

Georgia-Pacific LLC

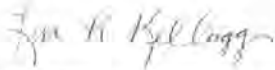
**Final Operable Unit A
Remedial Action Plan and
Feasibility Study**

Former Georgia-Pacific Wood Products Facility
Fort Bragg, California

August 2008



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Products Facility
Fort Bragg, California

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Acronyms and Abbreviations

95%UCL	95% Upper Confidence Limit
°C	degrees celcius
ALM	adult lead methodology
amsl	above mean sea level
AOI	area of interest
ARAR	Applicable or Relevant and Appropriate Requirement
AUF	area use factor
B(a)P	benzo(a)pyrene
bgs	below ground surface
BTAG	Biological Technical Assistance Group
CalEPA	California Environmental Protection Agency
CCR	<i>Current Conditions Report</i>
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CHHSL	California Human Health Screening Level
COC	chemical of concern
COI	chemical of interest
Complex	Franciscan Complex
COPC	chemical of potential concern
CSM	conceptual site model
cy	cubic yard(s)

DTSC	Department of Toxic Substances Control
EcoSSL	Ecological Soil Screening Levels
EPC	exposure point concentration
ERA	ecological risk assessment
FS	feasibility study
GANDA	Garcia and Associates
HQ	hazard quotient
HSC	California Health and Safety Code
IARAP	Interim Actions Remedial Action Plan
mg/kg	milligram(s) per kilogram
NCP	National Contingency Plan
NOAA	National Oceanic and Atmospheric Administration
ORNL	Oak Ridge National Laboratory
OU-A	Operable Unit A
OU-E	Operable Unit E
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
pg/g	picogram(s) per gram
pg/g	picogram(s) per gram
PRA	Presumptive Remedy Area
PVC	polyvinyl chloride
RAO	remedial action objective
RAP	Remedial Action Plan

RBSC	risk-based screening concentration
RBTL	risk-based target level
RI	remedial investigation
RWQCB	Regional Water Quality Control Board
site	Georgia-Pacific Wood Products Facility
SUF	site use factor
SVOC	semivolatile organic compound
TBC	to be considered
TCDD	tetrachlorodibenzo- <i>p</i> -dioxin
TEQ	toxic equivalent
TPH	total petroleum hydrocarbon
TPHd	total petroleum hydrocarbons as diesel
TPHg	total petroleum hydrocarbons as gasoline
TPHmo	total petroleum hydrocarbons as motor oil
TRV	toxicity reference value
TSCA	Toxic Substances Control Act
UF	uptake factor
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

Executive Summary

This document was prepared by ARCADIS BBL on behalf of Georgia-Pacific LLC (Georgia-Pacific) and presents a Remedial Action Plan (RAP) and feasibility study (FS) to address contaminated soils within Operable Unit A (OU-A) at the former Georgia-Pacific Wood Products Facility (site) located at 90 West Redwood Avenue, Fort Bragg, Mendocino County, California (Figure 1-1). This RAP, which includes a FS component, is required by the Department of Toxic Substances Control (DTSC) under Sections 5.7 and 5.11 of the Site Investigation and Remediation Order for the site (Docket No. HSA-RAO 06-07-150; the Order).

Background

The approximately 415-acre site is located west of Highway 1 along the Pacific Ocean coastline and is bounded by open coastline to the north, Noyo Bay to the south, the City of Fort Bragg (City) to the east, and the Pacific Ocean to the west. According to historical records, Union Lumber Company (ULC) began sawmill operations at the site in 1885. Georgia-Pacific acquired the site in 1973 and ceased lumber operations on August 8, 2002. OU-A is defined in the Order as an approximately 100- to 110-foot-wide pathway that traverses the top of the coastal bluff. In addition, OU-A includes an approximately 30-acre parkland area (Figure 1-2). The western boundary of OU-A is the mean high tide line. The total acreage of OU-A is approximately 87 acres. OU-A includes two geographically separate units that will be referred to as OU-A North (22 acres) and OU-A South (65 acres). For purposes of discussion, each of the geographic units within OU-A (OU-A North and OU-A South) was further subdivided into smaller areas of interest (AOIs), which are areas where historical activities could have resulted in a release of hazardous substances. The Remedial Investigation (RI) Report (ARCADIS BBL, 2008) identified the following AOIs that to be addressed in this RAP:

- Glass Beach 2, OU-A North
- Scrap Yard/Geophysical Anomaly Area, OU-A North
- Parcel 10 Fill Area, OU-A South

Conceptual Site Model

On the basis of the history and operations of the site and the results of the RI Report, polychlorinated biphenyls (PCBs) and lead were identified as chemicals of concern (COCs) for OU-A North and dioxins/furans were identified as COCs in both OU-A North and OU-A South.

OU-A is planned to be developed as trails and parkland for recreational use; there are no plans for residential or commercial/industrial development. Limited construction activities are anticipated during park and trail development as well as ongoing maintenance activities. Therefore, the human receptors that were evaluated in OU-A were adult and child recreators, construction workers, and utility/trench workers. The ecological receptors evaluated in OU-A were terrestrial plants, mammals, and birds.

Investigations and Presumptive Remedy Areas (PRAs)

The OU-A RI Report provided a summary of the previous soil investigations and investigations conducted in 2007 to fill identified data gaps throughout OU-A (ARCADIS BBL, 2008), including additional samples collected from three areas in December 2007. Based on those results, seven PRAs within the three AOIs listed above were identified in OU-A as requiring remedial action. A PRA was initially defined as an area that likely poses an unacceptable risk or exhibits other criteria that would require remedial action regardless of the results of any risk evaluations, as follows:

- Presence of metals above the California Hazardous Waste threshold (California Code of Regulations Title 22 Social Security, Division Health Standards for the Management of Hazardous Waste, Chapter 11)
- Presence of PCBs above the action level for PCBs (under the performance-based approach) from the Toxic Substances Control Act (TSCA) (40 CFR 761.3)
- Presence of “significant” hot spots – areas where two or more adjacent sample locations had concentrations that were 10 times or more the residential California Human Health Screening Level (CHHSL). The CHHSL is the concentration that the California Environmental Protection Agency (CalEPA) considers to be below thresholds of concern for risks to human health. The 10-fold criterion was selected as a means of identifying areas that could constitute hot spots and was used in the risk evaluations in the OU-A RI Report to exclude data from the risk assessment. The results of the risk assessment showed that this criterion successfully identified

areas that, if removed, would reduce risks to acceptable levels (discussed further herein).

Lead PRA, Glass Beach 2, OU-A North

Lead concentrations were elevated in one area along the bluff where debris was identified. Concentrations at four of the seven locations in this area and to a depth of 2 feet below ground surface (bgs) exceeded the Preliminary Remediation Goal and CHHSL (150 milligrams per kilogram [mg/kg]). Lead concentrations ranged up to 790 mg/kg. Waste extraction tests also showed lead above the Soluble Threshold Limit Concentration (STLC), making lead-impacted soil in this area a California Hazardous Waste. Soil in this area is proposed to be removed to a depth of approximately 2 feet.

Dioxin PRA, Glass Beach 2, OU-A North

Including the December 2007 data, tetrachlorodibenzo-*p*-dioxin (TCDD) toxic equivalent (TEQ) concentrations ranged from 0.36 to 130 picograms/gram (pg/g) in OU-A North. Concentrations were greater than 10 times the CHHSL in two adjacent samples at Glass Beach 2. Because of these elevated concentrations, this area has been identified as a dioxin PRA. Soil in this area is proposed to be removed to a depth of approximately 1 foot bgs.

PCB PRA, Parcel 3 Scrap Yard/Geophysical Anomaly Area, OU-A North

The analytical results from Parcel 3 Scrap Yard/Geophysical Anomaly Area showed elevated PCB concentrations within the northern portion of the Parcel 3 Geophysical Anomaly Area. Screening-level exceedances were limited to the surface soil, concentrations at nine locations were more than 10 times CHHSL of 0.089 mg/kg, and several locations were above the TSCA action level of 1 mg/kg for a self-implementing cleanup. Soil in this area is proposed to be removed to a depth of approximately 6 to 12 inches bgs.

Dioxin PRAs, Parcel 10 Fill Area, OU-A South

Including the December 2007 data, the analytical results from Parcel 10 Fill Area showed TCDD TEQs ranging from 0.004 to 316 pg/g. TCDD TEQ concentrations met the criteria for a PRA at four areas within the Parcel 10 Fill Area. Soil in these areas is proposed to be removed to depths ranging from 2 to 5 feet bgs.

Remedial Action Objectives (RAOs)

RAOs are guidelines used in the development of potential remedial action alternatives and selection of a proposed remedial action. The RAOs presented herein have been developed based on the current environmental conditions and anticipated future use of the site for passive recreational purposes. The following RAOs were identified for the site:

- Provide a remedy that will reduce long-term risks to acceptable levels and protect human and ecological receptors under the anticipated passive recreational land-use scenario
- Provide a technically and economically feasible remedy for soil
- Provide a property suitable for the planned reuse consistent within a time frame suitable for the proposed property transfer.

Using the appropriate guidance and methods (CCR Title 22, 40 CFR 761.3, site-specific risk-based levels), risk-based target levels (RBTLs) were calculated to screen post-confirmation results. These RBTLs will be compared to post-remedy exposure estimates (i.e., 95% Upper Confidence Limits [95%UCLs]) to determine whether post-remedy conditions are protective of human and ecological receptors.

Remedial goals for lead include:

- Removal of lead that meets the definition of a California Hazardous Waste (CCR Title 22 Social Security, Division Health Standards for the Management of Hazardous Waste, Chapter 11).
- Post-remedial exposure point concentrations (EPCs; 95%UCL) not exceeding 80 mg/kg, which represents the lower of the RBTLs that are greater than background for the most sensitive human receptor (523 mg/kg) or ecological receptor (80 mg/kg).
- Based on the EPC estimates in the OU-A RI Report (ARCADIS BBL, 2008), the post-remedial EPC (95%UCL) was predicted as 24 mg/kg, which will meet the goals above.

Remedial goals for PCBs include:

- Removal of PCBs above the action level of 1 mg/kg for PCBs (under the self-implementing approach) from TSCA (40 CFR 761.3).
- Post-remedial EPCs (95%UCL) not exceeding 1 mg/kg, which represents the lower of the RBTLs for the most sensitive human receptor (8.8 mg/kg) or ecological receptor (1 mg/kg).
- Based on the EPC estimates in the OU-A RI Report (ARCADIS BBL, 2008), the post-remedial EPC (95%UCL) was predicted as 0.008 mg/kg, which will meet the goals above.

Remedial goals for dioxin/furans include:

- Post-remedial EPCs (95%UCL) expressed as total mammalian TEQs not exceeding 53 pg/g, which represents the lower of the RBTLs for the most sensitive human receptor (53 pg/g) or ecological receptor (59 pg/g).
- Based on the EPC estimates in the OU-A RI Report (ARCADIS BBL, 2008), the post-remedial EPC (95%UCL) was predicted as 15 pg/g, which will meet the goals above.

Analysis of Removal Action Alternatives

Evaluation Criteria

According to USEPA and DTSC guidance, the following nine criteria must be used to evaluate remedial alternatives (USEPA, 1988; DTSC, 1995). For an alternative to be selected, it must meet the first two criteria, threshold criteria, which are 1) overall protection of human health and the environment, and 2) compliance with Applicable or Relevant and Appropriate Requirement (ARARs). Criteria 3 through 7 are the five primary balancing criteria that provide comparisons between the alternatives and identify tradeoffs between them, and criteria 8 and 9 are the two modifying criteria that consider acceptance by the state and local community. The nine criteria are as follows:

1. Overall Protection of Human Health and the Environment: whether or not a remedy provides adequate protection of human health and the environment.
2. Compliance with ARARs: whether or not a remedy will meet all appropriate federal, state, and local environmental laws and regulations.

3. Long-Term Effectiveness and Permanence: ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have initially been met.
4. Reduction of Toxicity, Mobility, and Volume through Treatment: ability of a remedy to reduce the toxicity, mobility, and volume of the hazardous substances or constituents present at the site.
5. Cost – 30-Year Present Worth: estimated 30-year present worth capital and operation and maintenance costs. Level of accuracy of the costs estimated is “Order of Magnitude,” as defined by the American Association of Cost Engineers (i.e., plus 50 percent and minus 30 percent).
6. Short-Term Effectiveness: period of time needed to complete the remedy and any adverse impact on human health and the environment that may be posed during the construction and implementation period, until the cleanup standards are achieved.
7. Implementability: technical and administrative feasibility of a remedy, including the availability of materials and services needed to carry out a particular option.
8. State Acceptance: whether, based on current knowledge of regulations and agency mandates, the applicable regulatory agencies would agree with the preferred alternative. Actual assessment depends on comments received during the agency review and public comment periods
9. Community Acceptance: whether community concerns are addressed by the remedy, and whether the community has a preference for a remedy. Considered preliminary because actual assessment depends on comments received during public comment period.

Development of Removal Action Alternatives

The following alternatives were evaluated to address each PRA (see Figures 4-1 through 4-4):

- No Action: Used as a basis of comparison when screening alternatives, and does not include any remedial actions.

- **Land Use Restriction/Controls:** Administrative actions or institutional controls that would restrict the uses of and access to the site. For this site, the future land use is passive recreational use (coastal trail and parkland) and land use restrictions will be in place as part of the conditions placed on the land by the Coastal Conservancy and in the purchase and sale agreement. DTSC will remain as the lead agency in the determination of what land use restrictions are necessary.
- **Removal/Offsite Disposal:** Excavating, direct loading, and trucking the material that exceeds the remedial goals offsite to an appropriate Class I (for soil shown to be California Hazardous Waste for lead) or Class II disposal facility. The excavations would be backfilled with clean fill and/or regraded to an even, relatively flat surface and revegetated.
- **Consolidation and Capping:** Excavating material that exceeds the remedial goals, consolidating the material into a cell in one onsite location, and placing an engineered cap (including polyvinyl chloride liner [PVC]), geosynthetic clay liner, and clean soil/revegetation and/or road base/asphalt) over the material (Figure 4-5). The material excavated from the cell location would be used to backfill the source areas and/or the areas would be regraded to provide an even, relatively flat surface. The material would be consolidated and capped so that the impacted material would not be in contact with groundwater.
- **Bioremediation:** Recalcitrant compounds such as PCBs and dioxins/furans degrade at an extremely slow rate and microbial degradation has been shown to be limited. Evaluation of bioremediation indicated that the time associated with implementation would not meet the requirements for property transfer, the physical conditions (temperature, soil pH) are not favorable, successful field trials are lacking, concentration reductions are likely insufficient to meet remedial goals, and the cost is likely similar or higher than other alternatives being evaluated. Bioremediation was not evaluated further.

Alternatives Analysis

The alternatives for each PRA were evaluated using the nine criteria as presented below and in Tables 4-1, 4-2, and 4-3. The five dioxin PRAs (one in OU-A North and four in OU-A South) were evaluated together as the contaminant is the same and thus, the remedy will be the same. Each of the alternatives was given a rank of low, medium, or high for each of the nine criteria.

Lead PRA, Operable Unit A North – Glass Beach 2

The three alternatives that were evaluated for the Lead PRA were No Action, Land Use Restriction/Controls, and Removal/Offsite Disposal. The No Action and Land Use Restriction/Controls alternatives would not meet the threshold criteria of protection of human health and the environment and compliance with ARARs, nor would they be acceptable to the state or community. The Removal/Offsite Disposal alternative would involve excavation of about 140 cubic yards of impacted soil to a depth of approximately 2 feet. The excavated soil would be transported to and disposed of as California Hazardous Waste at the Class I Waste Management, Inc. Kettleman Hills Landfill in Kettleman City, California. This alternative ranks medium to high in all nine criteria. The estimated present value is approximately \$43,000.

PCB PRA, Operable Unit A North – Scrap Yard

The three alternatives that were evaluated for the PCB PRA were No Action, Land Use Restriction/Controls, and Removal/Offsite Disposal. The No Action and Land Use Restriction/Controls alternatives would not meet the threshold criteria of protection of human health and the environment and compliance with ARARs, nor would they be acceptable to the state or community. The Removal/Offsite Disposal alternative would involve excavation of about 990 cubic yards of impacted soil to a depth of approximately 1 foot. The excavated soil would be transported to and disposed of as non-hazardous at the Allied Waste Services Keller Canyon Landfill in Pittsburg, California (Keller Canyon; a Class II, Subtitle D permitted landfill). This alternative ranks medium to high in all nine criteria. The estimated present value is approximately \$220,000.

Dioxin PRAs, Operable Unit A North – Glass Beach and Operable Unit A South – Parcel 10

The five dioxin PRAs, although not contiguous, were evaluated together. The four alternatives that were evaluated were No Action, Land Use Restriction/Controls, Removal/Offsite Disposal, and Consolidation and Capping. The No Action and Land Use Restriction/Controls alternatives would not meet the threshold criteria of protection of human health and the environment and compliance with ARARs, nor would they be acceptable to the state or community. The Removal/Offsite Disposal alternative would involve excavation of about 13,000 cubic yards of impacted soil and transport to and disposal of the material as non-hazardous at the Allied Waste Services Keller Canyon Landfill in Pittsburg, California (Keller Canyon; a Class II, Subtitle D permitted landfill). The Consolidate and Cap alternative would include placing the 13,000 cubic yards of

excavated material in a cell approximately 6 feet in depth and 1.3 acres in size with a PVC liner on the bottom and a geosynthetic clay liner on top. The surface layer could include a vegetated soil cap or asphalt.

The ranking is medium to high for all criteria, although community acceptance of the consolidation and capping is ranked as low to medium. However, actual community acceptance will not be known until the public has an opportunity to comment on the RAP. The present worth value of the Removal/Offsite Disposal alternative is \$2.5 million, whereas that for the Consolidation and Capping alternative is \$1.5 million.

Recommended Alternatives

Based on the nine evaluation criteria, the recommended alternative for each of the PRAs is presented below. Each of the alternatives would include land use restrictions that would prevent sensitive uses (such as residences, hospitals, day care facilities, schools, etc.), which is consistent with the planned future use of the area as a coastal trail and park. DTSC will remain as the lead agency in the determination of what land use restrictions are necessary.

- Lead PRA, Operable Unit A North – Glass Beach 2: Removal and offsite disposal is the recommended alternative for the Lead PRA in OU-A North – Glass Beach 2.
- PCB PRA, Operable Unit A North – Scrap Yard: Removal and offsite disposal is the recommended alternative for the PCB PRA in OU-A North – Scrap Yard.
- Dioxin PRAs, Operable Unit A North – Glass Beach 2 and Operable Unit A South – Parcel 10: Consolidation and capping is the recommended alternative for the dioxin PRAs in Glass Beach 2 and the Parcel 10 Fill Area.

Areas Unlikely to Require Deed Restriction Following Remediation

Following remediation, there likely will be three areas where soil will be below CHHSLs (Figure 5-1). These areas are unlikely to require land use restrictions. The remaining areas are those where land use restrictions are likely.

1. Introduction

This document was prepared by ARCADIS BBL on behalf of Georgia-Pacific LLC (Georgia-Pacific) and presents a Remedial Action Plan (RAP) and Feasibility Study (FS) to address contaminated soils within Operable Unit A (OU-A) at the former Georgia-Pacific Wood Products Facility (site) located at 90 West Redwood Avenue, Fort Bragg, Mendocino County, California (Figure 1-1). This RAP, which includes a FS component, is required by the Department of Toxic Substances Control (DTSC) under Sections 5.7 and 5.11 of the Site Investigation and Remediation Order for the site (Docket No. HSA-RAO 06-07-150; the Order).

The RAP for OU-A, the Coastal Trail and Parkland Area (Figure 1-2), is being conducted separately from other portions of the site to expedite remediation of OU-A, which is scheduled to be sold in 2008 to the City of Fort Bragg using funds granted through the Coastal Conservancy. A parallel RAP process is being conducted for the completion of interim actions within Operable Unit C (Interim Actions Remedial Action Plan, IARAP). A single, California Environmental Quality Act (CEQA) document is being prepared for both remedial activities scheduled to begin in 2008.

1.1 Regulatory Framework

This RAP has been prepared pursuant to California Health and Safety Code (HSC) Section 25356.1 and in accordance with DTSC Guidance Document No. EO-95-007-PP, *Remedial Action Plan Policy* (DTSC, 1995). The RAP is also generally consistent with the Oil and Hazardous Substances Pollution National Contingency Plan (NCP), 40 Code of Federal Regulations (CFR), Part 300.400 and requires a FS component.

Consistent with HSC 25356.1, the RAP will be made available for review and comment by the public and the regulatory agencies. The CEQA document will also be circulated for public review simultaneously.

1.2 Objectives

Based on the findings of the Remedial Investigation (RI) Report for OU-A (ARCADIS BBL, 2008), seven areas within OU-A were identified as Presumptive Remedy Areas (PRAs) where chemicals of concern (COCs) are present in soils above risk-based or other regulatory screening levels that warranted action. The OU-A RI indicated that risks would be within the acceptable range once remediation of the PRAs is completed.

Thus, the seven PRA areas identified in the OU-A RI Report (ARCADIS BBL, 2008) were carried forward into and are evaluated within this RAP.

Based on the Order and site-specific information, the objectives of this RAP, including the FS component, are to:

1. Summarize RI results (e.g., summarize site-specific characteristics and identify health and safety risks posed by the current conditions at the site and the effect of contamination on present and future land uses)
2. Develop remedial action objectives (RAOs)
3. Identify and screen general response actions, remedial technologies, and process options
4. Develop and evaluate alternatives based on the criteria contained in the NCP
5. Propose remedial actions, based on the analysis herein and in the RI:
6. Provide a preliminary schedule for implementation of all proposed removal and remedial actions.

Steps 3 and 4 above correspond to the feasibility study component.

1.3 Report Organization

As discussed above, the RAP presents information regarding the current understanding of environmental conditions for the site, as well as proposed remedial actions to reduce overall site-related risk. The remainder of this RAP is organized as follows:

- Section 2 presents background information relevant to the site along with the results of previous soil investigations, including the RI conducted for OU-A.
- Section 3 identifies RAOs and target levels for the soils within the PRAs in OU-A addressed in this RAP.
- Section 4 provides an analysis of remedial alternatives (i.e., the feasibility study) for the PRAs in OU-A addressed in this RAP.

- Section 5 describes the recommended alternatives for the PRAs in OU-A.
- Section 6 provides a brief summary of the implementation, reporting, and overall schedule.
- Section 7 identifies references cited throughout this RAP.
- Appendix A provides methodology for developing risk-based target levels.
- Appendix B provides volume and cost estimates.
- Appendix C provides the detailed design and implementation plan.
- Appendix D provides the Preliminary Non-binding Allocation of Responsibility.

2. Background Information

This section provides a summary of background information as well as the summary of the OU-A RI Report (ARCADIS BBL, 2008) findings. Additional detail on the site history, background, setting, and results of investigations and risk evaluations is provided in the OU-A RI Report (ARCADIS BBL, 2008).

2.1 Site Setting

2.1.1 Geology and Hydrogeology

Fort Bragg is located along the northern California coastline within the Coast Range geomorphic province. The regional geology consists of complexly folded, faulted, sheared, and altered bedrock. The bedrock of the region is the Franciscan Complex (Complex) and consists of a variety of rock types. In the north coast region the Complex is divided into two units, the Coastal Belt and the Melange. In Mendocino County, the Melange lies inland and is an older portion of the Complex, ranging in age from the Upper Jurassic to the late Cretaceous. The Coastal Belt consists predominantly of greywacke sandstone and shale.

Relative to the site, the San Andreas Fault is offshore about nine miles. The Coastal Belt has undergone weak to intensive deformation, which has included folding, uplifting, tilting, and overturning. Also of importance to the seismicity of the region is the Mendocino Triple Junction, the terminus of the San Andreas Fault, which is located in the Cape Mendocino area approximately 80 miles to the north-northwest of Fort Bragg. This boundary represents the point at which the San Andreas Fault, the Mendocino Fracture Zone, and the Cascadia Subduction Zone meet. It is an extremely active tectonic and seismic zone and earthquakes have occurred frequently in the area.

Other geologic units present in Fort Bragg and the vicinity include surface geologic units, including deposits of beach and dune sands, alluvium, and marine terrace deposits. The most important of these at the site are the marine terrace deposits of Pleistocene age, which cut bedrock surfaces along the coast and form much of the coastal bluff material overlying bedrock. The marine terrace deposits are massive, semi-consolidated clay, silt, sand and gravel, ranging from 1 to 140 feet in thickness.

