

Date:	Project:	Technical:	Reviewer:	Drawn:
28 Jan 2014	8881-523	A. Ward	P. Hum	R. Keller

Figure 3

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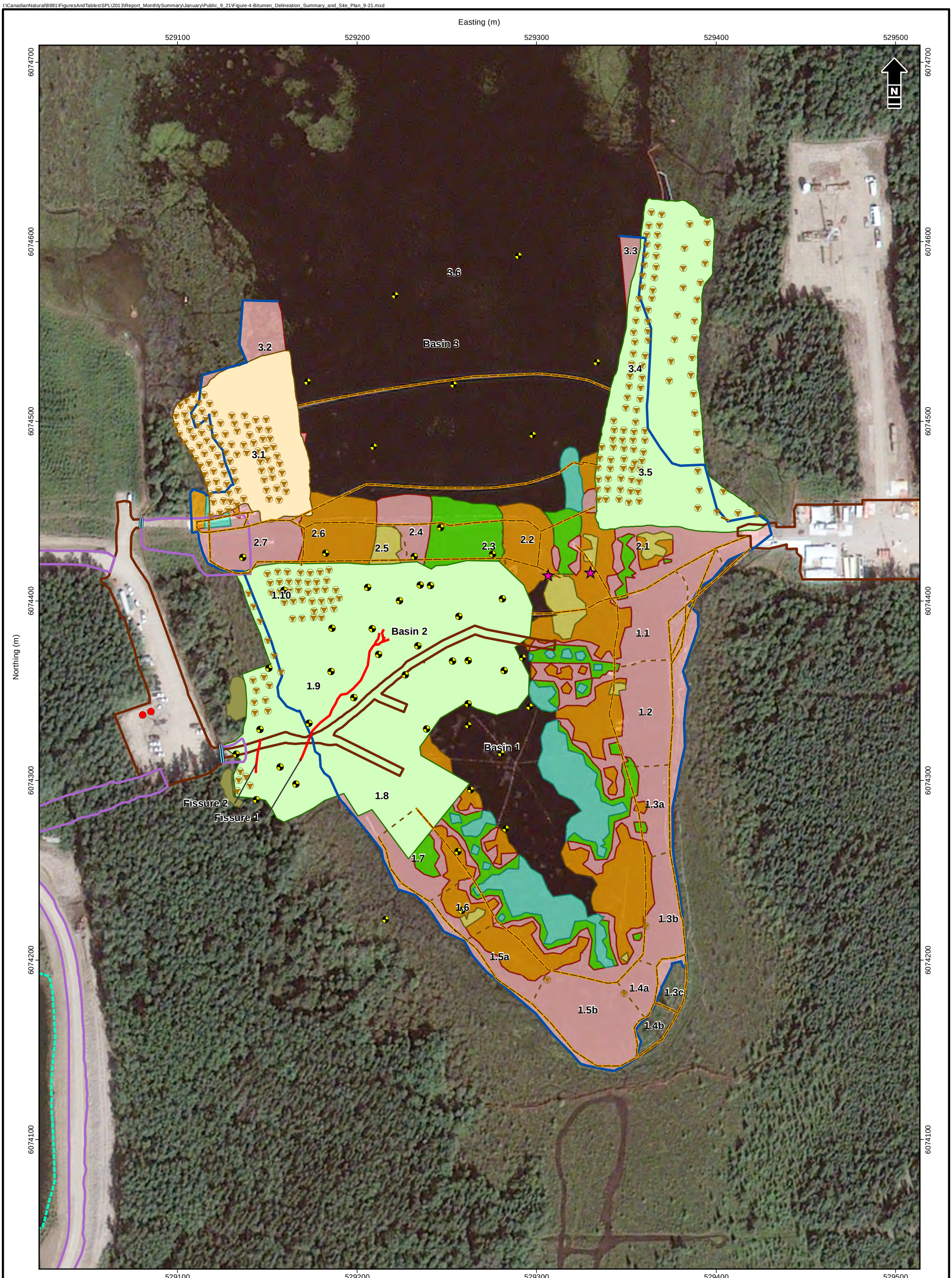

Scraped to 30cm
Excavation to Clay
Potentially clean peat
Old Borrow Area

Recommended Removal Option

1 - Manual Soil Removal and Full Vegetation Removal
2 - Manual Soil Removal and Partial Vegetation Removal
3 - Mechanical Soil Removal and Full Vegetation Removal
4 - Mechanical Soil Removal and Partial Vegetation Removal
5 - No Remediation Required

Access
Rig Matting
Boom
Gate
Exposed fissure
Silt Fence
Edge of Bitumen Emulsion Survey Assessment

Piling
Borehole
Baseline Floor Sample
Excavation Floor Sample

Scraped to 30cm - 5,102 m^2
Excavation to Clay - 28,656 m^2

Note: Removal Option Numbers (1 through 5) are described in Table 1 and presented in Appendix A.

1:2,000
m
20 0 20 40
NAD 1983 UTM Zone 12N

Reference: Imagery obtained from client (September 2013).

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Bitumen Delineation Summary and Site Plan

Date:	Project:	Technical:	Reviewer:	Drawn:
27 Jan 2014	8881-523	A. Ward	P. Hum	R. Keller

Figure 4

APPENDIX A
DEWATERING DATA

Appendix A1: Daily Flow Volumes

CNRL Primrose 09-21 Water Body: Dewatering Phase

Date	Daily Total Discharge (m^3/day)	Cumulative Pumped (m^3)	Daily Total Discharge m^3/day	Cumulative Pumped (m^3)	Daily Total Discharge m^3/day	Cumulative Pumped (m^3)	Daily Volume from Water Body (m^3/day)	Cumulative Total from Water Body (m^3)
	Basin 1		Basin 2		Basin 3			
Design Rate:	**5,800**	-	**430**	-	**15,000**	-	**21,230**	
27-Sep-13	838	838	180	180	375	375	1,393	1,393
28-Sep-13	5,277	6,115	1,184	1,364	5,431	5,806	11,892	13,285
29-Sep-13	2,830	8,945	450	1,814	7,072	12,878	10,352	23,637
30-Sep-13	3,696	12,641	124	1,938	8,767	21,645	12,587	36,224
01-Oct-13	4,242	16,883	399	2,337	12,618	34,263	17,259	53,483
02-Oct-13	5,388	22,271	524	2,861	12,120	46,383	18,032	71,515
03-Oct-13	6,336	28,607	414	3,275	11,180	57,563	17,930	89,445
04-Oct-13	4,832	33,439	213	3,488	10,858	68,421	15,903	105,348
05-Oct-13	3,954	37,393	455	3,943	9,713	78,134	14,122	119,470
06-Oct-13	5,190	42,583	462	4,405	18,515	96,649	24,167	143,637
07-Oct-13	3,856	46,439	475	4,880	20,754	117,403	25,085	168,722
08-Oct-13	3,516	49,955	538	5,418	24,084	141,487	28,138	196,860
09-Oct-13	4,970	54,925	468	5,886	23,992	165,479	29,430	226,290
10-Oct-13	5,940	60,865	160	6,046	22,813	188,292	28,913	255,203
11-Oct-13	5,588	66,453	1,194	7,240	22,026	210,318	28,808	284,011
12-Oct-13	5,122	71,575	2,041	9,281	22,665	232,983	29,828	313,839
13-Oct-13	6,117	77,692	1,142	10,423	22,400	255,383	29,659	343,498
14-Oct-13	2,110	79,802	0	10,423	15,453	270,836	17,563	361,061
15-Oct-13	0	79,802	0	10,423	11,198	282,034	11,198	372,259
16-Oct-13	1,201	81,003	0	10,423	7,010	289,044	8,211	380,470
17-Oct-13	676	81,679	0	10,423	1,900	290,944	2,576	383,046
18-Oct-13	615	82,294	0	10,423	3,660	294,604	4,275	387,321
19-Oct-13	873	83,167	0	10,423	4,261	298,865	5,134	392,455
20-Oct-13	704	83,871	0	10,423	4,729	303,594	5,433	397,888
21-Oct-13	577	84,448	0	10,423	3,716	307,310	4,293	402,181
22-Oct-13	233	**84,681**	0	**10,423**	1,964	**309,274**	2,197	**404,378**

APPENDIX B

WATER QUALITY DATA – WATER BODIES AND WATERCOURSES

APPENDIX B1.

WATER QUALITY RESULTS - WATER BODIES AND WATERCOURSES

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1[††] C_6-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Chloride mg/L	TSS mg/L	Turbidity NTU
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	24-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.1	<0.2	<0.2	---	---	---
13-SW16	Downstream Fen Upstream of Ken Baker Road	20	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	6.0	---	---
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	20	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	6.1	---	---
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	28-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6.7	---	---
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	6.9	89	32
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	30-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	6.6	17	14
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	30-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6.3	3.3	7.5
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	01-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	6.3	6.7	9.4
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	01-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	6.3	6.7	11
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	02-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6.1	21	12
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	02-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6.2	3.3	7.4
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6	6	5
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6	<1.0	5.4
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	5.9	3.3	5.7
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	5.8	3.3	6.6
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6.1	4.7	8.5
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6.1	6.7	8.3
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	6.6	21	10
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	0.46	<0.20	6.7	53	21
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	6.9	5.3	9
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	6.5	16	1.5
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	6.8	66	16
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	09-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	0.22	6.8	33	20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	09-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	6.8	1.3	9.8
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	10-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.17	0.33	<0.20	6.8	2	10
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	10-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	6.7	2.7	11
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	11-Oct-13	<0.0004	<0.002	<0.0004	<0.004	0.57	0.2	0.41	0.24	6.9	11	9.9
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	12-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	6	1.3	7.9
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	13-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.12	0.55	<0.26	6.6	3.3	8.7
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	14-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	6.4	9.3	11
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	6.3	4.7	12
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	16-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	3.8	5.3	3.7
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	16-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	4.3	6.7	5.1
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	17-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	3.7	1.3	1.1
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	18-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	4.3	1.3	2.2
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	19-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	4.6	3.3	2.3
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	20-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	3.6	3.3	3.4
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	21-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	3.6	2.7	1.4
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	22-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	4.3	17	6.2
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	4.1	3.3	2.6
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	29-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	4	2.7	1.4
13-SW26	Downstream Fen Upstream of Pad 21	10	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	---	---	---	---	---	---
13-SW26	Downstream Fen Upstream of Pad 21	---	30-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	8.5	210	54
13-SW26	Downstream Fen Upstream of Pad 21	---	01-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	3.4	290	100
13-SW26	Downstream Fen Upstream of Pad 21	---	02-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3.9	47	9.4
13-SW26	Downstream Fen Upstream of Pad 21	---	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3.4	6.7	2.7
13-SW26	Downstream Fen Upstream of Pad 21	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	2.3	4.7	2.8
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3	15	11
13-SW26	Downstream Fen Upstream of Pad 21	---	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	4.1	6.7	3.1
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3.9	4.7	2.3
13-SW26	Downstream Fen Upstream of Pad 21	---	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	0.2	<0.20	1.7	15	6.5
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.5	4	1.2
13-SW26	Downstream Fen Upstream of Pad 21	---	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.8	2	0.95
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.8	2	1.9
13-SW26	Downstream Fen Upstream of Pad 21	---	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.8	11	4.7
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.12	<0.20	<0.20	1.6	3.3	1.5
AENV Freshwater Aquatic Life[a]				**0.370**	**0.002**	**0.09**	**0.2**	**NS**	**NS**	**NS**	**NS**	**120**	**NS**	**NS**

APPENDIX B1.

