STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

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May 8, 2023

Bryce Robbert
Environmental Engineer
Avista
1411 East Mission Avenue
P.O. Box 3727 MSC-21
Spokane, WA 99220

Re: Ecology Response to Comments on the draft Periodic Review Report

Site name:	Hamilton Street Bridge Site
Site address:	111 N. Erie Street, Spokane WA 99202
Facility/Site ID:	3509
Cleanup Site ID:	55763995

Dear Bryce Robbert:

The Department of Ecology (Ecology) has reviewed Avista's and BNSF's comments on the 2023 draft periodic review report for the Hamilton Street Bridge Site (CSID No. 3509). Enclosed with this letter below are Ecology's responses to Avista's, BNSF's, and Sagamore Spokane LLC's comments.

If you have any questions, please contact me at tel. (509) 385-8380 or e-mail christer.loftenius@ecy.wa.gov.

Sincerely,

Christer Loftenius
Toxics Cleanup Program
Site Manager

cc: Nick Acklam, Ecology
Site project file, Ecology
Scott McDonald, BNSF (via e-mail)
Shane Kostka, Landau (via e-mail)

Ecology Response to Avista/BNSF/Landau's comments

1. **Executive Summary, paragraph 5, sentence 1 (page iv) –**
   "Indicator hazardous substances detected at the Site exceeding CULs are carcinogenic polynuclear hydrocarbons, total arsenic, total mercury, and weak acid dissolved cyanide."

   Landau comment: Indicator hazardous substances detected at the Site are carcinogenic polynuclear hydrocarbons, total arsenic, total mercury, and weak acid dissociable cyanide.

   Ecology response: Comment noted, Ecology will change "Contaminants of Concern" to "Indicator hazardous substances" and "dissolved" to "weakly dissociable."

2. **Executive Summary, paragraph 5, sentence 3 (page iv) –**
   "However, contaminants exceeding the CULs have not been detected in groundwater leaving the Site in downgradient groundwater monitoring wells."

   Landau comment: The term "downgradient" is misleading when describing Site groundwater monitoring wells because it was established in Landau's Second Supplemental and Remedial Investigation (RI; Landau 2000) and confirmed in subsequent monitoring events that there is a fluctuating water table. Suggest changing to "…perimeter groundwater monitoring wells…."

   Ecology response: The 2001 CAP established a conditional point-of-compliance (POC) for the Site at the property boundary. In Ecology's Toxics Cleanup Program (TCP) Implementation Memorandum No. 16 "*Developing Conditional Points of Compliance at MTCA Sites Where Groundwater Discharges to Surface Water*" revised December 29, 2019, the general condition for setting a conditional POC where groundwater cannot be cleaned up within a reasonable restoration timeframe is as follows: "*CPOC 1 is set as close as practicable to the contamination source in "clean" water at the downgradient edge of the contaminant plume. This CPOC location would be used if none of the plume is expected to attain cleanup levels in a reasonable restoration time.*" Hence it is crucial that the current groundwater monitoring well network provides adequate data to determine where the contaminant downgradient edge is located at the Site throughout the year. Ecology presumes that Landau means that there are reversals in the groundwater flow direction at the Site over seasons or years. Consequently, it is Ecology's understanding that Landau has not precisely determined all areas of the "downgradient edge" of the contaminant plume. If this is the case, additional hydrogeological investigations, including installation of additional groundwater wells, hydrogeological testing, and groundwater modeling, may be required to establish the downgradient edge of the groundwater contamination in order to comply with Ecology's general requirements to set CPOCs and the hydrogeology of the Site.

3. **Summary of Site Conditions, Site Description, paragraph 6, sentence 1 (page 3) –**
   "The ground surface within parts of the Site consisted originally of an engineered soil cap comprised of two feet of soil covered with a half-foot layer of gravel where contaminated soil had been encountered."

   Landau comment: Suggest changing to "Following completion of the cleanup action, the ground surface within parts of the Site where contaminated soil had been encountered consisted of an engineered soil cap comprised of two feet of clean soil covered with a half-foot layer of gravel."

Ecology response: Comment noted, Ecology will clarify the text that the graded cap was installed as part of the cleanup action.

4. **Summary of Site Conditions, Site History, paragraph 1, sentence 2 (page 3) –**
"The Property portion of the Site consists of two parts: one formerly owned and operated by the Spokane Natural Gas Company and the other by CM&SPR."

   Landau comment: Property portion is not defined in the document. Suggest refining language to clarify what this term is referring to.

   Ecology response: Comment noted, Ecology will clarify that the "property portion" refers to the Site portion now owned by Sagamore Spokane LLC and in the past had two owners: Spokane Natural Gas Company and CM&SPR.

5. **Summary of Site Conditions, Site History, Site real estate transactions and land parcel adjustments since the cleanup action completion in 2006, paragraph 3, sentence 2 (page 4) –**
"Sagamore consolidated the eight remaining old parcels from the sale into five new parcels (No. 35174.0612 through 35174.16)."

   Landau comment: Parcel number 35174.16 is not a valid Spokane parcel number. The correct parcel number is 35174.0616.

   Ecology response: Comment noted, Ecology will make this correction.

6. **Summary of Site Conditions, Site Physical Characteristics, Site hydrogeology based on information from the remedial investigations, paragraph 5, sentence 4 (page 6) –**
"During most of the year, the horizontal water level gradients suggest a convergence of river water, shallow groundwater, and deeper groundwater in the intermediate zone of the aquifer (Landau, 2000)."

   Landau comment: The 2000 Landau report did not conclude or imply that horizontal gradients indicated a convergence of river water, shallow groundwater, and deeper groundwater in the intermediate zone of the aquifer. Suggest changing to: "During most of the year, the vertical water level gradients suggest a convergence of river water, shallow groundwater, and deeper groundwater in the intermediate zone of the aquifer (Landau, 2000)."

   Ecology response: Comment noted, Ecology will make a correction to reflect that this is Landau's conclusion.

