

If this information is required in an accessible format, please contact The Regional Municipality of Durham at 1-800-372-1102 extension 3560.



May 6, 2016

Celeste Dugas, Manager,  
York Durham District Office  
230 Westney Road South, 5<sup>th</sup> Floor  
Ajax, ON L1S 7J5

Dear Ms. Dugas:

**RE: 2015 Durham York Energy Centre Annual Report  
Response to Comments from the Ministry of the Environment and  
Climate Change dated April 13, 2016  
Environmental Compliance Approval Condition 15 (1)  
MOECC File #: EA-08-02**

---


The Regional Municipalities of Durham and York (Regions) and Covanta acknowledge receipt of comments dated April 13, 2016, from the Ministry of the Environment and Climate Change (MOECC) on the recently submitted 2015 Durham York Energy Centre (DYEC) Annual Report. As requested, this letter provides responses to the MOECC's comments and will be considered an addendum to the 2015 DYEC Annual Report.

1. In accordance with ECA Condition 15(1), Annual Reports covering future calendar years shall be submitted to both the MOECC and the Advisory Committee by March 31 of the following year. The Advisory Committee will be copied directly on MOECC transmittal correspondence for the Annual Report to ensure timely future distribution to all parties.
2. As requested by the MOECC, future Annual Reports will include emission summary tables and the acoustic assessment summary tables in the body of the report, rather than in Appendices as was done in the 2015 Annual Report. We will, however, continue to also include links to the reports that the Regions maintain on our project website in order to promote transparency and context to the summary tables provided.
3. In regard to providing an interpretative analysis of groundwater and surface water monitoring within the DYEC 2015 Annual Report, this was omitted due to a later submission deadline for the MOECC approved Groundwater and Surface Water Monitoring Annual Report (April 30 of each year). The Regions will endeavour to

advance the Groundwater and Surface Water Monitoring Annual Report completion so that an interpretative analysis can be included in subsequent Annual Reports. Please see the interpretative analysis for 2015 attached as Appendix A.

We trust the above responses to MOECC's comments on the 2015 DYEC Annual Report meet the MOECC's expectation. If you require any further information, please contact the undersigned.

Sincerely,

  
\_\_\_\_\_  
Mirka Januszkiewicz, P.Eng.  
Director, Waste Management

The Regional Municipality of Durham  
905-668-7711 ext. 3464  
Mirka.Januszkiewicz@durham.ca

\_\_\_\_\_  
Laura McDowell, P.Eng.  
Director, Environmental Promotion  
and Protection  
The Regional Municipality of York  
905-830-4444 ext. 75077  
Laura.McDowell@york.ca



\_\_\_\_\_  
Matthew Neild, Facility Manager  
Covanta Durham York Renewable  
Energy Limited Partnership  
905-404-4030  
MNeild@covanta.com

- c. D. Goyette, Director, Central Region, MOECC  
S. Thomas, Issues Project Coordinator, York Durham District Office, MOECC  
P. Dunn, Senior Environmental Officer, York Durham District Office, MOECC  
P. Martin, Supervisor (Acting), Air, Pesticides, and Environmental Planning, MOECC  
G. Battarino, Special Project Officer, Project Coordination, MOECC  
E. O'Leary, Environmental Resource Planner and Environmental Assessment  
Coordinator, Air, Pesticides, and Environmental Planning, MOECC  
Energy from Waste Advisory Committee (EFWAC)  
D. Kelly, Regional Clerk, The Regional Municipality of York  
D. Wilcox, Regional Clerk, The Regional Municipality of Durham

Encl.

The 2015 Groundwater and Surface Water Monitoring Report can be viewed in its entirety at the following web address:

[https://www.durhamyorkwaste.ca/Assets/Documents/MonitoringPlansReports/GroundSurfaceWaterReports/2015/Reports/2015\\_Groundwater\\_SurfaceWater\\_AnnualReport.pdf](https://www.durhamyorkwaste.ca/Assets/Documents/MonitoringPlansReports/GroundSurfaceWaterReports/2015/Reports/2015_Groundwater_SurfaceWater_AnnualReport.pdf)

## **GROUNDWATER DATA**

The groundwater quality results are presented in the attached Table B-2, which is included in the 2015 Groundwater and Surface Water Monitoring Report. As shown in the table, the parameter concentrations during the groundwater sampling events in 2015 satisfied the Ontario Drinking Water Quality Standards, and the results for 2015 were generally comparable to the data for the 2014 monitoring program.

## **SONDE DATA**

The surface water data obtained by the sondes in 2015 is shown in the attached Table 1, along with the applicable PWQO/CWQG. As shown in the table, turbidity values at the upstream sonde were generally higher compared to the turbidity results at the downstream sonde during the 2015 monitoring period; although the turbidity values at the downstream sonde were periodically higher compared to the upstream sonde results (and the CWQG) in 2015.

