



Yana Garcia
Secretary for
Environmental Protection



Department of Toxic Substances Control

Katherine M. Butler, MPH, Director
700 Heinz Avenue
Berkeley, California 94710-2721



Gavin Newsom
Governor

November 4, 2024

Sent Via E-Mail

Mike Buck
On Behalf Of:
Mendocino Railway
1222 Research Park Drive
Davis, CA 95618
MikeBuck@Radian-Advisors.com

MENDOCINO RAILWAY'S REQUEST TO ADD THE CITY OF FORT BRAGG TO SITE INVESTIGATION AND REMEDIATION ORDER (DOCKET NO. HSA-RAO 06-07-150), FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY, 90 W. REDWOOD AVENUE, FORT BRAGG, MENDOCINO COUNTY, CALIFORNIA (SITE CODE: 202276)

Dear Mike Buck:

The California Department of Toxic Substances Control (DTSC) received your letters dated August 17, 2023 and September 6, 2023 (the Request) sent on behalf of Mendocino Railway. In your letters, you request DTSC add the City of Fort Bragg (City) as an additional Respondent to the Site Investigation and Remediation Order, Docket No. HSA-RAO 06-07-150 (Order) pertaining to the property located at 90 West Redwood Avenue, Fort Bragg, Mendocino County, California 95437 (Site). DTSC declines to name the City as an additional party to the Order.

The California Health and Safety Code section 79020 sets forth the factors DTSC considers in issuing orders to the "largest manageable number of potentially responsible parties." The factors are:

- (a) The adequacy of the evidence of each potentially responsible party's liability.

- (b) The financial viability of each potentially responsible party.
- (c) The relationship or contribution of each potentially responsible party to the release, or threat of release, of hazardous substances.
- (d) The resources available to the department.

DTSC has reviewed the available documents and information in the context of these factors, and determined the information provided does not warrant adding the City as a respondent to the Order at this time.

Georgia-Pacific owned and operated Pond 8, which is part of Operable Unit E of the former Georgia-Pacific Fort Bragg Mill Site (Mill Site).¹ Georgia-Pacific generated dioxins/furans at the Mill Site.² Site Remedial Investigation Reports named several sources of dioxins/furans at the Mill Site such as Georgia-Pacific's operation of dutch oven and hog fuel (wood-waste) boilers, conical burners, and open burning.³

The Mill Site powerhouse was constructed in 1926 where redwood chips were burned in brick ovens. Georgia-Pacific operated dutch oven boilers and/or hog fuel boilers from approximately 1973 through 2002,⁴ which were typically fired with redwood and fir wood

¹ DTSC. 2007. Site Investigation and Remediation Order in the Matter of Georgia-Pacific Corporation – Fort Bragg Sawmill.

² Acton, Mickleson Environmental Inc. 2006. Dioxin Sampling and Analysis Report. July 14.

Arcadis. 2008. Remedial Investigation Report Operable Unit A. February.

Arcadis. 2011. Remedial Investigation Operable Units C and D. February.

Arcadis. 2013. Final Remedial Investigation Operable Unit E. January.

³ Id.

⁴ LeBlanc, B.S., Pingrey, D.W, and Shoulders, R. Georgia-Pacific Finds West Coast Wood-Fired Electric Generation Pays Off. <https://www.babcockpower.com/wp-content/uploads/2018/02/georgia-pacific-finds-west-coast-wood-fired-electric-generation-pays-off.pdf>

waste such as sawdust and bark.⁵ Oil was also used to fire the boilers.⁶ In addition, wood obtained from construction and demolition was burned in the hog fuel boilers in 2001 and 2002.⁷

Georgia-Pacific operated hog fuel boilers and dutch oven boilers. Hog fuel boilers are a source of dioxins/furans.⁸ Georgia-Pacific received an air pollution Notice of Violation for its operations from the USEPA in 1973.⁹ By the early 1980s, local air pollution authorities advised that Georgia-Pacific's unscrubbed flue gas from the dutch oven boilers was unacceptable.¹⁰ Georgia-Pacific released dioxins/furans attached to fly ash from the boiler stack, which dispersed across the City and was aerially deposited in offsite areas. In addition, dioxins/furans were detected in Operable Unit E in proximity to the former fly-ash reinjection system and open fire refuse area.¹¹ Georgia-Pacific also

⁵ Timber Association of California. 1991. Source Emission Testing of the Wood-Fired Boiler #3 Exhaust. February. https://gaftp.epa.gov/ap42/ch01/s06/reference/ref37_c01s06_1999.pdf

⁶ Acton, Mickleson Environmental Inc. 2006. Dioxin Sampling and Analysis Report. July 14.