The surficial geology of the site and environs is depicted in Figure 2-1. The site is underlain by Quaternary (less than 1.5 million years old) terrace sediments (BCI, 2006). The terrace deposits consist of poorly to moderately consolidated marine silts,

sands, and gravels and are overlain by a 3- to 4-foot-thick mantle of topsoil. The terrace soils are underlain by Tertiary-Cretaceous marine sediments (approximately 65 million years old) of the Coastal Belt Franciscan Formation, composed of well consolidated sandstone, shale, and conglomerate. Currently, the bluffs at the site range from 0 to 80 feet in height (BACE Geotechnical, 2004).

The topsoil, terrace deposits, and Franciscan Formation are each exposed within the bluff face throughout the site. The topsoil is dark brown to black silty and clayey sand. The terrace soils consist of partly cemented, tan and orange-brown, sandy silt, with occasional lenses of cemented pebbly sand. The total thickness of the topsoil and terrace units typically varies from about 5 to 30 feet; in places, up to 20 feet of this can consist of emplaced fill (BACE Geotechnical, 2004).

The marine terraces contain strong, northwesterly trending structural features, including an unnamed, concealed fault south of the site. These features are parallel to the more regional fault traces, such as the San Andreas Fault west of the site (BACE Geotechnical, 2004; BCI, 2006). Several inactive faults and one potentially active fault have been observed in the bluffs at the site. The potentially active fault crosses a small, narrow peninsula within the northern bluffs; however, there is no evidence of movement along the fault within the last 11,000 years.

The regional hydrogeologic setting of the Mendocino County coast has been described in the *Mendocino County Coastal Ground Water Study* (California Department of Water Resources, 1982). The site is in the western coastal area of the county, which was divided into five subunits in the study: Westport, Fort Bragg, Albion, Elk, and Point Arena; these areas are separated by the major rivers that discharge to the Pacific Ocean. The site is located within the Fort Bragg subunit, which extends from Big River on the south to Ten Mile River on the north.

Groundwater was encountered between 11.5 and 11.7 feet below ground surface (bgs) in borings advanced in March 2003 in Parcel 1 in the northern portion of OU-A (P1-1, P1-2, and P1-5). In the southern portion of OU-A, depth to water has in the past been encountered as shallow as 4.27 feet bgs in MW-10.2 to as deep as 26.11 feet bgs in MW-10.4. The maximum groundwater fluctuation in these wells is slightly over 4 feet, from an elevation of 60 feet above mean sea level (amsl) to slightly above 64 feet amsl in MW-10.2. The highest groundwater levels occur in the spring (March) and the lowest in the fall (September and December).

Generally, monitoring data and topographic gradients demonstrate that onsite groundwater flow is primarily to the west-southwest toward the Pacific Ocean. Additional information on groundwater elevations is provided in the *Current Conditions Report (CCR)* (BBL, 2006) and in the most recent groundwater monitoring report (ARCADIS BBL, 2007b).

The principal natural hydrological sources for the site are precipitation, surface runoff from adjacent lands, and stormwater discharge from the City. Most of the hydrological features at the site are manmade; the natural hydrology has been significantly changed by over a century of mill operations.

2.1.2 Biological Setting

The sections below provide brief descriptions of the habitat types, plant communities, and animal species within or likely to occur within OU-A. A detailed description of ecological resources found in OU-A is provided in the ecological risk assessment (ERA) that is included in the OU-A RI Report (ARCADIS BBL, 2008).

2.1.2.1 Habitats

OU-A consists primarily of upland habitat, most of which can be classified as highly disturbed habitat. The majority of the upland habitat is covered in non-native grasses, asphalt, and/or industrial development. Other habitat types present in OU-A include northern coastal bluff scrub and a small area of coastal terrace prairie (Figure 2-2; WRA, 2005). There is a limited amount of wetland habitat (e.g., riparian wetland) present in the southern portion of OU-A, located in Parcel 8 and fed by site drainages. This habitat's ability to support a rich ecosystem is limited because of its small size (approximately 1 acre). Higher quality habitat is confined almost entirely to land immediately adjacent to the shoreline. Additional discussion of habitats present within OU-A is provided in the ERA that is included in the OU-A RI Report (ARCADIS BBL, 2008).

2.1.2.2 Flora and Fauna

The plant community in OU-A is composed primarily of grasses and scrub brush. There are isolated areas of wetland plants in the southern portion of OU-A in the small riparian wetland area. The only trees within OU-A are those around the North Noyo Point Road Dwellings in OU-A South. Additional discussion of plant communities

present within OU-A is provided in the ERA that is included in the OU-A RI Report (ARCADIS BBL, 2008).

Invertebrates that utilize the terrestrial habitat include annelids, snails, spiders, and several insect families including flies, beetles, and grasshoppers/crickets. Mammals observed onsite vary considerably in size, ranging from small rodents to mule deer. Avian species represent the most common feeding guilds and include herbivorous, carnivorous, piscivorous, and invertivorous species. Wetland birds have been observed, but are scarce because of the limited wetland habitat present in OU-A; their presence is likely because of the proximity to more substantial wetland areas in Operable Unit E (OU-E). A detailed description of wildlife observed in, or likely to occur within, OU-A is provided in the ERA that is included in the OU-A RI Report (ARCADIS BBL, 2008).

2.1.3 Cultural Resources

TRC Companies, Inc. (TRC, Undated #1; Undated #2; 2003) conducted archival research and cultural resource surveys for the entire site within the property's period of significance, considered to be 1885 to 1953 (back 50 years from the date of the TRC report). TRC (2003) found that:

- Portions of the property are considered likely to contain intact prehistoric deposits.
- The property also contains three historic sites and areas that are likely to contain historic deposits that are important in understanding the early settlement and development of the local community as well as the lumber operations on the property.

The Site Specific Treatment Plan (TRC, Undated #2) concluded that specific areas contain a moderate to high potential for subsurface historic cultural resources and recommended that an archaeologist and Native American representative be present during any intrusive work performed to characterize the cultural resources. Additional work was conducted in 2006 by Garcia and Associates (GANDA) related to mitigation and monitoring requirements in the California Coastal Commission Coastal Development Permit for the foundation removal and bluff work in 2006; GANDA's investigation confirmed the previous sites and found a new pre-historic site, all within OU-A. The sites consist of low to moderately dense shell middens along with associated artifacts. Consequently, intrusive work in the shoreline area of OU-A

requires monitoring and/or recovery activities by archaeologists and Native American representatives.

2.2 General Site History

2.2.1 Areas of Interest

The 415-acre site is located along the Pacific Ocean coastline in Fort Bragg, California. The CCR (BBL, 2006) provided a summary of the site setting, history, operational practices, and previously collected data for the entire site. The OU-A RI Report summarized that information as it pertained specifically to OU-A (ARCADIS BBL, 2008). Previous site investigations were conducted by dividing the site into 10 parcels for investigation and evaluation (Figure 1-2). OU-A includes portions of the following six parcels: Parcel 1 – North Coast; Parcel 3 – Industrial; Parcel 6 – Planer; Parcel 7 – Sawmill #2; Parcel 8 – Log Storage; and Parcel 10 – South Coast. In addition to the CCR (BBL, 2006), other historical documents were used to summarize site conditions and data. Additional information was also obtained through interviews with current site personnel (Paul Johnson and Doug Heitmeyer, 2007).

As shown in Figure 1-2, OU-A includes two geographically separate units that will be referred to as OU-A North (22 acres) and OU-A South (65 acres). OU-A North includes the western portion of Parcel 1 and the southwestern corner of Parcel 3. OU-A South includes small portions of Parcels 6 and 7, where the future trail corridor borders the City Wastewater Treatment Plant; a portion of Parcel 8; and most of Parcel 10. OU-A North is primarily paved and disturbed. In contrast, OU-A South is generally unpaved.

For purposes of discussion, each of the geographic units within OU-A (OU-A North and OU-A South) was further subdivided into smaller areas of interest (AOIs) based on historical usage, previous investigations, and sampling recommended in the *Site Investigation Work Plan* (ARCADIS BBL, 2007c). These AOIs are shown on Figures 2-3 and 2-4 and include:

- Glass Beach 1 (OU-A North, Parcel 1)
- Between Glass Beach 1 and Glass Beach 2 (OU-A North, Parcel 1)
- Glass Beach 2 (OU-A North, Parcel 1)
- Between Glass Beach 2 and Glass Beach 3 (OU-A North, Parcel 1)

- Glass Beach 3 (OU-A North, Parcel 1)
- East of Glass Beach 3 (OU-A North, Parcel 1)
- Parcel 3 Scrap Yard/Geophysical Anomaly Area (OU-A North, Parcel 3)
- Parcels 6 and 8 Coastline (OU-A South, Parcels 6 and 8)
- North of Parcel 8 Clinker Area (OU-A South, Parcel 8)
- Parcel 8 Clinker/Fill Area (OU-A South, Parcel 8)
- Parcel 10 Geophysical Anomaly/Clinker Area (OU-A South, Parcel 10)
- Parcel 10 Fill Area (OU-A South, Parcel 10)
- Former Railroad Tracks (OU-A South, Parcel 10)
- Blowhole (OU-A South, Parcel 10)
- Parcel 8 Fill Area (OU-A South, Parcel 8)
- North of North Noyo Point Road Dwellings (OU-A South, Parcel 8).

AOIs (areas where historical activities could have resulted in a release of hazardous substances) are described below with respect to past operational practices. Site features are shown on Figures 2-3 and 2-4. The major site-related use of the areas within OU-A was log and untreated lumber storage. As described in the CCR (BBL, 2006) and elsewhere, logs received and milled onsite were overwhelmingly restricted to redwood, with just a few years where a small amount of fir was taken in. Redwood does not require wood treatment or the use of pesticides. There is no record of pesticide use onsite (with the exception of the plant nursery in Parcel 9). The precise amount of pentachlorophenol-based products used historically is unknown (treatment using chromated copper arsenate did not occur onsite) but is expected to be minor because redwood, as stated above, does not need such treatment. Historic uses of pentachlorophenol-based products were limited to a small portable dip tank in the eastern portion of Parcel 3 and also near the Green Chain (a former conveyor that transported wood from the sawmill to lumber storage areas), with both areas

operational for up to three years. Both these areas are east of and outside the boundary of OU-A. Lumber associated with the limited wood-treating practices was specifically stored near those locations and not within OU-A (personal communications with Paul Johnson and Doug Heitmeyer, 2007).

2.2.2 Operable Unit A North

OU-A North consists of portions of former Parcels 1 and 3. Results from previous investigations associated with these parcels are summarized in the following sections. The AOIs in OU-A North are shown on Figure 2-3.

2.2.2.1 Glass Beaches (Parcel 1)

Prior to 1949, the formal ownership of Parcel 1 is uncertain, but local knowledge (solicited from long-term residents) indicates that a golf course (called the "City Golf Course" by locals) was on the majority of Parcel 1 for some period (Paul Johnson, pers. comm., 2007). Georgia-Pacific is currently researching the formal property ownership prior to 1949. Parcel 1 was purchased by Union Lumber Company and belonged to the mill starting in 1949. From 1949 to 1967, the property immediately to the north of the site within Glass Beach 1 (currently the southern end of MacKerricher State Park) and Glass Beach 2 was used by the surrounding community as a dump for the disposal of household waste, scrap metal, and automobiles. Waste was discharged both directly into the ocean and placed into pits for burning and burial. The mill facility did not have direct access to either Glass Beach 1 or 2 due to a fence line that restricted access from either side. The northwestern corner of OU-A includes the southwestern corner of the former Glass Beach 1 dump. Glass Beach 2, also a former dump, is in the middle and south of Parcel 1. The area referred to as Glass Beach 3, which is near the southern portion of Parcel 1, has always been a part of the mill property and had a fence line that restricted public access.

The Blinn Trust completed a cleanup of the offsite (north) portion of Glass Beach 1 under a Corrective Action Plan approved by the Regional Water Quality Control Board (RWQCB; Order No. R1-2002-0099, Closure of Old Fort Bragg Dump). The onsite portion of Glass Beach 1 was not part of the cleanup effort. The northern portion of Glass Beach 1 that was the subject of the cleanup order was distinctly different than the southern portion on the mill site property because of the presence of actual buried cells with refuse; areas of buried refuse have not been found on the mill site portion (TRC, 2004b,c,e). However, other activities were similar (open burning, surface disposal of refuse).

A debris removal plan at Glass Beaches 1, 2, and 3 and on the mill property was also implemented in 2007 to remove visible debris within the property boundary (above mean high tide) that could be removed without causing erosion or safety hazards¹.

Glass Beaches 2 and 3, as indicated above, were also used as dumps. Glass Beach 2 was used by the mill (sparingly), but the majority of the disposal at this location was from the community. Glass Beach 3 was only used by the mill for disposal. The construction debris placed by the mill primarily included concrete, asphalt, and metal material such as railroad ties, cable, and other such material.

Melted metal fused with native rock has been observed at all three areas, well below the mean high tide line and outside of the legal boundaries of the site. Metallic debris below the ground surface was found only at a shallow (1 foot deep or less) depth and only at Glass Beach 3. Other debris is limited to that which can be observed protruding from the coastal bluffs (buried debris does not extend inland). No buried debris was found at Glass Beaches 1 or 2. It should be noted that construction/metallic debris is not in and of itself a hazardous substance; its presence on the bluffs is mainly an aesthetic and safety issue.

Prior to the 1960s, an explosives storage shed was located near Glass Beach 2. The former explosives storage shed was approximately 50 feet north of the current Explosives Bunker (Figure 2-3), which was used from the 1930s through the 1960s to store dynamite, blasting caps, fuses, and possibly nitroglycerin. These materials were not actually used onsite, but rather were exclusively employed to break up log jams at offsite locations.

2.2.2.2 Parcel 3 Former Scrap Yard/Parcel 3 Geophysical Anomaly Area

The southwestern portion of Parcel 3, formerly known as the Scrap Yard, is included in OU-A. The Scrap Yard was used starting in approximately 1995; prior to that time, the area was used to store untreated lumber. From 1995 until the facility was decommissioned, this area was used to store various metal scrap debris, including metal scrap, metal buckets, piping, chains, fencing, plastic, car parts (e.g., engine blocks, doors, seats), and pieces of transformers. Scrap and debris were also

¹ As debris is not a hazardous material, this work was not done under DTSC oversight, but under the Coastal Development Permit for the site to alleviate aesthetic concerns only.

observed at the edge of the cliff as well as in the surf area below. Since the decommissioning of the facility, the scrap and debris have been removed. A geophysical investigation was performed in this area in 2004 to identify potential waste deposits and anomalies were identified (TRC, 2004d). The Scrap Yard and extent of the geophysical investigation are shown on Figure 2-3.

2.2.3 Operable Unit A South

OU-A South consists of portions of former Parcels 6, 8, and 10. Previous investigations associated with these parcels are summarized in the following sections. The AOIs in OU-A South are shown on Figure 2-4.

2.2.3.1 Parcel 6 and 8 Coastline

The southernmost portion of the Log Pond West Fill Area in Parcel 6 was filled between 1966 and 1973. The area between the City Wastewater Treatment Plant and the western extent of the Log/Mill Pond was filled after 1982 (AME, 2005b). According to TRC (2004a) and based on interviews with facility personnel, the fill in the southwestern portion of the Log/Mill Pond was provided by scraping soil in the northern storage areas (Parcel 1). Another report (TRC, 2004b) notes that the fill consisted of bricks, wood, and heterogeneous materials. Only a small portion of OU-A crosses this Fill Area.

2.2.3.2 Clinker/Ash Scrap Piles (Parcels 8 and 10)

The clinker piles were made up of clinker and ash waste materials from the powerhouse along with scrap metal from facility operations. Clinker is a slag-like material that was removed from the bottom of the boilers. The former extent of these piles in the western portion of Parcel 8 and northeastern portion of Parcel 10 are shown on Figure 2-4. These piles have been removed since the facility was closed and the material was reused as roadbase offsite. Some residual clinker can be observed on the surface.

2.2.3.3 Parcel 10 (Parcel 10 Geophysical Anomaly and Fill Areas)

OU-A contains most of Parcel 10, which occupies approximately 50 acres along the southwestern portion of the site. The majority of this parcel had no structures associated with sawmill operations. Scrapings from the log storage area in Parcel 10 were apparently pushed to an area north of the Blowhole (a natural feature located on

the southwestern portion of this parcel). Other areas in Parcel 10 were also used as fill areas. A geophysical survey identified anomalies in the northern portion of the parcel that were proposed for investigation/excavation (AME, 2005a). The investigation area is shown on Figure 2-4. Potholes identified in the geophysical survey showed buried debris in the large Fill Area in the southern portion of Parcel 10.

2.2.3.4 Parcel 8 Fill Area

Parcel 8 (largely used for storage of untreated log and untreated lumber) included an area of disturbance along the coastal region at the south end of the parcel known as the Fill Area. Figure 2-4 shows the approximate extent of the Parcel 8 Fill Area.

2.2.3.5 Blowhole

The Blowhole is a natural feature located in the southwestern portion of Parcel 10 (Figure 2-4). Scrapings from the log storage area in Parcel 10 were apparently disposed in an area north of the Blowhole and pushed into the Blowhole. Debris was observed in the Blowhole and along the cliff line near the feature, including burned debris.

2.2.3.6 Former Railroad Tracks

Prior to the 1950s, rail lines extended to the southwestern tip of Parcel 10 (and would have crossed through the southernmost portions of Parcels 8 and 10) (TRC, 2004b). The rail lines were presumably used to transport logs and untreated lumber. The rail lines are no longer present in this area.

2.2.3.7 Runway

A runway is located near the border between Parcels 8 and 10; only the northern portion of the runway is within OU-A. The airstrip was constructed sometime between 1941 and 1952 and was used up until the late 1980s. Jet fuel was used for a short time to refuel planes in the refueling area (using a mobile refueling method; no underground storage tank was present), which is within Parcel 8, but outside the boundary of OU-A.

2.2.4 Summary of Previous Removal Activities

Removal activities in OU-A have primarily been removal of metal debris material and blocks of concrete and asphalt from the tops of the bluffs (above mean high tide;

completed in 2007). The removal activities were completed for aesthetic purposes. In addition to the bluffs, material was removed in the geophysical anomaly areas during investigation activities at areas where anomalies were encountered.

2.3 Conceptual Site Model

The conceptual site model (CSM) describes the relationship between chemical sources, migration pathways, exposure routes, and possible exposure pathways for human and ecological receptors potentially present in OU-A following development of the proposed Coastal Trail and Parkland Zone and existing ecological receptors.

2.3.1 Potential Sources of Chemicals

The primary sources of site-related chemicals of interest (COIs) in site media at OU-A consist of material storage, equipment usage, and facilities operations or practices that contained and/or had the potential to release hazardous substances. These include operational equipment used to move lumber and logs and material disposal and burn areas.

OU-A North, which consists primarily of a thin strip of land that constitutes the western border of the mill site, was not used for any specific industrial activities during operation of the mill, but was historically used for log storage. The northern portion of OU-A North (Parcel 1), including Glass Beaches 1 and 2, was not part of the mill until 1947 and was used as public and private dump. Formal ownership of Glass Beaches 1 and 2 prior to 1947 is currently being reviewed. Disposal included household waste, scrap metal, and automobiles. Debris materials were discharged both directly onto the bluff top and face near the ocean and also placed into shallow pits for burning. Prior to 1960, an explosives storage shed near the southern end of Glass Beach 2 was used to store dynamite, blasting caps, fuses, and possibly nitroglycerin. These materials were not actually used onsite, but rather were exclusively employed to break up log jams at offsite locations. A scrap yard at the southern end of OU-A North was used for a few years (starting in 1995) for laydown of mostly metal scrap (this scrap was removed in 2004). As discussed in Section 2, there is little evidence of buried debris in OU-A North.

OU-A South was not historically used for heavy industrial sawmill operations (other than some log storage). Potential sources associated with OU-A South include the former Clinker and Ash/Scrap Piles, a Fill Area that encompasses most of OU-A South

(where ash and other debris were historically placed), an airstrip, and an area of disposal at the Blowhole feature to the south.

As the site was used primarily as a redwood sawmill, the use of wood treatment chemicals was limited to two areas for a short period of time; neither area was near or adjacent to the boundary of OU-A. The only other treated wood located onsite is associated with railroad ties, possibly impregnated with chromated copper arsenate or creosote (finished products only, not manufactured onsite) that make up a rail line and spur that extended into the southern portion of Parcel 10 in OU-A. These rail lines have since been removed.

Ambient (or background) sources of COIs also exist. Ambient conditions for inorganic compounds (metals) are described by DTSC (1997) as: “concentrations of metals in soils in the vicinity of a site but which are unaffected by site-related activities. Ambient conditions are sometimes referred to as ‘local background’.” However, organic chemicals can also be considered present at “ambient” levels. USEPA (2002) defines background levels as “substances or locations that are not influenced by the releases from a site” including “(1) Naturally occurring substances present in the environment in forms that have not been influenced by human activity. (2) Anthropogenic substances are natural and human-made substances present in the environment as a result of human activities (not specifically related to the [site] in question).” Background levels for metals in soils have been defined relative to site-specific lithologies (ARCADIS BBL, 2007a)². . Ambient sources of organic chemicals, such as total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), and dioxins/furans are also present. PAHs and TPH can also be present due to automobile exhaust and other general urban sources. Similarly, dioxins/furans are ubiquitous in environmental media, due to both natural and anthropogenic sources, such as open burning, forest fires, wood and coal combustion, among other sources.

2.3.2 Chemicals of Interest and Concern

COIs were initially identified based upon historical activities, visible cues present onsite, and findings during the progression of the investigations. Where historical

² Note that the site-specific lead background level for fill lithology soils is currently under discussion. The final agreed-upon value is expected to be at or above 25 mg/kg. Therefore, for this RAP, a value of 25 mg/kg has been used as an interim background level.

accounts indicated petroleum products were used in an area, COIs associated with petroleum products such as TPH, PAH, and related organic compounds were identified. Where debris from construction or scrap was identified on the surface or partially buried in locations, COIs such as metals were identified. Where ash or evidence of burning was discovered, COIs such as dioxins/furans and PAHs were identified.

The primary class of chemical constituents used across the site was petroleum. Onsite tanks and drums stored diesel, motor oil, fuel oil, lube oil, hydraulic oil, and diala oil (a petroleum-based electrical insulating oil). These tanks were stored exclusively in areas of the site east of OU-A. Jet fuel was also used for a short time to refuel planes on the runway in Parcel 8, outside the boundary of OU-A. Gasoline was only associated with the former onsite service station (now offsite). Other chemicals used onsite included antifreeze and transmission fluids for vehicle servicing, water treatment chemicals, and small quantities of acids/bases, solvents, paint, and paint thinners. Once again, these chemicals were used in the active industrial portions of the site, which are not within the boundary of OU-A. Transformers were also located within several buildings and on several power poles around the facility; none were located within the boundary of OU-A. Scrap metals, ash/clinker, and burn debris were also found in isolated areas of OU-A. However, metal debris larger than 100 microns is not characterized as a hazardous waste/substance under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or the California HSC, Section 25316, although soils with elevated metals in the vicinity of debris could be considered hazardous substances. There is no known historical use of pesticides or herbicides onsite, with the exception of the plant nursery area, which is not within or near the boundary of OU-A.

On the basis of the discussion above, the COIs in site media potentially associated with the sources described above and investigated for OU-A (ARCADIS BBL, 2008) are metals, PAHs, TPH, and dioxins/furans (typically collocated with ash or burn debris). Because of anecdotal accounts reporting the disposal of transformers, polychlorinated biphenyls (PCBs) were included as COCs for OU-A North. Site media were also analyzed for additional parameters, such as volatile organic compounds (VOCs), based on DTSC input and for completeness.

Based on the results of the recent investigations in OU-A (ARCADIS BBL, 2008), the following chemicals (as discussed in Section 2.4) are considered COCs: lead, PCBs, and dioxins/furans.