The occurrences for higher turbidity at the downstream sonde are likely attributed to discharge received in Tooley Creek from the tributary located on the west side of the creek, and/or to differences in the stream flow characteristics at the two locations, and are not attributed to the DYEC. The stream configuration at the downstream sonde generally has a lower velocity, compared to the upstream location, which may permit the settlement of suspended materials.

The drainage channel located upstream of Sonde 2 captures discharged water from the DYEC on-site ponds, along with runoff from nearby industrial sources such as the Ontario Power Generation (OPG) lands and the CN rail line. Surface water quality within Tooley Creek is potentially influenced by many factors, including the DYEC site, OPG lands, CN rail line, agricultural areas west of the creek, discharge from a tributary on the west side of Tooley Creek, and land uses located between Tooley Creek and the DYEC property. Due to these potential alternate influences, the source of water quality variations within Tooley Creek, between the upstream and downstream sondes, cannot be solely attributed to DYEC operations.

**TABLE 1**  
**SONDE DATA COMPARISON - 2015 Daily Averages**  
**DURHAM YORK ENERGY CENTRE - 2015 WATER MONITORING PROGRAM**

DATE	PWQO	pH		TURBIDITY		
		Sonde 1 (upstream)	Sonde 2 (downstream)	Sonde 1 (upstream)	CWQG	Sonde 2 (Downstream)
2015-05-26	6.5 - 8.5	8.20	7.99	6.9	8.9	2.7
2015-05-27	6.5 - 8.5	8.13	7.97	4.0	6.0	2.4
2015-05-28	6.5 - 8.5	8.13	7.98	3.5	5.5	2.3
2015-05-29	6.5 - 8.5	8.09	7.97	8.2	16.2	2.3
2015-05-30	6.5 - 8.5	8.02	7.92	60.2	68.2	26.2
2015-05-31	6.5 - 8.5	8.15	8.01	14.7	22.7	13.6
2015-06-01	6.5 - 8.5	8.27	8.15	4.7	6.7	5.2
2015-06-02	6.5 - 8.5	8.26	8.15	2.8	4.8	3.0
2015-06-03	6.5 - 8.5	8.24	8.11	3.0	5.0	3.0
2015-06-04	6.5 - 8.5	8.23	8.09	3.2	5.2	3.2
2015-06-05	6.5 - 8.5	8.17	8.02	3.7	5.7	3.4
2015-06-06	6.5 - 8.5	8.22	8.07	3.5	5.5	3.9
2015-06-07	6.5 - 8.5	8.15	8.04	4.2	6.2	5.2
2015-06-08	6.5 - 8.5	8.14	7.96	84.4	92.9	75.6
2015-06-09	6.5 - 8.5	8.32	8.13	6.2	8.2	<b>76.6</b>
2015-06-10	6.5 - 8.5	8.30	8.12	35.8	43.8	<b>240.0</b>
2015-06-11	6.5 - 8.5	8.34	8.18	5.4	7.4	<b>272.9</b>
2015-06-12	6.5 - 8.5	8.24	8.07	74.5	82.5	<b>509.9</b>
2015-06-13	6.5 - 8.5	8.31	8.16	11.6	19.6	<b>277.3</b>
2015-06-14	6.5 - 8.5	8.30	8.14	15.9	23.9	<b>338.8</b>
2015-06-15	6.5 - 8.5	8.33	8.18	11.7	19.7	<b>614.6</b>
2015-06-16	6.5 - 8.5	8.32	8.17	10.8	18.8	<b>213.5</b>
2015-06-17	6.5 - 8.5	8.28	8.19	5.2	7.2	<b>68.3</b>
2015-06-18	6.5 - 8.5		8.11			4.9
2015-06-19	6.5 - 8.5		8.08			5.3
2015-06-20	6.5 - 8.5		8.09			4.7
2015-06-21	6.5 - 8.5		8.06			5.1
2015-06-22	6.5 - 8.5		8.04			5.0
2015-06-23	6.5 - 8.5		7.93			223.0
2015-06-24	6.5 - 8.5		8.10			91.0
2015-06-25	6.5 - 8.5		8.11			69.1
2015-06-26	6.5 - 8.5		8.13			57.0
2015-06-27	6.5 - 8.5		8.10			79.1
2015-06-28	6.5 - 8.5		7.97			110.0
2015-06-29	6.5 - 8.5		8.09			86.2
2015-06-30	6.5 - 8.5		8.14			194.5
2015-07-01	6.5 - 8.5	7.63	8.13	270.6	297.7	87.9
2015-07-02	6.5 - 8.5	7.60	8.09	298.3	328.1	4.6
2015-07-03	6.5 - 8.5	7.60	8.08	365.5	402.1	4.0
2015-07-04	6.5 - 8.5	7.61	8.06	400.8	440.9	3.8
2015-07-05	6.5 - 8.5	7.63	8.02	395.9	435.5	3.7
2015-07-06	6.5 - 8.5	7.64	8.01	488.4	537.2	3.6
2015-07-07	6.5 - 8.5	7.64	7.97	465.7	512.3	5.9
2015-07-08	6.5 - 8.5	7.65	8.02	479.4	527.3	5.2
2015-07-09	6.5 - 8.5	7.69	8.00	447.9	492.7	3.6

