



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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November 4, 2021

Philip Perley, Sr. District Manager
Environmental Legacy Management Group
Waste Management
9081 Tujunga Avenue
Sun Valley, CA 91352

Re: Addendum to Cleanup Action Plan for the following Contaminated Site:

- **Site Name:** Olympic View Sanitary Landfill
- **Site Address:** 10015 SW Barney White Road, Port Orchard, Washington 98367
- **Cleanup Site ID:** 4217
- **Facility/Site ID:** 79649975

Dear Philip Perley:

Thank you for working with the Washington State Department of Ecology (Ecology) on the Olympic View Sanitary Landfill (OVSL) site (Site) under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW, and Agreed Order No. DE 8462, which became effective on June 9, 2011.

Regulatory Summary

Waste Management of Washington, Inc. (WMW) is the owner and operator of the OVSL. Kitsap Public Health Department (KPHD) issues a Solid Waste Landfill Post-Closure Permit to OVSL in accordance with Washington Administrative Code (WAC) 173-351 (Criteria for Municipal Solid Waste (MSW) Landfills) and Kitsap County Board of Health Ordinance 2010-1, as amended.

WMW entered into Agreed Order No. DE 00SWFAPNR-1729 with Ecology on January 31, 2000, to address the release certain products of solid waste decomposition into the environment in accordance with MTCA regulations in WAC 173-340. This agreed order required WMW to prepare a Remedial Investigation (RI) and Feasibility Study (FS) pursuant to

MTCA for the Site. WMW completed interim actions to improve the landfill containment system and completed the RI/FS¹ in October 2010.

WMW entered into Agreed Order No. DE 8462 with the Ecology on June 9, 2011. This agreed order requires WMW to implement the Cleanup Action Plan (CAP)². The CAP:

- Addresses contamination in groundwater.
- States that surface water impacts were not observed and that landfill gas concentrations were compliant with the solid waste regulations.
- Establishes groundwater cleanup levels for ten indicator hazardous substances.
- Identifies the conditional point of compliance for groundwater as 150 meters (492 feet) from the landfill boundary (consistent with the relevant point of compliance defined in the solid waste regulations).
- Identifies compliance groundwater wells.
- Describes the interim actions performed and actions planned to improve the landfill containment system.
- Requires that WMW implement a monitored natural attenuation program for groundwater.
- Recognizes that institutional controls and financial assurance are required under the solid waste regulations.

Evaluation of Natural Background Concentrations

The RI/FS Executive Summary states that background concentrations of arsenic, iron, manganese, and ammonia were evaluated in the 2008 Annual Monitoring Report for the landfill. Background prediction limits were calculated based on the 99% upper confidence limit of sampling results from monitoring wells MW-13, MW-13A, MW-13B, and MW-35 between 2005 and 2008. These wells are located east and upgradient of the landfill³. The calculated background concentrations were:

- 0.462 µg/L arsenic
- 230 µg/L iron
- 31 µg/L manganese
- 190 µg/L nitrate

Ecology recommended that WMW evaluate natural background metal concentrations in regional groundwater during the MTCA periodic review process. WMW contracted JMO Consulting to evaluate background concentrations, who coordinated with Ecology and KPHD during the

¹ Remedial Investigation/Feasibility Study, Olympic View Sanitary Landfill, Environmental Management Support, Inc., October 2010.

² Cleanup Action Plan, Olympic View Sanitary Landfill, Ecology, December 2010.

³ See Figure 5 (Groundwater Monitoring Well Network), Five Year Review Evaluation Olympic View Sanitary Landfill, Engineering Management Support, Inc., June 9, 2021.

evaluation. JMO Consulting submitted two technical memoranda describing the background evaluation:

- Statistical Derivation of Background Metal Concentrations – Olympic View Sanitary Landfill, Kitsap County, Washington (JMO Consulting, May 20, 2021).
- Development of Background Metals Concentrations – Olympic View Sanitary Landfill, Kitsap County, Washington (JMO Consulting, March 25, 2021) (included as Attachment 1 of the May 20, 2021 technical memorandum).

JMO Consulting calculated natural background concentrations for arsenic, iron, and manganese in groundwater based on the 95% UCL with 95% coverage. The calculated natural background concentrations are (all total metals concentrations):

- 4.27 µg/L arsenic
- 1,900 µg/L iron
- 730 µg/L manganese

The calculated natural background concentration of arsenic is less than the 10 µg/L maximum contaminant level for drinking water and less than the 5 µg/L MTCA Method A cleanup level, which is based on a regulatory accepted background concentration. The calculated natural background concentrations of iron and manganese are less than the 11,000 µg/L Method B cleanup level for iron and the 750 µg/L MTCA Method B cleanup level for manganese, which are based on toxicological risk.