2.3.3 Fate and Transport Mechanisms

In OU-A, the primary potential migration pathways are direct releases to surface and subsurface soil, leaching to groundwater (vadose zone transport), surface water runoff, groundwater to surface water (seeps), and wind blown transport. Some portions of OU-A along the shoreline in the Glass Beach and Former Scrap Yard areas and Parcels 8 and 10 have exposed soil. Any impacted surface soils in these areas could have potential migration pathways through wind blown transport, surface water runoff, erosion, and leaching to the subsurface soil and groundwater. Subsurface soil in OU-A North is not expected to be significantly impacted because there is little evidence of buried debris and the COIs for OU-A North tend to bind to soil particles and are not conducive to leaching. Subsurface soil in OU-A South may be more significant than OU-A North because of the presence of buried debris. The COIs for OU-A South are similar to OU-A North and are not conducive to leaching. Groundwater in this OU has a potential migration pathway to surface water through seeps in the bluffs. In areas of OU-A that are paved (or were paved for significant periods of time historically), contamination of surface soils via direct releases and infiltration is not expected to be significant. Due to the presence of erosional features along OU-A, exposed soils directly along the shoreline could be a potential source of contamination to offshore sediment.

2.3.4 Receptors

The human and ecological receptors likely to be present at OU-A in the future, following development as trails and parklands, are described in the following sections.

2.3.4.1 Human Receptors

The primary human receptors likely to be present at OU-A following development are recreational visitors to the trails and parklands (e.g., recreators). There are no plans for residential or commercial/industrial development in OU-A. However, limited construction activities are anticipated during park and trail development as well as ongoing maintenance activities. Therefore, a construction worker and utility/trench worker were also selected as potential receptors in OU-A. In summary, the human receptors that were evaluated in OU-A were adult and child recreators, construction workers, and utility/trench workers.

2.3.4.2 Ecological Receptors

Terrestrial plants and wildlife are the primary ecological receptors of interest in OU-A following development of the property as trails and parklands. Although ponds are present on other portions of the site (e.g., other OUs), none are currently present within OU-A. There are groundwater seeps present in or adjacent to OU-A; however, these seeps are not viable habitat for aquatic receptors. Groundwater associated with these seeps will be evaluated at the source (i.e., OU-C through OU-E); however, a screening-level evaluation of groundwater and surface water data for OU-A was presented in the RI Report (ARCADIS BBL, 2008) and found no complete or significant exposure pathways. Therefore, the ecological receptors evaluated in OU-A were limited to terrestrial plants, mammals, and birds. Specific receptors groups (based on feeding strategy) and representative receptors of interest are discussed in more detail the RI Report (ARCADIS BBL, 2008).

2.3.5 Exposure Pathway Analysis

Complete and potentially significant exposure pathways for the selected human and ecological receptors are discussed in this section. An exposure pathway is a mechanism by which receptors may come into contact with site-related chemicals. The U.S. Environmental Protection Agency (USEPA, 1989) describes a complete exposure pathway in terms of four components:

- A source and mechanism of chemical release (e.g., an aboveground storage tank system leak that releases fuel oil)
- A retention or transport medium (e.g., groundwater in the shallow saturated zone)
- A receptor at a point of potential exposure to a contaminated medium (e.g., commercial worker)
- An exposure route at the exposure point (e.g., inhalation exposure).

If any of these four components is not present, then a potential exposure pathway is considered incomplete and is not evaluated further in a risk assessment. If all four components are present, a pathway is considered potentially complete. Some pathways, although potentially complete may be considered insignificant if they are likely to contribute only a small fraction of the total exposure/dose.

2.3.6 Human Exposure Pathways

Adult and child recreators who may visit the trails and parklands (OU-A) may be directly exposed to chemicals in soil through the following exposure pathways:

- Incidental soil ingestion
- Dermal contact with soil
- Inhalation of airborne soil particulates.

Inhalation of volatile compounds in OU-A is not likely a significant exposure pathway because these compounds have not been found at elevated levels in OU-A (see Section 5 of the OU-A RI Report [ARCADIS BBL, 2008]); additionally, potential exposure to recreators and workers would be expected to be insignificant because of their limited exposure time and frequency. However, at the request of the regulatory agencies, ambient air exposure to VOCs that are selected as COIs was evaluated quantitatively in the risk assessment. Therefore, potentially complete exposure pathways for recreators are:

- Incidental soil ingestion
- Dermal contact with soil
- Inhalation of soil particulates
- Inhalation of VOCs in ambient air.

Soils encountered by recreators are most likely to be those in the top 6 inches (0 to 0.5 feet bgs); however, because some grading may occur as a result of the trail construction, the top 2 feet of soil are considered relevant exposure media for recreators under the future-use scenario.

Future construction workers and utility/trench workers may be exposed to chemicals in soil through the following exposure pathways:

- Incidental soil ingestion

- Dermal contact with soil
- Inhalation of airborne soil particulates
- Inhalation of airborne VOC vapors.

Soils encountered by construction workers and utility/trench workers include surface soil within 2 feet bgs, as well as subsurface soil to a depth of 10 feet bgs.

2.3.7 Ecological Exposure Pathways

Terrestrial plants and wildlife may be exposed to chemicals by direct exposure to soil, and in the case of wildlife, by consumption of contaminated prey items (e.g., plants, invertebrates, and wildlife). The relevant soil depth for exposure is assumed to be as much as 6 feet bgs, consistent with the California Environmental Protection Agency (CalEPA, 1998) guidance and based on the presence of burrowing mammals. However, in many areas of the site (including all of OU-A North), bedrock or undisturbed soils are encountered at 16 inches bgs or less. Consistent with CalEPA (1998) guidance, the depth of exposure will be set at the depth of greatest contamination, which is likely to be the top 6 inches (0 to 0.5 foot bgs) in many locations (e.g., where the release was at the surface and bedrock or undisturbed soils are shallow). In other areas (e.g., where there is buried debris), the assumed depth of exposure to soil will extend deeper (up to 6 feet bgs).

There is no known significant expression of groundwater within the boundaries of OU-A with the exception of springs, some of which are expressed within the boundaries of OU-A, but originate further inland and outside the boundaries of OU-A and discharge to areas outside of OU-A. Groundwater and springs are considered as a media of potential concern for aquatic receptors outside the boundaries of OU-A (e.g., in the Pacific Ocean). Pathways for terrestrial receptors to be exposed to seeps were considered insignificant. Groundwater and spring data were compared to aquatic screening levels in the RI and no unacceptable risks were predicted. A separate document for the offshore areas is also in preparation. All areas that were identified in the RI Report as potentially significant sources to offshore environments have been included in the cleanup proposed in this RAP. It should be recognized that the report on the offshore environment (which is offsite from the mill property and OU-A), although unlikely to result in any further remedial needs for OU-A given the existing characterization data available, could indicate the need for additional investigations and/or remedial measures.

2.4 Results of Investigations

The OU-A RI Report provided a summary of the previous soil investigations and investigations conducted in 2007 to fill identified data gaps throughout OU-A (ARCADIS BBL, 2008). For discussion purposes, the soil data were first screened against background levels (for metals; ARCADIS BBL, 2007a) and the residential California Human Health Screening Level (CHHSL; CalEPA, 2005a). If no CHHSL was available, data were screened against the USEPA Region IX PRGs for residential exposure (USEPA, 2004a)³. No CHHSLs or PRGs are available for TPH. Therefore, TPH data in soil were screened against site-specific, risk-based screening concentrations (RBSCs) presented in the Site-Wide Risk Assessment Work Plan (ARCADIS BBL, 2007c) that incorporated comments from DTSC. Tables 2-1 through 2-3 show the samples collected from OU-A and the results of the screening level comparisons.

Based on the results in the RI Report (ARCADIS BBL, 2008), seven PRAs within three AOIs were identified in OU-A that require remedial action for soil. The AOIs include: Glass Beach 2, Parcel 3 Scrap Yard/Geophysical Anomaly Area, and Parcel 10 Fill Area. A PRA was defined as an area that likely poses an unacceptable risk or exhibits other criteria that would require remedial action regardless of the results of any risk evaluations. Seven PRAs were identified for OU-A through an initial data evaluation and any one of the following criteria:

- Presence of metals above the California Hazardous Waste threshold (California Code of Regulations Title 22 Social Security, Division Health Standards for the Management of Hazardous Waste, Chapter 11)
- Presence of PCBs above the action level for PCBs (under the performance-based approach) from the Toxic Substances Control Act (TSCA) (40 CFR 761.3)

³ CHHSLs are concentrations of chemicals that CalEPA considers “to be below thresholds of concern for risks to human health.” PRGs are concentrations of chemicals that USEPA considers “to be health protective of human exposures (including sensitive groups), over a lifetime.”

- Presence of “significant” hot spots – areas where two or more adjacent sample locations had concentrations that were 10 times or more the residential CHHSL⁴.

For PCBs, the sample data were used to calculate total PCB concentrations, which were then compared against the total PCB CHHSL of 0.089 mg/kg and the TSCA action level of 1 mg/kg. If only Aroclors[®] were reported, the concentrations of detected Aroclors[®] were summed to obtain the total PCB concentration. For congener analyses and as discussed with the agencies, the concentrations of detected congeners (of 28 measured) were summed and multiplied by 2 to obtain a total PCB concentration (NOAA, 2000)⁵.

Carcinogenic PAHs were evaluated by calculating benzo(a)pyrene (B[a]P) toxic equivalents (TEQs) and comparing the TEQ to the CHHSL for B(a)P. Similarly, dioxins/furans were evaluated by calculating 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (TCDD) TEQs and comparing to the CHHSL for 2,3,7,8-TCDD.

The data in each of the AOIs were compared to the screening levels, and based on the concentrations and distribution, PRAs were identified. The outcome of the risk assessment showed that risks to both human and ecological receptors would be reduced to acceptable levels following remediation of the seven PRAs. The following provides a brief summary of the results for only the three AOIs that contain the seven PRAs in OU-A. Further discussion of the PRAs relative to remedial goals is provided in Sections 3 and 4.

⁴ This criterion was a qualitative value selected as a means of initially identifying areas that could constitute hot spots and was used in the risk evaluations in the RI Report to exclude data from the risk assessment. The results of the risk assessment showed that this criterion successfully identified areas that if removed would reduce risks to acceptable levels (discussed further herein). However, the results of the risk assessment provided in the RI Report (ARCADIS BBL, 2008) show that, regardless of ambient levels, the removal of dioxins at the levels proposed shall result in acceptable post-remedial risks in OU-A.

⁵ The list of PCB congeners analyzed is composed of the National Oceanic and Atmospheric Administration (NOAA) National Status and Trends list of 18 congeners plus the 10 coplanar congeners that were not included in the NOAA list (two were). Through testing, NOAA developed an algorithm to express the relationship of the sum of the 18 congeners to the sum of Aroclors. The algorithm generally returned a factor of about 2.3.

2.4.1 Glass Beach 2

Investigation of this area included the analysis of soil samples for metals, PAHs, VOCs and TPH (as gasoline [TPHg], as diesel [TPHd], and/or as motor oil [TPHmo]), and dioxins/furans. Some historical samples were also analyzed for semivolatile organic compounds (SVOCs) and pesticides. Soil samples have been collected from 19 locations throughout the Glass Beach 2 AOI, generally from the surface (0 to 0.5 foot bgs) and shallow subsurface (1 to 1.5 feet bgs); however, historical samples were collected at depths as great as 6.5 feet bgs (Figure 2-3).

The analytical results from Glass Beach 2 showed exceedances of arsenic, lead, tetrachlorodibenzo-*p*-dioxin (TCDD) toxic equivalents (TEQs), and benzo(a)pyrene [B(a)P] TEQs over their respective background and/or screening levels. Other chemicals were either not detected or detected below background and/or screening levels.

- Arsenic was detected in one sample (OUA-HA-48 at 1 to 1.5 feet bgs; 13 milligrams per kilogram [mg/kg]), slightly exceeding the site background concentration [10 mg/kg].
- Lead concentrations were elevated in one area along the bluff where debris was identified. Concentrations at four of the seven locations in this area and to a depth of 1.5 feet bgs exceeded the Preliminary Remediation Goal and CHHSL (150 mg/kg). Concentrations were not above the screening levels in the two samples collected from deeper strata (2 to 2.5 feet bgs). Lead concentrations ranged up to 790 mg/kg. Waste extraction tests also showed lead above the Soluble Threshold Limit Concentration (STLC), making lead in this area a California Hazardous Waste.
- TCDD TEQ concentrations in 12 of 18 samples (9 locations) collected throughout the AOI exceeded the CHHSL (4.6 picograms per gram [pg/g]). TCDD TEQ concentrations ranged from 0.36 pg/g (OUA-HA-072, 0 to 0.5 foot bgs) to 130 pg/g

(OUA-HA-081, 0 to 0.5 foot bgs); two adjacent samples had concentrations more than 10 times the CHHSL⁶.

- The B(a)P TEQ (0.13 mg/kg) in the subsurface sample collected at OUA-HA-27 exceeded the CHHSL (0.038 mg/kg). This location is in the area of the bluff that has the elevated lead concentrations.

Because of the elevated lead concentrations, a portion of this AOI has been identified as a PRA (the "Lead PRA"). Soil in this area is proposed to be removed to a depth of approximately 2 feet bgs. Soil outside the PRA did not contain lead above screening levels. Additionally, an area within Glass Beach 2 has been identified as a "Dioxin PRA." Soil in this area is proposed to be removed to a depth of approximately 1 foot bgs. In both PRAs, soil with concentrations greater than the remedial goal (see Section 3) will be removed.

2.4.2 Parcel 3 Scrap Yard/Geophysical Anomaly Area

Soil samples were collected from 39 sample locations throughout the Parcel 3 Scrap Yard/Geophysical Anomaly Area and sampled for metals, VOCs, TPHs, PCBs, PAHs, and occasionally SVOCs. Because the fill is less than 0.5 foot thick, soil samples were generally collected from the surface (less than 0.5 ft. bgs). However, soil samples were collected at 2 and 6 feet bgs from three borings completed as part of the 2005/2006 investigation.

The analytical results from Parcel 3 Scrap Yard/Geophysical Anomaly Area showed exceedances of arsenic, cadmium, vanadium, TPHd, TPHmo, PAHs, and PCBs over their respective background and/or screening levels. Other chemicals were either not detected or detected below background and/or screening levels.

- The arsenic concentration in the samples collected from OUA-TP-002 at 0 to 0.5 foot bgs (19 mg/kg), OUA-TP-032 at 0 to 0.4 foot bgs (11 mg/kg), and P3-3 at 0 to 0.5 foot bgs (14 mg/kg) slightly exceeded the site background concentration (10 mg/kg).

⁶ The dioxin/furan profiles generally match the ambient profile (i.e., had a dioxin/furan congener pattern that looked like background). Note that ambient levels of dioxins/furans are still under with DTSC, and the dioxin report, which discusses dioxin profiles, has not yet been approved.

- The cadmium concentration in a sample collected from location P3-1 at 0 to 0.5 foot bgs in 2003 (5.9 mg/kg) exceeded background (2.8 mg/kg). Cadmium has not been detected above screening levels in the recently collected samples.
- The vanadium concentration in the surface samples (0 to 0.4 foot bgs) collected from OUA-TP-031 (99 mg/kg) and OUA-TP-034 (94 mg/kg) slightly exceeded the site background concentration (90 mg/kg).
- PAHs have been detected at concentrations exceeding screening levels at one location. The B(a)P TEQ concentration (0.060 mg/kg) in the sample collected from OUA-TP-002 at 0 to 0.5 foot bgs slightly exceeded the CHHSL (0.038 mg/kg). With the exception of B(a)P TEQ, concentrations of the remaining PAHs did not exceed their screening levels.
- TPH concentrations exceeded the risk-based screening concentration (RBSCs) at one location. The only exceedances were at sample location OUA-TP-019 (collocated with PCB exceedances described below); the TPHd and TPHmo concentrations in the soil sample collected from 0 to 0.2 foot bgs exceeded the RBSC at 3,200 and 15,000 mg/kg, respectively. The deeper sample collected from this location at 0.6 to 0.8 foot bgs did not show elevated concentrations. TPHg was not detected at concentrations exceeding screening levels.
- Elevated PCB concentrations were found in the northern portion of the Parcel 3 Geophysical Anomaly Area. Screening-level exceedances were limited to the surface soil (0 to 0.5 foot bgs); concentrations at nine locations were more than 10 times the screening level (CHHSL: 0.089 mg/kg). This area has been identified as a PRA (the "PCB PRA"). Soil with PCB concentrations greater than the remedial goal (see Section 3) in this area is proposed to be removed to a depth of approximately 6 to 12 inches. PCB soil concentrations below 0.5 foot bgs and outside the PRA did not exceed screening levels.

2.4.3 Parcel 10 Fill Area

A total of 107 samples were collected from 48 locations throughout the Parcel 10 Fill Area (Figure 2-4). The area has been investigated for metals, PAHs, VOCs, TPHd, TPHg, TPHmo, and dioxins and furans.

The analytical results from Parcel 10 Fill Area showed exceedances of arsenic, B(a)P TEQs, and TCDD TEQs over their respective background and/or screening levels.

Other chemicals were either not detected or detected below background and/or screening levels.

- The arsenic concentration in the sample collected from OUA-DP-005 at 7.5 to 8 feet bgs (12 mg/kg) slightly exceeded the site background concentration (10 mg/kg).
- PAH concentrations, which ranged from 0.0000021 to 0.345 mg/kg as B(a)P TEQs, exceeded the CHHSL (0.038 mg/kg) at six locations (nine samples) throughout the Parcel 10 Fill Area. Exceedances were detected at varying depths within the fill layer and ranged from 0.043 mg/kg at OUA-DP-008 at 8.5 to 9 feet bgs to 0.345 mg/kg at OUA-DP-018 at 4 to 4.5 feet bgs. The elevated concentrations appear to be characterized both laterally and vertically.
- Elevated TCDD TEQ concentrations were found, mainly within three areas in the Parcel 10 Fill Area. TCDD TEQs ranged from 0.004 to 316 pg/g. Screening levels were exceeded in soil samples up to 5.5 feet bgs. Concentrations at nine locations at depths to 4.5 feet bgs were found at more than 10 times the screening level (CHHSL of 4.6 pg/g). Four small areas have been identified as PRAs (the "Dioxin PRAs"): one in the northern portion of the AOI and three in the southern portion of the AOI. Soil in these areas is proposed to be removed to a depth ranging from 2 to 5 feet bgs to remove material with dioxins over the remedial goal (see Section 3).

2.5 Summary of Remedial Investigation Recommendations

2.5.1 Operable Unit A North

In OU-A North, the Glass Beaches (Glass Beach 1, Between Glass Beach 1 and 2, Glass Beach 2, Between Glass Beaches 2 and 3, Glass Beach 3, East of Glass Beach 3) in Parcel 1 and the Parcel 3 Geophysical Anomaly/Former Scrap Yard Area were investigated.

In general, the Glass Beach Areas soil showed the following COIs above their respective screening levels: arsenic and cadmium (both just slightly above background), lead, B(a)P TEQs (just above screening levels), and TCDD TEQs. Sampling results have typically defined the horizontal and vertical extent of the impacts and were determined to be sufficient for risk assessment purposes. Exceedances were typically minor (less than 10 times background or screening levels) or limited in spatial

extent, with the exception of Glass Beach 2 where one small area had elevated concentrations of lead (exceeding California Hazardous Waste criteria), and a second had elevated concentrations of dioxins/furans (exceeding its CHHSL). Therefore, portions of this AOI have been identified as PRAs and lead and dioxins are considered COCs at Glass Beach 2. Soil in the Lead PRA is proposed to be removed to a depth of approximately 2 feet bgs. Soil outside the Lead PRA did not contain lead above screening levels. Soil in the dioxin PRA is proposed to be removed to a depth of approximately 1 foot bgs.

In the Parcel 3 Scrap Yard, the soil showed the following COIs above their respective screening levels: arsenic, cadmium, and vanadium (all slightly above background); PAHs; TPH; and PCBs. PCBs were the only COC that exceeded its respective screening level by 10 times, and total PCBs also exceeded the TSCA performance-based criterion of 1 mg/kg. The slightly elevated PAHs and TPH are also within the boundary of the PRA. Therefore, this area has been identified as a PRA with PCBs as the main COC in this area. Soil in this area is proposed to be removed to a depth of approximately 6 to 12 inches bgs. PCB soil concentrations below 0.5 to 1 foot bgs and outside the PRA did not exceed screening levels.

2.5.2 Operable Unit A South

For the Parcel 10 Fill Area, the analytical results for soils showed the following COIs above their respective screening levels: arsenic (slightly above background levels), B(a)P TEQs, and TCDD TEQs over their respective background and/or screening levels. Other chemicals were either not detected or detected below background and/or screening levels. Although arsenic and B(a)P were detected above screening levels, the exceedances are minor. The elevated TCDD TEQ concentrations were found mainly within four areas in the Parcel 10 Fill Area. Concentrations at ten locations were more than 10 times the screening level (CHHSL of 4.6 pg/g). These four areas were identified as PRAs based on the criteria described above: one in the northern portion of the AOI and three in the southern portion of the AOI. Soils in these areas are proposed to be removed to a depth ranging from 2 to 5 feet bgs (soils below these depths are less than 10 times the CHHSL and also below the remedial goals, as further discussed in Sections 3 and 4).

2.5.3 Risk Assessment Results

As discussed above, the shallow soil in OU-A is primarily impacted with select metals, B(a)P, TPHd and TPHmo, PCBs, and dioxins/furans above screening levels. Three

areas in OU-A North (Glass Beach 2 and the Parcel 3 Former Scrap Yard) and four areas within OU-A South (all within the Parcel 10 Fill Area) have been targeted as requiring presumptive remedies because of elevated concentrations of the COCs lead, PCBs, and/or dioxin/furans. Risks were estimated for both potential future human receptors (assuming a future recreational site use) and ecological receptors for two exposure units, OU-A North and OU-A South, that are geographically separated areas of OU-A. The risk assessments were conducted under the assumption that remediation of the five PRAs⁷ discussed above (two in OU-A North and three in OU-A South) will be completed.

Based on the assessment of risks following assumed remediation of the PRAs, risks were predicted to be within the acceptable range (less than 1 in a million excess cancer risk for humans and hazard quotients less than 1 for ecological receptors, once background levels of chemicals are taken into account). An assessment of the potential for transport of wind-blown dust from the remaining areas to adjacent OUs also showed no potential for unacceptable risks. The PRA areas were recommended to be carried forward into the remedial planning process. No other areas were found to warrant further evaluation.

⁷ Note that the risk assessment did not incorporate the results of additional sampling conducted in December 2007. However, additional sampling and analysis presented in the RI Addendum demonstrates that the risk assessment results remain valid.

3. Remedial Action Objectives

Site characterization and risk assessment has revealed the presence of lead in Glass Beach 2 above hazardous waste levels, dioxins/furans in Glass Beach 2 above risk-based levels, PCBs in the Parcel 3 Former Scrap Yard above the TSCA level for a self-implementing cleanup⁸, and dioxins/furans in the Parcel 10 fill area above risk-based levels. RAOs have been developed for soil media for each of these areas and chemicals of concern (COCs) based upon the current environmental conditions and anticipated future uses of the site.

3.1 Applicable or Relevant and Appropriate Requirements

The NCP requires compliance with Applicable or Relevant and Appropriate Requirements (ARARs) in the selection of remedial actions. The NCP defines applicable requirements as promulgated federal or state standards that specifically address a hazardous constituent, remedial action, location, or other circumstance. The NCP defines a relevant and appropriate requirement as a promulgated federal or state requirement that addresses problems or situations sufficiently similar to those encountered, even though the requirement is not legally applicable. A requirement may be relevant but not appropriate, given site-specific circumstances; such a requirement would not be an ARAR. If only part of a requirement is relevant and appropriate, then only that portion needs to be addressed.

ARARs are categorized as chemical, action, or location specific. Chemical-specific ARARs are typically health or risk-based values that establish the acceptable amount or concentration of a chemical that may be found in, or discharged to, the ambient environment, such as federal or state drinking water standards for specific chemicals. Action-specific requirements generally set performance, design, or other similar action-specific controls related to the management of hazardous substances. An example of an action-specific ARAR is the National Pollutant Discharge Elimination System requirements, which regulate the discharge of pollutants to surface water. Location-

⁸ Under TSCA's self-implementing cleanup, areas with "bulk remediation waste" (i.e., soil) must be cleaned up to 1 mg/kg total PCBs for "high occupancy areas" (defined as an area that an individual occupies for 6.7 hours or more per week). This requirement is outlined in USEPA's *The Polychlorinated Biphenyl (PCB) Site Revitalization Guidance* (OPPT-2004-0123, November 2005).

specific requirements address restrictions on the nature of activities or the concentrations of hazardous substances solely because they occur in a particular location. Examples of location-specific ARARs include possible requirements associated with remedial activities in areas designated as wetlands, flood plains, or historic sites.