7. **Summary of Site Conditions, Site Physical Characteristics, Site hydrogeology based on information from the remedial investigations, paragraph 5, sentences 5 and 6 (page 6) –**
"Vertical groundwater gradients between shallow and intermediate depth groundwater are commonly up to ten times larger (~~hundreds~~ [hundredths] *of feet per foot) than the horizontal gradient in the shallow groundwater. The vertical gradient between the intermediate and deep groundwater were shallow in the order of ~~thousands~~* [thousandths] *of feet per foot between October 1998 and September 1999, alternating between downgradient and upgradient toward the intermediate zone (Landau, 2000)."*

   Landau comment: The 2000 Landau report did not say that the vertical gradient between the intermediate and deep zones alternates between downward and upward. The RI states

that “Site vertical gradient data indicate that groundwater from shallow and deep zones converge towards the intermediate zone." The RI also states that “Groundwater contaminant transport, if any, within the aquifer would be to the intermediate zone and horizontally towards the north-northwest.” Ecology’s statement appears to be based on Table B-2 in Appendix B of the RI where intermediate zone to deep zone vertical gradients of six monitoring well (MW) clusters (MW-2, 4, 6, 8, 9, 10) were calculated and tabulated. A Sitewide downward gradient was not reported. A consistent upward gradient between deep zone monitoring well MW2-100 and intermediate zone monitoring well MW2-40 was reported. The conceptual model indicates water leaves the Site in the intermediate zone and groundwater is monitored at MW2-40 on a semiannual basis.

Ecology response: Comment noted. Ecology will rewrite this statement to reflect Landau’s interpretation. Ecology will enter its interpretation of the Site data presented in the periodic review report into a separate section. Ecology requests that groundwater levels for well MW2-40 be presented in future groundwater monitoring reports. Groundwater elevation data should be submitted to EIM along with chemical analytical data for all wells gauged and/or sampled during each sampling event per Ecology’s TCP “*Policy 840 Data Submittal Requirements*” revised April 12, 2016.

8. **Summary of Site Conditions, Site Physical Characteristics, Site hydrogeology based on information from the remedial investigations, paragraph 6 (page 6) –**
“Four slug tests performed in four now-removed on-Site groundwater monitoring wells on April 9, 1999, showed a hydraulic conductivity for the Site between 0.0076 and 0.037 feet/min (GeoEngineers, 1999) with approximately 0.026 ft. /min [11.4 m/day] in the deep aquifer (well ATC-2) and approximately 0.022 ft. /min [9.7 m/day] in the shallow aquifer (data from the remaining three wells).”

   Landau comment: The falling head slug tests were conducted by discharging 2 gallons of water into the wells and measuring the water level change with a handheld water level indicator. Due to the coarse nature of the underlying sand and gravel units, the calculated hydraulic conductivity results may not represent the native formation.

   Ecology response: Comment noted, Ecology reviewed past hydrogeological data for the Site and analyzed what is currently available for past Site investigations. In the absence of well pumping test data and based on available slug test data, Ecology used a best-estimate hydraulic conductivity to estimate on-Site groundwater flow velocities and transport velocities. Consequently, based on Landau’s comment regarding the slug test data additional hydrogeological investigations should be performed to establish a better understanding of the hydraulic conductivity beneath the Site by using updated methods and quantify the risk for potential off-Site spread of groundwater contamination in the sole-source Spokane Valley-Rathdrum Prairie (SVRP) aquifer.

9. **Summary of Site Conditions, Site Investigations, Sagamore due diligence site investigations 2019–2020, Soil sampling test pits, paragraph 1, sentence 5 (page 9) –**
“The engineered soil cap currently covers the foundations and overlying tar-containing material.”

   Landau comment: The engineered soil cap was removed from the entirety of the Site during grading activities completed as part of Sagamore’s redevelopment, and several open excavations were recently observed by Landau during the 2022 annual cap inspection. The

open excavations, lack of soil cap, and alterations to the grading design which directed stormwater away from contaminated soils (outlined in Landau's Engineering Design Report [Landau 2003]), have the potential to expose underlying soil to infiltration from precipitation, especially during fall, winter, and spring seasons.

Ecology response: Comment noted, Ecology sent a corrective action notice letter to Sagamore on January 23, 2023, requesting that Sagamore address certain deficiencies observed during an Ecology Site visit in mid-January. One of the deficiencies was the removal of parts of the soil cap. In their response, Sagamore will address the soil cap removal when starting the piling again.

10. **Summary of Site Conditions, Site Investigations, Sagamore due diligence site investigations 2019–2020, Soil sampling test pits, paragraph 2 (page 10) –**
"Soil samples collected in five test pits near the proposed northeastern stormwater infiltration basin completed as part of a separate investigation indicated soil contains IHSs above Site CULs. The stormwater management design must account for this identified contamination."

    Landau comment: Landau is not aware of data documenting the presence of IHSs above Site CULs in this area. We also note that this area is outside of the geographic Site boundary defined in the Consent Decree (Ecology 2002).

    Ecology response: Even though northeastern stormwater infiltration basin was not identified as part of the Site *sensu stricto* in accordance with the 2001 Consent Decree, the basin is a crucial part of the Site remedy identified in the 2001 CAP as part of the engineering controls for the Site handling Site stormwater runoff. Without the integrity of this basin, the chosen Site remedy in 2001 is not feasible. Therefore, soil sampling conducted by Sagamore in this area was important to ensure that stormwater that collects in the basin does not come in contact with contaminated soil. Sagamore did not detect contaminated soils beneath the stormwater basin (Aspect, 2020). The contamination discovered to the northwest and north of the basin were found in the bottom of fill material resting on native soils. The elevation of this distal contamination is at or above the bottom of the stormwater basin.

11. **Summary of Site Conditions, Site Investigations, Sagamore due diligence site investigations 2019–2020, Sagamore groundwater well installation and sampling, paragraph 1 (page 10) –**
"Sagamore installed two groundwater monitoring wells, AMW-1A and AMW-2A, within their property to monitor groundwater quarterly for Site IHSs. The two new wells are adjacent to future Buildings 2A and 2B. The monitoring will take place during the construction period and two years after all the buildings are ready for occupancy in accordance with the 2021 CAP amendment. The purpose of this monitoring is to ensure Site soil contamination is not released during construction."

    Landau comment: Landau is not aware of any groundwater monitoring events following the baseline event conducted on April 1, 2021. A baseline sample collected 1 year prior to commencing construction should not be considered a representative baseline sample. This is a baseline condition.