WATER QUALITY RESULTS - WATER BODIES AND WATERCOURSES

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1[††] C_6-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Chloride mg/L	TSS mg/L	Turbidity NTU
13-SW26	Downstream Fen Upstream of Pad 21	---	09-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.5	8.7	2.6
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	09-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.7	8.7	3
13-SW26	Downstream Fen Upstream of Pad 21	---	10-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.2	7.3	2.8
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	10-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.7	36	19
13-SW26	Downstream Fen Upstream of Pad 21	---	11-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.15	0.24	<0.20	1.5	6	1
13-SW26	Downstream Fen Upstream of Pad 21	---	12-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.2	<1.0	0.7
13-SW26	Downstream Fen Upstream of Pad 21	---	13-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.17	0.27	0.38	1.3	49	14
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	13-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.17	<0.27	<0.38	1.1	51	17
13-SW26	Downstream Fen Upstream of Pad 21	---	14-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1	10	2.9
13-SW26	Downstream Fen Upstream of Pad 21	---	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.7	6.7	7.7
13-SW26	Downstream Fen Upstream of Pad 21	---	16-Oct-13	<0.00040	***0.0022***	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	4	1.6
13-SW26	Downstream Fen Upstream of Pad 21	---	17-Oct-13	<0.00040	***0.0045***	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	2	3.3	1.8
13-SW26	Downstream Fen Upstream of Pad 21	---	18-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.3	8	2.8
13-SW26	Downstream Fen Upstream of Pad 21	---	19-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	3.0	21	4.5
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	19-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	3.4	25	14
13-SW26	Downstream Fen Upstream of Pad 21	---	20-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	2.8	6	2.9
13-SW26	Downstream Fen Upstream of Pad 21	---	21-Oct-13	<0.0004	***0.0052***	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	3	220	30
13-SW26	Downstream Fen Upstream of Pad 21	---	22-Oct-13	<0.0004	***0.0029***	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3.1	33	7
13-SW26	Downstream Fen Upstream of Pad 21	---	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	3.1	29	4.1
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	3.1	4.7	1.4
13-SW7	Basin 1	50	25-Sep-13	0.00041	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW7	Basin 1	110	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW7 dup	Basin 1	110	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW7	Basin 1	---	28-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.1	---	---
13-SW7	Basin 1	---	28-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	0.14	<0.20	<0.20	1.2	---	---
13-SW7 dup	Basin 1	---	28-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	2.8	---	---
13-SW7	Basin 1	---	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW7	Basin 1	---	30-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.6	4	2.2
13-SW7	Basin 1	---	30-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
13-SW7	Basin 1	---	01-Oct-13	0.0022	***0.0079***	0.0021	0.012	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.5
13-SW7	Basin 1	---	02-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	1.3	0.97
13-SW7	Basin 1	---	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	2.7	0.69
13-SW7	Basin 1	---	04-Oct-13	0.00043	0.0011	<0.0004	0.0015	<0.1	<0.10	<0.20	<0.20	<1.0	2	0.66
13-SW7	Basin 1	---	05-Oct-13	<0.0004	0.00096	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.66
13-SW7	Basin 1	50	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1	2	0.64
13-SW7	Basin 1	50	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.4	1.3	0.77
13-SW7	Basin 1	50	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.4	6	0.74
13-SW7 dup	Basin 1	---	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.13	<0.20	<0.20	6.7	7.3	9.7
13-SW22	Basin 1	50	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW22	Basin 1	100	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	0.23	<0.20	<1.0	---	---
13-SW22	Basin 1	---	28-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW22	Basin 1	---	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW22	Basin 1	---	30-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	2.7	1.3
13-SW22	Basin 1	---	01-Oct-13	<0.0004	<0.002	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	1.3	0.51
13-SW22	Basin 1	---	02-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	2.7	0.61
13-SW22	Basin 1	---	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	2	1.5
13-SW22	Basin 1	---	04-Oct-13	<0.0004	0.00049	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.49
13-SW22	Basin 1	---	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	2.7	0.59
13-SW22	Basin 1	50	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.65
13-SW22	Basin 1	50	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.5	3.3	0.88
13-SW22	Basin 1	50	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	2	1.7
13-SW23	Basin 1	---	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	0.14	<0.10	<0.20	<0.20	<1.0	---	0.47
AENV Freshwater Aquatic Life[a]				**0.370**	**0.002**	**0.09**	**0.2**	**NS**	**NS**	**NS**	**NS**	**120**	**NS**	**NS**

APPENDIX B1.

WATER QUALITY RESULTS - WATER BODIES AND WATERCOURSES

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1 $^{\dagger\dagger}C_6$-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Chloride mg/L	TSS mg/L	Turbidity NTU
13-SW31	Basin 3	50	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW31	Basin 3	130	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW31	Basin 3	---	28-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW31	Basin 3	---	28-Sep-13	0.0005	***0.0021***	0.00042	0.0026	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW31	Basin 3	---	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW31	Basin 3	---	30-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	2.7	1.6
13-SW31	Basin 3	---	01-Oct-13	<0.00040	0.00045	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.7
13-SW31 dup	Basin 3	---	01-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	5.3	1.7
13-SW31	Basin 3	---	02-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	6	0.51
13-SW31	Basin 3	---	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	2.7	0.6
13-SW31	Basin 3	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.48
13-SW31	Basin 3	---	05-Oct-13	<0.0004	0.0012	<0.0004	0.00095	<0.1	<0.10	<0.20	<0.20	<1.0	7.3	1.2
13-SW31	Basin 3	50	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	7.3	1.2
13-SW31	Basin 3	50	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	---	---	---
13-SW31	Basin 3	50	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	2	0.43
13-SW12	Basin 4	surface	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	2	---
13-SW12	Basin 4	depth	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW12	Basin 4	---	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW12	Basin 4	---	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW12	Basin 4	---	30-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	1.3	0.99
13-SW12	Basin 4	---	01-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	20	7.8
13-SW12	Basin 4	---	02-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	22	0.63
13-SW12	Basin 4	---	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	1.3	0.5
13-SW12	Basin 4	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	2	0.76
13-SW12	Basin 4	---	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.64
13-SW12	Basin 4	50	06-Oct-13	<0.0004	<0.002	0.00055	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	15	2.1
13-SW12	Basin 4	50	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.1	13	1.3
13-SW12	Basin 4	50	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.14	<0.20	<0.20	1.1	<1.0	0.67
13-SW12	Basin 4	---	09-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.0	<1.0	0.43
13-SW12	Basin 4	---	10-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.56
13-SW12	Basin 4	---	11-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.2	0.42	0.24	<1.0	2.7	0.5
13-SW12	Basin 4	---	12-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.16	0.28	<0.20	<1.0	<1.0	0.53
13-SW12	Basin 4	---	13-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.11	0.55	0.2	<1.0	<1.0	0.58
13-SW12	Basin 4	---	14-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	4.0	0.64
13-SW12	Basin 4	---	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	1.3	0.66
13-SW12	Basin 4	---	16-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	2.7	0.57
13-SW12	Basin 4	---	17-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	3.3	0.73
13-SW12	Basin 4	---	18-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	2.0	1.2
13-SW12	Basin 4	---	19-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.77
13-SW12	Basin 4	---	20-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.54
13-SW12	Basin 4	---	21-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.88
13-SW12	Basin 4	---	22-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	1.1
13-SW12	Basin 4	---	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	1.1	11	2.8
13-SW42	Discharge Fen Upstream of Wolf River		29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.9	---	---
13-SW42	Discharge Fen Upstream of Wolf River	---	30-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.7	8	17
13-SW42	Discharge Fen Upstream of Wolf River	---	01-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	2.2	17	50
13-SW42	Discharge Fen Upstream of Wolf River	---	02-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	2.3	2	11
13-SW42	Discharge Fen Upstream of Wolf River	---	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	2.1	4	11
13-SW42	Discharge Fen Upstream of Wolf River	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.9	6	14
13-SW42	Discharge Fen Upstream of Wolf River	---	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.9	6.7	15
13-SW42	Discharge Fen Upstream of Wolf River	---	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.2	6	13
13-SW42	Discharge Fen Upstream of Wolf River	---	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.2	4	10
13-SW42	Discharge Fen Upstream of Wolf River	---	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.1	5.3	18
13-SW42	Discharge Fen Upstream of Wolf River	---	09-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.9	2	10
AENV Freshwater Aquatic Life[a]				**0.370**	**0.002**	**0.09**	**0.2**	**NS**	**NS**	**NS**	**NS**	**120**	**NS**	**NS**

APPENDIX B1.

