January 4, 2016

Dear All,

You are receiving this communication to keep you apprised of the status of the ongoing hydrogeological investigation associated with the closed Waste Management Landfill property.

Following the conclusion of the Environmental Review Tribunal (ERT) proceedings last summer, work has continued to address activities required by the ERT Order issued on July 21, 2015, under technical oversight from Ministry of the Environment and Climate Change (MOECC). Specifically, additional field investigations have been conducted to further delineate a Contaminant Attenuation Zone (CAZ Investigation) for the site that, once approved, will allow the Environmental Monitoring Plan (EMP) to be finalized.

In the interim, the EMP was modified as ordered by the ERT to include new or modified conditions to the Environmental Compliance Approval (ECA) for the site, and implemented on an interim basis as of September 1, 2015, until such time that the ERT rules on the issues from the hearing.

Under the new ECA Conditions set forth in the revised EMP and ordered by the ERT, Waste Management has notified the MOECC District Manager of results from recent sampling events conducted as a part of the ERT Order, Environmental Monitoring Program and CAZ Investigation. We are providing, for your information, the notices supplied to MOECC on December 7 and 17, 2015. All results outlined in these notices are related to concentration exceedances and new constituent detections at locations on the landfill site and within the proposed CAZ, where several new groundwater monitoring wells have been sampled for the first time. The exceedances reported do not pose any risks to human health or the environment beyond the site and proposed CAZ boundaries.

All results will be evaluated and reported on in reports that are due on January 15, 2016.

Regards,

Ross Wallace
Manager, Richmond Landfill
Waste Management of Canada Corporation

MEMORANDUM

DATE:	December 7, 2015
TO:	Brian Kaye, District Manager, Ministry of the Environment and Climate Change (MOECC)
CC:	Kyle Stephenson and Peter Taylor (MOECC) Chris Prucha and Bill McDonough (WM)
FROM:	François Richard & Phil Tibble (BluMetric)
PROJECT NO:	C-B12501-00-00
SUBJECT:	Notification of Off-site Exceedances and 1,4 Dioxane Detections, WM Richmond Landfill, Town of Greater Napanee

This memorandum is provided on behalf of Waste Management of Canada Corporation as required by Conditions 8.7 and 8.8 of Environmental Compliance Approval (ECA) No. A371203 for the Richmond Landfill, Town of Greater Napanee, Ontario. These requirements are outlined in the Environmental Monitoring Plan (EMP) for the site[1], implemented on September 1, 2015 on an interim basis as ordered by the Environmental Review Tribunal (ERT) Order dated July 21, 2015.

BACKGROUND

Condition 8.7 of ECA requires that any off-site exceedance of groundwater, surface water or odour be reported to the MOECC District Manager within 48 hours of determining the exceedance. In addition, Condition 8.8 requires that any monitoring result that detects 1,4 dioxane at or above the detection limit of 1 μg/L at any groundwater well or domestic well at which 1,4 dioxane has not been detected in the past or at any surface water monitoring location shall be reported to the District Manager within 48 hours of determination of the 1,4 dioxane detection.

[1] *Environmental Monitoring Plan, WM Richmond Landfill, Town of Greater Napanee, Ontario, rev. No.04*, prepared by BluMetric Environmental Inc., dated August 2015

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PRELIMINARY RESULTS

Groundwater and surface water samples were collected from off-site locations within the proposed CAZ between November 11 and 18, 2015 as part of the ongoing hydrogeologic investigation aimed at delineating the proposed contaminant attenuation zone (CAZ) associated with the Richmond Landfill.

GROUNDWATER SAMPLES

Groundwater samples were collected from groundwater monitoring well nest M178R (installed recently to replace existing well nest M178), as well as from new monitoring wells M187-M191.

