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Subject of Comment: Overburden from West Quarry:

The draft EIS fails to address the environmental impacts of creating the West Quarry to produce aggregate for dam construction. The West Quarry is located on a 1,313 foot high, 2,000 foot wide steep ridge surrounded on 3 sides by the Chehalis river approximately 2 miles south of the project site.

Approximately 300,000 CY of spoils (overburden and rock) will need to be hauled from the West Quarry outside of the reservoir footprint and north through Pe Ell for disposal on the flat Pe Ell prairie. This will generate 15,000 truck-with-trailer trips. If the job takes two months (40 days), that would be 375 truck trips through Pe ell which are not included in the initial EIS.

A detailed description of how these numbers were obtained follows below:

The May 16, 2025 draft HDR Geologic Data Report indicates that 2 boreholes were drilled on a steep hill top to determine the thickness of basalt. The boreholes were numbered WQ 24-01 and WQ 24-02a. The hilltop was named the West Quarry and the assumption was made that the basalt layer found under the overburden extended from edge to edge of the mountain top.

Borehole WQ 24-01 contained 30 feet of overburden which would have to be removed to reach the basalt layer. Standard excavation techniques are designed to obtain clean rock. This means excavating overburden and wasting the upper 10 feet of basalt rock. That means that 40 feet of grubbing debris and rock would be removed to a spoil pile.

Borehole WQ 24-02a is located approximately 1,000 feet south of WQ 24-01 higher on the mountain top. This borehole contained 21 feet of overburden. With a wasting of the upper 10 feet of underlying basalt, this location would require 31 feet of overburden and wasted rock to be removed.

An average of overburden in the West Quarry would be between 31 and 40 feet, or about 35.5 feet.

The 2025 FCZD Preliminary Cost Report, Appendix A, WBS and Cost Schedule,Item 4.1.2 indicates a quarry size (for cost purposes) of 35 acres. An acre is 43,560 sq ft, so 1 foot depth of 1 acre would be 43,560 cubic feet of overburden. 43,560 cubic feet divided by 27 cubic feet/CY = 1,613 cubic yards (CY) per foot per acre.

35 acres containing 1 foot of overburden would contain 35ac x 1,613 CY/ac = 56,455 CY. Since there are 35.5 feet of overburden to be removed, the total excavation would be 35.5 feet x 56,455 CY = 200,415 CY of overburden.

The map on page 73, Exhibit 5.2-2 of the draft EIS shows the West Quarry to be closer to 50 acres or 50 ac x 56,455 CY per acre = 282,275 CY of overburden.

Which acreage is correct for the West Quarry? Both are guesses not backed up by actual borehole data to define the lateral extent of the basalt. This will not be known until several additional boreholes are drilled. For now, we only have an estimate between 35 and 50 acres without

confirming data. And the overburden ranges between 200,000 CY and 280,000 CY. A reasonable compromise, given the lack of actual data, might be a number between, such as 240,000 CY of overburden for estimating purposes.

In addition, borehole WQ 24-01 contains a 10 foot thick layer of sandstone between 122 and 132 feet deep. With a wasting of basalt rock 10 feet above and 10 feet below, that would add 40 feet of additional sandstone and wasted basalt to the overburden to be removed. The problem is that this layer of sandstone does not appear in borehole WQ 24-02a located 1,000 feet away.

Estimating the area of this 10-foot thick layer of saltstone then becomes problematic. One conservative approach would be to guess this saltstone layer only occupies 10 of the 35 to 50 acres. That would add 10 acres x 1,613 CY per foot deep per acre = 16,130 CY per foot depth.

16,130 CY per foot (over 10 acres) x 40 feet deep = 64,520 CY of additional spoils. Adding this volume to the 240,000 CY of overburden obtained above yields roughly 300,000 CY of material which has to be hauled out of the quarry.

The draft EIS should be expanded to note that WAC 222-24-060 (2)(b), (2)(d), (2)(e) and (2)(f), LOCATION OF SPOIL DISPOSAL AREAS, strictly prohibits the dumping of spoils within the footprint of the reservoir. This fact will be confirmed in the permitting process. The use of such a firm assumption should be encouraged in the draft EIS to facilitate the work of decision makers.

In addition, the draft EIS should explain that the terrain of the West Quarry is extremely steep with the Chehalis river curving around on both sides of the hill.

Elevation of borehole WQ 24-02a = 1312 feet above sea level.
Elevation of borehole WQ 24-01 = 944 feet (drop of 368 feet over a distance of 1,000 feet).
Elevation of full reservoir = 628 feet (drop of another 316 feet).
Elevation of river = about 450-500 feet.

This hill is 1312 ft high, 2000 ft wide with a drop on both sides 684 feet into a full reservoir. That steep drop would be 850 feet at a very steep angle into the river with no flat spots. There is no location in such steep terrain for a spoil pile.

This means that the environmental impact of creating the West Quarry will be to generate roughly 300,000 CY spoils which will have to be trucked out of the reservoir footprint BEFORE construction of the dam can begin. The draft EIS needs to make that clear for the decision makers.

1. Truck trips: 15,000 truck-with-trailer trips in 2 months (40 days) = 375 trips/day thro Pe Ell.
2. Cost per trip: about $300. 15,000 trips x $300 per trip = $4,500,000 just for hauling.
3. Purchase property to hold 300,000CY of fill.
4. Additional cost of shaping and maintaining fill.

Each of these actions have environmental impacts which need to be added to the draft EIS. Decision makers need this information to make sound judgements regard the dam project.