WATER QUALITY RESULTS - WATER BODIES AND WATERCOURSES

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1[††] C_6-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Chloride mg/L	TSS mg/L	Turbidity NTU
13-SW42	Discharge Fen Upstream of Wolf River	---	10-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.8	31	45
13-SW42	Discharge Fen Upstream of Wolf River	---	11-Oct-13	<0.0004	<0.002	<0.0004	<0.004	0.26	<0.10	0.28	<0.20	2.1	210	56
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	11-Oct-13	<0.0004	<0.002	<0.0004	<0.004	0.31	<0.10	0.2	<0.20	1.9	190	130
13-SW42	Discharge Fen Upstream of Wolf River	---	12-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.2	22	32
13-SW42	Discharge Fen Upstream of Wolf River	---	13-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.1	33	31
13-SW42	Discharge Fen Upstream of Wolf River	---	14-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.6	3.3	11
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	14-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.15	0.31	<0.20	1.7	6	14
13-SW42	Discharge Fen Upstream of Wolf River	---	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.7	4	14
13-SW42	Discharge Fen Upstream of Wolf River	---	16-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.3	14	21
13-SW42	Discharge Fen Upstream of Wolf River	---	16-Oct-13	<0.001	<0.001	<0.001	<0.001	<0.20	<0.20	<0.1	<0.1	1.8	21	39.8
13-SW42	Discharge Fen Upstream of Wolf River	---	17-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2	9.3	24
13-SW42	Discharge Fen Upstream of Wolf River	---	18-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.1	23	28
13-SW42	Discharge Fen Upstream of Wolf River	---	19-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.9	10	21
13-SW42	Discharge Fen Upstream of Wolf River	---	20-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	0.12	0.62	<0.20	1.7	3.3	11
13-SW42	Discharge Fen Upstream of Wolf River	---	21-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.7	47	46
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	21-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.8	16	23
13-SW42	Discharge Fen Upstream of Wolf River	---	22-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.3	4.7	13
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	22-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.4	4.7	12
13-SW42	Discharge Fen Upstream of Wolf River	---	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	2.1	3.3	9.8
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	2.1	10	20
13-SW42	Discharge Fen Upstream of Wolf River	---	29-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	2	10	25
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	29-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	2	19	32
13-SW43	Wolf River Downstream	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	1.3	1.5
13-SW43	Wolf River Downstream	---	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	4.7	2
13-SW43	Wolf River Downstream	---	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	11	2.2
13-SW43	Wolf River Downstream	---	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.6	4	1.8
13-SW43	Wolf River Downstream	---	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	1.5
13-SW43	Wolf River Downstream	---	20-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	4.7	1.7
13-SW44	Wolf River Upstream	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	4	1.2
13-SW44	Wolf River Upstream	---	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	2	1
13-SW44	Wolf River Upstream	---	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.1	<1.0	1.2
13-SW44	Wolf River Upstream	---	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.6	1.3	1
13-SW44	Wolf River Upstream	---	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.1	<1.0	1
13-SW44	Wolf River Upstream	---	20-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	1.3
13-SW27	Downstream Fen Downstream of Pad 21	---	12-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	0.27	<0.20	2.9	7.3	8.6
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	12-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.5	5.3	8.9
13-SW27	Downstream Fen Downstream of Pad 21	---	13-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.17	<0.27	<0.38	2	37	11
13-SW27	Downstream Fen Downstream of Pad 21	---	14-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.18	0.35	0.22	1.7	8.7	8.1
13-SW27	Downstream Fen Downstream of Pad 21	---	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.1	66	12
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.4	4.7	1.8
13-SW27	Downstream Fen Downstream of Pad 21	---	16-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	2.1	10	7.3
13-SW27	Downstream Fen Downstream of Pad 21	---	17-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	2.3	77	23
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	17-Oct-13	<0.00040	***0.0047***	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.7	25	7.3
13-SW27	Downstream Fen Downstream of Pad 21	---	18-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.3	6	7.4
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	18-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.5	11	8.3
13-SW27	Downstream Fen Downstream of Pad 21	---	19-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	2.6	6.7	8.2
13-SW27	Downstream Fen Downstream of Pad 21	---	20-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	2.6	12	9.1
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	20-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	2.1	6	7.6
13-SW27	Downstream Fen Downstream of Pad 21	---	21-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.7	67	19
13-SW27	Downstream Fen Downstream of Pad 21	---	22-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	2.7	37	8.3
13-SW27	Downstream Fen Downstream of Pad 21	---	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	2.6	4	7.7
AENV Freshwater Aquatic Life[a]				**0.370**	**0.002**	**0.09**	**0.2**	**NS**	**NS**	**NS**	**NS**	**120**	**NS**	**NS**

APPENDIX B1.

WATER QUALITY RESULTS - WATER BODIES AND WATERCOURSES

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1[††] C_6-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Chloride mg/L	TSS mg/L	Turbidity NTU
13-SW39	Downstream Fen West of Ken Baker Road	---	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	18	6	4.2
13-SW39	Downstream Fen West of Ken Baker Road	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	18	2	1.6
13-SW39	Downstream Fen West of Ken Baker Road	---	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	18	71	27
13-SW39	Downstream Fen West of Ken Baker Road	---	17-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	6.3	290	56
13-SW39	Downstream Fen West of Ken Baker Road	---	18-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	7.2	51	12
13-SW39	Downstream Fen West of Ken Baker Road	---	19-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	7.1	300	48
13-SW39	Downstream Fen West of Ken Baker Road	---	20-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	4.6	1.3	3
13-SW39	Downstream Fen West of Ken Baker Road	---	21-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	4.7	78	18
13-SW39	Downstream Fen West of Ken Baker Road	---	22-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	4.9	49	9.6
13-SW39	Downstream Fen West of Ken Baker Road	---	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	5.5	4.7	3.2
13-SW39	Downstream Fen West of Ken Baker Road	---	29-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	4.2	1.3	2
13-SW39	Downstream Fen West of Ken Baker Road	---	05-Nov-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	2.9	---	---
13-SW46	NE Control Lake	---	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	9.3	---
13-SW47	Borrow Pit	---	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	---
13-DP1	Drive point southwest of Pad 21		28-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.71	<1.4	<1.4	4.2	550	250
13-DP1	Drive point southwest of Pad 21	---	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	---	---	---
13-DP1	Drive point southwest of Pad 21	175	30-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	---	---	---	---	---	---
13-DP1	Drive point southwest of Pad 21	---	01-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	---	---	---
13-DP1	Drive point southwest of Pad 21	126	02-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6.5	1200	190
13-DP1	Drive point southwest of Pad 21	---	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	---	---	---
13-DP1	Drive point southwest of Pad 21	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.71	<1.4	<1.4	4.9	540	780
13-DP1	Drive point southwest of Pad 21	138	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	---	---	---
13-DP1	Drive point southwest of Pad 21	150	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.10	<0.10	<0.20	<0.20	---	---	---
13-DP1	Drive point southwest of Pad 21	158	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	---	---	---
13-DP1	Drive point southwest of Pad 21	164	08-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	---	---	---
13-DP1	Drive point southwest of Pad 21	---	09-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	---	---	---	---	---	---
13-DP1	Drive point southwest of Pad 21	---	10-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	---	---	---	---	---	---
13-DP1	Drive point southwest of Pad 21	---	13-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	4.1	650	240
13-DP1	Drive point southwest of Pad 21	---	14-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	3.3	350	290
13-DP1	Drive point southwest of Pad 21	---	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	3.6	770	390
13-DP1	Drive point southwest of Pad 21	---	16-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	3.3	430	570
13-DP1	Drive point southwest of Pad 21	---	17-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	3.7	1500	1200
13-DP1	Drive point southwest of Pad 21	---	19-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	3.8	350	130
13-DP1	Drive point southwest of Pad 21	---	20-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	2.8	290	400
13-DP1	Drive point southwest of Pad 21	---	21-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	3	780	590
13-DP1	Drive point southwest of Pad 21	---	22-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3.7	870	250
13-DP1	Drive point southwest of Pad 21	---	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	3.6	730	430
13-DP2	Drive point SW of Basin 4		28-Sep-13	<0.0004	0.0015	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	5.7	4600	<0.10
13-DP2	Drive point SW of Basin 4		29-Sep-13	<0.0004	0.00057	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3.4	---	<0.10
13-DP2	Drive point SW of Basin 4	---	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	4.2	3000	<0.10
13-DP2	Drive point SW of Basin 4	191	30-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	---	---	---	---	---	---
13-DP2	Drive point SW of Basin 4	---	01-Oct-13	<0.0004	0.0007	<0.0004	<0.0008	<0.1	<0.77	<1.6	<1.6	3.6	---	---
13-DP2	Drive point SW of Basin 4	205	02-Oct-13	<0.0004	<0.64	<0.0004	<0.0008	<0.1	---	---	---	---	---	---
13-DP2	Drive point SW of Basin 4	134	08-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3.4	170	160
13-DP2	Drive point SW of Basin 4	---	15-Oct-13	<0.0004	<0.0020	<0.0004	<0.0040	<0.1	<0.10	0.26	<0.20	1.3	97	27
13-DP2	Drive point SW of Basin 4	Exova	15-Oct-13	<0.001	<0.001	<0.001	<0.001	<0.20	<0.20	<0.1	<0.1	0.9	120	49.7
13-DP2	Drive point SW of Basin 4	---	18-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	3.5	890	810
13-DP2	Drive point SW of Basin 4	---	22-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.7	75	35
13-DP2 dup	Drive point SW of Basin 4	---	22-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.5	74	30
AENV Freshwater Aquatic Life[a]				**0.370**	**0.002**	**0.09**	**0.2**	**NS**	**NS**	**NS**	**NS**	**120**	**NS**	**NS**

APPENDIX B1.