    Ecology response: As part of the 2021 CAP amendment under the prospective purchaser consent decree (PPCD) between Ecology and Sagamore, Sagamore would install two

groundwater monitoring wells and sample them before the construction start. A second sampling event would take place upon completion of Sagamore's on-Site piling work. At this time, the piling work is not complete, and therefore the second sampling event has not yet taken place. Six additional groundwater sampling events are planned during construction and after construction to ascertain any potential changes to the on-Site groundwater quality during piling and other construction work. The result from Sagamore's sampling event is that contaminated groundwater is still present within the Site and therefore represent on-Site groundwater conditions before construction start.

12. **Summary of Site Conditions, Sagamore's ongoing and planned on-Site redevelopment, Future long-term project compliance-monitoring and maintenance, paragraph 3, sentences 4-7 (page 12) –**
"Groundwater will be monitored quarterly for Site IHSs at two wells adjacent to the pilings beneath buildings 2A and 2B. The monitoring will take place prior to and during the construction period and two years after construction completion. The purpose is to monitor the potential effects of piling installation. Eight groundwater sampling events will be scheduled, including one baseline event before the piling installation."

    Landau comment: Sagamore monitoring wells AMW-1A and AMW-1B were completed within the footprint of TPH-impacted soil, and AMW-1B was completed in free product. Groundwater samples collected from a monitoring well completed in free product cannot serve the stated purpose of monitoring groundwater impacts from construction. Additionally, the sample collected from AMW-1B was highly turbid [(195 Nephelometric Turbidity units (NTU)], and so polycyclic aromatic hydrocarbon (PAH) concentrations detected in the sample are likely not reflective of groundwater conditions.

    Ecology response: Due to the layout of the planned buildings and the presence of the large-diameter County sewer line bisecting the Site, there were only a few possible locations to place the two on-Site monitoring wells. One well happened to be placed at the location for the former central tar collection sump for the former gas plant and where the free product was detected. Sagamore's discovery that there is still free product present is important to ensure that the piling work planned at the Site can be conducted in such a fashion to minimize downward migration of contaminants during the piling work. Due to the presence of free product, the standard well purging procedures to reduce turbidity could not be employed. The discovery of on-Site free product necessitates a re-evaluation of the adequacy of the current Site monitoring well network to comply with Ecology's general conditions for CPOCs as discussed above in comment No. 2.

13. **Summary of Site Conditions, PLP remedial actions, Spokane River streambank bioengineering, paragraph 1, sentences 2-3 (page 15) –**
"In accordance with the 2001 CAP, the Spokane River embankment was stabilized and protected with rock, so erosion does not cut back into the contaminated soil. A revetment mat was placed on top of the rocks above the river to stabilize soils for future vegetation."

    Landau comment: A revetment mat was considered as part of the Evaluation of Design Alternatives presented in the EDR but was not included as part of the Preferred Alternative. The Cleanup Completion Report (Landau 2006) states that "a transition zone was constructed at the top of the bank to reduce the potential for erosion of the sand and gravel layer which serves as the surfacing material for the upland portion of the Site. The transition

zone was comprised of a thick non-woven geotextile separation layer placed up against the riprap, and a well-graded sand/gravel/cobble zone placed to serve as a filter between the finer crushed surfacing and the large riprap material."

Ecology response: Comment noted. Ecology will change the text reflect this information.

14. **Summary of Site Conditions, PLP remedial actions, Monitoring well modifications, paragraph 1, sentence 2 (page 16) –**
"Monitoring wells that are included in the groundwater monitoring program required wellhead modifications and protective bollards to coordinate with topographic changes that have been conducted at the Site."

    Landau comment: As part of the development of the Ben Burr Trail, additional monitoring well modifications were made. Development of the Ben Burr Trail east-west, along the Site's Spokane River shoreline, was completed in 2018 within City of Spokane easements, with Ecology's approval and oversight. The final grade for the asphalt-paved trail sits slightly above the established surrounding Site grade and was completed with minimal disturbance to the soil cap. To accommodate trail construction, Site monitoring wells MW2-20, MW2-40, MW2-100, MW4-20, and MW7-90 were refitted with flush-surface monuments and resurveyed.

    Ecology response: Comment noted, Ecology will add this text.

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."

    Landau comment: 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.

    Ecology response: Ecology agrees that two semi-annual groundwater measurements are not adequate to fully represent long-term average groundwater elevations in such a recharge-sensitive aquifer as the SVRP aquifer. If the data is "not representative of actual conditions"

to adequately monitor potential changes in Site hydrogeologic conditions and to determine whether the current monitoring well layout is sufficient to fulfill Ecology's general conditions for COPCs then additional groundwater and surface water levels are necessary. Consequently, Ecology will remove the above text and replace it with a statement that additional groundwater and surface water level measurements are required, at least four times per year and the installation of transducers in key wells near the river.

16. **Long-term compliance monitoring and maintenance, Compliance monitoring observations, Site hydrogeology 2015–2021, paragraph 1, sentence 9 (page 17) –**
"Note that the groundwater monitoring event in spring 2017 was not included because the data seem to be incorrect with measured groundwater levels about 10 feet off from groundwater levels usually observed in the area."

    Landau comment: The spring 2017 groundwater levels were not included in groundwater elevation plots but were contoured in Appendices I and K. Groundwater levels recorded during this event were higher than usual due to a very high spring runoff. The 2017 groundwater elevation data is valid.

    Ecology response: The spring of 2017 groundwater monitoring report reported the highest groundwater levels observed since groundwater monitoring started and the lowest river level since groundwater monitoring began at the Site. Hence, due to this inconsistency in the data Ecology decided not to use the spring 2017 groundwater monitoring data. Ecology will remove the spring 2017 contour maps in Appendices I and K. To be able to statistically evaluate Site groundwater levels, including extreme events such as unusually high spring floods or extreme summer droughts, more annual groundwater measurements are needed at the Site as discussed in comment No. 2 above.

17. **Long-term compliance monitoring and maintenance, Compliance monitoring observations, Site hydrogeology 2015–2021, paragraph 3, sentences 3-4 (page 17) –**
"With an estimated average hydraulic conductivity of 30 ft./day for the Site based on data from GeoEngineers (1999) and a gradient of 0.002, the deep horizontal groundwater velocity is approximately 20 ft./year. With an estimated aquifer porosity of 25%, the horizontal seepage velocity is approximately 100 ft./year."

