

Harris, William W.

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To: Harris, William W.
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Attachments: Comments of Public Review Draft Uplands RI (3).doc

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**COMMENTS ON THE PUBLIC REVIEW DRAFT
 OF THE
 REMEDIAL INVESTIGATION FOR THE UPLANDS ENVIRONMENT
 OF THE FORMER RAYONIER MILL SITE**

After reading and analyzing the RI presented by the WSDOE and prepared by Rayonier I am left with the following questions and then detailed comments:

Is this RI really the standard that the WSDOE, citizens of Washington State, and the United States of America want to represent as an acceptable level of environmental investigation, representation and cleanup? In the following years, is it really a true representation of the WSDOE ability to lead an environmental investigation and cleanup project?

I and a few thousand area residents have the following comments.

General Comments

It seems counterproductive to allow Rayonier, Inc. to conduct this investigation since they have the most to loose if contamination at the site is discovered. This inherent conflict of interest casts a shadow of doubt over all of the results presented within this report. It would seem highly likely that Rayonier would conduct the investigation and draw conclusions to minimize the contamination and related cleanup costs presented in this report. Such strategies could include the following, many of which were observed in this report and are described in greater detail in comments listed below:

- Refusing to sample in areas that are likely to be highly contaminated or that they alone know to contain waste;
- Not submitting samples for the full suite of chemical analysis; thereby limiting observed elevated concentrations of site COPCS.
- Adjusting sampling locations to avoid visible contamination (i.e. selecting cleaner-looking soil as the sample aliquot adjacent to stained soil);
- Downplaying facts and data to show Rayonier in a favorable light;
- Drawing conclusions that are not based on scientific fact but on speculation that benefits Rayonier's economic interests.

Overall, the data and results of the RI seem to be deliberately presented poorly and in an unclear, unorganized manner. In many cases, it is difficult or impossible determine the complete list of contaminants analyzed in the samples. The text often discusses sample results by focusing what was not found in the samples versus what was found. The discussion of the groundwater results were particularly difficult to follow because samples were collected over time. Rayonier did not show how concentrations were stable or decreasing over time as they claimed.

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Executive Summary

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Page xxv, first paragraph. I disagree that the reasons stated for using marine aquatic water quality criteria for comparison to

site groundwater are environmentally conservative. Bullet 1: Even though it is true the volume of groundwater seeping into the ocean is small in comparison, contamination in it can still impact nearshore marine environment due to continual, long-term exposure. Bullet 3: Naturally-occurring soil metal concentrations would not be a concern; however, **elevated** concentrations of metals in onsite soils (i.e. between unrestricted and industrial cleanup standards such as that found in onsite soils) would cause groundwater concentrations to be elevated. Bullet 4: Since geochemical conditions between groundwater and seawater are very different as stated, using marine water quality criteria for groundwater is inappropriate, like comparing apples and oranges. As contaminants and entrained particulates in the groundwater enter the marine environment, the change in chemistry will cause contaminant concentrations in the water to change through oxidation/reduction, solubilization, and precipitation. In order to compare groundwater concentrations to these marine water quality standards in a meaningful way, the data would somehow have to be adjusted to account for the change in chemistry.

Page xxvi, paragraphs 3 through 5. The report states: "Leaching of site soil COPCs to groundwater is not expected to be a significant future transport mechanism. The majority of soil COPC's onsite have been present for many years, and monitoring ... has shown 1) a general lack identifiable soil sources for observed groundwater detections, and 2) decreasing or stable concentrations in groundwater COPCs." Contaminants in onsite soils will continue to leach into groundwater until they are removed. The fact that concentrations have stabilized indicate that equilibrium has been reached between soil and water. The fact that in some cases concentrations have decreased reflect that some sources (i.e. tanks, buildings, contaminated soil) have been removed during site razing and through interim cleanup actions. The fact that Rayonier has not been able to identify sources of contamination indicates that they have not performed sufficient characterization of the site or that the soils themselves are sources having become contaminated by years of onsite activity.

The report additionally implies that the high contaminant concentrations are due to unusual groundwater chemistry, for example high pH and not due to Rayonier's activities. This argument is ridiculous since the unusual groundwater chemistry was caused by Rayonier's activities (i.e. the release of ammonia and bleach into the groundwater).