Groundwater quality testing conducted at these new locations showed the presence of the following non-health based parameters in exceedance of their respective Reasonable Use Limits (RUL):

- Alkalinity
- Chloride
- Dissolved Organic Carbon
- Iron
- Manganese
- Sodium
- Totally Dissolved Solids

In addition to the above non-health based parameters, benzene and toluene were detected above their respective RUL at well M191, while 1,4 dioxane was detected in monitoring wells M178R-2, M178R-3 and M178R-4 at a concentration of 7 µg/L in all three wells.

SURFACE WATER

Surface water samples were also collected at a groundwater discharge point observed near well nest M178 and from a nearby stream. A 1,4 dioxane concentration of 1.5 µg/L was measured at a groundwater seepage point near M178 and was below detection in the nearby stream at upstream and downstream sampling locations relative to the groundwater seep. It should be noted that the Provincial Water Quality Objective (PWQO) for 1,4 dioxane in surface water is 20 µg/L[2].

[2] *Water Management*, Ontario Ministry of Environment and Energy, July 1994.

CLOSING

Results are pending from a second round of sampling conducted from the above locations between November 30 and December 3, 2015. All results will be fully evaluated as part of the ongoing hydrogeological investigation and formally reported by January 15, 2016 as agreed between the parties during the ERT proceedings.

We trust the above information is satisfactory. If you have any questions or need further information regarding the completed work please do not hesitate to contact the undersigned.

Francois Richard, Ph.D. P.Geo.
Senior Hydrogeologist

Phil Tibble, M.Sc. P.Geo
Senior Hydrogeologist

MEMORANDUM

DATE:	December 17, 2015
TO:	Brian Kaye, District Manager, Ministry of the Environment and Climate Change (MOECC)
CC:	Kyle Stephenson and Peter Taylor (MOECC) Chris Prucha and Bill McDonough (WM)
FROM:	François Richard (BluMetric)
PROJECT NO:	C-B12501-00-00
SUBJECT:	Notification of Off-site Exceedances and 1,4 Dioxane Detections, WM Richmond Landfill, Town of Greater Napanee

This memorandum is provided on behalf of Waste Management of Canada Corporation as required by Conditions 8.7 and 8.8 of Environmental Compliance Approval (ECA) No. A371203 for the Richmond Landfill, Town of Greater Napanee, Ontario. These requirements are outlined in the Environmental Monitoring Plan (EMP) for the site[1], implemented on September 1, 2015 on an interim basis as ordered by the Environmental Review Tribunal (ERT) Order dated July 21, 2015.

BACKGROUND

Condition 8.7 of ECA requires that any off-site exceedance of groundwater, surface water or odour be reported to the MOECC District Manager within 48 hours of determining the exceedance. In addition, Condition 8.8 requires that any monitoring result that detects 1,4 dioxane at or above the detection limit of 1 µg/L at any groundwater well or domestic well at which 1,4 dioxane has not been detected in the past or at any surface water monitoring location shall be reported to the District Manager within 48 hours of determination of the 1,4 dioxane detection.

The data evaluation procedures described in the EMP (Section 7) are triggered when new exceedances of the RULs (or new detections of 1,4 dioxane above the compliance standard of 0.030 mg/L) are identified from the initial screening of sampling results, and/or when results from

[1] *Environmental Monitoring Plan, WM Richmond Landfill, Town of Greater Napanee, Ontario, rev. No.04*, prepared by BluMetric Environmental Inc., dated August 2015

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downstream surface water locations are higher than the PWQO and higher than upstream concentrations. Confirmation re-sampling is required within 7 days of the determination of a new detection of 1,4 dioxane or of a new RUL exceedance in a groundwater trigger well or in an off-site domestic water supply well. Similarly for surface water sampling results, re-sampling is required within one week at downstream locations if results show new PWQO exceedances and higher than upstream concentrations.