**TABLE 1**  
**SONDE DATA COMPARISON - 2015 Daily Averages**  
**DURHAM YORK ENERGY CENTRE - 2015 WATER MONITORING PROGRAM**

DATE	pH			TURBIDITY		
	PWQO	Sonde 1 (upstream)	Sonde 2 (downstream)	Sonde 1 (upstream)	CWQG	Sonde 2 (Downstream)
2015-07-10	6.5 - 8.5	7.66	7.99	426.1	468.7	3.6
2015-07-11	6.5 - 8.5	7.64	7.95	460.2	506.2	3.9
2015-07-12	6.5 - 8.5	7.65	7.93	449.3	494.2	5.6
2015-07-13	6.5 - 8.5	7.63	7.91	493.8	543.2	4.1
2015-07-14	6.5 - 8.5	7.62	7.89	355.0	390.4	6.5
2015-07-15	6.5 - 8.5	7.65	7.94	1006.2	1106.8	30.3
2015-07-16	6.5 - 8.5	7.63	7.94	1053.3	1158.7	5.2
2015-07-17	6.5 - 8.5	7.64	7.86	1015.5	1117.0	17.0
2015-07-18	6.5 - 8.5	7.61	7.91	993.8	1093.2	7.6
2015-07-19	6.5 - 8.5	7.59	7.91	903.9	994.3	5.4
2015-07-20	6.5 - 8.5	7.60	7.91	992.8	1092.0	5.4
2015-07-21	6.5 - 8.5	7.83	7.92	469.3	516.2	5.0
2015-07-22	6.5 - 8.5	7.92	7.93	11.4	19.4	5.1
2015-07-23	6.5 - 8.5	7.89	7.91	10.0	18.0	4.7
2015-07-24	6.5 - 8.5	7.85	7.88	13.8	21.8	4.5
2015-07-25	6.5 - 8.5	7.81	7.85	20.6	28.6	12.5
2015-07-26	6.5 - 8.5	7.74	7.76	23.0	31.0	13.7
2015-07-27	6.5 - 8.5	7.80	7.82	10.8	18.8	5.0
2015-07-28	6.5 - 8.5	7.75	7.82	12.9	20.9	5.5
2015-07-29	6.5 - 8.5	7.72	7.83	10.2	18.2	7.5
2015-07-30	6.5 - 8.5	7.66	7.82	15.2	23.2	3.8
2015-07-31	6.5 - 8.5	7.67	7.83	11.0	19.0	4.2
2015-08-01	6.5 - 8.5	7.74	7.78	13.5	21.5	8.2
2015-08-02	6.5 - 8.5	7.74	7.79	38.0	46.0	15.4
2015-08-03	6.5 - 8.5	7.65	7.90	108.4	119.2	91.9
2015-08-04	6.5 - 8.5	7.56	7.93	17.1	25.1	7.3
2015-08-05	6.5 - 8.5	7.66	7.93	27.5	35.5	6.2
2015-08-06	6.5 - 8.5	7.86	7.96	9.6	17.6	6.0
2015-08-07	6.5 - 8.5	7.95	7.95	6.5	8.5	4.1
2015-08-08	6.5 - 8.5	7.92	7.95	8.5	16.5	3.7
2015-08-09	6.5 - 8.5	7.87	7.92	10.9	18.9	3.7
2015-08-10	6.5 - 8.5	7.88	7.87	69.9	77.9	46.5
2015-08-11	6.5 - 8.5	8.05	7.93	66.9	74.9	18.0
2015-08-12	6.5 - 8.5	8.02	7.96	19.8	27.8	6.3
2015-08-13	6.5 - 8.5	7.98	7.96	58.6	66.6	5.5
2015-08-14	6.5 - 8.5	7.91	7.83	117.3	129.0	49.9
2015-08-15	6.5 - 8.5	8.05	7.96	124.1	136.5	8.0
2015-08-16	6.5 - 8.5	8.00	7.93	350.2	385.2	7.0
2015-08-17	6.5 - 8.5	7.96	7.92	146.5	161.2	5.9
2015-08-18	6.5 - 8.5	7.97	7.89	40.7	48.7	5.5
2015-08-19	6.5 - 8.5	7.91	7.92	5.9	7.9	4.7
2015-08-20	6.5 - 8.5	7.84	7.83	16.1	24.1	9.2
2015-08-21	6.5 - 8.5	8.05	7.95	7.6	9.6	7.1
2015-08-22	6.5 - 8.5	7.98	7.95	5.1	7.1	3.9
2015-08-23	6.5 - 8.5	7.91	7.90	5.4	7.4	3.5

**TABLE 1**  
**SONDE DATA COMPARISON - 2015 Daily Averages**  
**DURHAM YORK ENERGY CENTRE - 2015 WATER MONITORING PROGRAM**