    Landau comment: The horizontal seepage velocity (average linear velocity) appears to be calculated incorrectly. Using the parameter values above, it is unclear to us how a seepage velocity of approximately 100 ft/yr. was calculated. Also, per comments above, this conclusion is likely predicated on values of hydraulic conductivity that may not be representative of the native sand and gravel unit at the Site.

    Ecology response: A standard description how to calculate seepage velocity from available hydraulic conductivity and groundwater gradient data can be found at the Groundwater Project's discussion: "using Darcy's Law as a basis for measuring groundwater velocity" at *https://books.gw-project.org/groundwater-velocity/part/darcys-law-as-a-basis-for-measuring-groundwater-velocity/.* You may also check out standard hydrogeology textbooks such as: Fetter (2001), Applied Hydrogeology or Sterett (2007), Groundwater and Wells. As shown in the referenced document the formula for seepage velocity is $v=K/n_e \times \Delta H/\Delta l$ where v=seepage velocity, K=hydraulic conductivity, n_e=effective porosity, $\Delta H/\Delta l$=gradient (dimensionless). The estimated effective porosity (25%) for the aquifer is based on

published values for gravels found for instance in https://books.gw-project.org/hydrogeologic-properties-of-earth-materials-and-principles-of-groundwater-flow/chapter/effective-porosity/. You may also check out standard hydrogeology textbooks such as: Fetter (2001), Applied Hydrogeology or Sterett (2007), Groundwater and Wells. By applying the hydraulic conductivity, effective porosity and gradient data provided in the text to the formula v=30/0.25 x 0.002=0.24 ft/day=87.6 ft/year. When providing an estimate, Ecology added the qualifier approximately since the effective porosity estimate was based on published values and not on testing of the Site aquifer material itself. Ecology agrees with Landau that a few slug test performed at the Site may not be representative of true Site hydrogeological conditions. Additional hydrogeological investigations are in order to ensure that the current layout of Site groundwater monitoring wells is adequate for Ecology's general conditions set forth for CPOCs as discussed in comment No. 2 above.

18. **Long-term compliance monitoring and maintenance, Compliance monitoring observations, Site hydrogeology 2015–2021, paragraph 3, sentence 7 (page 18) –**
"The deep groundwater gradient has steepened from 0.0018 to 0.0021 between 2015 and 2021."

    Landau comment: Ecology provides no information regarding how these gradients were calculated (i.e., between which wells, and how they were averaged) and proceeds to base assertions on a trend line from the plotted data. The trendline is inappropriate per comments above. Ecology provides no information on what mechanism might be responsible for changes in the regional groundwater recharge and flow patterns. Figures 8 and 9 show the same trends in shallow wells as in deep wells, and so the intermediate aquifer should also show the same trends indicating vertical gradients are not increasing. There is no evidence that the hydrogeologic conceptual Site model has changed since the RI, and so the conclusions of the RI are still valid. The conclusion that the horizontal groundwater gradient in the deep zone has steepened over the period of the periodic review should be removed from the report.

    Ecology response: As only three wells are monitoring deep groundwater at the Site, the gradient calculation becomes a standard three-point calculation using the groundwater elevations at the three wells. The gradient was graphically calculated from the deep groundwater contour maps finding the steepest gradient perpendicular to elevation contour and using the relationship: $\Delta H/\Delta l$ (elevation difference divided by distance). However, as Landau has pointed out earlier the current frequency of groundwater elevation measurements are inadequate to draw any meaningful conclusions. Ecology will remove the conclusions and recommend an increase in the frequency in groundwater level measurements.

19. **Long-term compliance monitoring and maintenance, Compliance monitoring observations, Site hydrogeology 2015–2021, paragraph 4, sentence 1 (page 18) –**
"Figure 11 shows the vertical gradients between shallow and deep wells at three separate well clusters on the Site: MW2-20 to MW7-90, MW8-20 to MW8-90, and MW9-20 to MW9-100, with downgradients away from the river being positive and upgradient toward the river being negative."

    Landau comment: Well pair MW2-20 and MW7-90 that Ecology uses for comparison are not co-located. Because the RI demonstrates that Site groundwater converges in the

intermediate zone, calculating the vertical gradient between the shallow zone and deep zone is an inaccurate representation of Site groundwater flow conditions. This is predicated on the idea that groundwater is moving directly from the shallow zone to the deeper zone. It is stated in the RI that the vertical gradient from the shallow to the intermediate zone is greater than from the deep to the intermediate zone, so when considering only the shallow to deep zone gradient, it could appear that the shallow zone is discharging to the deeper zone when the magnitude of the gradient from the shallow zone to the intermediate zone is greater than that of the deep zone to the intermediate zone. Ecology's statement ignores the upward component of flow documented between MW2-100 and MW2-40 documented in the RI. Figure 11 is misleading and inappropriate because it ignores the interactions present in the intermediate zone.

Ecology response: The reason Ecology used wells MW-2-20 and MW7-90 as a pair is that groundwater levels in well MW2-100 next to well MW2-20 are not being measured during the groundwater sampling events. To remedy this deficiency, Ecology will require that groundwater levels will be measured continuously. Ecology calculated the vertical gradient component based on available data. There are no available reliable data for groundwater levels for the intermediate zone for the last five years or more; therefore, Ecology cannot make any meaningful conclusions what currently is happening in the intermediate zone. Again, to remedy this deficiency, all available wells must be monitored continuously. However, what the available data shows is that Spokane River recharges the aquifer most of the time (losing stream), which agrees with the SVRP 2015 Atlas (Spokane Valley Rathdrum Prairie Atlas, 2015) that the river is a losing stream at the Site.

20. **Long-term compliance monitoring and maintenance, Compliance monitoring observations, Site hydrogeology 2015–2021, paragraph 4, sentence 3 (page 18) –**
"Consequently, the Spokane River is recharging the Site aquifer most of the time between 2015 and 2021, and the recharge is becoming more profound over time with a sinking deep groundwater level but still a stable-to-rising river elevation between 2015 and 2021, as shown in Figure 10."

    Landau comment: This conclusion is entirely inappropriate based on the data used in the analysis per comments above and should be removed from the report. If a statistical significance analysis confirms the validity of the data.

    Ecology response: Ecology will keep the statement that the river recharges the aquifer based on the Site data and the common knowledge of the SVRP aquifer and Spokane River interaction as discussed in the SVRP 2015 Atlas. Ecology will remove any conclusions regarding Site changes over time due to inadequate data. Therefore, Ecology will request an increase in the number of times groundwater levels are measured at the Site and that all available wells are measured as discussed above.