In addition to ARARs, which are regulatory requirements, non-promulgated advisories or guidance, referred to as “to be considered” (TBC) criteria, have also been identified. TBCs are non-binding criteria, advisories, guidance, and proposed standards that might provide useful information or recommended procedures for developing standards that protect human health and the environment.

ARARs and TBCs have been compiled for the soils in the seven PRAs addressed in this RAP using federal, state, and local statutes, regulations, and guidance listed in Table 3-1.

3.2 Remedial Action Objectives

RAOs are guidelines used in the development of potential remedial action alternatives and selection of a proposed remedial action. The RAOs presented herein have been developed based on the current environmental conditions and anticipated future use of the site for passive recreational purposes. The following RAOs were identified for the site:

- To provide a remedy that will reduce long-term risks to acceptable levels and protect human and ecological receptors under the anticipated passive recreational land use scenario
- To provide a technically and economically feasible remedy for soil
- To provide a property suitable for the planned reuse consistent within a time-frame suitable for the proposed property transfer.

The section below presents chemical-specific remedial goals for each of the PRAs discussed in Section 2.

3.3 Chemical-Specific Remedial Goals

3.3.1 Overall Approach for Developing Remedial Goals

For OU-A, the following factors were considered in developing remedial goals:

- California Hazardous Waste threshold limiting concentrations (California Code of Regulations Title 22 Social Security, Division Health Standards for the Management of Hazardous Waste, Chapter 11)
- Action levels for PCBs (under the performance-based approach) from the TSCA (40 CFR 761.3)
- Site-specific risk-based levels.

Although the protection of human and ecological receptors was not the primary driver or consideration in the initial development of each of the PRAs, it is important to ensure that the remedial measures implemented are protective of both human and ecological receptors. Risk-based target levels (RBTLs) for the protection of human and ecological receptors, described in Appendix A, are not intended to serve as “clean-up” levels in general, and are not necessarily relevant to other areas or OUs. The RBTLs presented in this RAP should be considered along with the other post-remedy goals discussed above to select appropriate success criteria or confirmation goals.

The detailed approach for calculating site-specific RBTLs is provided in Appendix A for both human and ecological receptors and the results summarized below. RBTLs were estimated for lead, PCBs (total), and dioxins/furans (as TCDD TEQs) as these chemicals were those identified in the OU-A RI Report (ARCADIS BBL, 2008) and Section 2 above as COCs. RBTLs for human receptors are based on cancer effects related to the frequent onsite (adult) visitor which was the most sensitive receptor in the RI risk assessment, with the exception of lead for which the child visitor was most sensitive. RBTLs were estimated using the same exposure assumptions and toxicity values used in the RI Report (ARCADIS BBL, 2008) but back-calculating to the 1×10^{-6} acceptable cancer risk or, in the case of lead, an acceptable blood-lead level of 10 micrograms per deciliter ($\mu\text{g}/\text{dL}$).

A range of ecological receptors was evaluated in the RI Report (ARCADIS BBL, 2008). RBTLs were calculated for those receptors that were “risk-driving” (i.e., those with the highest risks in the RI: American kestrel, killdeer, and ornate shrew) using the

exposure assumptions, bioaccumulation factors, and range of toxicity values provided in the RI Report. For the toxicity assumptions, a further step was to base the RBTL on the “mid” toxicity reference values (TRVs) based on the geometric mean of the low (generally representing a no effect exposure level) and the high TRV (generally representing the lowest low effect exposure level). The resulting RBTLs are considered appropriate for supporting risk management decisions recognizing that neither the low nor the high TRV represents a true effect threshold concentration, and the true threshold effect concentration for a given chemical likely lies somewhere between the low and high TRVs.

Although these RBTLs may be used to screen post-confirmation results from single samples, these RBTLs should be compared to post-remedy exposure estimates (i.e., 95% Upper Confidence Limits [95%UCLs]) to determine whether post-remedy conditions are protective of human and ecological receptors, as predicted by the ERA contained within the OU-A RI Report (ARCADIS BBL, 2008).

3.4 Final Remedial Goals

3.4.1 Lead at Glass Beach 2

Remedial goals for lead include:

- Removal of lead that meets the definition of a California Hazardous Waste (California Code of Regulations Title 22 Social Security, Division Health Standards for the Management of Hazardous Waste, Chapter 11).
- Post-remedial EPCs (95%UCL) not exceeding 80 mg/kg, which represents the lower of the RBTLs that are greater than background for the most sensitive human receptor (523 mg/kg) or ecological receptor (80 mg/kg).

Based on the EPC estimates in the OU-A RI Report (ARCADIS BBL, 2008), which incorporates removal of soils within the PRA boundaries (both laterally and vertically) that exceed 80 mg/kg of lead, the post-remedial EPC (95%UCL) was predicted as 24 mg/kg, which will meet the goals above.

3.4.2 Polychlorinated Biphenyls at the Former Scrap Yard

Remedial goals for PCBs include:

- Removal of PCBs above the action level of 1 mg/kg for PCBs (under the self-implementing approach) from TSCA (40 CFR 761.3).
- Post-remedial EPCs (95%UCL) not exceeding 1 mg/kg, which represents the lower of the RBTLs for the most sensitive human receptor (8.8 mg/kg) or ecological receptor (1 mg/kg).

Based on the EPC estimates in the OU-A RI Report (ARCADIS BBL, 2008), which incorporates removal of soils within the PRA boundaries (both laterally and vertically) that exceed 1 mg/kg total PCBs (and expanded to capture location TP-002 that had slightly elevated TPH and PAHs), the post-remedial EPC (95%UCL) was predicted as 0.008 mg/kg, which will meet the goals above.

3.4.3 Dioxin/Furans

Remedial goals for dioxin/furans include:

- Post-remedial EPCs (95%UCL) expressed as total mammalian TEQs not exceeding 53 pg/g, which represents the lower of the RBTLs for the most sensitive human receptor (53 pg/g) or ecological receptor (59 pg/g).

Based on the EPC estimates in the OU-A RI Report (ARCADIS BBL, 2008), which incorporates removal of soils within the original OU-A South Dioxin PRA boundaries (both laterally and vertically) that exceed 53 pg/g, the post-remedial EPC (95%UCL) was predicted as 15 pg/g, which will meet the goals above. Although the additional sampling conducted in December 2007 added six samples to the dataset and two dioxin PRAs, because the new PRAs encompass samples above the RBTL the post-remedial EPC is likely to be approximately similar.

4. Summary of Analysis of Removal Action Alternatives (Feasibility Study)

This section presents the evaluation of alternatives and proposed remedial actions for the site including a summary and screening evaluation of remedial technologies that may be applicable to attain the RAOs described above (i.e. a feasibility study). Consistent with the NCP (USEPA, 1990) and the USEPA RI/FS guidance (USEPA, 1988), general response actions, remedial technologies, and specific process options have been identified and screened for applicability to address the identified releases at the site, based on their ability to achieve RAOs. Technologies that are technically feasible, implementable, and potentially cost-effective were then combined to develop a range of remedial alternatives for detailed evaluation. Appendix B presents the volumes and costs used in the evaluation.

4.1 E valuation Criteria

According to USEPA FS and DTSC RAP guidance, the nine criteria described in the sections below must be used to evaluate remedial alternatives (USEPA, 1988; DTSC, 1995). For an alternative to be selected, it must meet the first two criteria, threshold criteria, which are 1) overall protection of human health and the environment, and 2) compliance with ARARs. Criteria 3 through 7 are the five primary balancing criteria that provide comparisons between the alternatives and identify tradeoffs between them, and criteria 8 and 9 are the two modifying criteria that consider acceptance by the state and local community.

4.1.1 Overall Protection of Human Health and the Environment

This criterion addresses whether or not a remedy provides adequate protection of human health and the environment and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

4.1.2 Compliance with Applicable or Relevant and Appropriate Requirements

Compliance with ARARs is evaluated based on whether or not a remedy will meet all appropriate federal, state, and local environmental laws and regulations.

4.1.3 Long-Term Effectiveness and Permanence

Long-term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have initially been met.

4.1.4 Reduction of Toxicity, Mobility, and Volume through Treatment

Reduction of toxicity, mobility, and volume through treatment refers to the ability of a remedy to reduce the toxicity, mobility, and volume of the hazardous substances or constituents present at the site.

4.1.5 Cost – 30-Year Present Worth

The cost criterion is used to evaluate the estimated 30-year present worth capital and operation and maintenance costs of each alternative.

The level of accuracy of the costs estimated is “Order of Magnitude,” as defined by the American Association of Cost Engineers. The accuracy of an Order of Magnitude estimates is plus 50 percent and minus 30 percent. Construction cost estimates at this level may be used to compare alternatives, but should not be used to plan, finance, or develop projects.

4.1.6 Short-Term Effectiveness

Short-term effectiveness addresses the period of time needed to complete the remedy, and any adverse impact on human health and the environment that may be posed during the construction and implementation period, until the cleanup standards are achieved.

4.1.7 Implementability

Implementability refers to the technical and administrative feasibility of a remedy, including the availability of materials and services needed to carry out a particular option.

4.1.8 State Acceptance

This criterion indicates whether, based on current knowledge of regulations and agency mandates, the applicable regulatory agencies would agree with the preferred alternative. The rankings listed in the sections below are based on preliminary input from agency meetings and knowledge of regulatory mandates. Actual assessment of regulatory agency acceptance is dependent on comments received during the agency review and public comment periods.

4.1.9 Community Acceptance

This criterion indicates whether community concerns are addressed by the remedy, and whether the community has a preference for a remedy. Each alternative is evaluated in terms of currently available public input and the anticipated public reaction to the alternative, but should be considered preliminary. However, actual assessment of community acceptance is dependent on comments received during public comment period.

4.1.10 Other Criteria

California Health and Safety Code Section 25356.1(d) also outlines six additional criteria, which need to be addressed for the recommended remedial alternative. As these criteria are addressed within the nine U.S. EPA criteria, a separate analysis has not been conducted.

4.2 Development of Removal Action Alternatives

4.2.1 No Action

The no action alternative is used as a basis of comparison when screening alternatives. The no action alternative does not include any remedial actions. It neither addresses the RAOs nor meets the threshold criteria and will not be selected as the recommended alternative.

4.2.2 Land Use Restriction/Controls

The land use restriction/controls alternative consists of administrative actions or institutional controls that would restrict the uses of and access to the site. If and when contaminants are left in place at levels above levels acceptable for residential use

and/or determined background levels, land use restrictions must be established. Land use restrictions are necessary to protect present or future human health or safety or the environment as a result of the presence on the land of hazardous materials.

For this site, DTSC will remain as the lead agency in the determination of what land use restrictions are necessary. Land use restrictions would prevent sensitive uses (such as residences, hospitals, day care facilities, schools, etc.). In addition, the future land use is expected to be passive recreational use (coastal trail and parkland) and land use restrictions will be put in place as part of the conditions placed on the land by the Coastal Conservancy as part of any coastal trail and parkland purchase. Georgia-Pacific, as seller, may impose restrictions that may be above and beyond the mandatory minimum.

4.2.3 Removal/Offsite Disposal

The removal and offsite disposal alternative consists of excavating, direct loading, and trucking the material that exceeds the remedial goals offsite to an appropriate Class I (for soil shown to be California Hazardous Waste for lead) or Class II disposal facility. The excavations would be backfilled with clean fill and/or regraded to an even, relatively flat surface and revegetated. Figures 4-1 through 4-4 show the PRAs, which consist of the approximate horizontal limits as depicted and vertical limits based on exceedances of RBTLs, which are also shown on the figures; final excavation limits will be based on the results of confirmation sampling. Appendix B provides the PRA volumes, which were computed using geographic information systems based on the assumed excavation limits. Appendix C provides more details on implementation, including confirmation/verification sampling.

4.2.4 Consolidation and Capping

Consolidation of material limits the areal extent of impacted soil and capping provides an effective engineered barrier to prevent direct contact with and mitigate potential infiltration of precipitation (rain water) into the contaminated material. The consolidation and capping alternative consists of excavating material that exceeds the remedial goals from the five dioxin PRAs, consolidating the material into one location onsite in a cell, and placing an engineered cap over the material. The material excavated from the location chosen for the cell would be used to backfill the five dioxin PRAs and/or the area will be regraded to provide an even, relatively flat surface.

The material would be consolidated and capped so that the dioxin-impacted material would not be in contact with groundwater. The designated location of the cap and consolidate area is in the southern portion of the mill site within Parcel 8, just south of Pond and just west of the former nursery/greenhouse area (see Appendix C). The location of the capped area was relocated from the location presented in the December 2007 version of the RAP at the request of and as discussed with the Executive Director and staff of the California Coastal Commission. Within the designated location, the depth to groundwater is approximately 12 to 12.5 feet bgs. The maximum depth of the cell would be approximately 6 to 6.5 feet bgs. This would meet the requirement for at least 5 feet of separation between the highest anticipated elevation of underlying groundwater and the waste material [Title 27, CCR Division 2 Chapter 3 (c)].

As shown in Figure 4-5, the cap would consist of the following:

- An impermeable 40-mil polyvinyl chloride (PVC) liner laid on the bottom of the excavation, overlain by the dioxin-impacted material, and compacted in the excavation area to grade.
- An geosynthetic clay liner placed over the dioxin-impacted material.
- Clean soil and/or road base with a paved/asphalt parking lot (optional) above the liner. If a soil only layer is used, the cap will be revegetated. The area will be graded to provide positive drainage. Additionally, a simple leachate control system will be installed.

This alternative would also require the following:

- A deed restriction or land use covenant to require that the cap be operated and maintained.
- Creation and execution of an Operation and Maintenance Plan that includes a Soil Management Plan and financial assurances, to address operation and maintenance of the cap and to ensure that soil handling activities would be performed safely and appropriately.
- Creation and execution of a Monitoring Plan to ensure that the dioxin does not impact groundwater or other environmental media.

The consolidation and capping alternative is not applicable to the lead PRA or the PCB PRA because the lead concentrations are classified as California Hazardous Waste and the PCB concentrations are greater than the TSCA performance-based remedial goal, respectively. Additional restrictions would be required to cap this material onsite, which are not warranted given the small volumes of this material.

4.2.5 Bioremediation

Recalcitrant compounds such as PCBs and dioxins/furans degrade at an extremely slow rate and microbial degradation has been shown to be limited. Fungal degradation of these and other recalcitrant compounds (such as pentachlorophenol) has been observed in controlled laboratory studies using the white rot fungus (Singh, 2006; Takada et al., 1996; Mori and Kondo, 2002; Kamei and Kondo, 2005). However, these studies were conducted on a small scale and in controlled laboratory conditions (30°C, pH of 4.5) in flasks where glucose (1-10%) was added, the dioxin compounds were added in dissolved form in liquid media, and the flasks were flushed with oxygen. Even under these optimal conditions, average degradation rates for studies conducted for 5 to 20 days have been shown to be 50% or less and the more highly substituted dioxin congeners (tetra- to octa-CDDs) had even lower degradation rates (as low as 6%).

Field studies using this technology have been largely untested or marginally successful. White rot fungus has an optimal growth temperature between 30 and 39°C, grows more slowly at temperatures below 25°C, and does not grow at temperatures less than 15°C (Kirk et al., 1992; Singh, 2006). High moisture and oxygen content, and presence of food (i.e., glucose), and low pH (4.5) conditions are also optimal conditions for growth. These conditions are difficult to achieve in the field. Furthermore, the availability of an effective delivery mechanisms for the fungus to soil is a barrier to practical implementation (Loomis et al., 1996) and the degree of degradation observed in the laboratory has not been observed in the field (Reddy, 1995).

Field studies that have been conducted have involved building bioreactor cells to which the soil was added along with wood chips colonized by the white rot fungus. A field study on pentachlorophenol (Kirk et al., 1992) showed a 9 to 14% decrease over 6.5 weeks (note that field conditions such as temperature, pH, etc. were not reported in this study). EarthFax (www.earthfax.com/WhiteRot/Dioxin.htm) conducted a field trial using two aboveground constructed treatment cells holding 2 cubic yards (cy) of soil, each inoculated with 20 to 40% of the white rot fungus and utilizing air blowers at a site in North Carolina (other conditions such as temperature and pH were not reported).

After 282 days, degradation ranged from 61 to 80% for dioxins and 51 to 80% for furans. As TEQs, degradation ranged from 63 to 69%.

Although this technique is promising, there is a lack of proven field methods and no successful large-scale field trials. The optimal temperature conditions of 30 °C and minimum temperature conditions of 15 °C would not be achieved in Fort Bragg where temperatures average 53 to 57°F (12 to 14°C). Additionally, degradation rates of 80 to 90% would be needed for dioxins/furans and PCBs, respectively, to meet remedial goals. Even in Weed, California, with average temperatures in the summer of approximately 85°F (30°C), a 282-day study resulted in an average degradation rate around 70%. Additionally, the cost to implement this technology is estimated to be \$75 per cy for the treatment alone (does not include other costs such as excavation, backfilling, etc.; see Appendix B), comparable to the costs for offsite disposal.

Given the above, bioremediation will not be further evaluated for the following reasons:

- The time associated with implementing this alternative would not meet the RAO related to the timing requirements for the property transfer;
- There are unfavorable conditions (primarily temperatures too low to support sufficient fungi growth but also poor soil nutrient levels and pH that would require amendment);
- Successful field trials for this technology are lacking;
- Concentration reductions are likely insufficient for meeting the remedial goals; and
- The cost of this alternative is likely to be similar or higher compared to the other alternatives evaluated below.

4.3 A Alternatives Analysis

The alternatives for each PRA were evaluated using the nine criteria as presented below and in Tables 4-1, 4-2, and 4-3. Each of the alternatives was given a rank of low, medium, or high for each of the nine criteria.

4.3.1 Operable Unit A North – Glass Beach 2

This section and Table 4-1 present the evaluation of alternatives for the lead PRA within OU-A North – Glass Beach 2 (Figure 4-1). Because of the similarity of the contaminant, the dioxin PRA in Glass Beach 2 (Figure 4-2) is addressed with the four other dioxin PRAs in the Parcel 10 Fill Area in Operable Unit A South (Section 4.3.3).

4.3.1.1 No Action

The no action alternative received a low ranking for the threshold and balancing criteria, except for short-term effectiveness. These criteria received a low ranking because the no action alternative:

- Provides no protection to human health or the environment.
- Does not comply with ARARs.
- Provides no long-term risk reduction or reduction of toxicity, mobility, or volume through treatment.
- Is not administratively feasible.

Short-term effectiveness received a high ranking because no remediation will be implemented, and therefore, there would be no short-term worker or environmental exposure.

Additionally, the no action alternative would not be accepted by the state. Community acceptance is likely to be low.

There is no cost to implement this alternative.

4.3.1.2 Land Use Restriction/Controls

Although land use restrictions could potentially be used to reduce human exposure, land use restrictions alone will not reduce the risk to the environment. Thus, the land use restriction/controls alternative does not meet the criterion for protection of human health and the environment. The Glass Beach 2 Lead PRA has concentrations of lead greater than the criterion for California Hazardous Waste; the material left in place as the development of the trail proceeds will likely require disturbance of the soil in this

area. Land use restrictions/controls also received low ranking for long-term risk reduction, reduction of toxicity and mobility through treatment, and state acceptance since the impacted material will remain in place. The alternative received a medium ranking for long-term effectiveness and permanence since it provides only limited risk reduction to human health and no risk reduction to the environment, but is permanent. It received a high ranking for short-term effectiveness and implementability because there would be no exposure to workers or the environment from implementing a remedy, and it is implementable. Community acceptance is likely to be low.

The estimated cost to implement this alternative is approximately \$10,000.

Note that land use restrictions/controls may be used in conjunction with an active remedial alternative for the Lead PRA.

4.3.1.3 Removal/Offsite Disposal

Removal and offsite disposal of impacted soil at the Lead PRA would consist of excavating approximately 140 cy of soil to a depth of approximately 2 feet bgs. The presumed excavation area is shown on Figure 4-1. The excavated material will be California Hazardous Waste and would be transported to the Class I Waste Management, Inc. Kettleman Hills Landfill in Kettleman City, California.

Removal and offsite disposal of the lead-impacted material receives a high ranking for protection of human health, compliance with ARARs, long-term effectiveness and permanence, implementability, and state and community acceptance. It receives a medium rank for short-term effectiveness due to the potential for short-term worker or environmental exposure during implementation, and a medium ranking for reduction in toxicity, mobility, or volume because the material will be land-filled rather than treated. Although this alternative has a moderate cost, removal and offsite disposal is an effective and implementable alternative that will be protective of human health and the environment.

The estimated present value for the removal and offsite disposal alternative is approximately \$43,000. The detailed cost estimate and assumptions are included in Appendix B.

4.3.2 Operable Unit A North – Scrap Yard

This section and Table 4-2 present the evaluation of alternatives for the PCB PRA within OU-A North – Scrap Yard (Figure 4-3).

4.3.2.1 *No Action*

The no action alternative received a low ranking for the threshold and balancing criteria, except for short-term effectiveness. These criteria received a low ranking because the no action alternative:

- Provides no protection to human health or the environment.
- Does not comply with ARARs.
- Provides no long-term risk reduction or reduction of toxicity, mobility, or volume through treatment.
- Is not administratively feasible.

Short-term effectiveness received a high ranking because no remediation will be implemented, and therefore, there would be no short-term worker or environmental exposure.

Additionally, the no action alternative would not be accepted by the state. Community acceptance is likely to be low.

There is no cost to implement this alternative.

4.3.2.2 *Land Use Restriction/Controls*

Although land use restrictions could potentially be used to reduce human exposure, land use restrictions alone will not reduce the risk to the environment. Thus, the land use restriction/controls alternative does not meet the criterion for protection of human health and the environment. Land use restrictions/controls also received low ranking for long-term risk reduction, reduction of toxicity and mobility through treatment, and state acceptance since the impacted material will remain in place. The alternative received a medium ranking for long-term effectiveness and permanence since it provides only limited risk reduction to human health and no risk reduction to the

environment, but is permanent. It received a high ranking for short-term effectiveness and implementability because there would be no exposure to workers or the environment from implementing a remedy, and it is implementable. Community acceptance is likely to be low.

The estimated cost to implement this alternative is approximately \$10,000.

Note that land use restrictions/controls may be used in conjunction with an active remedial alternative for the PCB PRA.

4.3.2.3 Removal/Offsite Disposal

Removal and offsite disposal of impacted soil at the PCB PRA in OU-A North would consist of excavating approximately 990 cy of soil with elevated PCB concentrations to a depth of approximately 1 foot bgs. The excavation area is shown on Figure 4-3. The material will be non-hazardous and would be transported to the Allied Waste Services Keller Canyon Landfill in Pittsburg, California (Keller Canyon; a Class II, Subtitle D permitted landfill).

Removal and offsite disposal of the PCB-impacted material receives a high ranking for protection of human health, compliance with ARARs, long-term effectiveness and permanence, implementability, and state and community acceptance. It receives a medium rank for short-term effectiveness due to the potential for short-term worker or environmental exposure during implementation, and a medium ranking for reduction in toxicity, mobility, or volume because the material will be land-filled rather than treated. Although this alternative has a moderate cost, removal and offsite disposal is an effective and implementable alternative that will be protective of human health and the environment.

The estimated present value for the removal and offsite disposal alternative is approximately \$220,000. The detailed cost estimate and assumptions are included in Appendix B.

4.3.3 Dioxin PRAs (OU-A North and OU-A South)

This section and Table 4-3 present the evaluation of alternatives for the dioxin PRAs in OU-A North – Glass Beach 2 (Figure 4-2) and OU-A South – Parcel 10 Fill Area (Figure 4-4).

4.3.3.1 No Action

The no action alternative received a low ranking for the threshold and balancing criteria, except for short-term effectiveness. These criteria received a low ranking because the no action alternative:

- Provides no protection to human health or the environment.
- Does not comply with ARARs.
- Provides no long-term risk reduction or reduction of toxicity, mobility, or volume through treatment.
- Is not administratively feasible.