Finally, the report describes a loading evaluation of groundwater transport and estimates "metals loading at less than 1/1000th of a pound per day and 2 to 4 orders of magnitude less for organic compounds." While this sounds like a small amount, 1/1000th of a pound is 453 milligrams per day or 165 grams per year for metals and approximately 100 micrograms per year for organic compounds. Table 6-4 Ambient Water Quality Criteria lists criteria standards for metals in the *microgram* per liter range and for organics in the *nanogram* per liter range. Using Rayonier's own logic, one would expect water quality standards to be exceeded within one year. Therefore, the statement that leaching of site contaminants to groundwater is not a significant transport mechanism could not be true based on Rayonier's own argument and data. This is a prime example of Rayonier stating the facts in a way to downplay the contamination at the site.

Section 2

Page 2-4, Paragraph 5. The report states that contaminated soil was removed from a stormwater ditch located on the east side of the site and that the ditch was filled with clean fill and hydroseeded. Were confirmation samples collected from the ditch to show that all contamination was removed prior to filling and seeding?

Page 2-6, Paragraph 4. The distribution of crushed concrete rubble across the western portion of the site would make it difficult to characterize any soil contamination potentially underlying it and provide a true picture of the nature and extent of contamination.

Page 2-7, Paragraph 3. Rayonier states that the chloride concentrations found in their deep process well were of an unknown origin. Since the well was located next to Rayonier's bleach plant, it seems obvious that this was the source. This is an example of Rayonier downplaying obvious facts to show themselves in a more favorable light (see general comments above).

This illustrates the concern that Rayonier may have "spun" other facts and not represented the true nature and extent of contamination at the site. In addition, this suggests that activities from Rayonier have also impacted the deep aquifer which was not investigated in the RI.

Section 3

General Comments. The Interim Cleanup and Removal Actions performed by Rayonier appeared to be inadequate in removing contaminated soil from the identified areas of concern. The questionable routine methodologies used at the five areas include the following:

- Leaving known contaminated soil in place due to "inaccessibility issues." This is a weak argument since the whole site was razed and "inaccessible" areas could become accessible with the use of appropriate heavy excavation equipment.

- Most cleanup/removal excavations had confirmation samples that exceeded cleanup standards, but Rayonier attempts to explain away each incident and ultimately concludes that "no further action was necessary."
- Removing contaminated soil only down to the groundwater table (approximately 8 feet below ground surface) and conducting inadequate sampling to verify assumptions.
- Confirmation samples were not analyzed for the full suite of site COPCs, but only for selected analytes. The reason for selecting this truncated list of analytes is not explained.
- Waste characterization samples were also not analyzed for the full suite of COPCs before disposing in the local landfill. The chance that wastes were disposed improperly is high.
- During most Interim Actions, excavations were backfilled with clean fill and then covered with crushed concrete rubble. This makes it difficult for Rayonier to go back to an Interim Action area to remove any remaining contamination. I suspect Rayonier did this on purpose so they could use this reason as an excuse to not conduct further cleanup in these areas.

Below is a detailed list of the questionable methodologies used at each Interim Action Area.

Page 3-2, Paragraph 2; Page 3-3, Paragraph 1-4. Contaminated soil was left in the stream bank due to access issues during the interim action at the **Finishing Room**. Additionally, confirmation samples collected from the walls and floor of the excavation were compromised so it is unknown if the removal of contamination was complete.

Rayonier could not remove soil near the sump and pipe racks because of limited access during the Interim Action at the Fuel Oil Tank No. 2. The sump and pipe racks were a likely site of spills and leaks.

When the second interim action was performed in this area due to petroleum hydrocarbons traveling "underneath the road toward the sludge building/hog fuel pile," no action was taken to investigate and remove the path along which the petroleum flowed between the two excavations.

Soil was removed down to only to the shallow groundwater table. The likelihood of contaminated soil below this level is high since floating product was observed on the shallow groundwater. Confirmation samples again indicated that not all contamination was removed.

Page 3-4, Paragraph 4 and 5. During the Interim Action at the **Hog Fuel Pile**, samples were analyzed for a limited suite of compounds to determine dangerous waste disposal requirements before disposal to the local sanitary landfill. This characterization was inadequate since dioxin/furan congeners and PCBs are also COPCs on this site. This also raises the question if all interim action confirmation samples were analyzed only for specific analytes and not the full COPC suites. If not then how can Rayonier be certain that all contamination was removed?

Page 3-5, Paragraph 3.

During the Interim Action at the **Former Machine Shop**, soil was removed down to only to the shallow groundwater table. The likelihood of contaminated soil below this level is expected since contamination was observed at the groundwater level. Confirmation samples were only submitted for a limited chemical analysis and did not include dioxin/furans, PAHs, or pesticides/herbicides. Again, confirmation samples exceeded cleanup standards indicated that possibly not all contamination was removed.