⁷ Arcadis. 2007. Characterization of Polychlorinated Dibenzop-Dioxins and Polychlorinated Dibenzofurans at McGuire Ranch. PDF p. 7.

Arcadis. 2009. Final Removal Action Work Plan. McGuire Ranch. August. PDF p. 10.

Kennedy Jenks. Draft Remedial Action Plan Operable Unit E Former Georgia-Pacific Wood Products Facility, Fort Bragg, California. PDF p. 30.

⁸ USEPA. 2006. An Inventory of Sources and Environmental Releases of Dioxin-Like Compounds in the United States for the Years 1987, 1995, and 2000. PDF p. 287.

Ecology 1998. Washington State Dioxin Source Assessment. July. PDF p. 36–42.

⁹ USEPA. 1975. State Air Pollution Implementation Plan. April. PDF p. 99.
<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=9100ZBHK.txt>

¹⁰ LeBlanc, B.S., Pingrey, D.W, and Shoulders, R. Georgia-Pacific Finds West Coast Wood-Fired Electric Generation Pays Off. 1983. <https://www.babcockpower.com/wp-content/uploads/2018/02/georgia-pacific-finds-west-coast-wood-fired-electric-generation-pays-off.pdf> PDF p. 3.

¹¹ Arcadis. 2013. Final Remedial Investigation Report Operable Unit E. January. PDF p. 22.

collected fly ash from the power plant multi-cyclone collectors and scrubbers and used it as a soil amendment off-site in the watershed and disposed of ash in the waste treatment ponds.¹²

Georgia-Pacific also operated two conical burners to burn refuse and wood.¹³ The burning of refuse and wood results in the generation of dioxins/furans.¹⁴ Georgia-Pacific released dioxins/furans from the conical burners, which dispersed across the City and were aerially deposited in offsite areas. This activity likely influenced the distribution of dioxins/furans in stormwater runoff from offsite areas.

Further, Georgia-Pacific performed open burning of wood waste in pits on site.¹⁵ The open burning of wood waste resulted in the generation of dioxins/furans.¹⁶ Georgia-Pacific released dioxins/furans from the open burning, which dispersed across the City.

Georgia-Pacific owned Pond 8, operated the sawmill, generated dioxins/furans over the course of approximately 30 years, and released dioxins/furans to Pond 8 part of Operable Unit E of the former Georgia-Pacific Fort Bragg Mill Site.

¹² Acton, Mickleson Environmental Inc. 2006. Dioxin Sampling and Analysis Report. July 14. PDF p. 9.

BBL. 2006. Information Request Off Site Fly Ash GP Fort Bragg Sawmill Vol 2. December. PDF p. 195.

¹³ Arcadis. 2015. Remedial Action Plan Operable Units C and D. December. PDF p. 47, 50.

¹⁴ EPA. 2006. An Inventory of Sources and Environmental Releases of Dioxin-Like Compounds in the United States for the Years 1987, 1995, and 2000. PDF p. 284–292.

¹⁵ TRC. 2004. Phase II Environmental Site Assessment Report. May. PDF p. 45.

DTSC. 2007. Site Investigation and Remediation Order in the Matter of Georgia-Pacific Corporation – Fort Bragg Sawmill. PDF p. 3, 87.

BBL. 2007. Response to Agency Comments on the Current Conditions Report Georgia-Pacific Wood Products Facility, Fort Bragg, California. PDF p. 3

¹⁶ EPA. 2006. An Inventory of Sources and Environmental Releases of Dioxin-Like Compounds in the United States for the Years 1987, 1995, and 2000. PDF p. 284–292.

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DTSC finds the completed stormwater evaluations for dioxins/furans presented in the Request lack the context of the former sawmill's historical activities described above (also see enclosed memorandum from Peter Gathungu, P.E., G.E. Review of Request to Add Respondent to Order, Former Georgia-Pacific Wood Products Facility). The Request Attachment A is based on three stormwater sampling events in 2011 and 2013. Attachment A compares stormwater pathway contributions but does not provide a source attribution for the dioxins/furans in Pond 8. The Request does not evaluate the City's role in the generation of dioxins/furans, it merely names the City stormwater as a pathway for the deposition of dioxins/furans to Pond 8. It does not discuss the extent to which Georgia Pacific's activities contributed to dioxins/furans to the City of Fort Bragg's storm sewers via aerial deposition and soil amendment. DTSC has taken the foregoing into account when considering the City's contribution to the release of hazardous substances.