DATE	PWQO	pH		TURBIDITY		
		Sonde 1 (upstream)	Sonde 2 (downstream)	Sonde 1 (upstream)	CWQG	Sonde 2 (Downstream)
2015-08-24	6.5 - 8.5	7.87	7.88	5.6	7.6	3.5
2015-08-25	6.5 - 8.5	7.85	7.88	5.5	7.5	3.1
2015-08-26	6.5 - 8.5	7.81	7.88	5.4	7.4	3.0
2015-08-27	6.5 - 8.5	7.83	7.89	8.4	16.4	2.8
2015-08-28	6.5 - 8.5	7.82	7.90	4.8	6.8	3.0
2015-08-29	6.5 - 8.5	7.77	7.87	4.6	6.6	3.0
2015-08-30	6.5 - 8.5	7.77	7.86	5.1	7.1	2.8
2015-08-31	6.5 - 8.5	7.76	7.87	6.0	8.0	2.5
2015-09-01	6.5 - 8.5	7.80	7.85	5.5	7.5	2.4
2015-09-02	6.5 - 8.5	7.78	7.85	5.0	7.0	3.0
2015-09-03	6.5 - 8.5	7.75	7.83	5.5	7.5	2.6
2015-09-04	6.5 - 8.5	7.70	7.85	10.9	18.9	2.9
2015-09-05	6.5 - 8.5	7.61	7.84	13.1	21.1	2.3
2015-09-06	6.5 - 8.5	7.60	7.80	6.3	8.3	2.7
2015-09-07	6.5 - 8.5	7.61	7.83	5.6	7.6	2.5
2015-09-08	6.5 - 8.5	7.71	7.78	8.2	16.2	2.9
2015-09-09	6.5 - 8.5	7.79	7.81	9.3	17.3	4.0
2015-09-10	6.5 - 8.5	7.75	7.82	6.3	8.3	2.9
2015-09-11	6.5 - 8.5	7.75	7.89	5.6	7.6	1.8
2015-09-12	6.5 - 8.5	7.85	7.77	21.2	29.2	10.2
2015-09-13	6.5 - 8.5	8.06	7.90	57.4	65.4	34.1
2015-09-14	6.5 - 8.5	8.11	8.00	6.5	8.5	5.6
2015-09-15	6.5 - 8.5	8.02	7.98	6.0	8.0	3.3
2015-09-16	6.5 - 8.5	7.98	7.96	5.6	7.6	3.9
2015-09-17	6.5 - 8.5	7.94	7.94	5.7	7.7	3.1
2015-09-18	6.5 - 8.5	7.91	7.94	6.3	8.3	3.0
2015-09-19	6.5 - 8.5	7.89	7.90	8.4	16.4	4.1
2015-09-20	6.5 - 8.5	7.89	7.92	7.1	9.1	4.0
2015-09-21	6.5 - 8.5	7.92	7.95	6.6	8.6	3.1
2015-09-22	6.5 - 8.5	7.97	7.94	6.7	8.7	3.2
2015-09-23	6.5 - 8.5	7.94	7.95	6.6	8.6	2.8
2015-09-24	6.5 - 8.5	7.93	7.94	6.4	8.4	2.8
2015-09-25	6.5 - 8.5	7.92	7.93	6.1	8.1	2.8
2015-09-26	6.5 - 8.5	7.91	7.95	6.4	8.4	2.8
2015-09-27	6.5 - 8.5	7.91	7.94	6.4	8.4	2.2
2015-09-28	6.5 - 8.5	7.89	7.80	41.6	49.6	21.0
2015-09-29	6.5 - 8.5	8.05	7.86	89.8	98.8	61.9
2015-09-30	6.5 - 8.5	8.17	8.02	12.8	20.8	11.3
2015-10-01	6.5 - 8.5	8.15	8.06	6.1	8.1	4.8
2015-10-02	6.5 - 8.5	8.14	8.10	7.0	9.0	4.0
2015-10-03	6.5 - 8.5	8.12	8.09	6.4	8.4	4.1
2015-10-04	6.5 - 8.5	8.08	8.06	6.0	8.0	4.9
2015-10-05	6.5 - 8.5	8.04	8.00	6.0	8.0	3.9
2015-10-06	6.5 - 8.5	8.04	7.97	5.9	7.9	4.2
2015-10-07	6.5 - 8.5	8.06	8.00	5.5	7.5	3.6

**TABLE 1**  
**SONDE DATA COMPARISON - 2015 Daily Averages**  
**DURHAM YORK ENERGY CENTRE - 2015 WATER MONITORING PROGRAM**