Revised Groundwater Cleanup Levels for Indicator Hazardous Substances

This CAP Addendum incorporates the natural background concentrations as revised groundwater cleanup levels for arsenic, iron, and manganese, as allowed under WAC 173-340-720(7)(c). The following table summarizes the previous and revised groundwater cleanup levels for the indicator hazardous substances.

Revised Groundwater Cleanup Levels for Indicator Hazardous Substances		
Indicator Hazardous Substance	Previous Groundwater Cleanup Level (µg/L)	Revised Groundwater Cleanup Level (µg/L)
Volatile organic compounds		
Trichloroethylene	1	1
cis-1,2-Dichloroethylene	35	35
Vinyl chloride	0.2	0.2
1,1-Dichloroethane	50	50
1,4-Dichlorobenzene	2	2
Ethyl ether	50	50
Naturally occurring metals		
Arsenic	0.462	4.27
Iron	300	1,900
Manganese	50	730

Revised Groundwater Cleanup Levels for Indicator Hazardous Substances		
Indicator Hazardous Substance	Previous Groundwater Cleanup Level (µg/L)	Revised Groundwater Cleanup Level (µg/L)
Conventional Parameters		
Ammonia	190	190

Environmental Monitoring Program

The CAP includes the implementation of the Environmental Monitoring Plan (EMP)⁴. The EMP (December 2009) was prepared before the completion of the Feasibility Study (June 2010) and the CAP (December 2010), and it addresses both MTCA and solid waste regulation requirements. Groundwater monitoring is required under both MTCA and WAC 173-351. Landfill gas, leachate, and stormwater sampling are not required under MTCA. The EMP includes a Sampling and Analysis Plan (SAP) as an appendix, which satisfies WAC 173-340-820 (Sampling and Analysis Plans) and WAC 173-351-410 (Groundwater Sampling and Analysis Requirements). Solid waste regulation WAC 173-351-410 addresses all aspects of MTCA regulation WAC 173-340-820. Additionally, solid waste regulation WAC 173-351-440 (Assessment Monitoring Program) addresses all aspects for monitored natural attenuation.

The SAP is continually updated under the landfill permit:

- The SAP⁵ was updated to comply with the 2012 update of WAC 173-351, which requires the analysis of total metals.
- The SAP (Revision 1.1)⁶ was updated to address Ecology's 2016/2017 Periodic Review and Ecology's onsite building monitoring and landfill gas monitoring procedures.
- The SAP (Revision 1.2)⁷ was updated based on statistically significant decreasing trends in contaminant concentrations. Ecology approved the following changes on a two-year trial basis:
 - Reduced sampling frequency of compliance and downgradient wells from quarterly to semi-annually based the statistically significant decreasing trends in contamination.
 - Collection of field parameters only from upgradient wells during one of the semi-annual sampling events;
- KPHD and Ecology (July 15, 2021) recommended that WMW revise the SAP to adopt the natural background concentrations of total arsenic, total iron, and total manganese and the upgradient background concentration of ammonia as the groundwater quality standards in accordance with WAC 173-200-050(b)(ii). This CAP Addendum similarly adopts the natural background concentrations of total arsenic, total iron, and total manganese as revised groundwater cleanup levels in accordance with

⁴ Environmental Monitoring Plan, Olympic View Sanitary Landfill, Environmental Management Support, Inc., December 2009.

⁵ Sampling and Analysis Plan, Olympic View Sanitary Landfill, SCS Engineers, March 29, 2013.

⁶ Sampling and Analysis Plan, Revision 1.1, Olympic View Sanitary Landfill, SCS Engineers, August 2, 2017.

⁷ Sampling and Analysis Plan, Revision 1.2, Olympic View Sanitary Landfill, SCS Engineers, August 5, 2019.

Philip Perley, Sr. District Manager

November 4, 2021

Page 5

WAC 173-340-720(7)(c). WMW revised SAP (Revision 1.3)⁸ to incorporate the recommended background concentrations as groundwater quality standards.

Thank you for your continued post-closure care and cleanup of the Site. Should you have any questions, please do not hesitate to contact Alan Noell, at 425-213-4803 or alan.noell@ecy.wa.gov, or Tim O'Connor, at 425-389-2695 or tim.oconnor@ecy.wa.gov.

Sincerely,



Steven Williams

Section Manager

Solid Waste Management Program, Northwest Region

cc: Steve Brown, Kitsap Public Health Department
Jon Thompson, Office of the Attorney General
Alan Noell, Ecology
Tim O'Connor, Ecology

⁸ Sampling and Analysis Plan, Revision 1.3, Olympic View Sanitary Landfill, SCS Engineers, August 9, 2021, as amended.