DTSC finds the information presented insufficient to name the City as the source of the dioxin-furan contamination, and therefore DTSC declines Mendocino Railway's request to name the City of Fort Bragg on the former Georgia-Pacific Mill Site Order. If you have any questions, please contact me at (510) 540-2732 or via email at Morgan.Bigelow@dtsc.ca.gov.

Sincerely,



Morgan Bigelow
Environmental Scientist
Site Mitigation and Restoration Program – Berkeley Office
Department of Toxic Substances Control

Enclosure: *Memorandum from Peter Gathungu, P.E., G.E. Review of Request to Add Respondent to Order, Former Georgia-Pacific Wood Products Facility, Fort Bragg, Mendocino County, California (Site Code: DTSC 202276).*

cc: (See next page.)

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Secretary for
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Department of Toxic Substances Control


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Gavin Newsom
Governor

MEMORANDUM

TO: Morgan Bigelow
Project Manager
Site Mitigation and Restoration Program
Berkeley Office

FROM: Peter Gathungu, P.E., G.E. 
Senior Hazardous Substances Engineer
Engineering and Special Projects Office
Site Mitigation and Restoration Program *7/29/2024*



REVIEWER: Li Wang, PhD., P.E.
Senior Hazardous Substances Engineer
Engineering and Special Projects Office
Site Mitigation and Restoration Program

SUBJECT: REVIEW OF REQUEST TO ADD RESPONDENT TO ORDER, FORMER
GEORGIA-PACIFIC WOOD PRODUCTS FACILITY, FORT BRAGG,
MENDOCINO COUNTY, CALIFORNIA (SITE CODE: DTSC202276)

DATE: July 29, 2024

DOCUMENT REVIEWED

*Letter, Request to Add Respondent to Order, Former Georgia-Pacific Wood Products Facility (Site Code: 202276), KJ 1965021*21, dated September 6, 2023, addressed to Morgan Bigelow, Department of Toxic Substances Control, 700 Heinz Avenue, Suite 100 Berkeley, California 94710 from Mendocino Railway.*

INTRODUCTION

The Engineering and Special Projects Office (ESPO) of the Department of Toxic Substances Control (DTSC) has completed its review of the above listed Letter Request to Add Respondent to Order for the former Georgia-Pacific Wood Products site in Fort Bragg, Mendocino County, California.

We have prepared the comments and recommendations below for your consideration. If you have any questions or comments regarding this memorandum, please contact me at (916) 255-6662 or via email at Peter.Gathungu@dtsc.ca.gov.

Project Summary (Abbreviated)

DTSC issued a Site Investigation and Remediation Order (Order; Docket No. HAS-RAO 06-07-150) for the former Georgia-Pacific Wood Products Facility (Site) due to prior facility operations at the Site that impacted soil and groundwater. The Order became effective on February 21, 2007. A First Amendment to the Order was issued by DTSC on June 9, 2022. The Site is located at 90 West Redwood Avenue in Fort Bragg, Mendocino County.

Pond 8, also known as the Mill Pond, located in Operable Unit E (OU E) at the Site was investigated under the Order and pond sediments were found to be contaminated. Pond 8 provides stormwater treatment for water entering via sheet flow as well as via piped outfalls from Alder and Maple Creeks. The outfalls from Alder and Maple Creeks convey stormwater from the City of Fort Bragg to Pond 8 for treatment via settling. Investigations have identified dioxins and furans in both City and onsite stormwater. The letter requests that DTSC add the City as a respondent to the Order for investigating and remediating Pond 8 under the Comprehensive Environmental Response, Compensation, and Liability Act's (CERCLA) joint and several liability for site investigation and remediation activities provision. The letter includes supporting material for the request.

COMMENTS AND RECOMMENDATIONS

1. **Third Paragraph.** It is stated that stormwater evaluations found that 80 to 95 percent of the pollutants entering Pond 8 via stormwater were contributed by drainage areas outside the Site. The second sentence in the same paragraph states that two urban watershed catchment areas located within the City of Fort Bragg that drain to Pond 8 through the culverted Alder and Maple Creeks form approximately 54.5 percent of the Pond 8 drainage basin. We note that the remainder of the Pond 8 drainage basin is not described but we expect that it is onsite. We also note that if significant onsite drainage surfaces have been paved for a long time it is likely that

dioxin/furans would have been washed off the surfaces and into Pond 8 relatively rapidly compared to unpaved offsite drainage areas where dioxins/furans would be expected to remain fairly stable but would be susceptible to erosion and deposition into Pond 8 via erosion. ESPO finds that the information provided in the reviewed documents regarding deposition and transport of dioxins/furans in the area as well as the likely sources and concentrations of dioxins/furans entering Pond 8 via stormwater does not include enough details.