Short-term effectiveness received a high ranking because no remediation will be implemented, and therefore, there would be no short-term worker or environmental exposure.

Additionally, the no action alternative would not be accepted by the state. Community acceptance is likely to be low.

There is no cost to implement this alternative.

4.3.3.2 Land Use Restriction/Controls

Although land use restrictions/controls could potentially be used to reduce human exposure, land use restrictions alone will not reduce the risk to the environment. Thus, the land use restriction/controls alternative does not meet the criterion for protection of human health and the environment. Land use restrictions/controls also received low ranking for long-term risk reduction, reduction of toxicity and mobility through treatment, and state acceptance since the impacted material will remain in place. The alternative received a medium ranking for long-term effectiveness and permanence since it provides only limited risk reduction to human health and no risk reduction to the environment, but is permanent. It received a high ranking for short-term effectiveness and implementability because there would be no exposure to workers or the environment from implementing a remedy, and it is implementable. Community acceptance is likely to be low.

The estimated cost to implement this alternative is approximately \$10,000.

Note that land use restrictions/controls may be used in conjunction with an active remedial alternative for the dioxin PRAs.

4.3.3.3 Removal/Offsite Disposal

Removal and offsite disposal of impacted soil at the five dioxin PRAs (one in OU-A North and four in OU-A South) would consist of five excavations with a total of approximately 13,000 cy of soil with elevated dioxin/furan concentrations. The excavation areas are shown on Figures 4-2 and 4-4. The soil will be excavated to a depth of 2 to 5 feet bgs. The excavated material will be non-hazardous waste and would be transported to Allied Waste Services Keller Canyon Landfill in Pittsburg, California (Keller Canyon; a Class II, Subtitle D permitted landfill).

Removal and offsite disposal of the dioxin-impacted material receives a high ranking for protection of human health, compliance with ARARs, long-term effectiveness and permanence, implementability, and state acceptance. Community acceptance of removal and offsite disposal was ranked as medium due to the large quantity of material that would be excavated and trucked offsite; however, the community desires public access to the coastal trail, and remediation of the site is necessary to support this goal. It receives a medium rank for short-term effectiveness due to the potential for short-term worker or environmental exposure during implementation, and a medium ranking for reduction in toxicity, mobility, or volume because the material will be land-filled rather than treated. Although this alternative has a relatively high cost, removal and offsite disposal is an effective and implementable alternative that will be protective of human health and the environment. State and community acceptance could, however, be affected by a desire to reduce the carbon footprint of the project and the large number of truck trips required would not meet this goal.

The estimated present value for the removal and offsite disposal alternative is approximately \$2,500,000. The detailed cost estimate and assumptions are included in Appendix B.

4.3.3.4 Consolidation and Capping

The consolidation and capping alternative would consist of:

- Excavation of approximately 13,000 cy of soil from the five dioxin PRAs

- Excavation of material from the cap location, an area of approximately 58,000 square feet to a depth of approximately 6 to 6.5 feet
- Backfilling the five dioxin PRAs with clean fill material and/or regrading the area
- Consolidating and capping the dioxin-impacted soil.

The cap/cell area will also need to be surveyed and a deed restriction and land use covenants would be placed on that area. Land use restrictions are necessary to protect present or future human health or safety or the environment as a result of the presence on the land of hazardous materials. DTSC will remain as the lead agency in the determination of what land use restrictions are necessary.

Consolidation and capping of the dioxin-impacted material received a high ranking for protection of human health and compliance with ARARs. However, since the cap would require maintenance, it was ranked as having a medium long-term effectiveness and permanence. It received a medium rank for short-term effectiveness due to the potential for short-term worker or environmental exposure during implementation, and a medium ranking for reduction in toxicity, mobility, or volume because once placed in a cap, the dioxin would be less mobile but would have the same volume and toxicity. Capping and consolidation is technically feasible and received a medium ranking for implementability due to operation and maintenance requirements. State acceptance was ranked as medium-to-high because capping has been shown to be effective, but again does require Operation and Maintenance. Community acceptance was ranked as low-to-moderate, because the dioxin-impacted material would remain onsite. Some community members might be uncomfortable with this approach; however, others have expressed a desire to reduce trucking, and thus, reduce the carbon footprint of the project.

The estimated 30-year present worth cost in 2007 dollars for the consolidation and capping alternative is approximately \$1,500,000. The detailed cost estimate and assumptions are included in Appendix B.

5. Recommended Alternatives

The recommended alternatives for each of the PRAs are discussed below. Appendix B provides the cost estimates and assumptions, which were prepared for the evaluation of alternatives. Additional details regarding implementation of the alternatives are provided in Appendix C. Note that all alternatives would include land use restrictions that would prevent sensitive uses (such as residences, hospitals, day care facilities, schools, etc.). Where contaminants are left in place at levels above residential screening levels and/or determined background levels, land use restrictions must be established. Land use restrictions are necessary to protect present or future human health or safety or the environment as a result of the presence on the land of hazardous materials. Such land use restrictions are consistent with the planned future use of the area as a coastal trail and park and the terms of the land transfer. DTSC will remain as the lead agency in the determination of what land use restrictions are necessary.

5.1 Operable Unit A North – Glass Beach 2

Based on the nine evaluation criteria, removal and offsite disposal is the recommended alternative for the Lead PRA in OU-A North – Glass Beach 2. The proposed excavation limits are the Lead PRA boundaries as shown on Figure 4-1. The PRA would be excavated to a depth of approximately 2 feet bgs, resulting in approximately 140 cy of soil. The excavated material will be California Hazardous Waste and will be transported to the Class I Waste Management, Inc. Kettleman Hills Landfill in Kettleman City, California.

Because the work will occur within 20 feet of the coastal bluffs, small equipment (e.g., rubber-tired backhoes) will be used. There are no subsurface or overhead utilities in the vicinity of the proposed Glass Beach 2 excavation area (BBL, 2006). Construction methodologies, permit compliance, cultural resource monitoring, and other required monitoring and conditions are discussed in Appendix C.

5.2 Operable Unit A North – Scrap Yard

Based on the nine evaluation criteria, removal and offsite disposal is the recommended alternative for the PCB PRA in OU-A North – Scrap Yard. The proposed excavation limits are the PCB PRA boundaries as shown on Figure 4-3. The PRA would be excavated to a depth of approximately 1 foot bgs, resulting in approximately 990 cy of soil. The excavated material is non-hazardous and will be transported to Allied Waste

Services Keller Canyon Landfill in Pittsburg, California (Keller Canyon; a Class II, Subtitle D permitted landfill).

Because the work will occur within 20 feet of the coastal bluffs, small equipment (e.g., rubber-tired backhoes) will be used. There is a subsurface fire protection line along the east side of the proposed excavation (BBL, 2006). If the fire protection line (or other subsurface lines) is identified as transite piping, certified asbestos-containing materials (ACM) staff and contractors will manage and dispose of the piping in accordance with appropriate ACM regulations. Management and disposal procedures are discussed in Appendix C. No other subsurface utilities are located in the vicinity of the proposed Scrap Yard excavation area. Construction methodologies, permit compliance, cultural resource monitoring, and other required monitoring and conditions are discussed in Appendix C.

5.3 D ioxin Areas

Based on the nine evaluation criteria, consolidation and capping is the recommended alternative for the dioxin PRAs in Glass Beach 2 and OU-A North Parcel 10 Fill Area. The proposed excavation limits are the boundaries of the dioxin PRAs as shown on Figures 4-2 and 4-4; the potential location for the consolidation cell is shown and discussed in Appendix C. The PRAs would be excavated to depths ranging from 2 to 5 feet bgs, resulting in approximately 13,000 cy of soil with elevated dioxin. The excavated material is non-hazardous waste and will be placed in a cell approximately 10 feet in depth and one and a half acres in size with a PVC liner on the bottom and a geosynthetic clay liner on top (Figure 4-2). The surface layer will include a vegetated soil cap or asphalt.

The excavation limits are expected to be setback at least 20 feet from the coastal bluffs; thus, heavy equipment can be used. There are no known subsurface utilities located in Glass Beach 2 and Parcel 10 with exception of an inactive terracotta storm drain in Parcel 10. Construction methodologies, permit compliance, cultural resource monitoring, and other required monitoring and conditions are discussed in Appendix C.

5.4 Areas Unlikely to Require Deed Restriction Following Remediation

The PRAs were identified based on areas where there were at least two adjacent locations where concentrations exceeded 10 times screening levels or based on other performance-based factors. The proposed remediation involves removal of the soil within the PRAs to meet recreational use RBTLs only. Additionally, the areas outside

the PRAs within those AOIs and the other AOIs within OU-A contain the COCs and other chemicals at levels slightly exceeding residential screening levels. Because these areas did not show unacceptable risk in the risk assessment in the RI Report based on a future recreational use scenario, they were not proposed for action. Therefore, these areas require a deed restriction. However, following remediation, there likely will be three areas where all chemicals in soil will be below CHHSLs and/or background levels. These areas will not require a deed restriction and are shown on Figure 5-1.

One area is in the southern portion of OU-A North, consisting of the southern part of Glass Beach 3 and the Former Scrap Yard portion of Parcel 3. The second area is in the northern portion of OU-A South, consisting of the northernmost part of Parcels 10 and 8 and wrapping around the Johnson Property and the City of Fort Bragg Wastewater Treatment Plant. The third area is in the southernmost portion of Operable Unit B South, consisting principally of the southern part of Parcel 8 just north of the North Noyo Point Road Dwellings.

6. Implementation, Reporting, and Schedule

6.1 Implementation

Appendix C contains the Implementation Plan for the recommended alternatives, including the following items:

- A discussion of existing plans and permits as well as additional permitting requirements that will be satisfied prior to project initiation
- Contractor health and safety
- Mobilization and site preparation
- Erosion and sedimentation controls
- Biological and cultural resource monitoring
- Avoidance of and minimization of exposure to geological instability
- General excavation procedures and soil management
- Capping methodology and procedures
- Dust control and environmental monitoring (including an air monitoring plan)
- The verification soil sampling program and waste characterization
- Procedures for offsite disposal and consolidation of soils
- Equipment decontamination procedures
- Excavation backfilling and site restoration
- Description of the transportation plan
- Project duration, work hours, and schedule

- A brief description of operations and maintenance for the consolidate/cap alternative.

6.2 Reporting

Following implementation of the remedial action, a report documenting the remedial action will be submitted. The completion report will be submitted within 4 weeks of receipt of the final analytical data and post-grade surveys.

6.3 Schedule

The proposed schedule for the activities related to the RAP and remediation activities includes a public review period starting in March 2008 and extending 30 days. A public meeting will be held during the public review period to discuss the planned remedial activities. Public comments will be addressed and the RAP will be finalized in April 2008.

Implementation of the recommended alternatives is anticipated to last a total of approximately four to five months. Based on the schedule for public review and the need to obtain permits (see Appendix C), it is anticipated that remedial construction activities will proceed in mid-to-late June 2008. The removal and offsite disposal of the Lead and PCB PRAs in OU-A North is anticipated to take approximately one to two weeks. The consolidation and capping of the dioxin PRAs is anticipated to take approximately three months. The remainder of the allocated time is for mobilization, site restoration, and demobilization.

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Tables

**TABLE 2-1
SAMPLE MATRIX - SOIL**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility**

Operable Unit/ Area of Interest/ Parcel #	Location	Date Collected	Start Depth (Revised) (feet bgs)	End Depth (Revised) (feet bgs)	Metals	TPH	VOC	PAH-SIM	SVOC	PCB	Dioxins
OU-A North											
Glass Beach 1											
1	GTB-1.1	1/16/2006	2	2.5	Yellow	Yellow	Yellow	Grey	Green	Grey	Grey
1	GTB-1.1	1/16/2006	6	6.5	Yellow	Green	Yellow	Grey	Green	Grey	Grey
1	GTB-1.2	1/16/2006	2	2.5	Orange	Yellow	Yellow	Grey	Green	Grey	Grey
1	GTB-1.2	1/16/2006	11	11.5	Grey	Grey	Yellow	Grey	Grey	Grey	Grey
1	GTB-1.3	1/16/2006	2	2.5	Yellow	Yellow	Yellow	Grey	Green	Grey	Grey
1	GTB-1.3	1/16/2006	6	6.5	Orange	Green	Yellow	Grey	Green	Grey	Grey
1	OUA-HA-030	5/21/2007	0	0.5	Yellow	Yellow	Yellow	Grey	Green	Yellow	Orange
1	OUA-HA-030	5/21/2007	1	1.5	Grey	Grey	Grey	Grey	Grey	Grey	Yellow
1	OUA-HA-031	5/21/2007	0	0.5	Orange	Yellow	Grey	Grey	Green	Yellow	Yellow
1	OUA-HA-031	5/21/2007	1	1.5	Yellow	Yellow	Grey	Yellow	Grey	Yellow	Grey
1	OUA-HA-032	5/21/2007	0	0.5	Yellow	Yellow	Grey	Grey	Green	Yellow	Orange
1	OUA-HA-032	5/21/2007	0.5	1	Yellow	Yellow	Yellow	Yellow	Grey	Yellow	Yellow
1	OUA-HA-033	5/21/2007	0	0.5	Orange	Yellow	Grey	Grey	Green	Yellow	Yellow
1	P1-1	3/12/2003	0	0.5	Yellow	Green	Green	Grey	Green	Green	Grey
1	P1-1	3/12/2003	4	4.5	Yellow	Green	Green	Grey	Green	Green	Grey
1	P1-2	3/12/2003	0	0.5	Yellow	Yellow	Green	Grey	Green	Green	Grey
1	P1-2	3/12/2003	4	4.5	Yellow	Green	Green	Grey	Green	Green	Grey
1	P1-3	3/12/2003	1	1.5	Yellow	Yellow	Green	Grey	Green	Green	Grey
1	P1-3	3/12/2003	5	5.5	Yellow	Green	Green	Grey	Green	Green	Grey
1	P1-4	3/12/2003	0	0.5	Yellow	Yellow	Green	Grey	Green	Green	Grey
1	P1-5	3/12/2003	0	0.5	Yellow	Yellow	Green	Grey	Green	Green	Grey
1	P1-5	3/12/2003	4	4.5	Yellow	Green	Green	Grey	Green	Green	Grey
Between Glass Beach 1 and 2											
1	OUA-HA-014	5/15/2007	0	0.5	Yellow	Yellow	Yellow	Yellow	Grey	Yellow	Yellow
1	OUA-HA-014	5/15/2007	1	1.5	Grey	Green	Grey	Grey	Grey	Grey	Yellow
1	OUA-HA-014	5/24/2007	1	1.5	Grey	Grey	Yellow	Grey	Grey	Grey	Grey
1	OUA-HA-015	5/15/2007	0	0.5	Yellow	Yellow	Yellow	Grey	Grey	Yellow	Orange
1	OUA-HA-015	5/15/2007	1	1.5	Yellow	Yellow	Yellow	Grey	Green	Yellow	Yellow
1	OUA-HA-015	5/24/2007	1	1.5	Grey	Green	Yellow	Grey	Grey	Grey	Grey
1	OUA-HA-016	5/15/2007	0	0.5	Yellow	Yellow	Green	Grey	Yellow	Orange	Orange
1	OUA-HA-016	5/15/2007	1	1.5	Yellow	Yellow	Grey	Yellow	Yellow	Orange	Orange
1	OUA-HA-016	5/24/2007	1	1.5	Grey	Green	Yellow	Grey	Grey	Grey	Grey
1	OUA-HA-070	7/19/2007	0	0.5	Grey	Grey	Grey	Grey	Grey	Grey	Orange
1	OUA-HA-070	7/19/2007	1	1.5	Grey	Grey	Grey	Grey	Grey	Grey	Yellow
Glass Beach 2											
1	GTB-1.4	1/16/2006	2	2.5	Yellow	Yellow	Yellow	Grey	Green	Grey	Grey
1	GTB-1.4	1/16/2006	6	6.5	Yellow	Green	Yellow	Grey	Green	Grey	Grey
1	GTB-1.5	1/16/2006	2	2.5	Yellow	Yellow	Green	Grey	Green	Grey	Grey
1	GTB-1.5	1/16/2006	5	5.5	Yellow	Green	Yellow	Grey	Green	Grey	Grey
1	GTB-1.6	1/16/2006	2	2.5	Yellow	Yellow	Green	Grey	Green	Grey	Grey
1	GTB-1.6	1/16/2006	6	6.5	Yellow	Yellow	Green	Grey	Green	Grey	Grey

**TABLE 2-1
SAMPLE MATRIX - SOIL**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility**

Operable Unit/ Area of Interest/ Parcel #	Location	Date Collected	Start Depth (Revised) (feet bgs)	End Depth (Revised) (feet bgs)	Metals	TPH	VOC	PAH-SIM	SVOC	PCB	Dioxins
1	OUA-HA-026	5/18/2007	0	0.5	Yellow	Yellow	Grey	Grey	Green	Yellow	Orange
1	OUA-HA-026	5/18/2007	1	1.5	Yellow	Yellow	Grey	Yellow	Grey	Yellow	Orange
1	OUA-HA-026	5/21/2007	1	1.5	Grey	Green	Yellow	Grey	Grey	Grey	Grey
1	OUA-HA-027	5/18/2007	0	0.5	Orange	Yellow	Grey	Grey	Orange	Yellow	Orange
1	OUA-HA-027	5/18/2007	1	1.5	Orange	Yellow	Grey	Orange	Grey	Yellow	Orange
1	OUA-HA-027	5/21/2007	0	0.5	Grey	Green	Yellow	Grey	Grey	Grey	Grey
1	OUA-HA-028	5/18/2007	0	0.5	Yellow	Yellow	Grey	Grey	Green	Yellow	Orange
1	OUA-HA-028	5/18/2007	1	1.5	Grey	Grey	Grey	Grey	Grey	Grey	Yellow
1	OUA-HA-028	5/21/2007	0	0.5	Grey	Yellow	Yellow	Grey	Grey	Grey	Grey
1	OUA-HA-029	5/22/2007	0	0.5	Yellow	Yellow	Grey	Grey	Green	Yellow	Red
1	OUA-HA-029	5/22/2007	1	1.5	Yellow	Yellow	Grey	Yellow	Grey	Yellow	Orange
1	OUA-HA-046	6/9/2007	0	0.5	Orange	Grey	Grey	Grey	Grey	Grey	Grey
1	OUA-HA-046	6/9/2007	1	1.5	Yellow	Grey	Grey	Grey	Grey	Grey	Grey
1	OUA-HA-047	6/9/2007	0	0.5	Yellow	Grey	Grey	Grey	Grey	Grey	Grey
1	OUA-HA-047	6/9/2007	1	1.5	Yellow	Grey	Grey	Grey	Grey	Grey	Grey
1	OUA-HA-048	6/9/2007	0	0.5	Orange	Grey	Grey	Grey	Grey	Grey	Grey
1	OUA-HA-048	6/9/2007	1	1.5	Orange	Grey	Grey	Grey	Grey	Grey	Grey
1	OUA-HA-048	6/26/2007	2	2.5	Yellow	Grey	Grey	Grey	Grey	Grey	Grey
1	OUA-HA-048	7/26/2007	2	2.5	Yellow	Grey	Grey	Grey	Grey	Grey	Grey
1	OUA-HA-068	7/19/2007	0	0.5	Yellow	Grey	Grey	Grey	Grey	Grey	Orange
1	OUA-HA-068	7/19/2007	1	1.5	Orange	Grey	Grey	Grey	Grey	Grey	Orange
1	OUA-HA-068	7/19/2007	1.5	2	Orange	Grey	Grey	Grey	Grey	Grey	Grey
1	OUA-HA-068	7/26/2007	2	2.5	Yellow	Grey	Grey	Grey	Grey	Grey	Grey
1	OUA-HA-069	7/19/2007	0	0.5	Yellow	Grey	Grey	Grey	Grey	Grey	Yellow
1	OUA-HA-069	7/19/2007	1	1.5	Yellow	Grey	Grey	Grey	Grey	Grey	Yellow
1	OUA-HA-071	7/19/2007	0	0.5	Grey	Grey	Grey	Grey	Grey	Grey	Orange
1	OUA-HA-071	7/19/2007	1	1.5	Grey	Grey	Grey	Grey	Grey	Grey	Orange
1	OUA-HA-072	7/19/2007	0	0.5	Grey	Grey	Grey	Grey	Grey	Grey	Yellow
1	OUA-HA-072	7/19/2007	1	1.5	Grey	Grey	Grey	Grey	Grey	Grey	Orange
1	OUA-HA-081	12/14/2007	0	0.5	Grey	Grey	Grey	Grey	Grey	Grey	Red
1	OUA-HA-081	12/14/2007	1	1.5	Grey	Grey	Grey	Grey	Grey	Grey	Orange
1	OUA-HA-082	12/14/2007	0	0.5	Grey	Grey	Grey	Grey	Grey	Grey	Orange
1	OUA-HA-082	12/14/2007	1	1.5	Grey	Grey	Grey	Grey	Grey	Grey	Orange
1	P1-6	3/12/2003	1	1.5	Yellow	Yellow	Green	Grey	Green	Green	Grey
1	P1-6	3/12/2003	5	5.5	Yellow	Green	Green	Grey	Green	Green	Grey
1	P1-7	3/12/2003	1	1.5	Yellow	Yellow	Green	Grey	Green	Grey	Grey
1	P1-7	3/12/2003	5	5.5	Yellow	Green	Green	Grey	Green	Grey	Grey
1	P1-8	3/12/2003	1	1.5	Yellow	Yellow	Green	Grey	Green	Green	Grey
1	P1-8	3/12/2003	5	5.5	Yellow	Yellow	Green	Grey	Green	Green	Grey
1	P1-9	3/12/2003	1	1.5	Yellow	Yellow	Green	Grey	Green	Grey	Grey
1	P1-9	3/12/2003	5	5.5	Yellow	Yellow	Green	Grey	Green	Grey	Grey

**TABLE 2-1
SAMPLE MATRIX - SOIL**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility**

Operable Unit/ Area of Interest/ Parcel #	Location	Date Collected	Start Depth (Revised) (feet bgs)	End Depth (Revised) (feet bgs)	Metals	TPH	VOC	PAH-SIM	SVOC	PCB	Dioxins
Between Glass Beach 2 and 3											
1	OUA-HA-017	5/16/2007	0	0.5							
1	OUA-HA-018	5/16/2007	0	0.5							
1	OUA-HA-018	5/16/2007	1	1.5							
1	OUA-HA-018	5/29/2007	1	1.5							
1	OUA-HA-019	5/16/2007	0	0.5							
1	OUA-HA-019	5/16/2007	1	1.5							
1	OUA-HA-073	7/20/2007	0	0.5							
1	OUA-HA-073	7/20/2007	1	1.5							
Glass Beach 3											
1	GTB-1.7	1/16/2006	0	0.5							
1	GTB-1.7	1/16/2006	4	4.5							
1	GTB-1.7	1/16/2006	9	9.5							
1	GTB-1.8	1/16/2006	0	0.5							
1	GTB-1.8	1/16/2006	4	4.5							
1	GTB-1.8	1/16/2006	7.5	8							
1	GTB-1.9	1/17/2006	2	2.5							
1	GTB-1.9	1/17/2006	6	6.5							
1	GTB-1.9	1/17/2006	9	9.5							
1	OUA-HA-020	5/16/2007	0	0.5							
1	OUA-HA-020	5/16/2007	1	1.5							
1	OUA-HA-020	5/29/2007	1	1.5							
1	OUA-HA-021	5/17/2007	0	0.5							
1	OUA-HA-021	5/17/2007	1	1.5							
1	OUA-HA-022	5/17/2007	0	0.5							
1	OUA-HA-022	5/17/2007	1	1.5							
1	OUA-HA-022	5/29/2007	1	1.5							
1	OUA-HA-023	5/17/2007	0	0.5							
1	OUA-HA-023	5/17/2007	1	1.5							
1	OUA-HA-023	5/29/2007	1	1.5							
1	OUA-HA-044	6/11/2007	0	0.5							
1	OUA-HA-044	6/11/2007	1	1.5							
1	OUA-HA-045	6/11/2007	0	0.5							
1	OUA-HA-045	6/11/2007	1	1.5							
1	OUA-HA-074	7/20/2007	0	0.5							
1	OUA-HA-074	7/20/2007	1	1.5							
1	OUA-HA-075	7/20/2007	0	0.5							
1	OUA-HA-075	7/20/2007	1	1.5							
1	P1-10	3/12/2003	1	1.5							
1	P1-10	3/12/2003	5	5.5							
1	P1-11	3/12/2003	1	1.5							
1	P1-11	3/12/2003	5	5.5							
1	P1-12	3/13/2003	0	0.5							
1	P1-12	3/13/2003	4	4.5							
1	P1-13	3/13/2003	0	0.5							
1	P1-13	3/13/2003	4	4.5							