DATE	PWQO	pH		TURBIDITY		
		Sonde 1 (upstream)	Sonde 2 (downstream)	Sonde 1 (upstream)	CWQG	Sonde 2 (Downstream)
2015-10-08	6.5 - 8.5	8.07	8.02	6.9	8.9	3.7
2015-10-09	6.5 - 8.5	8.15	7.97	48.7	56.7	34.1
2015-10-10	6.5 - 8.5	8.18	8.06	6.7	8.7	4.8
2015-10-11	6.5 - 8.5	8.17	8.07	5.9	7.9	3.7
2015-10-12	6.5 - 8.5	8.12	8.03	6.5	8.5	4.0
2015-10-13	6.5 - 8.5	8.10	7.93	32.3	40.3	17.8
2015-10-14	6.5 - 8.5	8.19	8.06	6.0	8.0	4.0
2015-10-15	6.5 - 8.5	8.17	8.05	7.1	9.1	4.4
2015-10-16	6.5 - 8.5	8.08	7.96	24.0	32.0	11.3
2015-10-17	6.5 - 8.5	8.20	8.06	6.5	8.5	5.7
2015-10-18	6.5 - 8.5	8.21	8.10	5.3	7.3	3.5
2015-10-19	6.5 - 8.5	8.19	8.09	6.5	8.5	3.8
2015-10-20	6.5 - 8.5	8.11	7.99	48.4	56.4	31.9
2015-10-21	6.5 - 8.5	8.19	8.06	4.7	6.7	4.0
2015-10-22	6.5 - 8.5	8.14	8.02	6.9	8.9	5.6
2015-10-23	6.5 - 8.5	8.17	8.05	3.0	5.0	3.2
2015-10-24	6.5 - 8.5	8.15	8.02	4.6	6.6	3.6
2015-10-25	6.5 - 8.5	8.15	7.97	43.5	51.5	34.5
2015-10-26	6.5 - 8.5	8.22	8.06	3.4	5.4	3.5
2015-10-27	6.5 - 8.5	8.23	8.08	3.0	5.0	3.1
2015-10-28	6.5 - 8.5	8.02	7.87	396.9	436.6	146.1
2015-10-29	6.5 - 8.5	7.57	7.82	340.6	374.6	156.0
2015-10-30	6.5 - 8.5	7.56	7.96	74.6	82.6	<b>202.0</b>
2015-10-31	6.5 - 8.5	7.83	8.04	44.1	52.1	<b>265.3</b>
2015-11-01	6.5 - 8.5	7.70	8.02	46.1	54.1	<b>81.5</b>
2015-11-02	6.5 - 8.5	7.81	8.07	39.7	47.7	<b>934.6</b>
2015-11-03	6.5 - 8.5	8.04	8.06	40.5	48.5	<b>642.0</b>
2015-11-04	6.5 - 8.5	8.30		4.0	6.0	
2015-11-05	6.5 - 8.5	8.30		4.1	6.1	
2015-11-06	6.5 - 8.5	8.29		4.9	6.9	
2015-11-07	6.5 - 8.5	8.33		4.6	6.6	
2015-11-08	6.5 - 8.5	8.33		4.5	6.5	
2015-11-09	6.5 - 8.5	8.33		4.8	6.8	
2015-11-10	6.5 - 8.5	8.33		8.3	16.3	
2015-11-11	6.5 - 8.5	8.29		18.9	26.9	
2015-11-12	6.5 - 8.5	8.34		26.3	34.3	
2015-11-13	6.5 - 8.5	8.40		9.8	17.8	
2015-11-14	6.5 - 8.5	8.40		8.9	16.9	
2015-11-15	6.5 - 8.5	8.38		8.9	16.9	
2015-11-16	6.5 - 8.5	7.95		9.5	17.5	
2015-11-17	6.5 - 8.5	7.71		6.8	8.8	
2015-11-18	6.5 - 8.5	7.76		7.5	9.5	
2015-11-19	6.5 - 8.5	7.75		12.6	20.6	
2015-11-20	6.5 - 8.5	7.92		48.5	56.5	
2015-11-21	6.5 - 8.5	7.87		72.5	80.5	

**TABLE 1**  
**SONDE DATA COMPARISON - 2015 Daily Averages**  
**DURHAM YORK ENERGY CENTRE - 2015 WATER MONITORING PROGRAM**

DATE	pH		TURBIDITY			
	PWQO	Sonde 1 (upstream)	Sonde 2 (downstream)	Sonde 1 (upstream)	CWQG	Sonde 2 (Downstream)
2015-11-22	6.5 - 8.5	7.84		58.0	66.0	
2015-11-23	6.5 - 8.5	7.80		73.7	81.7	
2015-11-24	6.5 - 8.5	7.78		63.6	71.6	
2015-11-25	6.5 - 8.5	7.78		80.1	88.1	
2015-11-26	6.5 - 8.5	7.75		84.9	93.4	
2015-11-27	6.5 - 8.5	7.68		101.6	111.7	
2015-11-28	6.5 - 8.5	7.69		189.5	208.4	
2015-11-29	6.5 - 8.5	7.65		467.6	514.3	
2015-11-30	6.5 - 8.5	7.58		404.5	445.0	
2015-12-01	6.5 - 8.5	7.56		373.8	411.2	
2015-12-02	6.5 - 8.5	7.52		252.5	277.7	
2015-12-03	6.5 - 8.5	7.49		64.1	72.1	