21. **Long-term compliance monitoring and maintenance, Compliance monitoring observations, Site hydrogeology 2015–2021, paragraph 5, sentence 3 (page 18) –**
"Unlike well clusters MW2 and MW8, the MW9 well cluster is not affected by river influence, which explains the low ratio variability over time in Figure 12 with the vertical gradient is about five times larger than the deep horizontal groundwater gradient. Well cluster MW2 is next to the river, well cluster MW8 is about 150 ft. from the river, and cluster MW9 approximately 400 ft.

from the river. Consequently, it can be estimated that Spokane River recharge or discharge affect the groundwater elevations at the Site between 200 ft. to 300 ft. from the river embankments."

Landau comment: It is unclear how Ecology calculated these gradients. Evaluation of the water levels presented on Figures 8 and 9 show that the water levels in MW9 mimic the water level patterns in the other wells, including those immediately adjacent to the river, in both the shallow and the deep zone. Additionally, the RI states "River water interacts rapidly with the highly permeable fill materials; the shallow groundwater elevations correspond closely to the river level. The native soils, composed of sand and gravel, have a lower hydraulic conductivity than the fill. The coarse fill material acts as an extension of the river while the native deposits, though heavily influenced by the river, also reflect regional hydrogeologic conditions." Since the MW9 cluster is the only one of these with the shallow well not constructed in fill, it cannot be stated that Spokane River recharge or discharge affect the groundwater elevations at the Site between 200 ft. to 300 ft. from the river embankments. The flat vertical gradients seen at MW9 are likely not a result of impact from the river but a reflection of geologic conditions at that location. This conclusion cannot be drawn and should be removed from the report.

Ecology response: The vertical gradient components were calculated for each groundwater monitoring event for the three well pairs MW2-20-MW7-90, MW8-20-MW8-90, and MW9-20-MW9-100 by dividing the groundwater elevation difference between the paired wells and the difference in depth between the shallow and the deep well. The 2015 SVRP atlas identifies the river at the Site being part of one of three stretches of the Spokane River where the river recharges the aquifer (losing stream). According to the SVRP Atlas the other stretches of the Spokane River that the atlas shows as losing stretches of the river have a direct impact to the SVRP aquifer.

The United States Geological Survey (USGS) performed an investigation at one of the other losing stretched of Spokane River east of the Site in Spokane Valley (USGS, 2003). This investigation proved when the river lost water to the aquifer the groundwater gradient became very steep along the river where the river recharged the groundwater with a gradient away from the river. At a distance from the river outside the area of river recharge the gradient became flat and followed the regional gradient. The observations that the USGS made are in direct agreement with the observations from the Site groundwater monitoring data. Spokane River has direct impact to the Site groundwater, causing steepening groundwater gradient near the river.

The cross sections in two of the Site RI/FS reports (Landau 1999 and 2000) show that the fill material at the Site become more course to the west where the Chicago Milwaukee & Saint Paul Railroad (CM&SPR) filled in part of the river with very coarse fill for their railroad embankment. The course fill material causes a larger rate of infiltration of groundwater to the SVRP at this location which explains the groundwater mounding at the western part of the Site shown in the shallow groundwater contour maps shown in Appendices I and J.

Based on common knowledge of the SVRP aquifer and its interaction with the Spokane River, other hydrogeologic studies, and the observed Site data, it is apparent that the river affect the Site groundwater. Ecology is interesting in Landau's explanation why the Site fill material will cause a seasonal Site gradient to the southeast opposite the deep Site groundwater gradient to the northwest. The Site deep groundwater gradient to the

northwest agrees with the regional gradient for the western portion SVRP aquifer shown in the 2015 SVRP atlas (2015).

22. **Long-term compliance monitoring and maintenance, Compliance monitoring observations, Site hydrogeology 2015–2021, paragraph 6 (page 18) –**
"With a vertical groundwater gradient approximately 0.02 (ten times larger than the horizontal gradient near the river), an estimated average hydraulic conductivity of 30 ft./day for the Site (GeoEngineers, 1999), and a gradient of 0.002 the vertical gradient near the river, the groundwater velocity can approach about 220 ft./year. With an estimated aquifer porosity of 25%, that would correspond to a vertical seepage velocity of about 1,100 feet/year."

    Landau comment: It is unclear how vertical seepage velocity is calculated. Stating that there is a high vertical flow velocity at the Site between the shallow and deep zones does not represent how groundwater flow occurs at the Site. Any calculation that uses vertical gradients between the shallow and deep zones to represent groundwater flow and ignores the intermediate zone as well as the upward gradient from the deep to intermediate zones is not consistent with the conceptual Site model and does not accurately represent groundwater flow at the Site. This conclusion cannot be made, and this statement should be removed.

    Ecology response: The procedure for the calculation of the seepage velocity is described in the response to comment No. 17 above. Again, the absence of any reliable current groundwater data from the intermediate zone the last five years precludes any interpretations being made regarding the intermediate zone. Consequently, to be able to draw any conclusions regarding the intermediate zone, groundwater elevation data from this zone needs to be collected on a regular basis.

23. **Long-term compliance monitoring and maintenance, Compliance monitoring observations, Groundwater quality in PLP wells 2016–2021, paragraph 1, sentence 4 (page 18) –**
"Groundwater monitoring data between 2006 and 2021 for arsenic, mercury, PAHs, cyanide, and sulfides are shown in Appendix H."

    Landau comment: Analysis of sulfide in groundwater began in fall 2018.

    Ecology response: Comment noted, Ecology will add to the text that sulfide monitoring began in the fall of 2018.

24. **Long-term compliance monitoring and maintenance, Compliance monitoring observations, Groundwater quality in PLP wells 2016–2021, paragraph 3, bullet 2 (page 19) –**
"Two samples (one from ATC7-20 and one from MW07-90) exceeded 6 µg/l for dissolved arsenic with a maximum concentration of 12 µg/l. The Site (total) arsenic CUL is 6 µg/l."

    Landau comment: The 12 ug/L concentration of arsenic was reported in the duplicate sample collected from MW7-90 in spring 2016. The MW7-90 sample collected concurrently with the duplicate was 5.1 ug/L.

    Ecology response: Comment noted. Ecology will amend the text to include Landau's comment.

