**DEQ Response to Hypothetical Variance Application**

***Human-Caused Conditions Factor***

Summary

This document summarizes how DEQ expects to review a variance application, such as that submitted by Norwest Forest Products.

This application itself requests a variance from the effective dieldrin water plus organism human health water quality criterion of 0.0000053 ug/L. It contains information about current ambient and effluent water quality conditions and an assessment of the facility’s ability to meet its calculated water quality-based effluent limitations.

In evaluating the ambient water quality conditions, the data show that the dieldrin criterion is being exceeded in the receiving water body upstream of the facility’s discharge. The high concentrations are coming from historical uses of dieldrin throughout the watershed and are not a result of additional pollutant inputs from Norwest processes. However, Norwest is using multiple-pass cooling, which increases the effluent six times the concentration of the intake water. Consequently, dieldrin is concentrated in the effluent, thereby causing a water quality criterion exceedence for dieldrin in the effluent and the potential to increase the concentration of dieldrin in the receiving water, despite the fact no additional mass is added. Because the receiving water also exceeds the criterion, no dilution is available for the discharge and a mixing zone is not allowed.

Norwest has requested a variance from the dieldrin criterion as demonstrated under (40 CFR 131.10(g)(3)) which is the condition specifying that *human-caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place.* Although dieldrin production has been banned in the U.S., the presence of dieldrin in soils, water, and other media can continue to persist in the environment. Based on generally available material, the information contained in the application would support a conclusion that dieldrin concentrations represent legacy sources resulting from past human activities in the watershed. DEQ anticipates supporting a request for a variance in this type of situation based on the information contained in this hypothetical application. The primary basis for granting a variance in this circumstance would be based on the rationale that the sources of pollution cannot be remedied by this particular discharger and that the dieldrin concentration in the discharger’s effluent would cause more environmental damage to correct than to leave in place.

Review of Application

Norwest’s application describes why it cannot remedy the sources of dieldrin in the Cascadia River upstream of the facility’s intake, and also provides an evaluation of alternatives it considered for addressing the increased concentration of dieldrin in its effluent resulting from Norwest’s multiple-pass cooling water process. DEQ supports the applicant’s determination that implementation of each of the technically feasible alternatives considered would result in more environmental damage to correct than to leave Norwest’s current process in place.

One alternative evaluated by Norwest included reducing the number of passes in its cooling water process, including the use of a single-pass process. In its application for a variance, Norwest concluded that this alternative may result in increased thermal loading to the system, as well as reductions to in-stream flow downstream of the intake point. Due to the presence of ESA-listed species, increased stream temperature and decreased steam flow associated with this alternative may be more environmental harming than an insignificant increase in concentration of dieldrin posed by Norwest’s multiple pass through cooling process.

DEQ agrees with this conclusion, and notes that it has previously worked with Norwest to ensure they comply with temperature criteria for Cascadia River. In response, Norwest hired a design engineer to redesign their system, so that cooling water could be used multiple times prior to being discharged (often referred to as a multiple-pass cooling system). This has resulted in a 40% reduction in the amount of water the source draws from the river, thereby conserving in-stream water flow. The facility could reduce the number of passes to decrease dieldrin concentrations in its effluent, but it may contribute to temperature increases in the river and would reduce streamflow downstream.Norwest also evaluated the alternative of switching its source water to groundwater. Using a groundwater source created other adverse impacts. Due to the volume of Norwest’s water use, the facility would be taking water out of the aquifer at a faster rate than it could be recharged, thereby depleting the groundwater resource in the area. Norwest also presented concerns about how pumping water out of the aquifer at this rate would affect nearby wells and groundwater flow patterns, including the discharge from the groundwater into Cascadia River that contributes needed summer baseflow to the river. In addition, there are relatively high levels of arsenic in the groundwater that would be concentrated via the cooling water process and discharged to the river at much higher concentrations than the current ambient levels of arsenic.