WATER QUALITY RESULTS - WATER BODIES AND WATERCOURSES

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1[††] C_6-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Chloride mg/L	TSS mg/L	Turbidity NTU
13-DP3	Drive point S of Basin 3 near E Ladder Road		28-Sep-13	<0.0004	***0.0033***	<0.0004	<0.0008	<0.1	<0.10	0.25	<0.20	2.7	---	<0.10
13-DP3	Drive point S of Basin 3 near E Ladder Road	---	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2	---	<0.10
13-DP3	Drive point S of Basin 3 near E Ladder Road	87	30-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.2	2000	970
13-DP3	Drive point S of Basin 3 near E Ladder Road	---	30-Sep-13	<0.0004	0.0010	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.9	700	63
13-DP3	Drive point S of Basin 3 near E Ladder Road	---	01-Oct-13	<0.0004	0.00089	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.2	560	280
13-DP3	Drive point S of Basin 3 near E Ladder Road	96	02-Oct-13	<0.0004	0.00057	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.2	590	61
13-DP3	Drive point S of Basin 3 near E Ladder Road	115	08-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.9	380	180
13-DP3	Drive point S of Basin 3 near E Ladder Road	---	15-Oct-13	<0.0004	<0.0020	<0.0004	<0.0040	<0.1	<0.10	<0.20	<0.20	---	---	---
13-DP3	Drive point S of Basin 3 near E Ladder Road	---	22-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	---	---	---	---	---	---
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	28-Sep-13	<0.0004	0.0014	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3.4	---	<0.10
13-DP4 dup	Drive point N of Basin 3 near E Ladder Road	---	28-Sep-13	<0.0004	0.0011	<0.0004	<0.0008	<0.1	<0.10	0.24	<0.20	3	---	<0.10
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.9	740	270
13-DP4	Drive point N of Basin 3 near E Ladder Road	75	30-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.2	400	140
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	01-Oct-13	<0.0004	0.0014	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	490	300
13-DP4 dup	Drive point N of Basin 3 near E Ladder Road	---	01-Oct-13	<0.0004	0.0016	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.1	450	270
13-DP4	Drive point N of Basin 3 near E Ladder Road	82	02-Oct-13	<0.0004	0.0014	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	1400	69
13-DP4 dup	Drive point N of Basin 3 near E Ladder Road	---	02-Oct-13	---	---	---	---	---	---	---	---	1.5	3300	250
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	2.7	0.79
13-DP4	Drive point N of Basin 3 near E Ladder Road	117	08-Oct-13	<0.0004	0.0012	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.8	160	190
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	15-Oct-13	<0.0004	<0.002	<0.0004	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	800	550
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	22-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.8	220	44
13-DP4	Drive point N of Basin 3 near E Ladder Road	140	29-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	63	26
13-DP4	Drive point N of Basin 3 near E Ladder Road	1315	05-Nov-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	12-Nov-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	19-Nov-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	---	---	---	---	---	---
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	26-Nov-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	---	---	---	---	---	---
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	03-Dec-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	---	---	---	---	---	---
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	03-Dec-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	---	---	---	---	---	---
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	04-Dec-13	---	---	---	---	---	<0.10	<0.20	<0.20	<1.0	---	---
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	10-Dec-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	17-Dec-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	19-Dec-14	---	---	---	---	---	---	---	---	<1.0	44	11
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	06-Jan-14	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	18	14
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	14-Jan-14	<0.00040	0.00056	<0.00040	<0.00080	<0.1	<0.15	<0.30	<0.30	<1.0	86	30
13-DP5	Drive point W side of Basin 3	---	28-Sep-13	<0.0004	***0.16***	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6.7	51000	<0.10
13-DP5	Drive point W side of Basin 3	---	29-Sep-13	<0.0004	***0.220***	0.0006	<0.004	<0.1	<0.10	<0.20	<0.20	5.5	1400	620
13-DP5	Drive point W side of Basin 3	85	30-Sep-13	<0.00040	***0.150***	0.0005	<0.0040	<0.1	<0.10	<0.20	<0.20	4.5	830	360
13-DP5	Drive point W side of Basin 3	---	01-Oct-13	<0.0004	***0.100***	0.00045	<0.0008	<0.1	<0.10	<0.20	<0.20	4.8	840	550
13-DP5	Drive point W side of Basin 3	91	02-Oct-13	<0.0004	***0.025***	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	4.5	410	490
13-DP5	Drive point W side of Basin 3	110	08-Oct-13	<0.0004	***0.003***	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	---	---	---
13-DP5	Drive point W side of Basin 3	---	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	---	---	---
13-DP5	Drive point W side of Basin 3	---	22-Oct-13	<0.0004	0.00065	<0.0004	<0.0008	<0.1	---	---	---	---	---	---
13-DP6	Drive point S side of Basin 3	---	28-Sep-13	<0.0004	***0.08***	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	16	1000	2700
13-DP6	Drive point S side of Basin 3	---	29-Sep-13	<0.0004	***0.0026***	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.8	130	63
13-DP6	Drive point S side of Basin 3	78	30-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.5	200	64
13-DP6	Drive point S side of Basin 3	---	01-Oct-13	<0.0004	0.0013	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.8	100	37
13-DP6	Drive point S side of Basin 3	105	02-Oct-13	<0.0004	0.0018	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	2	67	16
13-DP6	Drive point S side of Basin 3	98	08-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3.7	52	59
13-DP6	Drive point S side of Basin 3	---	15-Oct-13	<0.00040	<0.0020	<0.0004	<0.0040	<0.1	<0.10	<0.20	<0.20	2	240	120
13-DP6	Drive point S side of Basin 3	---	22-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	2.6	29	15
13-DP6	Drive point S side of Basin 3	108	29-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	2.3	78	32
AENV Freshwater Aquatic Life[a]				**0.370**	**0.002**	**0.09**	**0.2**	**NS**	**NS**	**NS**	**NS**	**120**	**NS**	**NS**

APPENDIX B1.

WATER QUALITY RESULTS - WATER BODIES AND WATERCOURSES

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1 $^{\dagger\dagger}C_6$-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Chloride mg/L	TSS mg/L	Turbidity NTU
13-DP7	Drive point E side of Basin 3	---	28-Sep-13	<0.0004	***0.018***	<0.0004	<0.0008	<0.1	0.14	<0.20	<0.20	5.1	---	<0.10
13-DP7	Drive point E side of Basin 3	---	29-Sep-13	<0.0004	***0.010***	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	4.3	1000	990
13-DP7	Drive point E side of Basin 3	101	30-Sep-13	<0.00040	***0.008***	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	3.3	340	230
13-DP7	Drive point E side of Basin 3	---	01-Oct-13	<0.0004	***0.010***	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3.3	950	510
13-DP7	Drive point E side of Basin 3	104	02-Oct-13	<0.0004	0.002	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3.6	770	260
13-DP7	Drive point E side of Basin 3	120	08-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	4.2	---	460
13-DP7	Drive point E side of Basin 3	---	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	2.4	40	59
13-DP7	Drive point E side of Basin 3	---	22-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	---	---	---	---	---	---
13-DP7	Drive point E side of Basin 3	225	29-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.11	<0.23	<0.23	---	---	---
Minimal Detection Limit				**0.0004**	**0.002**	**0.0004**	**0.004**	**0.1**	**0.1**	**0.2**	**0.2**	**1**	**1**	**0.1**
AENV Freshwater Aquatic Life[a]				**0.370**	**0.002**	**0.09**	**0.2**	**NS**	**NS**	**NS**	**NS**	**120**	**NS**	**NS**

Notes:

--- - not analyzed

NS - guideline not specified

* - Alberta Environment Surface Water Quality Guidelines for use in Alberta (AENV, 1999)

Italics - indicates values do not meet applicable guidelines

APPENDIX B2.

WATER QUALITY RESULTS - WATER BODIES AND WATERCOURSES

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Acenaphthene µg/L	Acenaphthylene µg/L	Acridine µg/L	Anthracene µg/L	Benz[a]anthracene µg/L	Benzo[b+j]fluoranthene µg/L	Benzo[k]fluoranthene µg/L	Benzo[g,h,i]perylene µg/L	Benzo[a]pyrene µg/L	Chrysene µg/L	Dibenz[a,h]anthracene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno[1,2,3-cd]pyrene µg/L	Naphthalene µg/L	Phenanthrene µg/L	Pyrene µg/L	Quinoline µg/L
13-SW16	Downstream Fen Upstream of Ken Baker Road	20	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	20	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	09-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	09-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	10-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	10-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	11-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	12-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	13-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	14-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	16-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	16-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	17-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	18-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	19-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	20-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	21-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	23-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	29-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
AENV Freshwater Aquatic Life*				**5.8^**	**NS**	**4.4^**	**0.012^**	**0.018^**	**NS**	**NS**	**NS**	**0.015^**	**NS**	**NS**	**0.015^**	**3^**	**NS**	**1.1^**	**0.4^**	**0.025^**	**3.4^**

APPENDIX B2.

WATER QUALITY RESULTS - WATER BODIES AND WATERCOURSES

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Acenaphthene µg/L	Acenaphthylene µg/L	Acridine µg/L	Anthracene µg/L	Benz[a]anthracene µg/L	Benzo[b+j]fluoranthene µg/L	Benzo[k]fluoranthene µg/L	Benzo[g,h,i]perylene µg/L	Benzo[a]pyrene µg/L	Chrysene µg/L	Dibenz[a,h]anthracene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno[1,2,3-cd]pyrene µg/L	Naphthalene µg/L	Phenanthrene µg/L	Pyrene µg/L	Quinoline µg/L
13-SW26	Downstream Fen Upstream of Pad 21	---	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	09-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	09-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	10-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	10-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	11-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	12-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	13-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	13-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	14-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	16-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	17-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	18-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	19-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	19-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	20-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	21-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26	Downstream Fen Upstream of Pad 21	---	23-Oct-13	<0.12	<0.12	<0.24	<0.012	<0.010	<0.010	<0.010	<0.010	<0.0089	<0.010	<0.0089	<0.012	<0.060	<0.010	<0.12	<0.060	<0.024	<0.24
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	23-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7	Basin 1	50	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.13	<0.050	<0.020	<0.20
13-SW7	Basin 1	110	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7 dup	Basin 1	110	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7	Basin 1	---	28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7 dup	Basin 1	---	28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7	Basin 1	---	28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7	Basin 1	---	29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	0.015	<0.0085	<0.0085	<0.030	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7	Basin 1	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.26	<0.050	<0.020	<0.20
13-SW7 dup	Basin 1	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7	Basin 1	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.32	<0.050	<0.020	<0.20
13-SW7	Basin 1	---	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7	Basin 1	---	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	0.019	<0.0075	<0.010	<0.050	<0.0085	<0.10	0.054	<0.020	<0.20
13-SW7	Basin 1	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.18	<0.050	<0.020	<0.20
13-SW7	Basin 1	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.011	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7	Basin 1	50	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7	Basin 1	50	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7	Basin 1	50	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7 dup	Basin 1	50	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW22	Basin 1	50	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW22	Basin 1	100	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW22	Basin 1		28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW22	Basin 1		29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW22	Basin 1	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW22	Basin 1	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.11	<0.050	<0.020	<0.20
AENV Freshwater Aquatic Life*				**5.8^**	**NS**	**4.4^**	**0.012^**	**0.018^**	**NS**	**NS**	**NS**	**0.015^**	**NS**	**NS**	**0.015^**	**3^**	**NS**	**1.1^**	**0.4^**	**0.025^**	**3.4^**

APPENDIX B2.

WATER QUALITY RESULTS - WATER BODIES AND WATERCOURSES

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Acenaphthene µg/L	Acenaphthylene µg/L	Acridine µg/L	Anthracene µg/L	Benz[a]anthracene µg/L	Benzo[b+j]fluoranthene µg/L	Benzo[k]fluoranthene µg/L	Benzo[g,h,i]perylene µg/L	Benzo[a]pyrene µg/L	Chrysene µg/L	Dibenz[a,h]anthracene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno[1,2,3-cd]pyrene µg/L	Naphthalene µg/L	Phenanthrene µg/L	Pyrene µg/L	Quinoline µg/L
13-SW22	Basin 1	---	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW22	Basin 1	---	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW22	Basin 1	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.12	<0.050	<0.020	<0.20
13-SW22	Basin 1	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW22	Basin 1	50	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW22	Basin 1	50	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW22	Basin 1	50	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW31	Basin 3	50	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW31	Basin 3	130	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW31	Basin 3	---	28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW31	Basin 3	---	28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW31	Basin 3	---	29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW31	Basin 3	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW31	Basin 3	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW31	Basin 3	---	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW31	Basin 3	---	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW31	Basin 3	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW31	Basin 3	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW31	Basin 3	50	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW31	Basin 3	50	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW31	Basin 3	50	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.011	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	surface	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	depth	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4		29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4		29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	50	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	50	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	50	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	09-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	10-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	11-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	12-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	13-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	14-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	16-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	17-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	18-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	19-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	20-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	21-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW12	Basin 4	---	23-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
AENV Freshwater Aquatic Life*				**5.8^**	**NS**	**4.4^**	**0.012^**	**0.018^**	**NS**	**NS**	**NS**	**0.015^**	**NS**	**NS**	**0.015^**	**3^**	**NS**	**1.1^**	**0.4^**	**0.025^**	**3.4^**

APPENDIX B2.