Page 3-5, Paragraph 5; Page 3-6, Paragraph 1. During the **Spent Sulfite Liquor Lagoon** Interim Action, contamination soil was removed down only to the groundwater. Confirmation samples were only submitted for limited chemical analysis and did not include VOCs, pesticides, or PCBs.

Page 3-10. The presentation of the groundwater monitoring results following the interim actions is unclear and confusing. Overall, the groundwater data does not appear to show that cleanup actions decreased groundwater contamination below standards. It doesn't appear that wells MW-7 and MW-16 that were observed to have floating product on 3-18-1991 were re-sampled during the 7-1-1991 sampling event (Table 3-4). This would be necessary to determine if cleanup actions were sufficient. Also, MW-13 and MW-26 were found to contain elevated concentrations of vinyl chloride and chlorinated solvents. The report does not address this concern.

The text does not clearly describe the historical progression of groundwater monitoring for each individual Interim Action area, including installation of wells, sampling and results, well decommissioning, and remaining issues of concern. Instead the text lumps the groundwater sampling and results for all cleanup areas together and focuses on which analytes were not detected and downplays those analytes that were detected. This raises many questions. Looking at Table 3-4, why were wells not analyzed for gasoline, diesel, and PAHs? Why were samples submitted for a limited suite of COPCs? Why were

wells abandoned during the 2002 Fuel Tank Cleanup Action when many (according to Rayonier data, contained elevated concentrations of contaminants? Why was MW-28 never sampled? All these questions lead to the conclusion... that the groundwater monitoring conducted was inadequate to determine if interim actions were sufficient.

Section 4

Page 4-4, Section 4.1.3 Chemical Analyses, Table 4-3. Since dioxin/furan congeners were potentially spread across the site via the smoke stack and other onsite processes, all of the samples should have been submitted for dioxin/furan analysis. The same logic applies to pesticides, since groundwater was found to contain pesticides (DDT, DDE, and DDD) across the site, probably from Rayonier spraying these chemicals for mosquito control, pesticides should have analyzed in every sample.

The report does not state the reasoning of how analytical suites were selected for individual samples. Certainly, the analytical suites that were selected give an incomplete description of the nature and extent of contamination at the site.

Page 4-7, Paragraph 2 and 3. Rayonier describes uncovering a pipe containing black liquid that drains into the soil and that Rayonier reburies without sampling. The reasons given for not sampling this black liquid are absolutely ludicrous: That it was *probably* cooking liquor, washed pulp, or spent sulfite liquor (SSL). Rayonier stated they did not expect to contain contaminants in the first two and the SSL would not result in *significant* contamination.

COME ON!! This is insulting! This area is right in the middle of the main processing area and is the MOST likely area to contain contamination. The nature and extent of contamination in this area in particular has most definitely NOT been determined. The location of the pipes obviously buried in this area needs to be determined, sampled, and remediated.

Page 4-10, Section 4.2.9, Table 4-6. Petroleum analysis of groundwater was limited to diesel. Analyses should have also included Hydrocarbon Identification (HCID) and gasoline (TPH-Gx) since BTEX compounds and floating product were detected in several wells.

Section 5

General Comments. Onsite soils were generally not analyzed for pesticides and PCBs even though these contaminants were found prevalent in groundwater above criterion levels. Further sampling and analysis of soils for these contaminants is needed to better describe the extent of pesticide and PCB contamination across the site. Additionally, soil samples were routinely not analyzed for the full suite of site COPCs which would be required since contamination across the site is so variable and the sources of groundwater contamination has not yet been identified.

The contamination observed in the groundwater is of concern and exceeds criterion for many analytes. The investigation performed to date has not sufficiently identified those sources of contamination by Rayonier's own admission. Of particular concern is the pesticide (DDT, DDE, and DDD) contamination observed across the site. While Rayonier states that it does not know the source of this contamination, it is likely that Rayonier must have conducted insecticide spraying across the site, probably during the 40's and 50's when it was common practice.

Page 5-1, Paragraph 4. The report states that areas that were addressed as part of interim actions were not further evaluated or discussed. As described above in the Section 3 comments, these areas were not sufficiently cleaned up. Contaminated soil was left in place, confirmation samples were not submitted for the full suite of site COPCs, and in many cases final confirmation samples exceeded cleanup levels which were explained away for various reasons. This lends an incomplete description of the nature and extent of site contamination described in this section.