25. **Long-term compliance monitoring and maintenance, Compliance monitoring observations, Groundwater quality in PLP wells 2016–2021, paragraph 3, bullet 4 (page 19) –** *"Two samples (one from MW04-20 and one from MW07-90) exceeded the Site CUL for total mercury with a maximum concentration of 0.23 µg/l. The Site mercury CUL is 0.2 µg/l."*

    Landau comment: The 0.23 ug/L concentration of mercury was reported in the sample collected from MW7-90 in spring 2021. The MW7-90 duplicate sample collected concurrently was non-detect at a 0.15 ug/L detection limit.

    Ecology response: Comment noted. Ecology will add Landau's comment.

26. **Long-term compliance monitoring and maintenance, Site hydrogeology and its impact on the transport of potential dissolved contaminants off-Site, paragraph 1, sentences 1-2 (page 20)** – *"The combined effect of the Spokane River recharging the aquifer and the strong vertical gradient at the Site will move any dissolved contaminants downward to such location and depth where the river does not affect the groundwater flow as seen in the 90- and 100-ft deep wells. Where the river does not influence groundwater flow, any dissolved contaminants will flow with the regional flow to the northwest and under the river as seen in the 90- and 100-ft deep wells."*

    Landau comment: Per comments above, there is no evidence hydrogeologic conditions at the Site have changed, and the RI states that "Site vertical gradient data indicate that groundwater from shallow and deep zones converge towards the intermediate zone." Additionally, the RI states that "the limited extent of groundwater contamination detected outside of the impacted soil areas indicate that the source material has a low solubility, and any constituents that may be partitioning into groundwater are rapidly attenuating through natural physical, chemical, and biological processes (i.e., natural attenuation)." The Consent Decree states that "the results further defined the lateral boundaries of the soil contamination and showed that the soil contamination does not adversely affect groundwater outside the limits of soil contamination" and "the investigations show that any hazardous substances partitioning into the groundwater are undergoing degradation through physical, chemical, and biological processes." Monitoring well data collected since 2006 supports these conclusions, and there is no property of coal tar or related IHSs where the dissolved fraction would only migrate downward. This conclusion cannot be drawn and should be removed from the report.

    Ecology response: One of the purposes of the periodic review is to review "New scientific information for individual hazardous substances or mixtures present at the site" in accordance with WAC 173-340 (4)(b). Part of the "new scientific changes" are changes and potential changes to the understanding of the Site hydrogeology that may invalidate the current CPOCs established in 2001-2003 as defined the original CAP and compliance monitoring plan. A study performed by the Spokane Aquifer Joint Board of current and future climate change (2017) have determined that inflow of water from the Spokane River will change, decrease in the summer, and increase in the winter. The USGS study (2003) of the river inflow discovered that inflow rates from the river to the SVRP increase in the summer. Consequently, any reduction of summer river flow will change groundwater conditions along the Site. Conversely, increase in the river water flow in the winter will affect the SVRP aquifer as well. The Site groundwater monitoring program must be able to capture any changes to the aquifer that may affect the current CPOC placement. By omitting regular groundwater level monitoring of the intermediate zone, the current monitoring

program is not adequate to capture such changes. Note that the Consent Decree is a document capturing a static moment in time; however, science is not static; what satisfied Ecology's general conditions for a CPOC in 2003 may not be valid today. Sagamore's observations of Total Petroleum Hydrocarbons as gasoline (TPHg) and cPAHs exceeding the Site CULs in well AMW-1B are of concern.

27. **Long-term compliance monitoring and maintenance, Site hydrogeology and its impact on the transport of potential dissolved contaminants off-Site, paragraph 1, sentence 4 (page 20) –** *"After a review of available groundwater monitoring reports since 2006, groundwater elevations at a 40-ft. depth based on presented water levels and well top elevations in the groundwater monitoring reports are not consistent, so it is unknown whether groundwater elevations are similar between the 40-ft. and 90-100 ft. deep wells (Landau, 2000), or if there is now a substantial elevation difference between 40-ft. deep and 90–100-ft. deep wells."*

    Landau comment: The 2000 Landau report did not state that it is unknown whether groundwater elevations are similar between intermediate and deep wells, and there is no basis for this statement. Historical data and reports clearly describe the interaction between the shallow, intermediate, and deep zones, and there is no reason to suspect these interactions have changed per comments above. The RI states that "during most of the year the water level gradients suggest a convergence of river water, shallow groundwater, and deeper groundwater in the intermediate zone of the aquifer." Ecology presents no rationale for their suspicion that groundwater dynamics have drastically changed.

    Ecology response: The reference to Landau in this part of the document will be changed to state that Landau installed the wells being discussed. As discussed in comment No. 26, there are no available data for the intermediate zone since 2006. Landau does not provide any scientific data to support their notion that the Site groundwater dynamics have been static since 2006.

28. **Long-term compliance monitoring and maintenance, Site hydrogeology and its impact on the transport of potential dissolved contaminants off-Site, paragraph 1, sentence 6 (page 20) –** *"The increased influx of river water into the Site aquifer between 2015 and 2021, and the steepening of the horizontal deep groundwater gradient may cause the groundwater to leave the Site at a deeper depth than 40 ft., where there are no sentry wells installed."*

    Landau comment: This statement has multiple issues embedded within it. 1) There is no evidence that the deep groundwater gradient is steepening overall, only that the timing of precipitation and snow melt varied in the springtime per comments above. 2) Historical water levels and gradient measurements show that the vertical gradients between the intermediate and deep zone wells *do* fluctuate, indicating at some times of the year water may be "leaving the site" via regional groundwater flow at a lower elevation, a known fact that was demonstrated during the RI. 3) Ecology asserts that there are no sentry wells in the deep zone, when in fact the deep monitoring wells along the riverbank function as sentry wells. Regional groundwater flow is to the northwest; therefore, the well northwest of the contaminated media (MW7-90) is a sentry well. There is also a sentry well in the intermediate zone (MW2-40). Both of these sentry wells are sampled semi-annually as part of the compliance monitoring program and effectively monitor potential migration of contaminants.