WATER QUALITY RESULTS - WATER BODIES AND WATERCOURSES

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Acenaphthene µg/L	Acenaphthylene µg/L	Acridine µg/L	Anthracene µg/L	Benz[a]anthracene µg/L	Benzo[b+j]fluoranthene µg/L	Benzo[k]fluoranthene µg/L	Benzo[g,h,i]perylene µg/L	Benzo[a]pyrene µg/L	Chrysene µg/L	Dibenz[a,h]anthracene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno[1,2,3-cd]pyrene µg/L	Naphthalene µg/L	Phenanthrene µg/L	Pyrene µg/L	Quinoline µg/L
13-SW42	Discharge Fen Upstream of Wolf River		29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	0.011	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	09-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	10-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	11-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	11-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	12-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	13-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	14-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	14-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	16-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	16-Oct-13	<0.1	<0.1	<0.1	<0.005	<0.01	<0.1	<0.1	<0.05	<0.008	<0.1	<0.05	<0.01	<0.1	<0.05	<0.1	<0.1	<0.01	<0.3
13-SW42	Discharge Fen Upstream of Wolf River	---	17-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	18-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	19-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	20-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	21-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	21-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	23-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	23-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42	Discharge Fen Upstream of Wolf River	---	29-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	29-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW43	Wolf River Downstream	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW43	Wolf River Downstream	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW43	Wolf River Downstream	---	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW43	Wolf River Downstream	---	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW43	Wolf River Downstream	---	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW43	Wolf River Downstream	---	20-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW44	Wolf River Upstream	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW44	Wolf River Upstream	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW44	Wolf River Upstream	---	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW44	Wolf River Upstream	---	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW44	Wolf River Upstream	---	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW44	Wolf River Upstream	---	20-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27	Downstream Fen Downstream of Pad 21	---	12-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	12-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27	Downstream Fen Downstream of Pad 21	---	13-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27	Downstream Fen Downstream of Pad 21	---	14-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
AENV Freshwater Aquatic Life*				**5.8^**	**NS**	**4.4^**	**0.012^**	**0.018^**	**NS**	**NS**	**NS**	**0.015^**	**NS**	**NS**	**0.015^**	**3^**	**NS**	**1.1^**	**0.4^**	**0.025^**	**3.4^**

APPENDIX B2.

WATER QUALITY RESULTS - WATER BODIES AND WATERCOURSES

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Acenaphthene µg/L	Acenaphthylene µg/L	Acridine µg/L	Anthracene µg/L	Benz[a]anthracene µg/L	Benzo[b+j]fluoranthene µg/L	Benzo[k]fluoranthene µg/L	Benzo[g,h,i]perylene µg/L	Benzo[a]pyrene µg/L	Chrysene µg/L	Dibenz[a,h]anthracene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno[1,2,3-cd]pyrene µg/L	Naphthalene µg/L	Phenanthrene µg/L	Pyrene µg/L	Quinoline µg/L
13-SW27	Downstream Fen Downstream of Pad 21	---	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27	Downstream Fen Downstream of Pad 21	---	16-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27	Downstream Fen Downstream of Pad 21	---	17-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	17-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27	Downstream Fen Downstream of Pad 21	---	18-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	18-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27	Downstream Fen Downstream of Pad 21	---	19-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27	Downstream Fen Downstream of Pad 21	---	20-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	20-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27	Downstream Fen Downstream of Pad 21	---	21-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27	Downstream Fen Downstream of Pad 21		22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27	Downstream Fen Downstream of Pad 21	---	23-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW39	Downstream Fen West of Ken Baker Road	---	03-Oct-13	<0.21	<0.21	<0.42	<0.021	<0.018	<0.018	<0.018	<0.018	<0.016	<0.018	<0.016	<0.021	<0.10	<0.018	<0.21	<0.10	<0.042	<0.42
13-SW39	Downstream Fen West of Ken Baker Road	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW39	Downstream Fen West of Ken Baker Road	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW39	Downstream Fen West of Ken Baker Road	---	17-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW39	Downstream Fen West of Ken Baker Road	---	18-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW39	Downstream Fen West of Ken Baker Road	---	19-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW39	Downstream Fen West of Ken Baker Road	---	20-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW39	Downstream Fen West of Ken Baker Road	---	21-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW39	Downstream Fen West of Ken Baker Road	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW39	Downstream Fen West of Ken Baker Road	---	23-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW39	Downstream Fen West of Ken Baker Road	---	29-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW39	Downstream Fen West of Ken Baker Road	---	05-Nov-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP1	Drive point southwest of Pad 21		28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.012	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP1	Drive point southwest of Pad 21	126	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.17	<0.050	<0.020	<0.20
13-DP1	Drive point southwest of Pad 21	---	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.18	<0.050	<0.020	<0.20
13-DP1	Drive point southwest of Pad 21	---	04-Oct-13	<0.32	<0.32	<0.64	<0.032	<0.027	<0.027	<0.027	<0.027	<0.024	<0.027	<0.024	<0.032	<0.16	<0.027	<0.32	<0.16	<0.064	<0.64
13-DP1	Drive point southwest of Pad 21	138	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.14	<0.050	<0.020	<0.20
13-DP1	Drive point southwest of Pad 21	---	13-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP1	Drive point southwest of Pad 21	---	14-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP1	Drive point southwest of Pad 21	---	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP1	Drive point southwest of Pad 21	---	16-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP1	Drive point southwest of Pad 21	---	17-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP1	Drive point southwest of Pad 21	---	19-Oct-13	<0.13	<0.13	<0.25	<0.013	<0.011	<0.011	<0.011	<0.011	<0.0094	<0.011	<0.0094	<0.013	<0.063	<0.011	<0.13	<0.063	<0.025	<0.25
13-DP1	Drive point southwest of Pad 21	---	20-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	0.01	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP1	Drive point southwest of Pad 21	---	21-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP1	Drive point southwest of Pad 21	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP1	Drive point southwest of Pad 21	---	23-Oct-13	<0.15	<0.15	<0.29	<0.015	<0.013	<0.013	<0.013	<0.013	<0.011	<0.013	<0.011	<0.015	<0.074	<0.013	<0.15	<0.074	<0.029	<0.29
13-DP2	Drive point SW of Basin 4		28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP2	Drive point SW of Basin 4		29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP2	Drive point SW of Basin 4		29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP2	Drive point SW of Basin 4	---	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP2	Drive point SW of Basin 4	---	15-Oct-13	<0.1	<0.1	<0.1	<0.005	<0.01	<0.1	<0.1	<0.05	<0.008	<0.1	<0.05	<0.01	<0.1	<0.05	<0.1	<0.1	<0.01	<0.3
AENV Freshwater Aquatic Life*				**5.8^**	**NS**	**4.4^**	**0.012^**	**0.018^**	**NS**	**NS**	**NS**	**0.015^**	**NS**	**NS**	**0.015^**	**3^**	**NS**	**1.1^**	**0.4^**	**0.025^**	**3.4^**

APPENDIX B2.

WATER QUALITY RESULTS - WATER BODIES AND WATERCOURSES

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Acenaphthene µg/L	Acenaphthylene µg/L	Acridine µg/L	Anthracene µg/L	Benz[a]anthracene µg/L	Benzo[b+j]fluoranthene µg/L	Benzo[k]fluoranthene µg/L	Benzo[g,h,i]perylene µg/L	Benzo[a]pyrene µg/L	Chrysene µg/L	Dibenz[a,h]anthracene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno[1,2,3-cd]pyrene µg/L	Naphthalene µg/L	Phenanthrene µg/L	Pyrene µg/L	Quinoline µg/L
13-DP2	Drive point SW of Basin 4	---	18-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP2	Drive point SW of Basin 4	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP2 dup	Drive point SW of Basin 4	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP3	Drive point S of Basin 3 near E Ladder Road		28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.013	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP3	Drive point S of Basin 3 near E Ladder Road		29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP3	Drive point S of Basin 3 near E Ladder Road	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP3 dup	Drive point S of Basin 3 near E Ladder Road	86.5	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP3	Drive point S of Basin 3 near E Ladder Road	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.13	<0.050	<0.020	<0.20
13-DP3	Drive point S of Basin 3 near E Ladder Road	95.5	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.11	<0.050	<0.020	<0.20
13-DP3	Drive point S of Basin 3 near E Ladder Road	---	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.12	<0.050	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road		28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP4 dup	Drive point N of Basin 3 near E Ladder Road		28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.014	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.021	<0.050	<0.0085	0.15	0.067	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road		29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.12	<0.050	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road	75	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.13	<0.050	<0.020	<0.20
13-DP4 dup	Drive point N of Basin 3 near E Ladder Road	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.11	<0.050	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.11	<0.050	<0.020	<0.20
13-DP4 dup	Drive point N of Basin 3 near E Ladder Road	82	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.10	<0.050	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.12	<0.050	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road	140	29-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road	1315	05-Nov-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	12-Nov-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	10-Dec-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	17-Dec-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	06-Jan-14	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	14-Jan-14	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP5	Drive point W side of Basin 3		28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	***0.025***	<0.050	<0.0085	0.12	<0.050	<0.020	<0.20
13-DP5	Drive point W side of Basin 3		29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	0.012	<0.050	<0.0085	0.2	<0.050	<0.020	<0.20
13-DP5	Drive point W side of Basin 3	85	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.2	<0.050	<0.020	<0.20
13-DP5	Drive point W side of Basin 3	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.2	<0.050	<0.020	<0.20
13-DP5	Drive point W side of Basin 3	91	02-Oct-13	<0.11	<0.11	<0.22	<0.011	<0.0094	<0.0094	<0.0094	<0.0094	<0.0083	<0.0094	<0.0083	<0.011	<0.056	<0.0094	0.15	<0.056	<0.022	<0.22
13-DP6	Drive point S side of Basin 3		28-Sep-13	<0.20	<0.20	<0.40	<0.020	<0.017	<0.017	<0.017	<0.017	<0.015	<0.017	<0.015	***0.031***	<0.10	<0.017	<0.20	<0.10	<0.040	<0.59
13-DP6	Drive point S side of Basin 3		29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.1	<0.050	<0.020	<0.20
13-DP6	Drive point S side of Basin 3	78	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP6	Drive point S side of Basin 3	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.11	<0.050	<0.020	<0.20
13-DP6	Drive point S side of Basin 3	105	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.11	<0.050	<0.020	<0.20
13-DP6	Drive point S side of Basin 3	---	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.13	<0.050	<0.020	<0.20
13-DP6	Drive point S side of Basin 3	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP6	Drive point S side of Basin 3	108	29-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
AENV Freshwater Aquatic Life*				**5.8^**	**NS**	**4.4^**	**0.012^**	**0.018^**	**NS**	**NS**	**NS**	**0.015^**	**NS**	**NS**	**0.015^**	**3^**	**NS**	**1.1^**	**0.4^**	**0.025^**	**3.4^**

APPENDIX B2.