PRELIMINARY RESULTS

GROUNDWATER

Groundwater samples were collected between November 23 and 26, 2015 from all monitoring locations specified in the EMP. Additionally, samples were collected on November 30 and December 1, 2015 from groundwater monitoring well nest M178R (installed to replace existing well nest M178), as well as from new monitoring wells M187-M191, as part of the ongoing hydrogeological investigation aimed at delineating an off-site Contaminant Attenuation Zone (CAZ Investigation) to the south and southeast of the site boundary.

Groundwater quality testing conducted at the sampled locations showed the presence of non-health based parameters which exceeded their respective Reasonable Use Limits (RUL) in off-site wells as summarized in **Table 1**.

In addition, a 1,4 dioxane concentration of 0.0013 mg/L was measured at monitoring well M9-3 on November 24, 2015 (the first detection of 1,4 dioxane at this location). This concentration is well below the compliance standard of 0.030 mg/L specified in the EMP.

SURFACE WATER

As part of the fall monitoring event, surface water samples were collected from the monitoring locations specified in the EMP. A 1,4 dioxane concentration of 0.0018 mg/L was measured at sampling location S8R on November 23, 2015, well below the Provincial Water Quality Objective (PWQO) for 1,4 dioxane in surface water of 0.020 mg/L[2].

As part of the CAZ Investigation, surface water samples were collected on December 3, 2015 from a diffuse and dynamic groundwater discharge area observed in the vicinity of well nest

[2] *Water Management*, Ontario Ministry of Environment and Energy, July 1994.

M178 and also from a receiving surface water course located to the south of this area. The groundwater seepage sample revealed a 1,4 dioxane concentration of 0.004 mg/L, well below the PWQO of 0.020 mg/L. 1,4 dioxane was below detection in the nearby surface water course at both upstream and downstream sampling locations.

CLOSING

Confirmation re-sampling will occur within 7 days as specified in the EMP at trigger groundwater monitoring wells M85, M179, M185-1 and M186, where new RUL exceedances of non-health related parameters have been determined.

All results will be fully evaluated as part of the ongoing hydrogeological investigation and formally reported by January 15, 2016 as agreed between the parties during the ERT proceedings, and/or in the fall semi-annual report as specified in the EMP (also due January 15, 2015), as appropriate.

We trust the above information is satisfactory. If you have any questions or need further information regarding the completed work please do not hesitate to contact the undersigned.