Ecology response: (1) As a result of insufficient annual groundwater-level measurements to adequately capture the true seasonal groundwater level variation at the Site, Ecology will remove the reference to steepening groundwater gradients over time. Instead, Ecology will require that the Site groundwater measurements be increased to be at least quarterly. (2) Landau admits that *"at some times of the year water may be "leaving the site" via regional groundwater flow at a lower elevation, a known fact that was demonstrated during the RI"*. Due to a lack of current groundwater level measurements of the intermediate zone, where this "lower elevation" is unknown an improved groundwater level monitoring program for the Site is clearly in order to determine where this "lower elevation" is located. (3) Ecology will replace the word "sentry well" and "deep zone" with conditional point of compliance (CPOC) well, which are to be able to capture any potential leading edge of contaminant plumes. As discussed above, because of lack of sufficient temporal and spatial groundwater level data, it is not certain that current groundwater well layout is sufficient to fulfil Ecology's general CPOC conditions to be able to capture the leading edge of any potential contaminant plume(s).

29. **Long-term compliance monitoring and maintenance, Site hydrogeology and its impact on the transport of potential dissolved contaminants off-Site, paragraph 1, sentence 7 (page 20) –** *"Any potential groundwater contamination could be leaving the Site undetected and, with an estimated seepage velocity of 1,100 feet/year, any contamination could be traveling a considerable distance with time."*

Landau comment: There are several problems with this statement. 1) As discussed in the comments above, the existing deep and intermediate wells provide adequate monitoring of potential contaminant migration. With the exception of sporadic low-level detections flagged as estimated, MW7-90 does not have exceedances of cleanup levels in groundwater. The same is true for MW2-40. The data do not support a theory that contaminants are leaving the Site undetected. 2) It is unclear how Ecology calculated the estimated seepage velocity, and it is unclear whether this is referring to horizontal or vertical groundwater flow (see comment 22). Additionally, there is a documented upward component of groundwater flow from the deep to the intermediate zone, which is not considered in Ecology's statement. Considering vertical gradients between the shallow and deep zones and ignoring the intermediate zone as well as the upward gradient from the deep to intermediate zones to represent groundwater flow is not consistent with the conceptual site model and does not accurately represent groundwater flow at the Site. Additionally, groundwater seepage velocity is not a measure of how quickly contaminants move in groundwater. To determine how quickly contaminants move, a solute retardation factor must be applied. An appropriate retardation factor for the indicator hazardous substances has not been established. In summary, Ecology's assertion that contaminants may be leaving the Site undetected at a high rate is entirely unfounded and should be removed from the report.

Ecology response: (1) Ecology strongly disagrees with Landau's statement (1), regular groundwater level measurements of any of the Site intermediate wells have unfortunately not been part of the ongoing groundwater monitoring program. Consequently, whether the current well configuration fulfils Ecology's general requirements for CPOC wells is unknown in absence of intermediate zone groundwater levels data. (2) The seepage velocity was calculated following the algorithm presented in comment No. 17. Ecology will clarify that the velocity presented is the vertical seepage velocity. Finally, a site conceptual

model is not static. Conceptual site models may change with new data and information. Ecology has identified data gaps in the current Site groundwater level monitoring program with the consequence that a Site conceptual model re-evaluation is not possible.

30. **Long-term compliance monitoring and maintenance, Inspections, and maintenance, Oversight, and maintenance responsibilities between the PLPs and Sagamore, paragraph 1, sentence 1 (page 21) –**
"The largest change at the Site is the start of the Sagamore's redevelopment of their property in spring 2022, for which Avista is the PLP under the cleanup action Consent Decree as discussed above."

    Landau comment: BNSF is also listed as a PLP in the Consent Decree.

    Ecology response: Comment noted, Ecology will revise the text to include BNSF as a PLP.

31. **Periodic Review, Effectiveness of ongoing or completed cleanup actions, Site visit, paragraph 1, sentence 2 (page 21) –**
"Construction work has begun on Sagamore portions of the Site, and some of the soil cover has been disturbed."

    Landau comment: The entirety of the soil cap has been removed.

    Ecology response: This statement is not correct; the soil cap still remains at the ATC portion of the site south of MLK Jr. Drive.

32. **Effectiveness of ongoing or completed cleanup actions, Institutional controls, Physical barriers, first paragraph, second to last sentence (page 22) –**
"The riverbank will be outside the area where Sagamore can control access to the Site."

    Landau comment: The riverbank is part of Sagamore's property.

    Ecology response: It is Ecology's understanding that in an agreement with the City of Spokane, Sagamore is obliged to grant public access through the Ben Burr Trail and therefore does not have full control of the access along the riverbank after construction is complete and the trail is restored. Ecology will revise the above statement with the text in the response.

33. **Conclusions, bullets 3, 4, 5, 6, 7, 8, 10 (page 24) –**
The underlined portion of each of the conclusions listed below is based on invalid assumptions per the comments listed above and should be removed from the report.

- *"The direction of shallow (20-ft depth) groundwater flow changes from springtime (and snowmelt) to the end of summer (low precipitation) from the northwest (toward the Spokane River) to the southeast (away from the river). <u>The river seems to affect groundwater flow approximately 200–300 feet from the riverbank.</u>* **Ecology response:** Ecology would be interested in Landau's explanation why the shallow groundwater gradient is frequently towards the southeast and opposite of the deep groundwater gradient to the northwest.
- *In the RI/FS report (Landau, 2000), it was observed that during most of the year the horizontal water level gradients suggest a convergence of river water, shallow groundwater, and deeper groundwater in the intermediate zone of the aquifer. <u>Groundwater levels in</u>*

intermediate wells have not been measured since at least 2015 and therefore, it is unclear whether groundwater is still diverging at 40-ft depth, **Ecology response:** Ecology is pointing out the fact that intermediate zone groundwater levels data is missing.