WATER QUALITY RESULTS - WATER BODIES AND WATERCOURSES

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Acenaphthene µg/L	Acenaphthylene µg/L	Acridine µg/L	Anthracene µg/L	Benz[a]anthracene µg/L	Benzo[b+j]fluoranthene µg/L	Benzo[k]fluoranthene µg/L	Benzo[g,h,i]perylene µg/L	Benzo[a]pyrene µg/L	Chrysene µg/L	Dibenz[a,h]anthracene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno[1,2,3-cd]pyrene µg/L	Naphthalene µg/L	Phenanthrene µg/L	Pyrene µg/L	Quinoline µg/L
13-DP7	Drive point E side of Basin 3		28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.014	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP7	Drive point E side of Basin 3		29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.12	<0.050	<0.020	<0.20
13-DP7	Drive point E side of Basin 3	101	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.11	<0.050	<0.020	<0.20
13-DP7	Drive point E side of Basin 3	---	01-Oct-13	<0.11	<0.11	<0.22	<0.011	<0.0093	<0.0093	<0.0093	<0.0093	<0.0082	<0.0093	<0.0082	<0.011	<0.055	<0.0093	0.13	<0.055	<0.022	<0.22
13-DP7	Drive point E side of Basin 3	104	02-Oct-13	<0.12	<0.12	<0.23	<0.012	<0.0099	<0.0099	<0.0099	<0.0099	<0.0087	<0.0099	<0.0087	<0.012	<0.058	<0.0099	0.13	<0.058	<0.023	<0.23
13-DP7	Drive point E side of Basin 3	---	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Minimal Detection Limit				**0.1**	**0.1**	**0.2**	**0.01**	**0.0085**	**0.0085**	**0.0085**	**0.0085**	**0.0075**	**0.0085**	**0.0075**	**0.01**	**0.05**	**0.0085**	**0.1**	**0.05**	**0.02**	**0.2**
AENV Freshwater Aquatic Life*				**5.8^**	**NS**	**4.4^**	**0.012^**	**0.018^**	**NS**	**NS**	**NS**	**0.015^**	**NS**	**NS**	**0.015^**	**3^**	**NS**	**1.1^**	**0.4^**	**0.025^**	**3.4^**

Notes:

--- - not analyzed

NS - not specified

* - Alberta Environment Surface Water Quality Guidelines for use in Alberta (AENV, 1999)

Italics - indicates values do not meet applicable guidelines

APPENDIX B3.

SURFACE WATER QUALITY RESULTS - TOTAL METALS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample Date	Hg mg/L
13-SW12	Basin 4	surface	25-Sep-13	0.00000072
13-SW46	NE Control Lake	---	25-Sep-13	0.0000010
13-SW47	Borrow Pit	---	25-Sep-13	0.00000045
Minimal Detection Limit				-
AENV Freshwater Aquatic Life*				**0.000013[f]/ 0.000005[g]**

Notes:

--- - not analyzed

[f] - acute aquatic life guideline from Alberta Environment Surface Water Quality Guidelines for Use in

[g] - chronic aquatic life guideline from Alberta Environment Surface Water Quality Guidelines for Use i

* - Alberta Environment Surface Water Quality Guidelines for Use in Alberta (AENV, 1999)

Italics - indicates values do not meet applicable guidelines

APPENDIX B4.

WATER QUALITY CONTROL SAMPLE RESULTS - DISSOLVED HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth cm	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1 C_6-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Cl mg/L	TSS mg/L	Turbidity NTU
13-SW7	Basin 1	110	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
13-SW7 dup	Basin 1	110	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	---	---
			Absolute Difference*	---	---	---	---	---	---	---	---	---	---	---
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	---	---
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	---	---
13-SW16	Downstream Fen Upstream of Ken Baker Road	20	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	6.0	---	---
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	20	25-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	6.1	---	---
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	---	---
			Absolute Difference*	---	---	---	---	---	---	---	---	0.1	---	---
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	2	---	---
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	---	---
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	28-Sep-13	<0.0004	0.0014	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3.4	---	<0.10
13-DP4 dup	Drive point N of Basin 3 near E Ladder Road	---	28-Sep-13	<0.0004	0.0011	<0.0004	<0.0008	<0.1	<0.10	0.24	<0.20	3.0	---	<0.10
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	---	0.5
			Absolute Difference*	---	0.0003	---	---	---	---	---	---	0.4	---	---
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	---	---
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	---	Good
13-SW7	Basin 1	---	28-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	0.14	<0.20	<0.20	1.2	---	---
13-SW7 dup	Basin 1	---	28-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	2.8	---	---
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	---	---
			Absolute Difference*	---	---	---	---	---	---	---	---	1.6	---	---
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	---	---
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	---	---
13-SW12	Basin 4	---	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1	---	---
13-SW12 dup	Basin 4	---	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1	---	---
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	---	---
			Absolute Difference*	---	---	---	---	---	---	---	---	---	---	---
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	---	---
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	---	---
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	30-Sep-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	6.6	17	14
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	30-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6.3	3.3	7.5
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.3	13.7	6.5
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	5	---	60
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***	***Poor***
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	01-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	6.3	6.7	9.4
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	01-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	5.3	1.7
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	---	1.4	7.7
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	23	139
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***

APPENDIX B4.

WATER QUALITY CONTROL SAMPLE RESULTS - DISSOLVED HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth cm	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1 C_6-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Cl mg/L	TSS mg/L	Turbidity NTU
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	01-Oct-13	<0.0004	0.0014	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	490	300
13-DP4 dup	Drive point N of Basin 3 near E Ladder Road	---	01-Oct-13	<0.0004	0.0016	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.1	450	270
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	0.0002	---	---	---	---	---	---	---	40	30
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	9	11
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	01-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	6.3	6.7	9.4
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	01-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	6.3	6.7	11
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0	0	1.6
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	0	0	16
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW31	Basin 3	---	01-Oct-13	<0.00040	0.00045	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.7
13-SW31 dup	Basin 3	---	01-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	5.3	1.7
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	---	---	1
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	---	83
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***
13-DP4	Drive point N of Basin 3 near E Ladder Road	82	02-Oct-13	<0.0004	0.0014	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	1400	69
13-DP4 dup	Drive point N of Basin 3 near E Ladder Road	---	02-Oct-13	---	---	---	---	---	---	---	---	1.5	3300	250
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	---	---	---	---	---	---	---	---	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	---	1900	181
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	81	113
			Duplicate Sample Results Evaluation	---	---	---	---	---	---	---	---	Good	***Poor***	***Poor***
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6	6	5
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6	<1.0	5.4
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0	---	0.4
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	0	---	8
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	5.9	3.3	5.7
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	5.8	3.3	6.6
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.1	0	0.9
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	2	---	15
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW26	Downstream Fen Upstream of Pad 21	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	2.3	4.7	2.8
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3	15	11
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.7	10.3	8.2
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	---	119
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***	***Poor***

APPENDIX B4.

WATER QUALITY CONTROL SAMPLE RESULTS - DISSOLVED HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth cm	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1 C_6-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Cl mg/L	TSS mg/L	Turbidity NTU
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6.1	4.7	8.5
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	6.1	6.7	8.3
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0	2	0.2
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	0	---	2
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW26	Downstream Fen Upstream of Pad 21	---	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	4.1	6.7	3.1
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	3.9	4.7	2.3
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.2	2	0.8
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	---	30
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.10	<0.10	<0.20	<0.20	6.6	21	10
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.10	<0.10	0.46	<0.20	6.7	53	21
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.1	32	11
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	2	86	71
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***	***Poor***
13-SW26	Downstream Fen Upstream of Pad 21	---	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.10	<0.10	0.2	<0.20	1.7	15	6.5
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.10	<0.10	<0.20	<0.20	1.5	4	1.2
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.2	11	5.3
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	---	138
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***	***Poor***
13-SW26	Downstream Fen Upstream of Pad 21	---	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.8	2	0.95
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.8	2	1.9
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0	0	0.95
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	---	67
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	6.9	5.3	9
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	6.5	16	1.5
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.4	10.7	7.5
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	6	100	143
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***	***Poor***
13-SW26	Downstream Fen Upstream of Pad 21	---	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.8	11	4.7
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.12	<0.20	<0.20	1.6	3.3	1.5
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.2	7.7	3.2
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	---	103
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***

APPENDIX B4.

WATER QUALITY CONTROL SAMPLE RESULTS - DISSOLVED HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth cm	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1 C_6-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Cl mg/L	TSS mg/L	Turbidity NTU
13-SW7	Basin 1	50	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.4	6	0.74
13-SW7 dup	Basin 1	---	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.13	<0.20	<0.20	6.7	7.3	9.7
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	5.3	1.3	8.96
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	20	172
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	09-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	0.22	6.8	33	20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	09-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	6.8	1.3	9.8
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0	31.7	10.2
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	0	---	68
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***	***Poor***
13-SW26	Downstream Fen Upstream of Pad 21	---	09-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.5	8.7	2.6
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	09-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.7	8.7	3
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.2	0	0.4
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	0	14
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	10-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.17	0.33	<0.20	6.8	2	10
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	10-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	6.7	2.7	11
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.1	0.7	1
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	1	---	10
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW26	Downstream Fen Upstream of Pad 21	---	10-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.2	7.3	2.8
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	10-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.7	36	19
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.5	28.7	16.2
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	133	149
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***	***Poor***
13-SW42	Discharge Fen Upstream of Wolf River	---	11-Oct-13	<0.0004	<0.002	<0.0004	<0.004	0.26	<0.10	0.28	<0.20	2.1	210	56
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	11-Oct-13	<0.0004	<0.002	<0.0004	<0.004	0.31	<0.10	0.2	<0.20	1.9	190	130
			Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	0.05	---	0.08	---	0.2	20	74
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	10	80
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***
13-SW27	Downstream Fen Downstream of Pad 21	---	12-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	0.27	<0.20	2.9	7.3	8.6
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	12-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.5	5.3	8.9
			Detection Limit (DL)	0.0004	0.002	0.0004	0.004	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.01	0.002	0.02	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.4	2	0.3
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	32	3
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

APPENDIX B4.