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Operable Unit/ Area of Interest/ Parcel #	Location	Date Collected	Start Depth (Revised) (feet bgs)	End Depth (Revised) (feet bgs)	Metals	TPH	VOC	PAH-SIM	SVOC	PCB	Dioxins
1	P1-14	3/13/2003	0	0.5							
1	P1-14	3/13/2003	4	4.5							
1	P1-15	3/13/2003	0	0.5							
1	P1-15	3/13/2003	4	4.5							
East of Glass Beach 3											
1	OUA-HA-024	5/17/2007	0	0.5							
1	OUA-HA-024	5/17/2007	1	1.5							
1	OUA-HA-024	5/23/2007	0	0.5							
1	OUA-HA-024	5/29/2007	1	1.5							
1	OUA-HA-025	5/17/2007	0	0.5							
1	OUA-HA-025	5/17/2007	1	1.5							
1	OUA-HA-025	5/23/2007	0	0.5							
1	OUA-HA-025	5/29/2007	1	1.5							
Parcel 3 Scrap Yard/Geophysical Anomaly Area											
3	GTB-1.10	1/17/2006	2	2.5							
3	GTB-1.10	1/17/2006	6	6.5							
3	GTB-1.11	1/17/2006	2	2.5							
3	GTB-1.11	1/17/2006	6	6.5							
3	GTB-1.12	1/17/2006	2	2.5							
3	GTB-1.12	1/17/2006	6	6.5							
3	OUA-HA-001	5/10/2007	0	0.5							
3	OUA-HA-002	5/10/2007	0	0.5							
3	OUA-HA-003	5/10/2007	0	0.5							
3	OUA-HA-004	5/10/2007	0	0.5							
3	OUA-HA-005	5/10/2007	0	0.5							
3	OUA-HA-006	5/10/2007	0	0.5							
3	OUA-HA-006	6/9/2007	1	1.5							
3	OUA-HA-007	5/10/2007	0	0.5							
3	OUA-HA-049	6/9/2007	0	0.5							
3	OUA-HA-050	6/9/2007	0	0.5							
3	OUA-HA-051	6/9/2007	0	0.5							
3	OUA-HA-052	6/9/2007	0	0.5							
3	OUA-HA-053	6/9/2007	0	0.5							
3	OUA-HA-054	6/9/2007	0	0.5							
3	OUA-HA-055	6/9/2007	0	0.5							
3	OUA-HA-056	6/9/2007	0	0.5							
3	OUA-HA-057	6/9/2007	0	0.5							
3	OUA-TP-002	4/18/2007	0	0.5							
3	OUA-TP-008	4/18/2007	0	0.4							
3	OUA-TP-016	4/18/2007	0	0.2							
3	OUA-TP-016	4/18/2007	0.2	0.4							
3	OUA-TP-018	4/18/2007	0	0.5							
3	OUA-TP-018	4/18/2007	0.8	1							

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SAMPLE MATRIX - SOIL**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility**

Operable Unit/ Area of Interest/ Parcel #	Location	Date Collected	Start Depth (Revised) (feet bgs)	End Depth (Revised) (feet bgs)	Metals	TPH	VOC	PAH-SIM	SVOC	PCB	Dioxins
3	OUA-TP-019	4/18/2007	0	0.2	Yellow	Orange	Grey	Green	Grey	Red	Grey
3	OUA-TP-019	4/18/2007	0.6	0.8	Yellow	Yellow	Grey	Yellow	Grey	Yellow	Grey
3	OUA-TP-019	5/1/2007	0.1	0.2	Grey	Green	Yellow	Grey	Grey	Grey	Grey
3	OUA-TP-025	4/18/2007	0.1	0.5	Yellow	Yellow	Grey	Yellow	Grey	Yellow	Grey
3	OUA-TP-028	4/18/2007	0	0.4	Yellow	Yellow	Grey	Yellow	Grey	Green	Grey
3	OUA-TP-029	4/18/2007	0	0.5	Yellow	Yellow	Grey	Yellow	Grey	Yellow	Grey
3	OUA-TP-030	4/18/2007	0	0.4	Yellow	Yellow	Grey	Green	Grey	Yellow	Grey
3	OUA-TP-030	4/18/2007	0.5	0.7	Yellow	Yellow	Grey	Green	Grey	Green	Grey
3	OUA-TP-031	4/18/2007	0	0.4	Yellow	Yellow	Grey	Green	Grey	Green	Grey
3	OUA-TP-032	4/18/2007	0	0.4	Orange	Yellow	Grey	Green	Grey	Yellow	Grey
3	OUA-TP-033	4/18/2007	0	0.5	Yellow	Yellow	Grey	Yellow	Grey	Yellow	Grey
3	OUA-TP-034	4/18/2007	0	0.4	Yellow	Yellow	Grey	Green	Grey	Green	Grey
3	OUA-TP-035	4/18/2007	0	0.4	Yellow	Yellow	Grey	Green	Grey	Yellow	Grey
3	OUA-TP-035	4/18/2007	0.4	0.9	Yellow	Yellow	Grey	Green	Grey	Yellow	Grey
3	OUA-TP-036	4/18/2007	0	0.5	Yellow	Yellow	Grey	Yellow	Grey	Yellow	Grey
3	P3-1	3/14/2003	0	0.5	Orange	Yellow	Green	Grey	Grey	Green	Grey
3	P3-2	3/14/2003	0	0.5	Yellow	Yellow	Green	Grey	Grey	Green	Grey
3	P3-3	3/14/2003	0	0.5	Orange	Yellow	Green	Grey	Grey	Orange	Grey
3	P3-PH10	7/21/2004	0.5	1	Grey	Yellow	Grey	Grey	Grey	Grey	Grey
3	P3-PH11	7/21/2004	0.5	1	Grey	Yellow	Grey	Grey	Grey	Grey	Grey
3	P3-PH11	7/21/2004	4.5	5	Grey	Green	Grey	Grey	Grey	Grey	Grey
OU-A South											
Parcel 6 and 8 Coastline											
6	OUA-DP-029	6/2/2007	0	0.5	Yellow	Yellow	Yellow	Yellow	Grey	Grey	Grey
6	OUA-DP-029	6/2/2007	5.7	6.7	Yellow	Yellow	Grey	Yellow	Grey	Grey	Yellow
6	OUA-DP-029	6/2/2007	8	9	Yellow	Yellow	Grey	Yellow	Grey	Grey	Grey
6	OUA-DP-030	6/2/2007	0	0.5	Yellow	Yellow	Yellow	Yellow	Grey	Grey	Grey
6	OUA-DP-030	6/2/2007	5	6	Yellow	Yellow	Grey	Yellow	Grey	Yellow	Grey
8	OUA-HA-034	5/22/2007	0	0.5	Yellow	Yellow	Yellow	Yellow	Grey	Yellow	Grey
8	OUA-HA-034	5/23/2007	0	0.5	Grey	Yellow	Yellow	Yellow	Grey	Grey	Grey
8	OUA-HA-034	5/23/2007	1	1.5	Grey	Yellow	Yellow	Yellow	Grey	Grey	Grey
8	OUA-HA-035	5/22/2007	0	0.5	Yellow	Yellow	Grey	Yellow	Grey	Grey	Grey
8	OUA-HA-035	5/22/2007	2	2.5	Yellow	Yellow	Yellow	Yellow	Grey	Grey	Grey
8	OUA-HA-035	5/23/2007	0	0.5	Grey	Yellow	Yellow	Yellow	Grey	Grey	Grey
8	OUA-HA-035	5/29/2007	2	2.5	Grey	Yellow	Yellow	Yellow	Grey	Grey	Grey
8	OUA-HA-036	5/22/2007	0	0.5	Yellow	Yellow	Grey	Yellow	Grey	Grey	Grey
8	OUA-HA-036	5/22/2007	1	1.5	Yellow	Yellow	Yellow	Yellow	Grey	Grey	Grey
8	OUA-HA-036	5/23/2007	0	0.5	Grey	Yellow	Yellow	Yellow	Grey	Grey	Grey
8	OUA-HA-036	5/29/2007	1	1.5	Grey	Yellow	Yellow	Yellow	Grey	Grey	Grey
8	OUA-HA-037	5/22/2007	0	0.5	Yellow	Yellow	Grey	Yellow	Grey	Grey	Grey
8	OUA-HA-037	5/22/2007	1	1.5	Yellow	Yellow	Grey	Yellow	Grey	Grey	Grey
8	OUA-HA-038	5/23/2007	0	0.5	Yellow	Yellow	Grey	Yellow	Grey	Grey	Grey
8	OUA-HA-039	5/22/2007	0	0.5	Yellow	Yellow	Yellow	Yellow	Grey	Grey	Grey
8	OUA-HA-039	5/23/2007	0	0.5	Grey	Yellow	Yellow	Yellow	Grey	Grey	Grey
8	OUA-HA-039	5/29/2007	1	1.5	Grey	Yellow	Yellow	Yellow	Grey	Grey	Grey

**TABLE 2-1
SAMPLE MATRIX - SOIL**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility**

Operable Unit/ Area of Interest/ Parcel #	Location	Date Collected	Start Depth (Revised) (feet bgs)	End Depth (Revised) (feet bgs)	Metals	TPH	VOC	PAH-SIM	SVOC	PCB	Dioxins
North of Parcel 8 Clinker Area											
8	OUA-DP-031	6/4/2007	0	0.5							
8	OUA-DP-031	6/4/2007	3	4							
8	OUA-DP-031	6/4/2007	6	7							
8	OUA-DP-032	6/4/2007	0	0.5							
8	OUA-DP-032	6/4/2007	2.5	3.5							
8	OUA-DP-033	6/4/2007	0	0.5							
8	OUA-DP-033	6/4/2007	4	5							
8	OUA-DP-034	6/4/2007	0	0.5							
8	OUA-DP-034	6/4/2007	2	2.7							
Parcel 8 Clinker/Fill Area											
8	DP-8.5	1/24/2006	2.5	3							
8	DP-8.5	1/24/2006	3	3.5							
8	DP-8.5	1/24/2006	5.5	6							
8	DP-8.6	1/24/2006	2.5	3							
8	DP-8.6	1/24/2006	5	5.5							
8	DP-8.7	1/24/2006	2	2.5							
8	DP-8.7	1/24/2006	5	5.5							
8	DP-8.8	1/24/2006	2	2.5							
8	DP-8.8	1/24/2006	5	5.5							
8	DP-8.9	1/24/2006	2.5	3							
8	DP-8.9	1/24/2006	5	5.5							
8	HSA-8.6	12/6/2005	0.5	1							
8	HSA-8.6	12/6/2005	5	5.5							
8	HSA-8.7	12/6/2005	0.5	1							
8	HSA-8.7	12/6/2005	1	1.5							
8	HSA-8.7	12/6/2005	5	5.5							
8	HSA-8.8	12/6/2005	0.5	1							
8	HSA-8.8	12/6/2005	1	1.5							
8	HSA-8.8	12/6/2005	5	5.5							
8	OUA-DP-035	6/4/2007	0	0.5							
8	OUA-DP-035	6/4/2007	3.5	4.5							
8	OUA-DP-036	6/4/2007	0	0.5							
8	OUA-DP-036	6/4/2007	4.5	5.5							
8	OUA-DP-037	6/5/2007	0	0.5							
8	OUA-DP-037	6/5/2007	2.5	3.5							
8	OUA-DP-038	6/5/2007	0	0.5							
8	OUA-DP-038	6/5/2007	4	5							
8	OUA-DP-039	6/5/2007	0	0.5							
8	OUA-DP-039	6/5/2007	4	5							

**TABLE 2-1
SAMPLE MATRIX - SOIL**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility**

Operable Unit/ Area of Interest/ Parcel #	Location	Date Collected	Start Depth (Revised) (feet bgs)	End Depth (Revised) (feet bgs)	Metals	TPH	VOC	PAH-SIM	SVOC	PCB	Dioxins
Parcel 10 Geophysical Anomaly/Clinker Area											
10	DP-10.1	1/25/2006	1	1.5							
10	DP-10.1	1/25/2006	5	5.5							
10	DP-10.1	1/25/2006	5.5	6							
10	DP-10.1	1/25/2006	9.5	10							
10	DP-10.2	1/26/2006	1	1.5							
10	DP-10.2	1/26/2006	5	5.5							
10	DP-10.2	1/26/2006	9.5	10							
10	DP-10.3	1/25/2006	1	1.5							
10	DP-10.3	1/25/2006	5	5.5							
10	DP-10.3	1/25/2006	5.5	6							
10	DP-10.3	1/25/2006	9.5	10							
10	DP-10.4	1/26/2006	1	1.5							
10	DP-10.4	1/26/2006	5	5.5							
10	DP-10.4	1/26/2006	9.5	10							
10	DP-10.5	1/25/2006	1	1.5							
10	DP-10.5	1/25/2006	5	5.5							
10	DP-10.5	1/25/2006	9.5	10							
10	DP-10.6	1/26/2006	1	1.5							
10	DP-10.6	1/26/2006	1.5	2							
10	DP-10.6	1/26/2006	5	5.5							
10	DP-10.6	1/26/2006	9.5	10							
10	DP-10.7	1/25/2006	1	1.5							
10	DP-10.7	1/25/2006	5	5.5							
10	DP-10.7	1/25/2006	5.5	6							
10	DP-10.7	1/25/2006	9.5	10							
10	DP-10.8	1/25/2006	1	1.5							
10	DP-10.9	1/26/2006	1	1.5							
10	DP-10.9	1/26/2006	5	5.5							
10	DP-10.9	1/26/2006	9.5	10							
10	DP-10.10	1/25/2006	1	1.5							
10	DP-10.10	1/25/2006	5	5.5							
10	DP-10.10	1/25/2006	9.5	10							
10	GTB-10.1	1/17/2006	2	2.5							
10	GTB-10.1	1/17/2006	6	6.5							
10	GTB-10.2	1/17/2006	2	2.5							
10	GTB-10.2	1/17/2006	5	5.5							
10	GTB-10.3	1/17/2006	2	2.5							
10	GTB-10.3	1/17/2006	5	5.5							
10	OUA-DP-001	5/29/2007	0	0.5							
10	OUA-DP-001	5/29/2007	2.5	3							
10	OUA-DP-002	5/29/2007	0	0.5							
10	OUA-DP-002	5/29/2007	2.5	3							
10	OUA-HA-040	5/23/2007	2	2.5							

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**Operable Unit A Remedial Action Plan
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Operable Unit/ Area of Interest/ Parcel #	Location	Date Collected	Start Depth (Revised) (feet bgs)	End Depth (Revised) (feet bgs)	Metals	TPH	VOC	PAH-SIM	SVOC	PCB	Dioxins
10	OUA-HA-041	5/23/2007	0	0.5							
10	OUA-HA-041	5/23/2007	1	1.5							
10	OUA-HA-041	5/23/2007	2	2.5							
10	OUA-HA-042	5/23/2007	0	0.5							
10	OUA-HA-042	5/23/2007	1	1.5							
10	OUA-HA-042	5/23/2007	2	2.5							
10	OUA-HA-043	5/23/2007	0	0.5							
10	OUA-HA-043	5/23/2007	1	1.5							
10	OUA-HA-043	5/23/2007	2	2.5							
10	OUA-TP-041	4/20/2007	0	0.5							
10	OUA-TP-041	4/20/2007	4	4.5							
10	OUA-TP-041	4/20/2007	7	7.5							
10	OUA-TP-043	5/1/2007	0	0.5							
10	OUA-TP-043	5/2/2007	2.5	2.6							
10	OUA-TP-043	5/2/2007	3	3.5							
10	OUA-TP-043	5/2/2007	5	5.5							
10	OUA-TP-053	5/3/2007	0	0.5							
10	OUA-TP-053	5/3/2007	1.5	2							
10	OUA-TP-064	5/4/2007	0	0.5							
10	OUA-TP-064	5/4/2007	0.8	1.3							
10	OUA-TP-072	4/24/2007	0	0.5							
10	OUA-TP-072	4/24/2007	0.8	1.2							
10	OUA-TP-072	4/24/2007	2	2.5							
10	OUA-TP-074	4/24/2007	0	0.5							
10	OUA-TP-074	4/24/2007	2	2.5							
10	OUA-TP-075	4/23/2007	0	0.5							
10	OUA-TP-075	4/23/2007	3	3.5							
10	OUA-TP-077	4/23/2007	0	0.5							
10	OUA-TP-077	4/23/2007	3	3.5							
10	OUA-TP-080	4/24/2007	0	0.5							
10	OUA-TP-080	4/24/2007	3	3.5							
10	OUA-TP-087	5/8/2007	0	0.5							
10	OUA-TP-087	5/8/2007	1.5	2							
10	OUA-TP-089	5/8/2007	0	0.5							
10	OUA-TP-089	5/8/2007	1	1.5							
10	P10-PH2	3/17/2003	4	4.5							
Parcel 10 Fill Area											
10	MW-10.1	12/17/2003	5	5.5							
10	MW-10.1	12/17/2003	9.5	10							
10	MW-10.1	12/17/2003	14.5	15							
10	MW-10.2	12/17/2003	5	5.5							
10	MW-10.3	12/17/2003	5	5.5							
10	MW-10.4	12/17/2003	5	5.5							
10	MW-10.4	12/17/2003	10	10.5							
10	MW-10.4	12/17/2003	14	14.5							

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**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility**

Operable Unit/ Area of Interest/ Parcel #	Location	Date Collected	Start Depth (Revised) (feet bgs)	End Depth (Revised) (feet bgs)	Metals	TPH	VOC	PAH-SIM	SVOC	PCB	Dioxins
10	OUA-DP-003	5/30/2007	0	0.5							
10	OUA-DP-003	5/30/2007	3	3.5							
10	OUA-DP-004	5/31/2007	0	1							
10	OUA-DP-004	5/31/2007	3	4							
10	OUA-DP-005	5/30/2007	0	0.5							
10	OUA-DP-005	5/30/2007	2	3							
10	OUA-DP-005	5/30/2007	7.5	8							
10	OUA-DP-006	5/30/2007	2	3							
10	OUA-DP-006	5/31/2007	0	1							
10	OUA-DP-006	5/31/2007	5	5.5							
10	OUA-DP-006	5/31/2007	10	12							
10	OUA-DP-007	5/30/2007	0	0.5							
10	OUA-DP-007	5/30/2007	3	4							
10	OUA-DP-008	5/31/2007	0	1							
10	OUA-DP-008	5/31/2007	7.5	9							
10	OUA-DP-008	5/31/2007	15.5	16.5							
10	OUA-DP-009	5/30/2007	0	0.5							
10	OUA-DP-009	5/30/2007	2	3							
10	OUA-DP-009	5/30/2007	8.5	9							
10	OUA-DP-009	5/30/2007	10.5	11							
10	OUA-DP-009	5/30/2007	11	11.5							
10	OUA-DP-010	5/30/2007	0	0.5							
10	OUA-DP-010	5/30/2007	5.5	6							
10	OUA-DP-010	5/30/2007	8.5	9							
10	OUA-DP-011	5/31/2007	0	1							
10	OUA-DP-011	5/31/2007	2	3							
10	OUA-DP-011	5/31/2007	7.5	8							
10	OUA-DP-011	5/31/2007	10	11.5							
10	OUA-DP-012	5/30/2007	0	0.5							
10	OUA-DP-012	5/30/2007	5	5.5							
10	OUA-DP-012	5/30/2007	10	10.5							
10	OUA-DP-013	5/31/2007	0	1							
10	OUA-DP-013	5/31/2007	3	4							
10	OUA-DP-013	5/31/2007	5	6.5							
10	OUA-DP-013	5/31/2007	10	11.5							
10	OUA-DP-014	6/1/2007	0	0.5							
10	OUA-DP-014	6/1/2007	4	5							
10	OUA-DP-014	6/1/2007	12.5	13							
10	OUA-DP-014	6/1/2007	17.5	19							
10	OUA-DP-015	6/2/2007	0	0.5							
10	OUA-DP-015	6/2/2007	3	4							
10	OUA-DP-015	6/2/2007	6	7							
10	OUA-DP-016	6/1/2007	0	0.5							
10	OUA-DP-016	6/1/2007	6	7							
10	OUA-DP-016	6/1/2007	13.5	14.5							
10	OUA-DP-017	6/1/2007	0	0.5							
10	OUA-DP-017	6/1/2007	5	5.5							
10	OUA-DP-018	6/1/2007	0	0.5							
10	OUA-DP-018	6/1/2007	4	5							

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**Operable Unit A Remedial Action Plan
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Operable Unit/ Area of Interest/ Parcel #	Location	Date Collected	Start Depth (Revised) (feet bgs)	End Depth (Revised) (feet bgs)	Metals	TPH	VOC	PAH-SIM	SVOC	PCB	Dioxins
10	OUA-DP-018	6/1/2007	7.5	8.5							
10	OUA-DP-019	6/1/2007	0	0.5							
10	OUA-DP-019	6/1/2007	3	4							
10	OUA-DP-020	6/2/2007	0	0.5							
10	OUA-DP-020	6/2/2007	5.5	6.5							
10	OUA-DP-020	6/2/2007	10	11.5							
10	OUA-HA-011	5/14/2007	0	0.5							
10	OUA-HA-058	7/17/2007	0	0.5							
10	OUA-HA-058	7/17/2007	2.5	3							
10	OUA-HA-058	7/17/2007	4	4.5							
10	OUA-HA-059	7/18/2007	0	0.5							
10	OUA-HA-059	7/18/2007	2	2.5							
10	OUA-HA-059	7/18/2007	4.5	5							
10	OUA-HA-060	7/18/2007	0	0.5							
10	OUA-HA-060	7/18/2007	2.5	3							
10	OUA-HA-060	7/18/2007	4.5	5							
10	OUA-HA-061	7/18/2007	0	0.5							
10	OUA-HA-061	7/18/2007	2	2.5							
10	OUA-HA-061	7/18/2007	4.5	5							
10	OUA-HA-062	7/18/2007	0	0.5							
10	OUA-HA-062	7/18/2007	2.5	3							
10	OUA-HA-062	7/18/2007	4.5	5							
10	OUA-HA-063	7/19/2007	0	0.5							
10	OUA-HA-063	7/19/2007	2.5	3							
10	OUA-HA-063	7/19/2007	4.5	5							
10	OUA-HA-064	7/18/2007	0	0.5							
10	OUA-HA-064	7/18/2007	2.5	3							
10	OUA-HA-064	7/18/2007	3.5	4							
10	OUA-HA-065	7/19/2007	0	0.5							
10	OUA-HA-065	7/19/2007	3	3.5							
10	OUA-HA-065	7/19/2007	4.5	5							
10	OUA-HA-066	7/18/2007	0	0.5							
10	OUA-HA-066	7/18/2007	2.5	3							
10	OUA-HA-066	7/19/2007	3.5	4							
10	OUA-HA-067	7/18/2007	0	0.5							
10	OUA-HA-067	7/18/2007	2	2.5							
10	OUA-HA-067	7/18/2007	4.5	5							
10	OUA-HA-076	8/10/2007	0	0.5							
10	OUA-HA-076	8/10/2007	0	0.5							
10	OUA-HA-077	8/10/2007	0	0.5							
10	OUA-HA-077	8/10/2007	0	0.5							
10	OUA-HA-078	8/10/2007	0	0.5							
10	OUA-HA-078	8/10/2007	0	0.5							
10	OUA-HA-078	8/10/2007	2	3							
10	OUA-HA-078	8/10/2007	2	3							
10	OUA-HA-078	8/10/2007	4.5	5							
10	OUA-HA-078	8/10/2007	4.5	5							