2. **Fourth Paragraph.** It is stated in the second sentence that “City stormwater is an established, ongoing source of dioxins and furans to sediment in Pond 8”. However, we note that the letter does not indicate the origin of the dioxins and furans: whether they partially or wholly originated from past activities on the Georgia Pacific Site via aerial deposition over the City or they are partially or wholly from offsite and unrelated to past activities on the Georgia Pacific Site. ESPO finds that the information in the reviewed documents is insufficient in establishing the origin, historical or otherwise, of the dioxins and furans at the Site.
3. **Attachment A, Stormwater Memo.** The text in the fourth (last) bullet states that dioxins/furans concentrations in Pond 8 sediments are lower than concentrations in suspended solids in stormwater but neither of them pose an unacceptable risk to human health or ecological receptors. However, we note that several site documents including the July 2015 Baseline Human Health and Ecological Risk Assessment – Operable Unit E, the October 14, 2020 Draft Remedial Action Plan – Operable Unit E, and the September 12, 2019 Final Feasibility Study Operable Unit E indicate that dioxins and furans in Pond 8 sediments pose an unacceptable risk to human health.

The text in the third bullet on the same page states that Pond 8 provides extremely effective stormwater treatment removing 20 to 97% of pollutants, and most of the removed compounds are recalcitrant and are removed by settling rather than by destruction or transformation and are retained in Pond 8 sediments. However, we note that the accompanying letter states that City stormwater is an ongoing source of dioxins and furans and concentrations in suspended solids in stormwater are higher than in Pond 8 and as such we would expect dioxins and furans to accumulate in Pond 8 sediments over time given their low solubility in water and very stable nature in the environment. The letter does not address if dioxins/furans in Pond 8 pose an unacceptable risk to human and ecological receptors, and also does not include an explanation for mass balance of dioxins and furans in Pond 8 sediments as well as influent and effluent flows.

4. **Attachment A, Stormwater Memo. Evaluation Summary.** It is stated in the second paragraph that the data is from two sampling efforts in February and March 2011. We note that this is more than 13 years ago, and it is not clear if the data is representative of current conditions. In addition, data from only two sampling episodes may not be sufficient to establish long term trends or perform reliable statistical analysis. While historical data can be useful, a robust set of data including all likely sources of dioxins/furans to Pond 8 over a longer period would be expected to provide a better understanding of dioxins/furans in Pond 8. ESPO finds that the current dioxin/furan data does not provide a robust justification/basis for any conclusions drawn from the data.
5. **Attachment A, Stormwater Memo. Evaluation Summary.** The first sentence in the sixth paragraph states that the second sampling effort was completed in 2013 to further characterize offsite stormwater runoff quality entering Pond 8 from Alder and Maples Creeks at peak discharge but sampling of onsite stormwater runoff was not performed. We note that no explanation for the lack of onsite sampling is provided. We also note that the sampling was performed more than ten years ago, and the data may not be representative of current conditions (may not support that the stormwater runoff from Alder and Maple Creeks is an ongoing source).
6. **Attachment A, Stormwater Memo. Table 2: Summary of Estimated Influent and Effluent Dioxin/Furan Loads and Dioxin/Furan Concentration in Suspended Sediment.** The table shows the proportion of onsite influent to Pond 8 as 6%, however, as noted in the comment below not all influent pipes on Figure 1-2 appear to have sampling stations. In addition, other stormwater surface flows to Pond 8 may not be captured in the onsite influent. It is not clear if all stormwater flows to Pond 8 were measured and included in the table.
7. **Attachment A, Stormwater Memo. Figure 1-2 Site Hydrology and Subcatchments.** The figure shows at least four onsite pipe locations flowing into Pond 8 that do not have sampling stations. A note on the figure indicates that not all surface water flow paths are shown. It is not clear if the lack of stations on some of the onsite pipes means that flows and concentrations from the pipes were not measured. The text and figure do not clarify if all onsite stormwater runoff flows were sampled, and if not, does not include a justification for the lack of sampling.