## NOTES:

- 1) PWQO - Provincial Water Quality Objectives (1999)
- 2) CWQG - Canadian Water Quality Guidelines (2011)
- 3) Calculation of CWQG for turbidity at the downstream station (for the table above) involves the following criteria:
  - If upstream turbidity <8 NTU, CWQG = upstream turbidity + 2 NTU
  - If upstream turbidity is between 8 NTU and 80 NTU, CWQG = upstream turbidity + 8 NTU
  - If upstream turbidity >80 NTU, CWQG = 10% increase compared to upstream turbidity
- 4) Shading indicates value does not satisfy the applicable PWQO / CWQG.
- 5) Sonde 1 experienced a power failure during the monitoring period between June 18 and June 30, 2015.
- 6) Sonde 2 failed in early November 2015, due to a leaking seal, and could not be repaired in sufficient time for the remainder of the 2015 monitoring program.



**TABLE B-2  
GROUNDWATER CHEMICAL RESULTS  
DURHAM YORK ENERGY CENTRE - 2015 MONITORING PROGRAM**

PARAMETER	UNIT	ODWQS <sup>1</sup>	MW1												
			Dec-11	Mar-12	Jun-12	Nov-12	Mar-13	Jul-13	Nov-13	Apr-14	Aug-14	Oct-14	Apr-15	Aug-15	Nov-15
Bicarbonate	mg/L		240	244	243	214	226	228	241	223	262	244	229	238	243
Carbonate	mg/L		<5	<5	<5	6	<5	<5	<5	<5	<5	<5	<5	<5	8
Chloride	mg/L	250	14.9	15.0	13.5	15.3	14.8	14.6	13.4	13.5	15.0	15.3	19.9	20.5	19.0
Sulphate	mg/L	500	152	153	131	147	127	129	132	227	151	150	158	143	139
Calcium	mg/L		83.0	68.8	67.7	73.9	73.8	65.3	65.5	90.7	70.4	69.1	68.0	68.3	69.2
Magnesium	mg/L		46.2	44.4	45.5	50.1	53.2	46.0	43.6	62.2	50.1	47.8	46.4	46.0	48.4
Potassium	mg/L		2.99	2.99	3.10	3.55	3.28	2.71	2.98	4.32	3.80	3.74	3.24	2.94	3.20
Sodium	mg/L	200	10.3	8.3	8.1	8.5	10.2	8.6	10.0	9.6	13.4	13.0	21.1	20.2	17.0
Boron	mg/L	5 *	0.019	0.015	0.014	0.016	0.012	0.023	0.015	0.014	0.012	0.015	0.014	0.015	0.015
Cadmium	mg/L	0.005 *	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.001
Cobalt	mg/L		0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/L	0.01 *	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Mercury	mg/L	0.001 *	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

NOTES: 1) ODWQS - Ontario Drinking Water Quality Standards, Objectives, and Guidelines (2006).

2) \* - Indicates health related drinking water standard.

**TABLE B-2**  
**GROUNDWATER CHEMICAL RESULTS**  
**DURHAM YORK ENERGY CENTRE - 2015 MONITORING PROGRAM**

PARAMETER	UNIT	ODWQS <sup>1</sup>	MW2A												
			Dec-11	Mar-12	Jun-12	Nov-12	Mar-13	Jul-13	Nov-13	Apr-14	Aug-14	Oct-14	Apr-15	Aug-15	Nov-15
Bicarbonate	mg/L		221	215	195	168	188	190	206	185	180	188	198	194	202
Carbonate	mg/L		<5	<5	<5	7	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	250	4.7	3.2	1.8	4.0	1.9	2.7	2.5	3.3	4.5	4.5	6.1	5.1	4.0
Sulphate	mg/L	500	72.9	45.7	21.2	28.8	15.6	18.9	21.8	25.1	27.5	26.3	33.8	26.5	22.7
Calcium	mg/L		48.3	27.3	18.4	19.5	17.9	15.4	16.5	15.8	16.6	15.1	18.3	17.2	14.6
Magnesium	mg/L		32.0	31.3	32.2	35.5	37.5	32.3	30.6	33.6	30.0	30.6	31.8	32.4	33.3
Potassium	mg/L		2.31	2.20	1.62	1.80	1.75	1.34	1.51	1.52	1.42	1.30	1.50	1.62	1.26
Sodium	mg/L	200	23.5	16.8	14.6	17.3	17.6	15.2	18.7	24.7	25.9	25.2	29.5	28.1	28.2
Boron	mg/L	5 *	0.088	0.081	0.090	0.097	0.096	0.106	0.104	0.106	0.108	0.117	0.111	0.113	0.098
Cadmium	mg/L	0.005 *	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.001
Cobalt	mg/L		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/L	0.01 *	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Mercury	mg/L	0.001 *	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

NOTES: 1) ODWQS - Ontario Drinking Water Quality Standards, Objectives, and Guidelines (2006).

2) \* - Indicates health related drinking water standard.