Page 5-3 and 5-4. Visual and olfactory indications of petroleum were observed at seven soil sample locations (LY21, LY22, LY23, SR22, CS20, DB21, and RB21); however, Rayonier analyzed samples from only one of these locations for petroleum hydrocarbons. Rayonier's reasons for not analyzing for petroleum at the other locations was weak at best and based on speculation. These areas should be re-sampled and submitted for petroleum hydrocarbons.

Page 5-7, Section [5.1.2.2](#). Samples collected in the boneyard were only analyzed for arsenic. COPCs in a typical boneyard include PCBs from transformers, petroleum hydrocarbons from engines, metals from batteries, and PAHs from tires. In addition, groundwater samples collected from this location exceeded copper and pesticide criterion and the area is located downwind from the Rayonier smokestack. These samples should be re-collected and submitted for the full suite of site COPCs.

Section [5.1.2.3](#). Samples collected in the chlorine dioxide and pre-fab area were only analyzed for copper, even though ESI samples contained elevated levels of arsenic and chrysene. In addition, the area is located downwind from the Rayonier smokestack. These samples should be re-collected and submitted for the full suite of site COPCs.

Section [5.1.2.4](#). Samples collected at the SSL Lagoon were not analyzed for pesticides or PCBs even though these contaminants were observed in groundwater at levels above criterion. Additionally, surface samples were only analyzed for dioxin and subsurface samples were not analyzed for dioxin. These samples should be re-collected and submitted for the full suite of site COPCs. During the interim removal, confirmation samples were only submitted for limited chemical analysis and did not include VOCs, pesticides, or PCBs. Samples in this area should be re-collected and submitted for the full suite of site COPCs.

Section [5.1.2.5](#). Samples collected at the wood mill were not analyzed for pesticides, even though these contaminants were observed in groundwater at levels above criterion. These samples should be re-collected and submitted for the full suite of site COPCs.

Section [5.1.2.6](#). Samples collected at the Log Yard were not analyzed for the appropriate suite of contaminants. Samples LY20, LY22, and LY23 were only analyzed for dioxins even when stains and organic odors were observed in LY22 and LY23. No samples were analyzed for pesticides or PCBs even though nearby wells contained these contaminants above groundwater criterion. These samples should be re-collected and submitted for the full suite of site COPCs.

Sections 5.1.2.6.1 through 5.1.2.6.4. Rayonier routinely discounts the presence of contaminants found in the log yard samples based on speculation, supposition, faulty hypotheses, or lack of information. Rayonier often discounts ESI data when it was not reproduced during the RI sampling even though Rayonier often did not sample in the same location. Additionally, because sampling strategy did not include analysis of the full suite of COPCs, the summary of the data is incomplete.

Section [5.1.2.7](#). Ecological samples collected were not analyzed for PAHs and SVOC even though the area is located downwind from the Rayonier smokestack. Additionally, these samples were analyzed for pesticides even though there is evidence that pesticides were used across the site. These samples should be re-collected and submitted for these suites of COPCs.

Section [5.1.2.8](#). Soil samples collected from the main process area should have been analyzed for all the suites of site COPCs due to the varied activities and widespread contamination associated with this part of the site. Even so, extensive and varied contamination was observed in this area which is not unexpected. As with the log yard soils, Rayonier tries to discount observed contamination. Rayonier seems unduly concerned with the source of each analyte, tying each analyte's legitimacy to whether or not its source can be determined. This would be an impossible task and irrelevant, the important point being that the contamination is present. The fact that observed contamination may have been brought in with the fill to build the site is of no consequence to Rayonier's responsibility for remediation. Data gaps still exist in this area since the buried pipes and storm water drains have yet to be evaluated for contamination.

Section 5.2.1, Appendix H. The meteorological data used to generate the particulate deposition modeling was collected at the base of Ediz Hook and not from data collected at the site. By comparing wind roses generated from both data, it is clear there are significant differences that would impact the validity of the modeling results. Specifically, the wind rose data collected onsite had a significant radial in the northeast quadrant with wind speeds of up to seven to 10 knots, whereas the wind rose generated from the Ediz Hook data had none. It is probable that this wind vector is caused by the diurnal shift of winds and occurs primarily during the nighttime hours. The lower wind speeds, compared to the primary winds, would cause contaminants from the Rayonier stack to aerially deposit on top of the cliff, southwest of the site and relatively close to the site's boundary. By looking at the residential soil data, elevated concentrations of site COPCs were indeed observed in these areas.

