Department of Toxic Substances Control

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April 26, 2011

Ms. Julie Raming
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RESPONSE TO COMMENTS: TECHNICAL MEMORANDUM – RISK ASSESSMENT APPROACH FOR OPERABLE UNIT E, GEORGIA-PACIFIC FORMER WOOD PRODUCTS FACILITY, FORT BRAGG, CALIFORNIA

Dear Ms. Raming:

The Department of Toxic Substances Control (DTSC) has completed our review of the Georgia-Pacific's response, dated March 18, 2011, to DTSC's comments on the draft Technical Memorandum – Risk Assessment Approach for Operable Unit E. In many of the responses, Georgia-Pacific deferred further explanation and detail on the risk assessment approach to the OU E Remedial Investigation (RI) Report. In order to clarify the response to comments and the risk assessment approach, representatives of DTSC, Georgia-Pacific, ARCADIS, and the City of Fort Bragg's consultants Fugro West and SLR took part in a conference call on April 14, 2011. Also discuss during the call were the comments of Mark Stelljes of SLR, witch were submitted to DTSC and forwarded to Georgia-Pacific in an email on April 7, 2011. These comments are attached.

DTSC accepts the March 18, 2011 Response to Comments and approves the Technical Memorandum – Risk Assessment Approach for Operable Unit E. DTSC shall review the implementation of the Risk Assessment Approach and the OU E risk assessment in the upcoming OU E RI Report.

If you have any questions regarding this letter, please contact me at (510) 540-3776 or tlanphar@dtsc.ca.gov.

Sincerely,

Thomas P. Lanphar
Senior Hazardous Substances Scientist
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Enclosures

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Memorandum

To: Tom Lanphar, DTSC and Glenn Young, Fugro

From: Mark Stelljes

Date: April 1, 2011

Subject: Comments on OU-E RA Technical Memorandum

I have reviewed (1) the redlined OU-E RA Technical Memorandum prepared by Arcadis dated December 20, 2010, (2) the Response to DTSC Comments dated January 24, 2011 regarding the Technical Memorandum – Risk Assessment Approach for Operable Unit E, and (3) the Data Summary Report – Additional Investigation Pond 8 Sediment, dated February 7, 2011, which is referenced in the Technical Memorandum. These documents are part of the work being conducted at the former GP Wood Products Facility in Fort Bragg, California. SLR had previously provided comments on the original Data Summary Report – Additional Investigation Pond 8 Sediment. The comments included herein focuses on the use of this information in conducting the RA for OU-E. For brevity we are not including the comments that were consistent with those provided by DTSC in their January 24 letter. Rather these comments are in addition to those from DTSC.

1. Page 2, Background. The footnote on this page references a footnote 3, which is not present in the document. We assume this is a reference to Figure 3 – please update the footnote as appropriate.

2. Page 5, second bullet. Language in this bullet, while accurate, gives a false impression that Pond 8 sediments are only impacted by stormwater runoff from the City. Please modify the second sentence of this bullet to read "Petroleum hydrocarbons in the diesel range (TPHd) were detected in Pond 8, which also receives stormwater runoff from the City in addition to site-related chemical sources".

3. Page 5, fourth bullet. Similar to Comment 2, while it is true that city stormwater discharges into Pond 8, this bullet gives the misleading impression that the City is the primary source of chemicals in Pond 8. Site-specific sources are not even mentioned in the paragraph. Please revise the bullet to clearly explain that there are both onsite and offsite sources of chemicals in Pond 8.

4. Page 6, Future Land Use and Influence on Exposure Media, first set of bullets. Please add dioxins/furans and PAHs detected in the riparian area of OU-C and OU-D as COIs, since this area is to be hydrologically connected to OU-E under Alternative 6, and can thus serve as sources for chemical migration into OU-E.

5. Page 10, Exposure Point Concentrations, first bullet. Combining the impacted sediment in Pond 8 with the soils in the OU-E lowlands has the potential to greatly dilute the

concentrations to which terrestrial receptors are assumed to be exposed after the project is complete. Rather than assuming in this "conservative" scenario that complete mixing of both sources of soil will occur, evaluations should be separately conducted using (1) only Pond 8 sediment data and (2) using only lowland soil data. Once risk estimates are developed for the separate soil locations, risk management options can then be more fully considered when finalizing soil management during remediation and restoration activities. Using an EPC incorporating soils from both Pond 8 and lowland areas is not appropriate as it makes assumptions that cannot be ensured to be met as part of a future scenario.

6. Page 10, Exposure Point Concentrations, second bullet. Similar to Comment 5, use of a stabilization mix ratio to obtain a lower EPC should only be considered a "potential future" scenario. Results may not be accepted until confirmation sampling supports the stabilization ratio is successful in lowering bioavailable concentrations of COIs.

7. Page 10, last paragraph. The last line incorrectly uses the term "exposure duration" to describe an "exposure frequency".

8. Page 11, Soil/Sediment Dataset, second paragraph. The exclusion of all data shallower than the projected future ground surface assumes that ALL soil shallower than this level is removed from the site and is not placed elsewhere in OU-E. Unless and until this can confirmed, it is not appropriate to assume that shallow soils are not available for exposure under a future scenario.