**TABLE B-2  
GROUNDWATER CHEMICAL RESULTS  
DURHAM YORK ENERGY CENTRE - 2015 MONITORING PROGRAM**

PARAMETER	UNIT	ODWQS <sup>1</sup>	MW2B												
			Dec-11	Mar-12	Jun-12	Nov-12	Mar-13	Jul-13	Nov-13	Apr-14	Aug-14	Oct-14	Apr-15	Aug-15	Nov-15
Bicarbonate	mg/L		235	244	252	220	242	241	248	224	236	238	240	225	258
Carbonate	mg/L		<5	<5	<5	8	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	250	13.5	11.7	11.8	12.6	14.2	15.2	14.3	22.6	45.4	59.9	71.3	66.3	67.0
Sulphate	mg/L	500	98.8	120	93.6	99.4	84.9	82.2	77.3	84.0	78.1	80.2	96.2	80.4	74.6
Calcium	mg/L		58.7	49.7	45.6	48.1	46.2	40.8	39.4	43.6	44.7	45.8	48.6	48.3	47.9
Magnesium	mg/L		34.8	42.3	44.2	49.5	54.5	46.8	44.2	52.2	52.3	53.2	54.8	55.0	56.5
Potassium	mg/L		1.09	1.67	1.81	2.20	2.23	1.82	2.03	2.02	2.04	2.00	1.98	2.04	2.11
Sodium	mg/L	200	29.1	24.0	20.7	20.4	21.9	18.5	19.3	22.5	22.5	24.5	26.5	27.7	30.9
Boron	mg/L	5 *	0.076	0.077	0.078	0.087	0.082	0.086	0.083	0.076	0.077	0.080	0.074	0.069	0.068
Cadmium	mg/L	0.005 *	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.001
Cobalt	mg/L		0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/L	0.01 *	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Mercury	mg/L	0.001 *	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

NOTES: 1) ODWQS - Ontario Drinking Water Quality Standards, Objectives, and Guidelines (2006).

2) \* - Indicates health related drinking water standard.

**TABLE B-2**  
**GROUNDWATER CHEMICAL RESULTS**  
**DURHAM YORK ENERGY CENTRE - 2015 MONITORING PROGRAM**

PARAMETER	UNIT	ODWQS <sup>1</sup>	MW3A							MW3A-R					
			Dec-11	Mar-12	Jun-12	Nov-12	Mar-13	Jul-13	Sep-13	Jun-14	Aug-14	Oct-14	Apr-15	Aug-15	Nov-15
Bicarbonate	mg/L		181	153	147	130	124	121	151	134	120	123	147	126	137
Carbonate	mg/L		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	250	22.7	24.6	24.4	26.3	25.1	23.8	26.2	7.5	6.5	6.2	7.7	6.5	6.2
Sulphate	mg/L	500	125	78.7	50.7	44.0	29.3	23.0	20.3	27.4	20.7	21.4	26.8	25.7	21.7
Calcium	mg/L		76.9	43.8	34.3	27.9	26.4	22.5	24.4	22.0	19.4	16.0	18.3	21.2	17.7
Magnesium	mg/L		11.5	9.92	9.13	8.95	8.76	6.68	6.91	9.27	8.73	8.74	11.10	11.60	10.40
Potassium	mg/L		1.79	1.79	1.33	1.86	1.25	1.09	2.94	2.34	2.09	1.41	1.51	1.74	1.41
Sodium	mg/L	200	47.5	45.3	43.0	46.0	49.6	40.8	44.7	35.1	35.7	34.5	39.2	37.9	40.0
Boron	mg/L	5 *	0.129	0.164	0.171	0.182	0.175	0.172	0.169	0.132	0.139	0.155	0.148	0.141	0.123
Cadmium	mg/L	0.005 *	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.001
Cobalt	mg/L		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/L	0.01 *	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Mercury	mg/L	0.001 *	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

NOTES: 1) ODWQS - Ontario Drinking Water Quality Standards, Objectives, and Guidelines (2006).

2) \* - Indicates health related drinking water standard.

**TABLE B-2  
GROUNDWATER CHEMICAL RESULTS  
DURHAM YORK ENERGY CENTRE - 2015 MONITORING PROGRAM**

PARAMETER	UNIT	ODWQS <sup>1</sup>	MW3B							MW3B-R					
			Dec-11	Mar-12	Jun-12	Nov-12	Mar-13	Jul-13	Sep-13	Jun-14	Aug-14	Oct-14	Apr-15	Aug-15	Nov-15
Bicarbonate	mg/L		247	212	211	186	213	202	235	198	209	203	215	200	235
Carbonate	mg/L		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	250	10.8	10.2	10.7	12.5	15.6	13.9	18.8	15.4	12.3	10.7	11.6	10.3	9.2
Sulphate	mg/L	500	102	58.6	52.4	45.8	33.9	39.9	43.4	103.0	88.7	85.7	95.5	82.9	78.8
Calcium	mg/L		78.4	49.7	47.9	49.3	55.5	46.8	61.4	58.3	46.8	47.7	51.5	52.4	51.2
Magnesium	mg/L		22.4	19.9	20.2	21.7	26.4	21.2	25.1	31.4	29.2	29.3	31.4	31.7	32.0
Potassium	mg/L		2.00	1.42	1.55	1.99	1.59	1.38	2.39	5.92	4.62	4.04	3.43	3.23	3.27
Sodium	mg/L	200	35.5	25.5	25.7	26.2	26.4	24.1	27.1	25.1	23.8	23.9	25.7	26.6	28.9
Boron	mg/L	5 *	0.071	0.079	0.088	0.092	0.073	0.095	0.082	0.118	0.095	0.115	0.096	0.090	0.082
Cadmium	mg/L	0.005 *	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.001
Cobalt	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/L	0.01 *	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Mercury	mg/L	0.001 *	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