WATER QUALITY CONTROL SAMPLE RESULTS - DISSOLVED HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth cm	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1 C_6-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Cl mg/L	TSS mg/L	Turbidity NTU
13-SW26	Downstream Fen Upstream of Pad 21	---	13-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.17	0.27	0.38	1.3	49	14
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	13-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.17	<0.27	<0.38	1.1	51	17
			Detection Limit (DL)	0.0004	0.002	0.0004	0.004	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.01	0.002	0.02	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.2	2	3
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	4	19
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW42	Discharge Fen Upstream of Wolf River	---	14-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	1.6	3.3	11
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	14-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.15	0.31	<0.20	1.7	6	14
			Detection Limit (DL)	0.0004	0.002	0.0004	0.004	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.01	0.002	0.02	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.1	2.7	3
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	---	24
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW27	Downstream Fen Downstream of Pad 21	---	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.1	66	12
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.4	4.7	1.8
			Detection Limit (DL)	0.0004	0.002	0.0004	0.004	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.01	0.002	0.02	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.3	61.3	10.2
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	---	148
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***	***Poor***
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	16-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	3.8	5.3	3.7
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	16-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	4.3	6.7	5.1
			Detection Limit (DL)	0.0004	0.002	0.0004	0.004	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.01	0.002	0.02	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.5	1.4	1.4
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	23	32
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW27	Downstream Fen Downstream of Pad 21	---	17-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	2.3	77	23
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	17-Oct-13	<0.00040	0.0047	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.7	25	7.3
			Detection Limit (DL)	0.0004	0.002	0.0004	0.004	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.01	0.002	0.02	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.6	52	15.7
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	102	104
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***	***Poor***
13-SW27	Downstream Fen Downstream of Pad 21	---	18-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.3	6	7.4
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	18-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.5	11	8.3
			Detection Limit (DL)	0.0004	0.002	0.0004	0.004	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.01	0.002	0.02	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.2	5	0.9
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	59	11
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***	Good
13-SW26	Downstream Fen Upstream of Pad 21	---	19-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	3.0	21	4.5
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	19-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	3.4	25	14
			Detection Limit (DL)	0.0004	0.002	0.0004	0.004	0.1	0.1	0.2	0.2	1	1	0.1
			Reliable Detection Limit (RDL)**	0.002	0.01	0.002	0.02	0.5	0.5	1	1	5	5	0.5
			Absolute Difference*	---	---	---	---	---	---	---	---	0.4	4	9.5
			Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	17	103
			Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***

APPENDIX B4.

WATER QUALITY CONTROL SAMPLE RESULTS - DISSOLVED HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth cm	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1 C_6-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Cl mg/L	TSS mg/L	Turbidity NTU
13-SW27	Downstream Fen Downstream of Pad 21	---	20-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	---	---	---
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	20-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	---	---	---
	Detection Limit (DL)			0.0004	0.002	0.0004	0.004	0.1	0.1	0.2	0.2	1	1	0.1
	Reliable Detection Limit (RDL)**			0.002	0.01	0.002	0.02	0.5	0.5	1	1	---	---	---
	Absolute Difference*			---	---	---	---	---	---	---	---	---	---	---
	Absolute Relative Percent Difference (RPD)*			---	---	---	---	---	---	---	---	---	---	---
	Duplicate Sample Results Evaluation			Good	Good	Good	Good	Good	Good	Good	Good	---	---	---
13-SW42	Discharge Fen Upstream of Wolf River	---	21-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.3	4.7	13
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	21-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	2.4	4.7	12
	Detection Limit (DL)			0.0004	0.002	0.0004	0.004	0.1	0.1	0.2	0.2	1	1	0.1
	Reliable Detection Limit (RDL)**			0.002	0.01	0.002	0.02	0.5	0.5	1	1	5	5	0.5
	Absolute Difference*			---	---	---	---	---	---	---	---	0.1	0	1
	Absolute Relative Percent Difference (RPD)*			---	---	---	---	---	---	---	---	---	---	8
	Duplicate Sample Results Evaluation			Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-DP2	Drive point SW of Basin 4	---	22-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.7	75	35
13-DP2 dup	Drive point SW of Basin 4	---	22-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	1.5	74	30
	Detection Limit (DL)			0.0004	0.002	0.0004	0.004	0.1	0.1	0.2	0.2	1	1	0.1
	Reliable Detection Limit (RDL)**			0.002	0.01	0.002	0.02	0.5	0.5	1	1	5	5	0.5
	Absolute Difference*			---	---	---	---	---	---	---	---	0.2	1	5
	Absolute Relative Percent Difference (RPD)*			---	---	---	---	---	---	---	---	---	1	15
	Duplicate Sample Results Evaluation			Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW26	Downstream Fen Upstream of Pad 21	---	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	3.1	29	4.1
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	3.1	4.7	1.4
	Detection Limit (DL)			0.0004	0.002	0.0004	0.004	0.1	0.1	0.2	0.2	1	1	0.1
	Reliable Detection Limit (RDL)**			0.002	0.01	0.002	0.02	0.5	0.5	1	1	5	5	0.5
	Absolute Difference*			---	---	---	---	---	---	---	---	0	24.3	2.7
	Absolute Relative Percent Difference (RPD)*			---	---	---	---	---	---	---	---	---	---	98
	Duplicate Sample Results Evaluation			Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***	***Poor***
13-SW42	Discharge Fen Upstream of Wolf River	---	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	2.1	3.3	9.8
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	2.1	10	20
	Detection Limit (DL)			0.0004	0.002	0.0004	0.004	0.1	0.1	0.2	0.2	1	1	0.1
	Reliable Detection Limit (RDL)**			0.002	0.01	0.002	0.02	0.5	0.5	1	1	5	5	0.5
	Absolute Difference*			---	---	---	---	---	---	---	---	0	6.7	10.2
	Absolute Relative Percent Difference (RPD)*			---	---	---	---	---	---	---	---	---	---	68
	Duplicate Sample Results Evaluation			Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***
13-SW42	Discharge Fen Upstream of Wolf River	---	29-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	2	10	25
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	29-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	2	19	32
	Detection Limit (DL)			0.0004	0.002	0.0004	0.004	0.1	0.1	0.2	0.2	1	1	0.1
	Reliable Detection Limit (RDL)**			0.002	0.01	0.002	0.02	0.5	0.5	1	1	5	5	0.5
	Absolute Difference*			---	---	---	---	---	---	---	---	0	9	7
	Absolute Relative Percent Difference (RPD)*			---	---	---	---	---	---	---	---	---	62	25
	Duplicate Sample Results Evaluation			Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***	Good

Notes:

--- - not applicable

* - non-detectable concentrations are assessed at 95% of the detection limit

** - the reliable (reporting) detection limit (RDL) or practical detection limit (PDL) is defined as 5 times the DL

Good - evaluation indicates acceptable reproducibility

Poor - evaluation indicates poor reproducibility

APPENDIX B5.

WATER QUALITY CONTROL SAMPLE RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample	Acenaphthene	Acenaphthylene	Acridine	Anthracene	Benz[a]anthracene	Benzo[b+j]fluoranthene	Benzo[k]fluoranthene	Benzo[g,h,i]perylene	Benzo[a]pyrene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	Naphthalene	Phenanthrene	Pyrene	Quinoline
		cm	Date	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
13-SW7	Basin 1	110	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7 dup	Basin 1	110	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	20	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	20	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW7	Basin 1	---	28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7 dup	Basin 1	---	28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW7	Basin 1	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.26	<0.050	<0.020	<0.20
13-SW7 dup	Basin 1	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-DP3	Drive point S of Basin 3 near E Ladder Road	---	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP3 dup	Drive point S of Basin 3 near E Ladder Road	86.5	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

APPENDIX B5.

WATER QUALITY CONTROL SAMPLE RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample	Acenaphthene	Acenaphthylene	Acridine	Anthracene	Benz[a]anthracene	Benzo[b+j]fluoranthene	Benzo[k]fluoranthene	Benzo[g,h,i]perylene	Benzo[a]pyrene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	Naphthalene	Phenanthrene	Pyrene	Quinoline
		cm	Date	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.13	<0.050	<0.020	<0.20
13-DP4 dup	Drive point N of Basin 3 near E Ladder Road	---	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.11	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	0.02	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-DP4	Drive point N of Basin 3 near E Ladder Road	---	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.11	<0.050	<0.020	<0.20
13-DP4 dup	Drive point N of Basin 3 near E Ladder Road	82	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	0.1	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	0.01	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

APPENDIX B5.

WATER QUALITY CONTROL SAMPLE RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample	Acenaphthene	Acenaphthylene	Acridine	Anthracene	Benz[a]anthracene	Benzo[b+j]fluoranthene	Benzo[k]fluoranthene	Benzo[g,h,i]perylene	Benzo[a]pyrene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	Naphthalene	Phenanthrene	Pyrene	Quinoline
		cm	Date	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
13-SW26	Downstream Fen Upstream of Pad 21	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW26	Downstream Fen Upstream of Pad 21	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW26	Downstream Fen Upstream of Pad 21	---	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

APPENDIX B5.

WATER QUALITY CONTROL SAMPLE RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample	Acenaphthene	Acenaphthylene	Acridine	Anthracene	Benz[a]anthracene	Benzo[b+j]fluoranthene	Benzo[k]fluoranthene	Benzo[g,h,i]perylene	Benzo[a]pyrene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	Naphthalene	Phenanthrene	Pyrene	Quinoline
		cm	Date	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
13-SW26	Downstream Fen Upstream of Pad 21	---	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW26	Downstream Fen Upstream of Pad 21	---	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW7	Basin 1	50	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW7 dup	Basin 1	50	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	09-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	09-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	10-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	10-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW26	Downstream Fen Upstream of Pad 21	---	10-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	10-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

APPENDIX B5.

WATER QUALITY CONTROL SAMPLE RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample	Acenaphthene	Acenaphthylene	Acridine	Anthracene	Benz[a]anthracene	Benzo[b+j]fluoranthene	Benzo[k]fluoranthene	Benzo[g,h,i]perylene	Benzo[a]pyrene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	Naphthalene	Phenanthrene	Pyrene	Quinoline
		cm	Date	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
13-SW42	Discharge Fen Upstream of Wolf River	---	11-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	11-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW27	Downstream Fen Downstream of Pad 21	---	12-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	12-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW26	Downstream Fen Upstream of Pad 21	---	13-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	13-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW42	Downstream Fen Downstream of Pad 21	---	14-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42 dup	Downstream Fen Downstream of Pad 21	---	14-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW27	Downstream Fen Downstream of Pad 21	---	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW16	Downstream Fen Upstream of Ken Baker Road	---	16-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW16 dup	Downstream Fen Upstream of Ken Baker Road	---	16-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

APPENDIX B5.

WATER QUALITY CONTROL SAMPLE RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample	Acenaphthene	Acenaphthylene	Acridine	Anthracene	Benz[a]anthracene	Benzo[b+j]fluoranthene	Benzo[k]fluoranthene	Benzo[g,h,i]perylene	Benzo[a]pyrene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	Naphthalene	Phenanthrene	Pyrene	Quinoline
		cm	Date	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
13-SW27	Downstream Fen Downstream of Pad 21	---	17-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	17-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW27	Downstream Fen Downstream of Pad 21	---	18-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	18-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW26	Downstream Fen Upstream of Pad 21	---	19-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	19-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW27	Downstream Fen Downstream of Pad 21	---	20-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW27 dup	Downstream Fen Downstream of Pad 21	---	20-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW42	Discharge Fen Upstream of Wolf River	---	21-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	21-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-DP2	Drive point SW of Basin 4	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-DP2 dup	Drive point SW of Basin 4	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

APPENDIX B5.