- *Consequently, it is currently unclear whether groundwater is leaving the Site at the 40-ft level and not at a deeper depth above the deeper wells (from 45 to 85 ft. depth) that is currently not being monitored.* **Ecology response:** Ecology is again pointing out the fact that intermediate zone groundwater levels data is insufficient to adequately determine whether current well configuration fulfil Ecology's general requirements for CPOCs.
- *The average deep groundwater level at the Site has decreased by approximately two feet since 2015.* **Ecology response:** Due to a lack of temporal groundwater level data to adequately evaluate long-term changes in groundwater levels, Ecology will replace this conclusion with the following statement: "Semi-annual groundwater measurements are inadequate to capture both seasonal or long-term changes in Site groundwater elevations or flow."
- *With a sinking groundwater level over time, the Spokane River is recharging the groundwater system at longer periods than in the past. This may affect overall shallow and intermediate groundwater flow.* **Ecology response:** Ecology will replace the text with the following: The Spokane River and the SVRP aquifer are dynamic systems that are sensitive to changes caused by several factors, such as climate change, identified by the Spokane Aquifer Joint Board. Consequently, such changes are likely to change the groundwater dynamics at the Site and support the request for additional monitoring.
- *Deeper (90–100 ft. depth) groundwater is not affected by seasonal changes in the recharge vs. discharge of groundwater to the river.* **Ecology response:** Ecology would be interested in Landau's explanation to the seasonal changes observed the shallow groundwater flow and why these changes are not observed in the deep groundwater.
- *The horizontal groundwater seepage velocity with flow off-site to the northwest is approximately 100 ft./year. This relatively slow groundwater velocity is due to the shallow gradient at the Site.* **Ecology response:** This is a conclusion based on data available in the RI/FS reports and the groundwater monitoring data. If Landau and the PLPs consider the data in the RI/FS not reliable, then a new hydrogeologic investigation at the Site may be necessary, including additional slug tests, aquifer pumping tests, and groundwater modelling to fully understand the seasonal and long-term groundwater dynamics, and how this dynamic may affect observed on-Site contamination.

34. Recommendations, bullets 1, 2, 3 (page 26) –

Per the comments listed above, there is no reason to believe the hydrogeologic conceptual site model has changed since the RI. Therefore, the additional monitoring listed below is not warranted. **Ecology response:** The data collected since the last periodic review is not sufficient to confirm the conceptual site model within the dynamic hydrogeologic context of the Site, Ecology will keep all recommendations, unless specified to the contrary below and add another recommendation:

- *During future groundwater monitoring events, water levels for all groundwater monitoring wells will be measured. This is recommended to confirm groundwater flow direction and gradients.*

- *Groundwater level measurement frequency must be increased from semi-annual to being continuous by installing transducers in all available Site wells.*
- *As part of the semi-annual groundwater report submittal, PLPs will provide groundwater contour maps in each groundwater monitoring zone: one for the 20-ft-deep wells, one for the 40-ft-deep wells, one for the 90- to 100-ft-deep wells.*
- *Review the 2006–2021 groundwater elevation data for well MW2-40 and present all available elevation data for this well in the next upcoming groundwater monitoring report."*

35. Recommendations, bullets 7, 9 (page 26) –

- *"As part of the O&M requirements, the PLPs must repair any damage to the engineered riverbank as soon as possible.* **Ecology response:** This work has been performed and Ecology will remove this recommendation.
- *Sagamore must improve the Site fencing to prevent on-Site illegal camping and destruction of structures and features that are part of the Site remedy. The PLPs must consider engineered structured along the riverbank that will prevent flat surfaces large enough for camping."* **Ecology response:** Ecology will remove this recommendation. Instead, Ecology will address Site security issues in responses to the PLPs annual O&M report and correspondence with Sagamore.

36. Appendices I, J, K –

Landau comment: Landau did not contour groundwater elevations, and the reference to Landau as the source of these figures should be removed. Landau did not contour groundwater for the Site prior to decommissioning monitoring well clusters MW1, MW3, MW5, MW6, MW10, MW12, ATC1, ATC2, ATC3, ATC4, and ATC5 due to the limited areal coverage the monitoring wells provided. Landau maintains that groundwater contouring should not be completed due to limited monitoring well coverage, especially without the above listed decommissioned wells. Additionally, the spring 2018 shallow horizontal GW map appears to be missing a contour or has an extra label.

Ecology response: Comment noted. Ecology will state clearly that Ecology performed the groundwater contouring based on the compliance groundwater monitoring elevation data. Groundwater contours can be performed in as few as three wells where the gradient becomes a three-point plane. Ecology will also correct the spring 2018 GW map.

Ecology Response to Sagamore Spokane LLC/ Aspect Consulting comments

1. **Aspect comment, Summary of Site Conditions, Site Description**
   The Soil Cap over the SGP Property is not engineered and does not consist of 2' of clean soil, its's 6" of compacted grave. See 2006 Cleanup Action Plan Section 3.1.3.

   Ecology response. Ecology presumes that Aspect is referring to the 2006 Cleanup Action Completion Report and not the CAP. However, Ecology will replace the wording "engineered soil cap" with "graded soil cap using on-Site clean soils" to conform with the soil cap description in the 2001 CAP and the 2006 Cleanup Action Completion Report.

2. **Aspect comment, Sagamore's ongoing and planned on-Site redevelopment, Sagamore Future Soil Cap:**
   This is stated in the 2021 CAP Amendment but is NOT in the EDR and is not occurring b/c we're not excavating there. I think it was meant to say Buildings 1A and 1B.

   Ecology response. Ecology will change this text to "removing encountered building rubble, tarry materials, coal ash, lime waste and organic waste within excavations for building footprints, utility line trenches, and around planned piling locations."

3. **Aspect comment, Effectiveness of ongoing or completed cleanup actions:**
   2001 CAP just says 'vegetative cover within backfill soil' it does not explicitly call out trees or an engineering reason for them.

   Ecology response. The 2001 CAP describes the selected Alternative E with modifications to include a "bioengineered riverbank". Consequently, the riverbank remedy was engineered to include trees to provide riverbank erosion control as described in the 2003 Site EDR.

4. **Aspect comment, Conclusions, last bullet:**
   See 2001 CAP discussion of engineered riverbank above.

   Ecology response. See Ecology's response to comment 3 above.

5. **Sagamore legal counsel comment, Conclusions, second to last bullet:**
   Sagamore's PPCD with Ecology requires Sagamore to provide access to the PLPs. See PPCD Sec. VI.B. The PPCD does not require Sagamore to provide "unrestricted" access. Sagamore has coordinated with the PLPs to provide access, including emergency access, and Sagamore has provided the PLPs with a Grant of Access and Entry that meets the PPCD requirement for access.

   Ecology response. Ecology will replace "unrestricted access" with "access in accordance with the PPCD Article V, Section B, so that the PLPs can conduct necessary monitoring and maintenance work in accordance with the current Site Compliance Monitoring Plan and Oversight and Maintenance Plan" to fulfil the conditions set forth in the 2001 CAP.

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