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10	OUA-HA-079	8/10/2007	0	0.5							
10	OUA-HA-079	8/10/2007	0	0.5							
10	OUA-HA-079	8/10/2007	2	3							
10	OUA-HA-079	8/10/2007	2	3							
10	OUA-HA-079	8/10/2007	4.5	5							
10	OUA-HA-079	8/10/2007	4.5	5							
10	OUA-HA-080	8/10/2007	0	0.5							
10	OUA-HA-080	8/10/2007	0	0.5							
10	OUA-HA-080	8/10/2007	2	3							
10	OUA-HA-080	8/10/2007	2	3							
10	OUA-HA-080	8/10/2007	4.5	5							
10	OUA-HA-080	8/10/2007	4.5	5							
10	OUA-HA-086	12/14/2007	0	0.5							
10	OUA-HA-086	12/14/2007	2	2.5							
10	OUA-HA-086	12/14/2007	4.5	5							
10	OUA-HA-087	12/14/2007	0	0.5							
10	OUA-HA-087	12/14/2007	2	2.5							
10	OUA-HA-087	12/14/2007	3.5	4							
10	P10-PH3	3/17/2003	4.5	5							
10	P10-PH7	3/18/2003	8.5	9							
10	P10-PH9	3/18/2003	8	8.5							
10	P10-PH11	3/18/2003	8.5	9							
10	P10-PH12	3/18/2003	3	3.5							
10	P10-PH13	3/18/2003	9	9.5							
10	P10-PH14	3/18/2003	9	9.5							
10	P10-PH15	3/18/2003	10	10.5							
10	P10-PH17	3/18/2003	10	10.5							
10	P10-PH18	3/18/2003	10	10.5							
10	P10-PH20	3/18/2003	7	7.5							
10	P10-PH22	3/18/2003	3	3.5							
10	P10-PH26	3/19/2003	2	2.5							
Former Railroad Tracks											
10	OUA-HA-012	5/15/2007	0	0.5							
10	OUA-HA-012	5/15/2007	1	1.5							
10	OUA-HA-013	5/15/2007	0	0.5							
10	OUA-HA-013	5/15/2007	1	1.5							
10	OUA-HA-083	12/14/2007	0	0.5							
10	OUA-HA-083	12/28/2007	1.5	2							
10	OUA-HA-084	12/14/2007	0	0.5							
10	OUA-HA-085	12/14/2007	0	0.5							
10	OUA-HA-088	12/28/2007	0	0.5							
10	OUA-HA-089	12/28/2007	0	0.5							
10	OUA-HA-090	12/28/2007	0	0.5							

**TABLE 2-1
SAMPLE MATRIX - SOIL**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility**

Operable Unit/ Area of Interest/ Parcel #	Location	Date Collected	Start Depth (Revised) (feet bgs)	End Depth (Revised) (feet bgs)	Metals	TPH	VOC	PAH-SIM	SVOC	PCB	Dioxins
Blowhole											
10	OUA-HA-008	5/14/2007	0	0.5							
10	OUA-HA-009	5/14/2007	0	0.5							
10	OUA-HA-009	5/14/2007	1	1.5							
10	OUA-HA-010	5/14/2007	0	0.5							
10	OUA-HA-010	5/14/2007	1	1.5							
Parcel 8 Fill Area											
8	OUA-DP-021	6/2/2007	0	0.5							
8	OUA-DP-021	6/2/2007	3	4							
8	OUA-DP-022	6/3/2007	0	0.5							
8	OUA-DP-022	6/3/2007	3	4							
8	OUA-DP-022	6/3/2007	5	6							
8	OUA-DP-023	6/3/2007	0	0.5							
8	OUA-DP-023	6/3/2007	5	6							
8	OUA-DP-023	6/3/2007	7.5	8.5							
8	P8-PH1	3/17/2003	4	4.5							
8	P8-PH3	3/17/2003	4	4.5							
8	P8-T1	3/17/2003	2	4							
8	P8-T2	3/17/2003	1	10							
North of Native American Homes											
8	OUA-DP-024	6/6/2007	0	0.5							
8	OUA-DP-024	6/6/2007	2.5	3							
8	OUA-DP-025	6/6/2007	0	0.5							
8	OUA-DP-025	6/6/2007	2.5	3							
8	OUA-DP-026	6/3/2007	0	0.5							
8	OUA-DP-026	6/3/2007	2	3							
8	OUA-DP-027	6/3/2007	0	0.5							
8	OUA-DP-027	6/3/2007	2	3							
8	OUA-DP-028	6/3/2007	0	0.5							
8	OUA-DP-028	6/3/2007	2.5	3.5							

Notes:

Color coding is assigned as follows:

	Not analyzed
	All non-detect
	One or more analyte detected < preferred screening level
	One or more analyte detected > preferred screening level and < 10 times screening level
	One or more analyte detected 10 times screening level

Depths adjusted to represent true soil surface if asphalt or gravel/fill layer was present at the surface.
bgs = below ground surface

- PAH = Polycyclic Aromatic Hydrocarbons
- PAH-SIM = EPA Method 8270C-SIM, which provides lower reporting limits for PAH
- PCB = Polychlorinated Biphenyl
- SVOC = Semi-volatile Organic Compounds
Some SVOC analyses include PAHs - see Appendix A of the RI Report
- TPH = Total Petroleum Hydrocarbons
- VOC = Volatile Organic Compounds

**TABLE 2-2
SAMPLE MATRIX - GROUNDWATER (Monitoring Well and Grab Groundwater)**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility**

Operable Unit/ Area of Interest/ Parcel #	Matrix	Location ID	Date Collected	Dissolved Metals	TPH	VOC	PAH-SIM	SVOC	PCB (Aroclors)	PCB (Congeners)	Pesticides	PCP / TCP	Tannins & Lignins
OU-A North													
Glass Beach 1													
1	Groundwater	P1-1	03/12/03										
1	Groundwater	P1-2	03/12/03										
1	Groundwater	P1-5	03/12/03										
OU-A South													
Parcel 10 Fill Area													
10	Groundwater	MW-10.1	01/27/04										
10	Groundwater	MW-10.1	06/23/04										
10	Groundwater	MW-10.1	08/17/04										
10	Groundwater	MW-10.1	09/22/04										
10	Groundwater	MW-10.1	12/07/04										
10	Groundwater	MW-10.1	03/31/05										
10	Groundwater	MW-10.1	05/13/05										
10	Groundwater	MW-10.1	08/18/05										
10	Groundwater	MW-10.1	08/18/05										
10	Groundwater	MW-10.1	11/10/05										
10	Groundwater	MW-10.1	11/10/05										
10	Groundwater	MW-10.1	03/09/06										
10	Groundwater	MW-10.1	05/24/06										
10	Groundwater	MW-10.1	09/08/06										
10	Groundwater	MW-10.1	12/08/06										
10	Groundwater	MW-10.1	03/09/07										
10	Groundwater	MW-10.1	06/14/07										
10	Groundwater	MW-10.2	01/27/04										
10	Groundwater	MW-10.2	06/23/04										
10	Groundwater	MW-10.2	08/17/04										
10	Groundwater	MW-10.2	09/22/04										
10	Groundwater	MW-10.2	12/08/04										
10	Groundwater	MW-10.2	03/30/05										
10	Groundwater	MW-10.2	03/31/05										
10	Groundwater	MW-10.2	05/13/05										
10	Groundwater	MW-10.2	08/18/05										
10	Groundwater	MW-10.2	11/10/05										
10	Groundwater	MW-10.2	03/09/06										
10	Groundwater	MW-10.2	05/25/06										
10	Groundwater	MW-10.2	09/08/06										
10	Groundwater	MW-10.2	09/08/06										
10	Groundwater	MW-10.2	12/08/06										
10	Groundwater	MW-10.2	03/09/07										
10	Groundwater	MW-10.2	06/14/07										
10	Groundwater	MW-10.3	01/27/04										
10	Groundwater	MW-10.3	03/09/06										


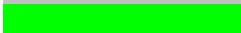



**TABLE 2-2
SAMPLE MATRIX - GROUNDWATER (Monitoring Well and Grab Groundwater)**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility**

Operable Unit/ Area of Interest/ Parcel #	Matrix	Location ID	Date Collected	Dissolved Metals	TPH	VOC	PAH-SIM	SVOC	PCB (Aroclors)	PCB (Congeners)	Pesticides	PCP / TCP	Tannins & Lignins
10	Groundwater	MW-10.3	05/25/06										
10	Groundwater	MW-10.3	03/09/07										
10	Groundwater	MW-10.4	01/27/04										
10	Groundwater	MW-10.4	06/23/04										
10	Groundwater	MW-10.4	08/17/04										
10	Groundwater	MW-10.4	09/22/04										
10	Groundwater	MW-10.4	12/08/04										
10	Groundwater	MW-10.4	03/28/05										
10	Groundwater	MW-10.4	05/12/05										
10	Groundwater	MW-10.4	05/12/05										
10	Groundwater	MW-10.4	08/18/05										
10	Groundwater	MW-10.4	11/11/05										
10	Groundwater	MW-10.4	03/09/06										
10	Groundwater	MW-10.4	05/25/06										
10	Groundwater	MW-10.4	09/08/06										
10	Groundwater	MW-10.4	12/08/06										
10	Groundwater	MW-10.4	03/09/07										
10	Groundwater	MW-10.4	06/14/07										

Notes:

Color coding is assigned as follows:

	Not analyzed
	All non-detect
	One or more analyte detected < preferred screening level
	One or more analyte detected > preferred screening level and < 10 times screening level
	One or more analyte detected 10 times screening level

- PAH = Polycyclic Aromatic Hydrocarbons
- PAH-SIM = EPA Method 8270C-SIM, which provides lower reporting limits for PAH
- PCB = Polychlorinated Biphenyl
- PCP / TCP = Chlorinated phenols (Pentachlorophenol, tetrachlorophenol, and trichlorophenols)
- SVOC = Semi-volatile Organic Compounds
Some SVOC analyses include PAHs - see Appendix A of the RI Report
- TPH = Total Petroleum Hydrocarbons

**Table 3-1
Applicable or Relevant and Appropriate Requirements (ARARs) and "To be Considered" (TBC) Factors**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Standard, Requirement, Criteria, Limitation	Citation	Description	Type of ARARs
Federal			
Resource Conservation and Recovery Act	40 CFR Part 261	Establishes criteria to determine whether solid waste exhibits characteristics that makes it a regulated hazardous waste	Chemical/Action
	40 CFR 263	Standards applicable to transporters of hazardous waste	Chemical/Action
Toxic Substances Control Act	40 CFR 761.60 , 761.61, 761.75	Regulations that determine the appropriate characterization, cleanup, and disposal requirements for PCBs.	Chemical/Action
Clean Water Act	33 USCA 1251-1376 40 CFR 100-149	Regulations requiring development and implementation of a storm water pollution prevention plan	Action
Clean Air Act	42 USC 7401-7642	Emission Standards from stationary and mobile sources	Chemical
Occupational Health and Safety	29 CFR 1910.120	Establishes requirements for health and safety training	Action
National Archaeological and Historical Preservation Action	16 USC § 469 36 CFR Part 65	Provides requirements if significant scientific/cultural/historical artifacts are found	TBC
Risk Assessment Guidance for Superfund; Ecological Risk Assessment Guidance for Superfund; Ecological Screening Levels	USEPA, 1989, 1997, 2005	Guidance and framework to assess human and ecological risks	TBC
Preliminary Remediation Goals	USEPA Region 9, 2004	Risk-based concentrations that are intended to assist risk assessors and others in initial screening-level evaluations of environmental measurements.	TBC

**Table 3-1
Applicable or Relevant and Appropriate Requirements (ARARs) and "To be Considered" (TBC) Factors**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Standard, Requirement, Criteria, Limitation	Citation	Description	Type of ARARs
State and Local			
Title 22, California Hazardous Waste Control Act of 1972	22 CCR 66260.1 et seq.	Establishes criteria for determining waste classification for the purposes of transportation and disposal of wastes	Chemical/ Action
	22 CCR 66262.1 et seq.	Establishes standards applicable to generators of hazardous waste	Action
	22 CCR Chapter 18	Identifies hazardous waste restricted from land disposal unless specific treatment standards are met	Chemical/ Action
Water Quality Control Plan for the North Coast Region	NCRWQCB, 2007	Develop and implement a storm water pollution prevention plan	Action
Ambient Air Quality Standards	H&S Sec. 39000-44071 and Mendocino County Air Quality Management District Regulations	Establishes standards for emissions of chemical vapors and dust	Chemical
California Coastal Act	Public Resources Code Division 20	Establishes permitting requirements and conditions for any "development" which remedial activities qualify as.	Location/ Action
Manifest System, Record-Keeping, Reporting and Transportation of Hazardous Waste	22 CCR Chapter 13	Governs transportation of hazardous materials	Action
State PCB Requirements	22 CCR 66261.113	Establishes standards to disposal of PCBs	Chemical/ Action
California Hazardous Waste Control	Health and Safety Code, Chapter 6.5, Sec. 25100-25250.26	Establishes hazardous waste control measures	Action

**Table 3-1
Applicable or Relevant and Appropriate Requirements (ARARs) and "To be Considered" (TBC) Factors**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Standard, Requirement, Criteria, Limitation	Citation	Description	Type of ARARs
California Hazardous Substances Account Act	Health and Safety Code, Chapter 6.8, Sec 25300-25395.15	Establishes site mitigation and cost recovery programs	Action
Site Investigation and Remediation Order	Docket No. HSA-RAO 06-07-150	Establishes requirements for investigation and site remediation	Action
California Environmental Quality Act	Public Resources Code Section 21000-21177	Mandates environmental impact review of projects approved by governmental agencies	Action
Discharges of Hazardous Waste to Land	Title 23, California Code of Regulations, Division 3, Ch. 15	Applies to discharge of waste	Action
Emission Standard	MCAQMD Regulation 1 Chapters 1, 2 and 4.	Establishes emission standards and permitting requirements for equipment and dust.	Action
City of Fort Bragg Grading Permit Requirements and Procedures	Title 18, Chapter 18.60	Establishes requirements for excavation and grading.	Location/ Action
Stockpiling Requirements of Contaminated Soil	H&S Sec. 25123.3(a)(20)	Establishes standards for stockpiling of non-RCRA contaminated soil	Location/ Action
Requirements for Substances Deleterious to Fish and Wildlife	California Fish and Game Code Section 5650	Makes it unlawful to deposit into, permit to pass into, or place where it can pass into the waters of the state certain specified pollutants.	Chemical/ Action
Relevant Policies for the Protection and Conservation of Fish and Wildlife	California Fish and Game Code Section 2014	Requires conservation of natural resources and prevention of the willful or negligent destruction of birds, mammals, fish, reptiles, or amphibia.	Location/ Action
	California Fish and Game Code Section 1600	Establishes protection and conservation of the fish and wildlife resources.	Location/ Action

**Table 3-1
Applicable or Relevant and Appropriate Requirements (ARARs) and "To be Considered" (TBC) Factors**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Standard, Requirement, Criteria, Limitation	Citation	Description	Type of ARARs
Occupational Health and Safety	8 CCR GISO 5192	Establishes worker health and safety requirements	Action
Remedial Action Plan Policy	EO-95-007-PP	Guidance and framework to develop a remedial action plan	TBC
Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities; Guidance for Ecological Risk Assessment at Hazardous Waste Sites and Permitted Facilities	CalEPA, 1992 CalEPA, 1996	Guidance and framework to assess human and ecological risks	TBC
California Human Health Screening Levels	CalEPA, 2006	Risk-based concentrations for human receptors that are intended to assist risk assessors and others in initial screening-level evaluations of environmental	TBC

Notes:

CalEPA - California Environmental Protection Agency	SWRCB – State Water Resources Control Board
CCR – California Code of Regulation	TBC - to be considered
CFR – Code of Federal Regulation	USC – United States Code
GISO - General Industry Safety Order	USCA – United States Code Annotated
HSC - Health and Safety Code	USEPA - United States Environmental Protection Agency
MCAQMD – Mendocino County Air Quality Management District	
RCRA - Resource Conservation and Recovery Act	
RWQCB - Regional Water Quality Control Board	

**Table 4-1
Evaluation of Alternatives for OU-A North – Glass Beach 2**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Criteria	No Action	Land Use Restrictions/Controls	Removal and Offsite Disposal
Objective	Provides no additional control or action to protect to human health or the environment from soil contamination.	Restricts land use to passive recreational uses, but does not include other actions to protect human health or the environment from soil contamination.	Remove soil contamination and dispose offsite at a permitted disposal facility, as appropriate.
Compliance with RAOs	NA	Reduces risk and is implementable, but would leave hazardous waste in place.	Meets all RAOs (protects human health and the environment, is economically and technically feasible, and can be implemented in the required time-frame).
Evaluation of Nine Criteria			
Protection of Human Health and the Environment	low - no action does not include any remedial actions and is therefore not protective of human health or the environment	low - land use restrictions would limit human exposure but would not protect the environment without other remedies.	high - the lead-impacted material would be removed from the site and disposed of at an appropriate landfill
Compliance with ARARs	low - does not comply with ARARs.	low - does not comply with ARARs.	high - excavation and offsite disposal would comply with federal, state, and local requirements
Long-Term Effectiveness and Permanence	low - provides no long-term or permanent risk reduction.	medium - does not provide long-term effectiveness but is permanent.	high - the lead impacted material would be removed from the site permanently
Short-Term Effectiveness	high - no active remediation is required.	high - no active remediation is required.	medium - there may be some short-term worker or environmental exposure during implementation
Cost¹	No Cost	\$10,000	\$42,000
Implementability	low - no action is not administratively feasible.	high - this alternative is implementable.	medium - removal and off-site disposal is technically and administratively feasible within the required time-frame, but will require Operations and Maintenance
Reduction in Toxicity, Mobility, Volume through Treatment	low - no action does not reduce toxicity, mobility, or volume of TPH or metals.	low - no action does not reduce toxicity, mobility, or volume of TPH or metals.	medium - removes material from the site, but does not reduce toxicity of the material as no treatment is included
State Acceptance²	Low - State would not accept no action.	low - unlikely the State would accept land use restriction/controls without additional remedial measures to reduce risk.	high - removal and off-site disposal is an effective and implementable remedy, which would allow public use of the area when completed.
Community Acceptance²	low - public would not support no action.	low - land use restriction/controls alone will not reduce risks to levels that would support public access to the coastal trail.	high - This remedy will reduce risks allowing much desired public access to the coastal trail.

- 1. Cost is the total 30-year present worth cost in 2007 dollars
- 2. Based on preliminary input from agency and public meetings
- High - high level of confidence that criterion will be achieved
- Medium - medium level of confidence that criterion will be achieved
- Low - low level of confidence that criterion will be achieved
- NA - not applicable, alternative does not meet threshold criteria.
- RAO - remedial action objectives
- ARARs - applicable or relevant and appropriate requirements

**Table 4-2
Evaluation of Alternatives for OU-A North – Scrap Yard**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Criteria	No Action	Land Use Restrictions/Controls	Removal and Offsite Disposal
Objective	Provides no additional control or action to protect to human health or the environment from soil contamination.	Restricts land use to passive recreational uses, but does not include other actions to protect human health or the environment from soil contamination.	Remove soil contamination and dispose offsite at a permitted disposal facility, as appropriate.
Compliance with RAOs	NA	Reduces risk and is implementable, but would leave PCBs in place above the TSCA action level.	Meets all RAOs (protects human health and the environment, is economically and technically feasible, and can be implemented in the required time-frame).
Evaluation of Nine Criteria			
Protection of Human Health and the Environment	low - no action does not include any remedial actions and is therefore not protective of human health or the environment	low - land use restrictions would limit human exposure but would not protect the environment without other remedies.	high - the PCB-impacted material would be removed from the site and disposed of at an appropriate landfill
Compliance with ARARs	low - does not comply with ARARs.	low - does not comply with ARARs.	high - excavation and offsite disposal would comply with federal, state, and local requirements
Long-Term Effectiveness and Permanence	low - provides no long-term or permanent risk reduction.	medium - does not provide long-term effectiveness but is permanent.	high - the PCB impacted material would be removed from the site permanently
Short-Term Effectiveness	high - no active remediation is required.	high - no active remediation is required.	medium - there may be some short-term worker or environmental exposure during implementation
Cost¹	No Cost	\$10,000	\$220,000
Implementability	low - no action is not administratively feasible.	high - this alternative is implementable.	high - removal and off-site disposal is technically and administratively feasible within the required time-frame
Reduction in Toxicity, Mobility, Volume through Treatment	low - no action does not reduce toxicity, mobility, or volume of TPH or metals.	low - no action does not reduce toxicity, mobility, or volume of TPH or metals.	medium - removes material from the site, but does not reduce toxicity of the material as no treatment is included
State Acceptance²	Low - State would not accept no action.	low - unlikely the State would accept land use restriction/controls without additional remedial measures to reduce risk.	high - removal and off-site disposal is an effective and implementable remedy, which would allow public use of the area when completed.
Community Acceptance²	low - public would not support no action.	low - land use restriction/controls alone will not reduce risks to levels that would support public access to the coastal trail.	high - this remedy will reduce risks allowing much desired public access to the coastal trail.