WATER QUALITY CONTROL SAMPLE RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Location	Sample Depth	Sample	Acenaphthene	Acenaphthylene	Acridine	Anthracene	Benz[a]anthracene	Benzo[b+j]fluoranthene	Benzo[k]fluoranthene	Benzo[g,h,i]perylene	Benzo[a]pyrene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	Naphthalene	Phenanthrene	Pyrene	Quinoline
		cm	Date	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
13-SW42	Discharge Fen Upstream of Wolf River	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW26	Downstream Fen Upstream of Pad 21	---	23-Oct-13	<0.12	<0.12	<0.24	<0.012	<0.010	<0.010	<0.010	<0.010	<0.0089	<0.010	<0.0089	<0.012	<0.060	<0.010	<0.12	<0.060	<0.024	<0.24
13-SW26 dup	Downstream Fen Upstream of Pad 21	---	23-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW42	Discharge Fen Upstream of Wolf River	---	23-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	23-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
13-SW42	Discharge Fen Upstream of Wolf River	---	29-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
13-SW42 dup	Discharge Fen Upstream of Wolf River	---	29-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)				0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**				0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*				---	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation				Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

Notes:

--- - not applicable

* - non-detectable concentrations are assessed at 95% of the detection limit

** - the reliable (reporting) detection limit (RDL) or practical detection limit (PDL) is defined as 5 times the DL

Good - evaluation indicates acceptable reproducibility

Poor - evaluation indicates poor reproducibility

APPENDIX B6.

WATER QUALITY CONTROL SAMPLE RESULTS - DISSOLVED HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Lab	Sample Location	Sample Depth cm	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1 C_6-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Cl mg/L	TSS mg/L	Turbidity NTU
13-SW42	Maxxam	Discharge Fen Upstream of Wolf River	---	16-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	1.3	14	21
13-SW42	Exova	Discharge Fen Upstream of Wolf River	---	16-Oct-13	<0.001	<0.001	<0.001	<0.001	<0.20	<0.20	<0.1	<0.1	1.8	21	39.8
				Detection Limit (DL)	0.0004	0.0004	0.0004	0.0008	0.1	0.1	0.2	0.2	1	1	0.1
				Reliable Detection Limit (RDL)**	0.002	0.002	0.002	0.004	0.5	0.5	1	1	5	5	0.5
				Absolute Difference*	---	---	---	---	---	---	---	---	0.5	7	18.8
				Absolute Relative Percent Difference (RPD)*	---	---	---	---	---	---	---	---	---	40	62
				Duplicate Sample Results Evaluation	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	***Poor***

Notes:

--- - not applicable

* - non-detectable concentrations are assessed at 95% of the detection limit

** - the reliable (reporting) detection limit (RDL) or practical detection limit (PDL) is defined as 5 times the DL

Good - evaluation indicates acceptable reproducibility

Poor - evaluation indicates poor reproducibility

APPENDIX B7.

WATER QUALITY CONTROL SAMPLE RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Lab	Sample Location	Sample Depth	Sample	Acenaphthene	Acenaphthylene	Acridine	Anthracene	Benz[a]anthracene	Benzo[b+j]fluoranthene	Benzo[k]fluoranthene	Benzo[g,h,i]perylene	Benzo[a]pyrene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Fluorene	Indeno[1,2,3-cd]pyrene	Naphthalene	Phenanthrene	Pyrene	Quinoline
			cm	Date	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
13-SW42	Maxxam	Discharge Fen Upstream of Wolf River	---	16-Oct-13	<0.1	<0.1	<0.2	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.01	<0.05	<0.0085	<0.1	<0.05	<0.02	<0.2
13-SW42	Exova	Discharge Fen Upstream of Wolf River	---	16-Oct-13	<0.1	<0.1	<0.1	<0.005	<0.01	<0.1	<0.1	<0.05	<0.008	<0.1	<0.05	<0.01	<0.1	<0.05	<0.1	<0.1	<0.01	<0.3
Detection Limit (DL)					0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2
Reliable Detection Limit (RDL)**					0.5	0.5	1	0.05	0.0425	0.0425	0.0425	0.0425	0.0375	0.0425	0.0375	0.05	0.25	0.0425	0.5	0.25	0.1	1
Absolute Difference*					---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Absolute Relative Percent Difference (RPD)*					---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Duplicate Sample Results Evaluation					Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

Notes:

--- - not applicable

* - non-detectable concentrations are assessed at 95% of the detection limit

** - the reliable (reporting) detection limit (RDL) or practical detection limit (PDL) is defined as 5 times the DL

Good - evaluation indicates acceptable reproducibility

Poor - evaluation indicates poor reproducibility

APPENDIX B8.

WATER QUALITY CONTROL SAMPLE RESULTS - DISSOLVED HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1 C_6-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Cl mg/L	TSS mg/L	Turbidity NTU
Field Blank	25-Sep-13	<0.004	<0.002	<0.004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
Field Blank	25-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	---
Field Blank	28-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.29
Field Blank	28-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
Field Blank	29-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.24
Field Blank	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	---	---	---
Field Blank	30-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	1.3	0.46
Field Blank	30-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	3.3	1.5
Field Blank	30-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	01-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	01-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.1	<0.20	<0.20	<1.0	1.3	0.12
Field Blank	01-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20			
Field Blank	02-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	2.7	<0.10
Field Blank	02-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	1.3	<0.10
Field Blank	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.13
Field Blank	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.32
Field Blank	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	0.14	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	09-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	09-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	10-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.14
Field Blank	10-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	11-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.19	0.4	<0.20	<1.0	<3.0	0.13
Field Blank	12-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	13-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	14-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.17	0.35	<0.20	<1.0	<1.0	<0.10
Field Blank	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.27
Field Blank	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	16-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	0.46	<0.20	<1.0	1.3	<0.10
Field Blank	17-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.13
Field Blank	18-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	19-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	20-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	21-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	2.7	<0.10
Field Blank	22-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Field Blank	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	5.3	<0.10
Field Blank	29-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	2	<0.10
Detection Limit (DL)		**0.0004**	**0.0004**	**0.0004**	**0.0008**	**0.1**	**0.1**	**0.2**	**0.2**	**1**	**1**	**0.1**

APPENDIX B8.

WATER QUALITY CONTROL SAMPLE RESULTS - DISSOLVED HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Date	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	F1 C_6-C_{10} mg/L	F2 $C_{>10}$-C_{16} mg/L	F3 $C_{>16}$-C_{34} mg/L	F4 $C_{>34}$-C_{50} mg/L	Cl mg/L	TSS mg/L	Turbidity NTU
Trip Blank	25-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	---
Trip Blank	28-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank	28-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
Trip Blank	29-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank dup	29-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	---	---
Trip Blank	29-Sep-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	---
Trip Blank	30-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.24
Trip Blank	30-Sep-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.12
Trip Blank	01-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank	02-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.18
Trip Blank	03-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	1.3	---
Trip Blank	04-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank	05-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank	06-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	0.12
Trip Blank	07-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank	08-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	3	<1.0	<0.10
Trip Blank	09-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank	10-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.13	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank	11-Oct-13	<0.0004	<0.002	<0.0004	<0.004	0.48	<0.10	<0.20	<0.20	<1.0	<1.0	0.14
Trip Blank	12-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	1.3	<0.10
Trip Blank	13-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank	14-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	0.18	0.4	0.22	<1.0	<1.0	<0.10
Trip Blank	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<3.0	<0.10
Trip Blank	15-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	4	0.1
Trip Blank	16-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	2	<0.10
Trip Blank	17-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank	18-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank	19-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	1.3	<0.10
Trip Blank	20-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank	21-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank	22-Oct-13	<0.00040	<0.0020	<0.00040	<0.0040	<0.1	<0.10	<0.20	<0.20	---	---	---
Trip Blank	22-Oct-13	---	---	---	---	---	---	---	---	<1.0	<1.0	<0.10
Trip Blank	22-Oct-13	<0.0004	<0.0004	<0.0004	<0.0008	<0.1	<0.10	<0.20	<0.20	<1.0	4.7	<0.10
Trip Blank	22-Oct-13	<0.0004	<0.002	<0.0004	<0.004	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank	23-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Trip Blank	29-Oct-13	<0.00040	<0.00040	<0.00040	<0.00080	<0.1	<0.10	<0.20	<0.20	<1.0	<1.0	<0.10
Detection Limit (DL)		**0.0004**	**0.0004**	**0.0004**	**0.0008**	**0.1**	**0.1**	**0.2**	**0.2**	**1**	**1**	**0.1**

Notes:

--- - not analyzed

APPENDIX B9.

WATER QUALITY CONTROL SAMPLE RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Date	Acenaphthene µg/L	Acenaphthylene µg/L	Acridine µg/L	Anthracene µg/L	Benz[a]anthracene µg/L	Benzo[b+j]fluoranthene µg/L	Benzo[k]fluoranthene µg/L	Benzo[g,h,i]perylene µg/L	Benzo[a]pyrene µg/L	Chrysene µg/L	Dibenz[a,h]anthracene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno[1,2,3-cd]pyrene µg/L	Naphthalene µg/L	Phenanthrene µg/L	Pyrene µg/L	Quinoline µg/L
Field Blank	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank2	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	09-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	09-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	10-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	10-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	11-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	12-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	13-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	14-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	16-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	17-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	18-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	19-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	20-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	21-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	23-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Field Blank	29-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)		0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2

APPENDIX B9.

WATER QUALITY CONTROL SAMPLE RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

Canadian Natural Resources Limited

09-21-064-04 W4M

Sample Point	Sample Date	Acenaphthene µg/L	Acenaphthylene µg/L	Acridine µg/L	Anthracene µg/L	Benz[a]anthracene µg/L	Benzo[b+j]fluoranthene µg/L	Benzo[k]fluoranthene µg/L	Benzo[g,h,i]perylene µg/L	Benzo[a]pyrene µg/L	Chrysene µg/L	Dibenz[a,h]anthracene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno[1,2,3-cd]pyrene µg/L	Naphthalene µg/L	Phenanthrene µg/L	Pyrene µg/L	Quinoline µg/L
Trip Blank	25-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	0.01	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	28-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank dup	29-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	30-Sep-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	01-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	02-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	03-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	04-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	05-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	06-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	07-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	08-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	09-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	10-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	11-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	12-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	13-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	14-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	15-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	16-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	17-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	18-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	19-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	20-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	21-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	22-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	23-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Trip Blank	29-Oct-13	<0.10	<0.10	<0.20	<0.010	<0.0085	<0.0085	<0.0085	<0.0085	<0.0075	<0.0085	<0.0075	<0.010	<0.050	<0.0085	<0.10	<0.050	<0.020	<0.20
Detection Limit (DL)		0.1	0.1	0.2	0.01	0.0085	0.0085	0.0085	0.0085	0.0075	0.0085	0.0075	0.01	0.05	0.0085	0.1	0.05	0.02	0.2

Notes:

--- - not analyzed