9. Summary Comment. There is no discussion in this approach memorandum of how or if the Sediment Investigation in Pond 8 information will be incorporated. Please provide a discussion of how or if any of this information will be used in the OU-E risk assessment, and provide details as to the rationale for this decision.

The following are our comments on the Data Summary Report – Additional Investigation Pond 8 Sediment. These comments are in addition to those initially submitted on the April 2010 Additional Investigation Pond 8 Sediment report.

1. Page 2-1, Section 2.0, last sentence. Appendix A was not provided to the City and could not be reviewed.

2. Page 2-3, Section 2.2, second paragraph. Please change the start of the sentence to "Species" instead of "Samples", which will make it clear that, while cattails are a dominant rooted species, no cattail samples were collected. Also, please clarify if above-water, below-water, or both types of plant samples were collected.

3. Page 2-4, first paragraph. While it is generally true that vertebrates generally metabolize PAHs and prevent bioaccumulation, this is not the case for invertebrates and plants, both of which are relevant receptors for the aquatic portion of the ERA to be conducted for OU-E. As shown in the Eco-SSL document, bioaccumulation factors for some PAHs are greater than a factor of 10 for several PAHs. Please include PAHs as COIs for the aquatic portion of the ERA.

4. Page 2-5. Bioaccumulation. It is not clear that the sediments used for bioaccumulation mimic environmental concentrations since they were (1) press sieved, which changes the redox potential, porosity, and other parameters of the sediment, and (2) manipulated daily for 2 weeks during the toxicity bioassay tests. Fresh sediment should have been used.

5. Page 2-6. Bioaccumulation, first full paragraph. Depurating the earthworms prior to analysis is appropriate to identify a bioaccumulation factor. However, it is not relevant with regard to invertebrates used as food by higher trophic level species (e.g., robins) that do not depurate any of their prey. Since up to half the weight of an earthworm consists of its gut content, the chemical body burden of this prey species will be much higher than estimated using depurated worms. This factor must be considered and accounted for when implementing the ERA.

6. Page 3-2, last paragraph. It is unclear what the source was for 2,3,7,8-TCDD TEQs for birds or fish. EPA says in their Eco-SSLs that other TEQs for wildlife are "not ready". This comment has been repeatedly included for other documents and has not yet been adequately addressed.

7. Page 3-4. We note that it is likely more than coincidence that the tissue from location Pond8-17 had the highest measured concentration for most metals and for 2,3,7,8-TCDD TEQ, as this was also the sample with the lowest survival from the toxicity bioassay on Hyallela. These concentrations are likely toxic to freshwater aquatic organisms in sediment.

8. Page 4-2, Section 4.1.1, first paragraph. While it is true that plant uptake may be more related to surface water than sediment concentrations, the fact that surface water is excluded from the ERA makes evaluation of plant uptake problematic using only sediment. Also, while the regressions for copper and zinc are "not considered to be significant", they appear to be statistically significant based on Table 12. Explain how the statistical significance is not "considered to be significant".

9. Page 4-3, Section 4.1.2. It is unclear why invertebrate concentrations from the bioaccumulation test are not directly used as EPCs for upper trophic level species rather than relying on a model with less than stellar regression relationships. Plant concentrations measured from the site are directly used as EPCs, and real data are always preferred over modeled concentrations. Please provide an explanation for the different approaches to be used for plants and invertebrates considered food sources for wildlife.

10. Page 4.3, Section 4.2, second paragraph. According to Table 5, only Pond8-16 had at least 90% fines, and no samples had greater than 95% fines (medium-gravel accounts for 9.15 % of the total, so the maximum percent fines in this sample cannot be greater than 95%). Please correct this error. Since the percent fines are overstated in the report, the impact of grain size on the bioassay results is also overstated. Sediment with percent fines less than 90 have not been shown to adversely affect this bioassay. At most, one sample may have had some impact from the amount of fine particles present. Please rewrite this paragraph to reflect the actual percentages of fines from Table 5 and consistent with existing literature

information. Also remove the first sentence from the last paragraph on page 4-4 that relates to grain sizes less than 90% confounding the results of the toxicity tests.

11. Page 5-2, Section 5.3.1. It is strongly suggested that literature-based BAFs only be used if there are no available data on COIs from the site. Additionally, regression equations to predict bioaccumulation should only be used if the regression coefficients indicate significant relationships exist.

12. Page 5-3, Section 5.3.3. Please explain the methodology to be used in incorporating the Pond 8 data into the "RA for Pond 8". As written, how this will be done is left to the reader's imagination.

The following is a general comment on the Response to DTSC Comments Dated January 24, 2011, prepared by ARCADIS and dated March 18, 2011.

1. The majority of responses to the ecological risk assessment approach provide few details that allow the reader to understand how the comment will be addressed in the risk assessment. Statements such as "will be considered" and "will be discussed" do not adequately respond to the intent of the comments provided.

Thank you for the opportunity to provide comments on these documents. Please call Dr. Mark Stelljes at (925) 229-1411 with any comments or concerns regarding this memorandum.