Francois Richard, Ph.D. P.Geo.
Senior Hydrogeologist

Table 1: Summary of RUL Exceedances at Off-Site Monitoring Wells

Name	Sample Date	Sampling Program*	Alkalinity mg/L	Chloride mg/L	Dissolved Organic Carbon mg/L	Iron mg/L	Manganese mg/L	Sodium mg/L	Total Dissolved Solids mg/L	Benzene mg/L	Total Xylenes mg/L
		RUL	*400*	*132*	*3.5*	*0.18*	*0.032*	*106*	*465*	*0.0014*	*0.0121*
M64-2	26/11/2015	EMP	290	110	0.9	< 0.1	0.0085	95	**520**	< 0.0001	< 0.0001
M114-1	24/11/2015	EMP	**580**	**160**	**7.3**	**14**	**0.69**	100	**942**	< 0.0001	< 0.0001
M121	24/11/2015	EMP	**510**	**510**	**4.8**	< 0.1	0.0044	**320**	**1560**	0.045	**0.014**
M123	25/11/2015	EMP	**450**	75	**4.1**	< 0.1	0.016	51	**582**	< 0.0001	< 0.0001
M167	26/11/2015	EMP	**420**	**230**	3.5	< 0.1	0.0027	**180**	**802**	0.00038	< 0.0001
M168	26/11/2015	EMP	390	**330**	**3.6**	< 0.1	0.0045	**130**	**1020**	< 0.0001	< 0.0001
M170	26/11/2015	EMP	**620**	**620**	**5**	< 0.1	< 0.002	**640**	**1750**	< 0.0001	< 0.0001
M172	24/11/2015	EMP	**580**	**190**	**8.9**	**27**	**0.91**	**110**	**1020**	0.00013	< 0.0001
M178R-1	18/11/2015	CAZ	**420**	**4700**	**7.6**	< 0.5	**0.22**	**2800**	**8340**	0.0012	< 0.0001
M178R-1	25/11/2015	EMP	340	**4400**	**4.5**	< 0.5	**0.18**	**2700**	**8670**	0.00069	0.00053
M178R-1	30/11/2015	CAZ	**460**	**4400**	2.2	< 0.1	**0.1**	**2700**	**8460**	0.00036	0.00067
M178R-2	17/11/2015	CAZ	**450**	87	**5.1**	**1.1**	**0.061**	63	**618**	< 0.0001	< 0.0001
M178R-2	25/11/2015	EMP	**440**	79	**5.3**	**1.1**	**0.055**	60	**594**	< 0.0001	< 0.0001
M178R-2	30/11/2015	CAZ	**430**	75	**4.6**	**1**	**0.053**	55	**614**	< 0.0001	< 0.0001
M178R-3	17/11/2015	CAZ	**440**	85	**4.8**	**0.96**	**0.063**	62	**606**	< 0.0001	< 0.0001
M178R-3	25/11/2015	EMP	**450**	86	**4.7**	**0.97**	**0.059**	63	**626**	< 0.0001	< 0.0001
M178R-3	30/11/2015	CAZ	**440**	87	**4.8**	**0.81**	**0.054**	56	**622**	< 0.0001	< 0.0001
M178R-4	13/11/2015	CAZ	**450**	85	**4.4**	0.12	0.013	56	**620**	< 0.0001	< 0.0001
M178R-4	25/11/2015	EMP	**440**	87	**4.4**	< 0.1	0.013	59	**632**	< 0.0001	< 0.0001
M178R-4	30/11/2015	CAZ	**440**	83	**4.5**	< 0.1	0.012	53	**626**	< 0.0001	< 0.0001
M179	25/11/2015	EMP	260	39	**3.7**	**0.95**	0.031	26	420	< 0.0001	< 0.0001
M185-1	26/11/2015	EMP	**410**	**260**	**29**	**0.35**	**0.034**	**410**	**1090**	< 0.0005	< 0.0005
M186	26/11/2015	EMP	300	**1300**	**3.7**	**1.4**	**0.43**	**770**	**2480**	0.00065	0.0023
M187	25/11/2015	EMP	260	36	2	< 0.1	0.0024	25	**484**	< 0.0001	< 0.0001
M187	30/11/2015	CAZ	260	38	2.1	< 0.1	0.0022	25	**476**	< 0.0001	< 0.0001
M188	13/11/2015	CAZ	330	75	2	< 0.1	0.011	100	**468**	< 0.0001	< 0.0001
M188	25/11/2015	EMP	330	81	2	< 0.1	0.011	**110**	**504**	< 0.0002	< 0.0002
M188	30/11/2015	CAZ	330	80	2.1	< 0.1	0.0094	100	**504**	< 0.0001	< 0.0001
M189	11/11/2015	CAZ	340	**140**	3.1	< 0.1	**0.14**	100	**656**	0.00031	< 0.0001
M189	01/12/2015	CAZ	330	72	3.2	< 0.1	**0.12**	62	**550**	< 0.0001	< 0.0001
M190	30/11/2015	CAZ	290	48	**3.6**	< 0.1	0.009	19	448	< 0.0001	< 0.0001
M191	17/11/2015	CAZ	180	**31000**	**260**	**12**	**2**	**15000**	**61500**	**0.16**	< 0.01
M191	01/12/2015	CAZ	150	**41000**	**190**	**11**	**2.1**	**15000**	**73900**	**0.15**	< 0.01

** This table includes preliminary results from off-site wells that had concentrations above RUL from any of two sampling events conducted as part of the CAZ Investigation or from the EMP fall semi-annual sampling event*