NOTES: 1) ODWQS - Ontario Drinking Water Quality Standards, Objectives, and Guidelines (2006).

2) \* - Indicates health related drinking water standard.

**TABLE B-2**  
**GROUNDWATER CHEMICAL RESULTS**  
**DURHAM YORK ENERGY CENTRE - 2015 MONITORING PROGRAM**

PARAMETER	UNIT	ODWQS <sup>1</sup>	MW4												
			Dec-11	Mar-12	Jun-12	Nov-12	Mar-13	Jul-13	Nov-13	Apr-14	Aug-14	Oct-14	Apr-15	Aug-15	Nov-15
Bicarbonate	mg/L		300	430	506	346	330	448	496	301	353	300	539	482	574
Carbonate	mg/L		<5	<5	<5	8	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	250	12.3	14.5	7.1	12.0	8.2	7.5	6.8	8.6	8.5	12.2	7.0	7.6	8.7
Sulphate	mg/L	500	50.8	47.5	47.8	60.8	38.5	62.6	62.6	23.8	31.8	32.1	78.1	58.9	72.0
Calcium	mg/L		42.7	36.4	43.1	45.9	42.2	44.7	39.0	29.0	31.9	31.3	38.5	46.0	43.9
Magnesium	mg/L		51.5	72.8	88.2	68.2	68.8	83.6	83.9	54.9	62.0	53.8	103.0	102.0	106.0
Potassium	mg/L		4.39	2.45	2.70	6.08	2.81	3.55	3.61	2.30	2.73	2.63	2.68	3.43	3.70
Sodium	mg/L	200	22.0	25.5	28.0	23.1	23.7	28.6	35.8	22.2	25.5	22.0	40.0	36.6	47.6
Boron	mg/L	5 *	0.057	0.061	0.066	0.057	0.038	0.064	0.066	0.040	0.051	0.051	0.069	0.065	0.075
Cadmium	mg/L	0.005 *	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.001
Cobalt	mg/L		0.002	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/L	0.01 *	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Mercury	mg/L	0.001 *	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

NOTES: 1) ODWQS - Ontario Drinking Water Quality Standards, Objectives, and Guidelines (2006).

2) \* - Indicates health related drinking water standard.

**TABLE B-2**  
**GROUNDWATER CHEMICAL RESULTS**  
**DURHAM YORK ENERGY CENTRE - 2015 MONITORING PROGRAM**

PARAMETER	UNIT	ODWQS <sup>1</sup>	MW5A						MW5B					
			Jun-14	Aug-14	Oct-14	Apr-15	Aug-15	Nov-15	Jun-14	Aug-14	Oct-14	Apr-15	Aug-15	Nov-15
Bicarbonate	mg/L		207	199	183	200	198	215	240	247	234	247	229	274
Carbonate	mg/L		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	250	5.3	3.9	3.2	2.8	2.7	2.2	5.9	5.0	4.8	8.0	10.1	12.9
Sulphate	mg/L	500	16.9	11.0	5.6	9.4	7.6	6.9	96.4	91.4	95.9	107.0	103.0	98.7
Calcium	mg/L		25.2	19.4	17.4	19.5	20.7	17.1	41.2	34.4	36.2	39.1	46.9	38.7
Magnesium	mg/L		34.9	31.7	31.0	33.3	35.1	35.0	56.7	52.3	52.6	55.1	60.1	59.1
Potassium	mg/L		3.83	2.89	2.82	2.53	2.44	2.38	4.37	3.76	3.51	2.95	3.31	3.25
Sodium	mg/L	200	12.2	11.2	11.4	11.9	11.7	12.9	10.2	10.1	10.2	12.2	13.0	16.6
Boron	mg/L	5 *	0.054	0.045	0.049	0.041	0.036	0.033	0.045	0.048	0.053	0.040	0.042	0.037
Cadmium	mg/L	0.005 *	<0.002	<0.002	<0.002	<0.001	<0.002	<0.001	<0.002	<0.002	<0.002	<0.001	<0.002	<0.001
Cobalt	mg/L		<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/L	0.01 *	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Mercury	mg/L	0.001 *	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

NOTES: 1) ODWQS - Ontario Drinking Water Quality Standards, Objectives, and Guidelines (2006).

2) \* - Indicates health related drinking water standard.