The reasons that Rayonier gave for not using the site data were weak when combined with actual soil data. It is suspected that Rayonier chose to use the Ediz Hook met data to try to discount the elevated residential soil results. As it stands, the results of Rayonier's atmospheric deposition modeling is not valid.

Rayonier also supposes that the elevated residential dioxin concentrations are due to the incinerator at the hospital. This is easily determined by conducting dioxin fingerprint analysis of the onsite versus hospital incinerator waste and it is recommended that they do so.

Section 6

Please refer to the fourth paragraph in the Conclusions.

Section 7

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General. Refer to Executive Summary comments.

Page 7-5, paragraph 2. Rayonier states that it is unlikely that additional leaching of contaminants from soil to groundwater will occur since groundwater concentrations have stabilized. This is ridiculous. The stable groundwater concentrations indicate that equilibrium has been reached between soil and groundwater. Additional leaching would occur during heavy rainfall or flooding events of Ennis Creek.

Conclusions

The nature and extent of contamination in groundwater, onsite soil, and residential offsite soil has not been adequately characterized at the upland portion of the Former Rayonier Mill Site. Furthermore, Rayonier consistently downplayed or tried to discredit the contamination that they did observe and drew unsubstantiated conclusions that favored minimizing clean-up efforts.

Groundwater is very contaminated across the entire site. Wells closest to the shoreline and nearest the pier contain the greatest number of contaminants as would be expected since groundwater flows toward these wells. This is a major concern since they are indicative of what is flowing into the marine environment. Another major concern is the presence of pesticides and PCBs in the groundwater. Since these compounds have such low solubility, their presence in groundwater indicates that either pesticides/PCB were spilled directly into the groundwater, or the concentration of these compounds is very high in surrounding soils which are then leaching to groundwater. The RI report downplays the seriousness of their presence.

Contamination in onsite soil has not been adequately characterized. This is clearly demonstrated by the widespread groundwater contamination for which Rayonier admits no point sources have been found. Some hot spots were identified and subsequent interim cleanup and removal actions were performed. Rayonier conducted inadequate cleanups at most of these hot spots admitting to either leaving some contamination in place due to "inaccessibility", or confirmation samples exceeded action levels, indicating contamination remained. Rayonier routinely discounted elevated concentrations of contaminants in soil as outliers or anomalies. In one case, they reburied a pipe of black liquid without sampling rationalizing that it wouldn't contain contamination. This seems unlikely and irresponsible of Rayonier. Remaining contamination at these hot spots and in buried pipes across the site are some of the probable point sources that may be contributing to groundwater contamination.

Soils were routinely analyzed for a subset of site COPCs and no clear explanation was given for the selection of each subset. This would greatly underestimate the actual contamination at the site. Since Rayonier states that no point sources of contamination were identified, all samples should be analyzed for all COPCs. There are several large areas that contain no soil analytical data, particularly near the shoreline wells and in the area east of the mouth of Ennis Creek.

The air modeling that Rayonier conducted to evaluate the residential soil data is rife with the following problems:

- The placement of the meteorological station on Ediz Hook would not represent wind patterns at the site and data collected from this location would not yield accurate wind roses.
- Modeling based on the inaccurate wind rose information would not be accurate.
- Rayonier used air modeling data to discredit the residential soil sampling results. This is exactly backwards. Soil data is always more reliable than modeling data and should always be used if given a choice. In fact, there really is no point to conducting air modeling if surface soil data is available. Much more accurate and complete information could have been gathered if Rayonier's efforts had been focused on collecting more soil information.
- Rayonier should conduct dioxin fingerprinting to determine if the hospital incinerator is indeed contributing to residential soil contamination.

Rayonier is one of the largest land owners in Washington State and has done business as one of the largest employers in the region for many years. Washington and its citizens have benefited greatly from their investment in infrastructure and jobs created thereby. Rayonier has also benefited enormously from the natural resources and dedicated labor efforts of the citizens of Washington State. Rayonier is now an international Four Billion Dollar business and needs to recognize the true cost of some of its past practices. The Port Angeles community, the Puget Sound has been economically stunted and its citizen's health damaged by the actions of Rayonier long enough. In short Rayonier has made a tremendous mess over a long period of time and needs to truly clean it up. Finally, it would not seem to be in the Washington Department of Ecology's best interests to allow Rayonier to get away with such an obviously jaded and poorly conducted Remedial Investigation that sets a precedent for future RP-led cleanups.

Sincerely

Aaron Warner
Port Angeles, Washington