In evaluating the use of more advanced treatment technologies, such as reverse osmosis, activated carbon, and chemical coagulation, Norwest presented environmental concerns relative to disposal of potentially hazardous waste materials. In addition, there is no full performance data available at this time to show that these technologies could consistently remove dieldrin.

DEQ believes that Norwest has adequately explored alternatives to their current multi-pass cooling water process, and agrees that implementation of these alternatives would cause more environmental damage to correct than to leave the current process in place. DEQ finds that the insignificant increase in the ambient concentration of dieldrin in the Cascadia River does not pose an unacceptable increase to human health risk above that already present in Cascadia River. In fact, the calculable cancer risk from this increase in concentration would not change the DEQ risk level of 1 in a million. It should be noted that cancer risk is assessed over a 70 year lifespan, drinking 2 liters of water a day, and eating approximately 23 fish/shellfish meals per month (i.e. 175 g/d). It is expected that there may only be incidental ingestion of drinking water from this reach from kayaking or swimming activities. It could also be reasonably assumed, that a person would obtain only a very small portion of their total fish consumption from Cascadia River.

Interim Conditions and Requirements of a Variance

In this example, high dieldrin concentrations in the watershed are expected to continue to persist for many years. With this understanding, DEQ would likely grant a variance for the term of the NPDES permit (as long as this permit is in effect and until it has been replaced by a new permit).

The variance would not exempt Norwest from compliance with its applicable technology-based limits or water quality-based limits for other pollutants. In addition, Norwest is already required to monitor quarterly for dieldrin in intake water and effluent for a period of two years. Norwest will continue to monitor their discharge flow according to their permit requirements. Per the current draft variance rule language, DEQ would include and incorporate into the permit an effluent limitation representing currently achievable treatment conditions based on discharge monitoring which is no less stringent than that achieved under the previous permit.

As described in Norwest’s variance application, Norwest cannot remedy the sources of dieldrin upstream of its intake. Given this and because the increase in the concentration of dieldrin in Cascadia River is insignificant (approximately 1 %), DEQ will not require Norwest to develop a pollution minimization plan to reduce sources of dieldrin.

DEQ’s goal is to maintain the designated use of public domestic water supply for Cascadia River. Currently, domestic water supply is not an existing use downstream of the discharge point; however, future growth or other changes to the water resources in the basin may warrant the need for this water body to be used for domestic water supply in the future. Therefore, DEQ’s goal is to reduce dieldrin concentrations in the water body over time and retain public water supply use as a long term goal. If ambient river conditions continue to show high levels of dieldrin from legacy sources, DEQ may consider a Use Attainability Analysis to determine whether or not the designated use of drinking water supply continues to be appropriate.

Approval Process

DEQ’s review and subsequent approval by both DEQ and EPA would be scheduled to coincide with the permit issuance process. This variance would be approved by the DEQ Director as described in the draft OAR 340-041-0XXX and would not be effective until it has been approved by EPA Region 10. Effective date of the variance will begin on the date of EPA approval.

Variance Renewal

This variance could be renewed if Norwest submits an updated application and information demonstrating that the designated use is still not attainable or that the conditions upon which the variance was granted continue to exist at the time of their permit renewal. DEQ may deny a variance revewal if Norwest does not comply with the conditions of the original variance or otherwise does not meet the requirements set forth in variance regulations. If appropriate, the department may request Norwest to submit additional information demonstrating that reasonable progress has been made towards achieving the underlying water quality standard.

Notice of Variance

DEQ intends to publish this variance, as well as a list of all approved variances to state water quality standards that have been granted by the state and approved by EPA on the DEQ standards website @ XXXXXXXXXX. Newly granted variances will be added to this list within 30 days of their effective date. The list will identify: (1) the person or entity for which the variance was granted; (2) the underlying water quality standards to which the variance was granted; (3) the water(s) affected; and (4) the effective and expiration dates of the variance.