



May 1, 2024

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Washington State Department of Ecology  
Eastern Region Office  
4601 North Monroe Street  
Spokane, WA 99205-1295

Attn: Christer Loftenius; Nicholas Acklam

**Re: Response to Final Third Periodic Review  
Recommendations Regarding Groundwater Monitoring**

Mr. Loftenius and Mr. Acklam:

Landau Associates, Inc. (Landau) has prepared this response to the following Washington State Department of Ecology (Ecology) letter, dated January 25, 2024, related to recommendations regarding future groundwater monitoring at the Hamilton Street Bridge Site (Site; Cleanup Site ID 3509, Facility Site ID 84461527) in Spokane, Washington:

Re: Final Third Periodic Review, Recommendations Regarding Groundwater Monitoring (Ecology Letter; Ecology 2024);

Site Name: Hamilton Street Bridge Site;

Site Address: 111 N. Erie Street, Spokane WA 99202

Facility/Site ID: 3509;

Cleanup Site ID No.: 55763995.

Landau provided comments to Ecology's Draft Third Periodic Review (Ecology 2022) for the Site in Landau's Hamilton Street Bridge Site Washington State Department of Ecology Third Periodic Review Comments (Landau 2022). The purpose of this response is to explicate and contextualize one of Landau's comments to Ecology's Draft Third Periodic Review that was referenced in the Ecology Letter.

## **Response to Final Third Periodic Review, Recommendations Regarding Groundwater Monitoring**

Ecology misinterpreted a statement Landau made in a comment letter written in response to Ecology's draft Third Periodic Review report. Landau did not state or imply that more frequent groundwater level measurements are required at the Site. Landau maintains that the hydrogeologic conceptual Site model and conclusions based on a comprehensive data set established in Landau's Second Supplemental and Remedial Investigation (RI; Landau 2000) are valid. Landau's statement that

“Ecology should remove all assumptions and conclusions in the [Draft Third Periodic Review] report that are based on a presumption that semi-annual water levels represent average conditions.” was directed specifically to the conclusion made in Ecology’s Draft Third Periodic Review that hydrogeologic conditions at the Site have changed since the RI. Ecology’s conclusion was based on an inaccurate trend interpretation of spring water levels, which fluctuate annually depending on the magnitude and timing of spring snowmelt. Landau is not aware of any data, information, or significant land use changes that indicate that the hydrogeologic conceptual Site model is no longer valid; therefore, additional monitoring or data collection is not warranted to demonstrate whether conditions have or have not changed. If Ecology has data or information that indicate hydrogeologic conditions have changed at the Site, Ecology should provide this data to Avista, BNSF, and Landau.

The following excerpt of the last six paragraphs on Page 2 and the first two paragraphs on Page 3 from the Ecology Letter provides the context for this response:

*Finally, the periodic review concluded that semi-annual groundwater level measurements are inadequate to properly determine groundwater compliance points throughout the year.*

*The last sentence in the Site Groundwater Conditions subsection states the following:*

*“Sampling results since compliance monitoring began show that the Site remedy seems to be protective of human health and the environment if Well MW2-40 still monitors the most downgradient portion of the Site.”*

*One of the conclusions in the periodic review report stated the following:*

*“With available data since the last periodic review in 2015, the cleanup remedy implemented at the Site appears to be protective of human health and the environment as long as the hydrogeological conditions have not changed at the Site since the cleanup implementation 2001–2006.”*

*Consequently, groundwater monitoring completed for the fourth periodic review should determine whether or not well MW2-40 is still within the most downgradient portion of the Site at all times and that hydrogeological conditions have not changed at the Site since 2006. In the comments on the draft periodic review report presented in a letter dated December 1, 2022, Landau acknowledged that semi-annual groundwater level measurements do not represent “average” conditions. The last sentence of Landau’s comment no 15 stated the following:*

*“Ecology should remove all assumptions and conclusions in the report that are based on a presumption that semi-annual water levels represent average conditions.”*

*Ecology concurs with Landau that more frequent groundwater level measurements are required at the Site. Groundwater level measurements at the Site must be frequent enough to be able to:*

- 1. Confirm that well MW2-40 is or is not the most downgradient well at the Site at all times throughout the whole year.*
- 2. Confirm that the Site hydrogeological conditions and consequently, the original 2005 Site conceptual model has not changed over time.*

Landau's Comment 15. to the Ecology Draft Third Periodic Review for the Site was stated as follows:

**15. Long-term compliance monitoring and maintenance, Compliance monitoring observations, Site hydrogeology 2015–2021, paragraph 1, sentence 8 (page 17) –**

*“Figure 9 also shows that the average groundwater elevation adjusted for seasons have dropped two feet between 2015 and 2021, but the river level has increased almost one foot between 2015 and 2021.”*

It is asserted that average groundwater levels calculated from the semiannual water levels collected from 2015-2021 are representative of average water levels, and that trendlines based on these averages are representative of water level trends at the HSB Site as presented in Figure 9. Two semiannual water level measurements are not representative of average annual water levels and are not sufficient to establish trends. In particular, spring water levels are dependent on the timing, magnitude, and duration of snowmelt and precipitation, which are extremely variable from year to year. Therefore, spring water levels have the potential to behave independent of fall water levels, and trend lines that use both these measurements would not be representative of actual conditions. Fall water levels are less variable and, if plotted separately from spring data, do not show a decreasing trend. Additionally, based on US Geological Survey streamflow data for the period of the periodic review, there is no evidence that the river level has increased for the period of 2015-2021 (USGS; accessed November 30, 2022). We disagree with Ecology's conclusions regarding groundwater level and surface water level trends. Ecology should remove all assumptions and conclusions in the report that are based on a presumption that semi-annual water levels represent average conditions.

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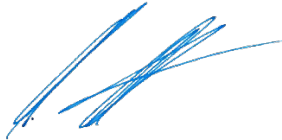
Landau Associates has prepared this letter report for the exclusive use of Avista, BNSF, and applicable regulatory agencies for specific application to Ecology's Final Third Periodic Review, Recommendations Regarding Groundwater Monitoring for the Site. No other party is entitled to rely on the information included in this document without the express written consent of Landau. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau, shall be at the user's sole risk. Landau warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. Landau makes no other warranty, either express or implied.

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## Closing

Please let us know if Ecology needs any additional information, has any questions, or would like to discuss the contents of this letter.

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cc: Bryce Robbert, Avista Corporation  
Scott MacDonald, BNSF Railway

## REFERENCES

Ecology. 2024. Re: Final Third Periodic Review, Recommendations Regarding Groundwater Monitoring. Hamilton Street Bridge Site. 111 N. Erie Street, Spokane WA 99202. Washington State Department of Ecology.

Ecology. 2022. Third Periodic Review - Hamilton Street Bridge Site. Toxics Cleanup Program, Eastern Region. Washington State Department of Ecology.

Landau. 2022. Third Periodic Review Support Services - **Hamilton Street Bridge Site**, 111 North Erie Street, Spokane, Washington. Shane Kostka, Jennifer Wynkoop, and Tom Briggs, Landau Associates, Inc.

Landau. 2000. Second Supplemental and Remedial Investigation - **Hamilton Street Bridge Site**, 111 North Erie Street, Spokane, Washington. Craig Schwyn and Laurence Beard. Landau Associates, Inc.