1. Cost is the total 30-year present worth cost in 2007 dollars
 2. Based on preliminary input from agency and public meetings
- High - high level of confidence that criterion will be achieved
Medium - medium level of confidence that criterion will be achieved
Low - low level of confidence that criterion will be achieved
NA - not applicable, alternative does not meet threshold criteria.
RAO - remedial action objectives
ARARs - applicable or relevant and appropriate requirements

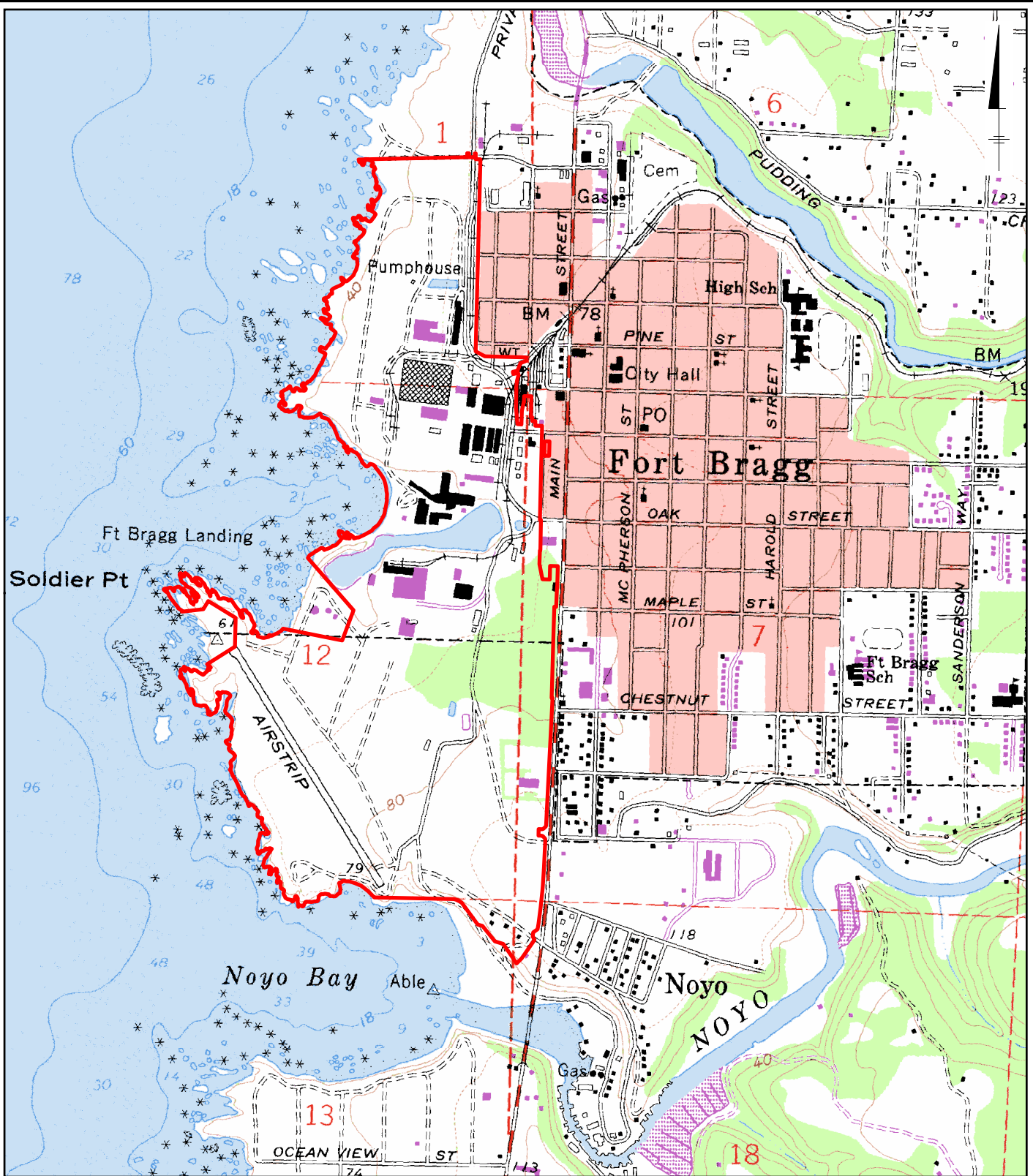
**Table 4-3
Evaluation of Alternatives for OU-A South – Parcel 10 Fill Area**


**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Criteria	No Action	Land Use Restrictions/Controls	Removal and Offsite Disposal	Consolidation and Capping
Objective	Provides no additional control or action to protect to human health or the environment from soil contamination.	Restricts land use to passive recreational uses, but does not include other actions to protect human health or the environment from soil contamination.	Remove soil contamination and dispose offsite at a permitted disposal facility, as appropriate.	Consolidate contaminated soils from the dioxin PRAs into a single area with a liner and cap to limit migration of contaminants to deeper soils and/or groundwater and reduces surface runoff/infiltration. Additionally, reduces risk due to direct contact exposure.
Compliance with RAOs	NA	Reduces risk and is implementable, but would leave material above risk-based levels in place.	Meets all RAOs (protects human health and the environment, is economically and technically feasible, and can be implemented in the required time-frame).	Meets all RAOs (protects human health and the environment, is economically and technically feasible, and can be implemented in the required time-frame).
Evaluation of Nine Criteria				
Protection of Human Health and the Environment	low - no action does not include any remedial actions and is therefore not protective of human health or the environment	low - land use restrictions would limit human exposure but would not protect the environment without other remedies.	high - the dioxin-impacted material would be removed from the site and disposed of at an appropriate landfill	high - a cap would provide protection from direct exposure, limit migration of dioxin via wind or stormwater, and control infiltration to groundwater.
Compliance with ARARs	low - does not comply with ARARs.	low - does not comply with ARARs.	high - excavation and offsite disposal would comply with federal, state, and local requirements	high - consolidation and capping would comply with federal, state, and local requirements
Long-Term Effectiveness and Permanence	low - provides no long-term or permanent risk reduction.	medium - does not provide long-term effectiveness but is permanent.	high - the dioxin impacted material would be removed from the site permanently	medium - the dioxin-impacted material would be contained within the cap; however, the cap would require maintenance
Short-Term Effectiveness	high - no active remediation is required.	high - no active remediation is required.	medium - there may be some short-term worker or environmental exposure during implementation	medium - there may be some short-term worker or environmental exposure during implementation
Cost¹	No Cost	\$10,000	\$2,500,000	\$1,500,000
Implementability	low - no action is not administratively feasible.	high - this alternative is implementable.	high - removal and off-site disposal is technically and administratively feasible	high - consolidation and capping is technically and administratively feasible
Reduction in Toxicity, Mobility, Volume through Treatment	low - no action does not reduce toxicity, mobility, or volume of TPH or metals.	low - no action does not reduce toxicity, mobility, or volume of TPH or metals.	medium - removes material from the site, but does not reduce toxicity of the material as no treatment is included	medium - the material would be better contained but the toxicity and volume would not be reduced
State Acceptance²	Low - State would not accept no action.	low - unlikely the State would accept land use restriction/controls without additional remedial measures to reduce risk.	high - removal and off-site disposal is an effective and implementable remedy, which would allow public use of the area when completed.	medium-to-high - capping has been shown to be an effective alternative although long-term operation and maintenance is required. Reduction in trucking, which reduces the carbon footprint for the project, is also a state objective.
Community Acceptance²	low - public would not support no action.	low - land use restriction/controls alone will not reduce risks to levels that would support public access to the coastal trail.	medium - community may prefer an alternative with less trucking. However, this remedy will reduce risks allowing much desired public access to the coastal trail.	low-to-medium - some community members may prefer removal of the dioxin material from the site. However, other community members have expressed a desire to decrease offsite trucking and this reduce the carbon footprint. Overall, community acceptance is uncertain.

1. Cost is the total 30-year present worth cost in 2007 dollars
2. Based on preliminary input from agency and public meetings.
High - high level of confidence that criterion will be achieved
Medium - medium level of confidence that criterion will be achieved
Low - low level of confidence that criterion will be achieved
NA - not applicable, alternative does not meet threshold criteria.
RAO - remedial action objectives
ARARs - applicable or relevant and appropriate requirements

Figures

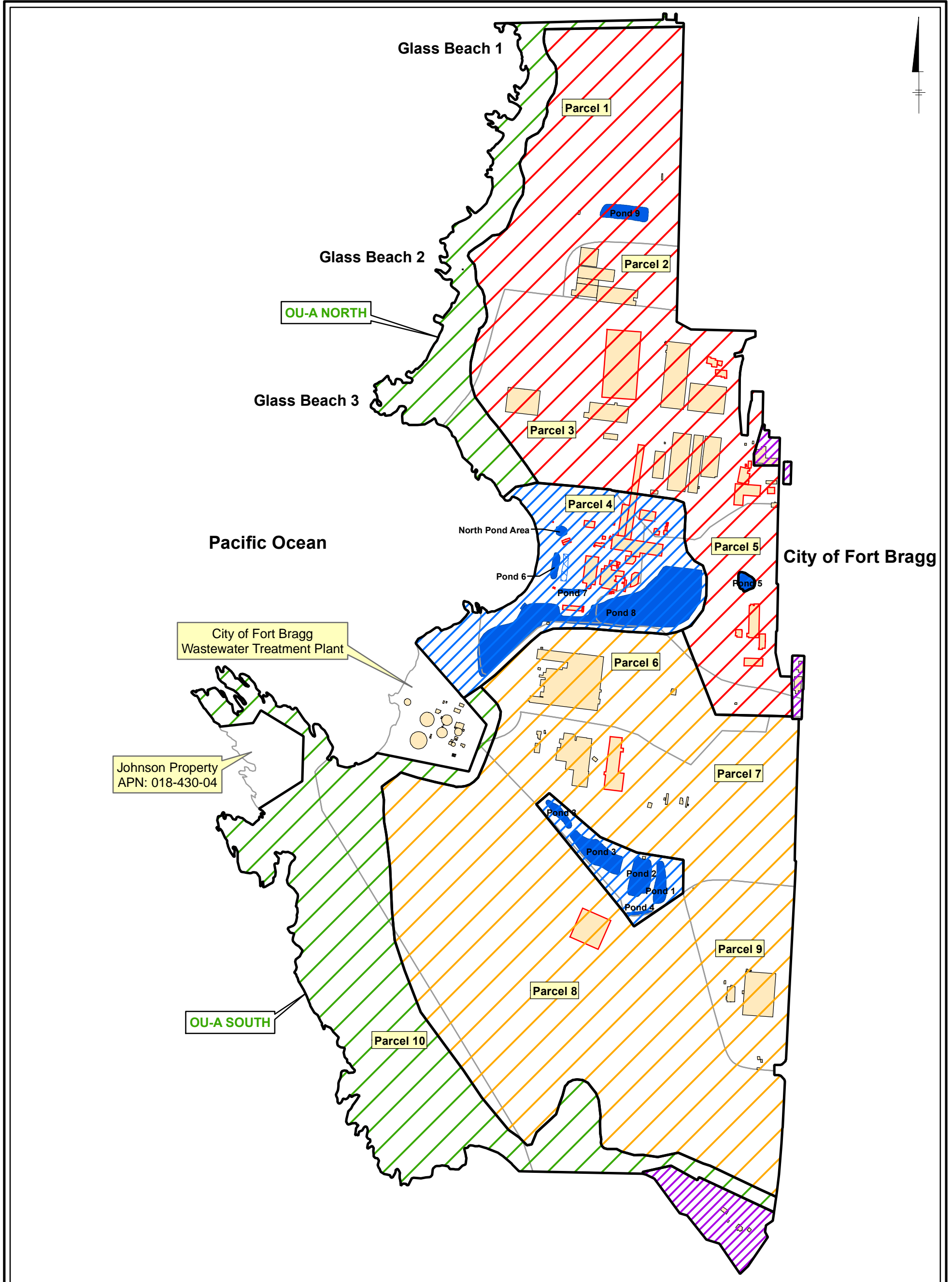


LEGEND:
 SITE BOUNDARY

FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
FORT BRAGG, CALIFORNIA
OPERABLE UNIT A REMEDIAL ACTION PLAN

SITE LOCATION MAP





LEGEND:

	POND
	FORMER POND
	STRUCTURE
	FORMER STRUCTURE
	FACILITY PARCEL

	COASTAL TRAIL/PARK ACQUISITION (OU-A)
	"OFFSITE" NON-INDUSTRIAL (OU-B)
	NORTHERN (OU-C)
	SOUTHERN (OU-D)
	PONDS/PARK (OU-E)

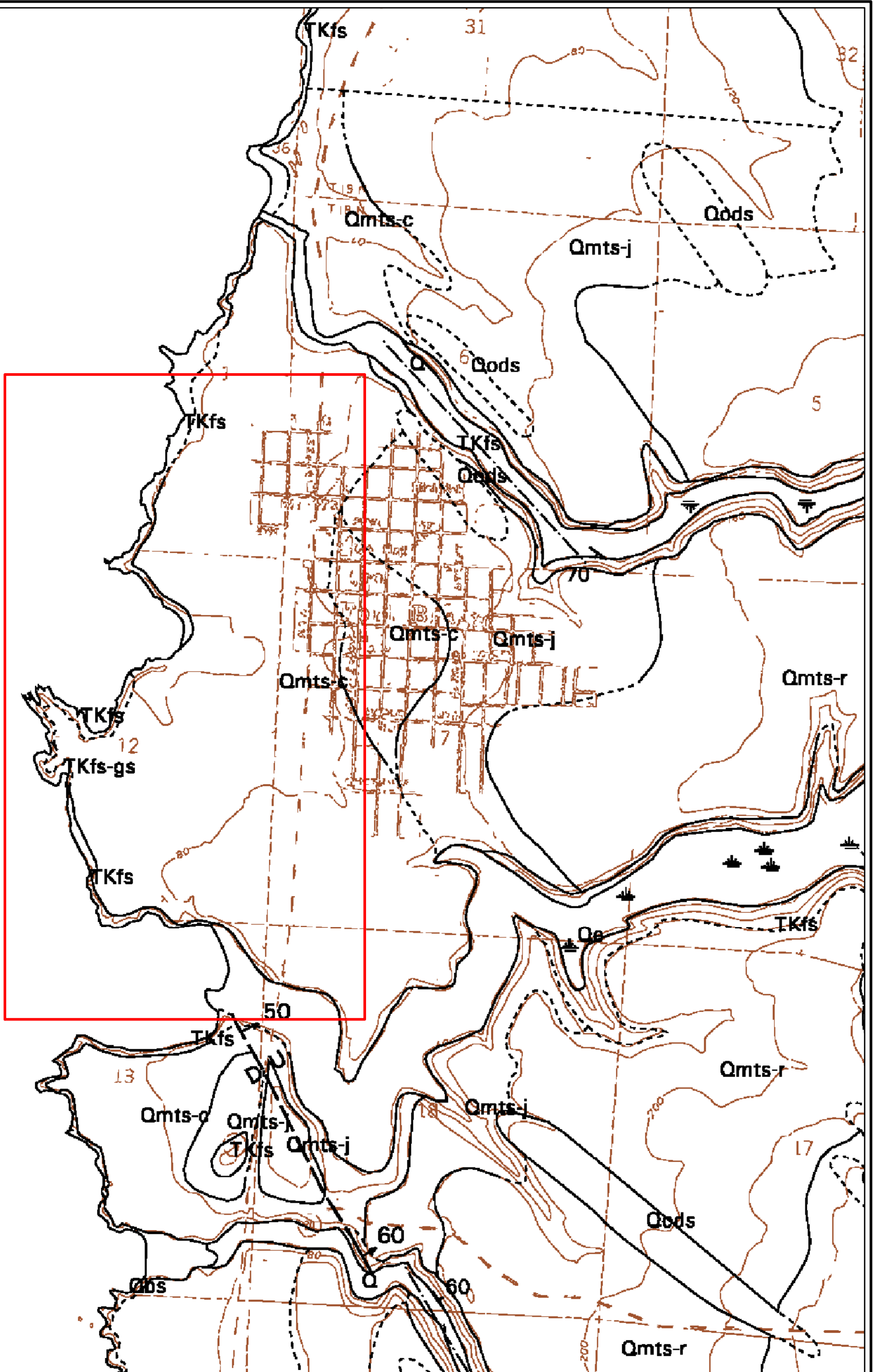



FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
 FORT BRAGG, CALIFORNIA
OPERABLE UNIT A REMEDIAL ACTION PLAN

OU-A LOCATION MAP



FIGURE
1-2



LEGEND:
 APPROXIMATE SITE AREA

NOTES:

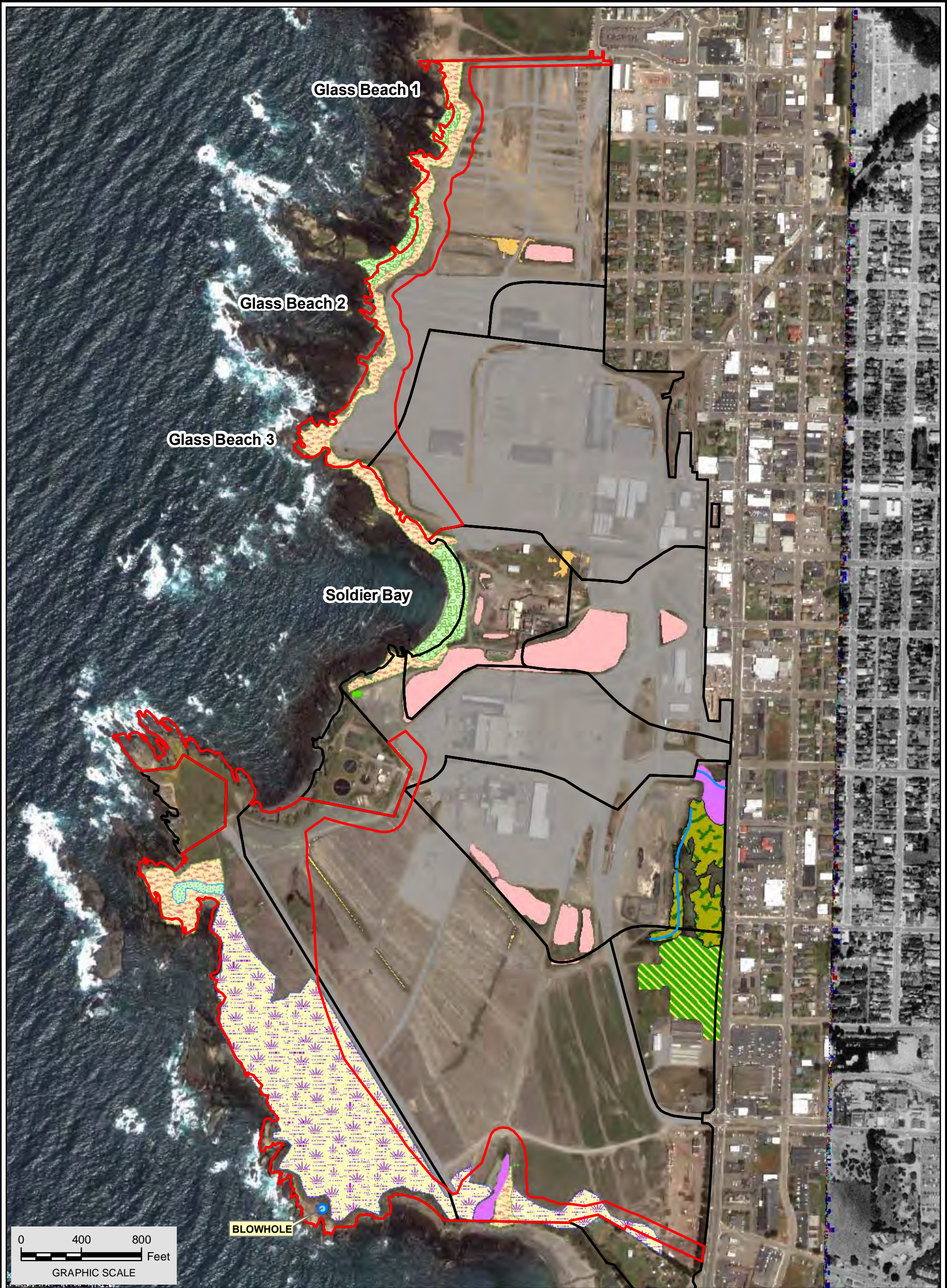
1. SOURCE: 1983, DMG OPEN-FILE REPORT 83-05, GEOLOGY AND GEOMORPHIC FEATURES RELATED TO LANDSLIDING, FORT BRAGG 7.5' QUADRANGLE, MENDOCINO COUNTY, CALIFORNIA
2. TKfs - COASTAL BELT FRANCISCAN COMPLEX
 TKfs-gs - COASTAL BELT FRANCISCAN COMPLEX, GREENSTONE
 Qmts-c - MARINE TERRACE DEPOSITS, CASPAR POINT

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 FORT BRAGG, CALIFORNIA
OPERABLE UNIT A REMEDIAL ACTION PLAN

GEOLOGY MAP



FIGURE
2-1



LEGEND:		SENSITIVE PLANT COMMUNITIES	
	NON-NATIVE GRASSLAND		SEASONAL WETLAND
	NORTH COAST BLUFF SCRUB		SEASONAL WETLAND DITCH
	BEACH		WETLAND SEEP
	PLANTED CONIFEROUS WOODLAND		RIPARIAN WETLAND
	PAVED AREA (APPROXIMATE)		INDUSTRIAL POND (WETLAND)
			COSTAL TERRACE PRARIE
			NORTH COAST RIPARIAN SCRUB
			DRAINAGES
			COASTAL TRAIL/PARK ACQUISITION (OU-A)
			FACILITY PARCEL

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OPERABLE UNIT A REMEDIAL ACTION PLAN

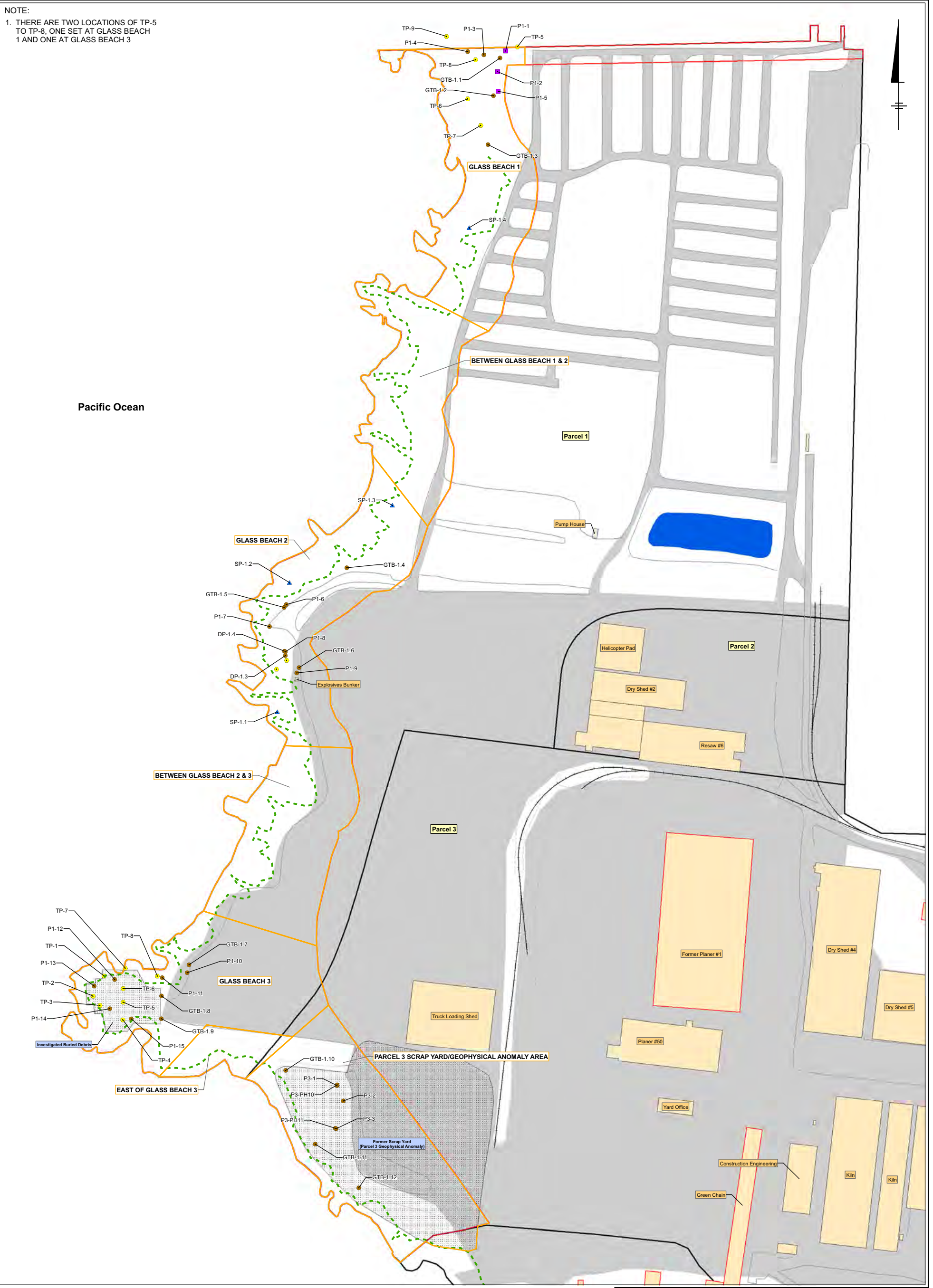
HABITAT MAP FOR OU-A

ARCADIS BBL
 Infrastructure, environment, facilities

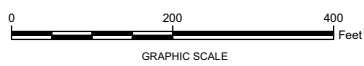
FIGURE 2-2

NOTE:

1. THERE ARE TWO LOCATIONS OF TP-5 TO TP-8, ONE SET AT GLASS BEACH 1 AND ONE AT GLASS BEACH 3



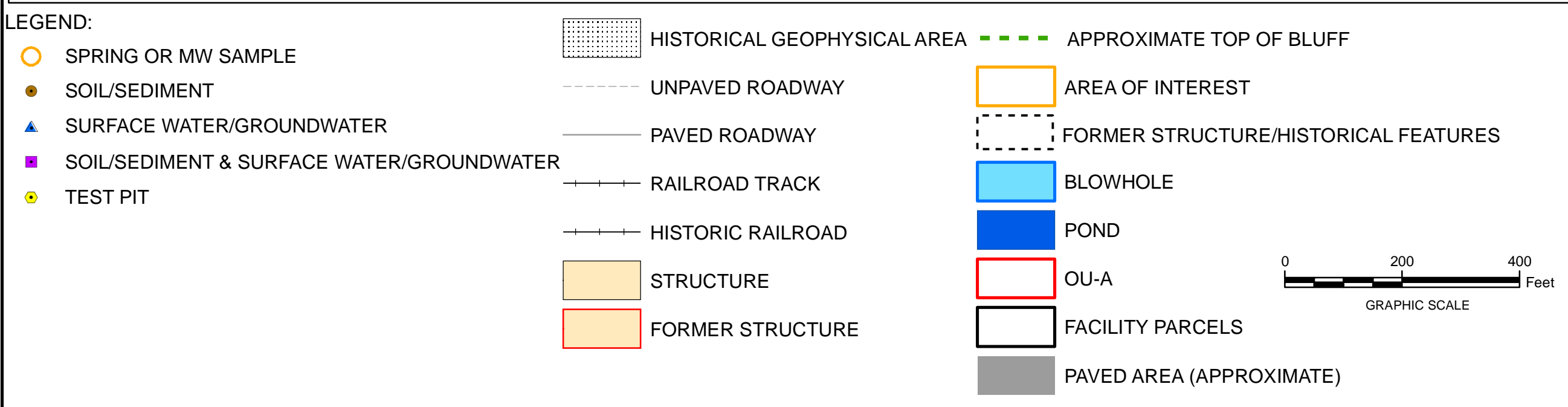
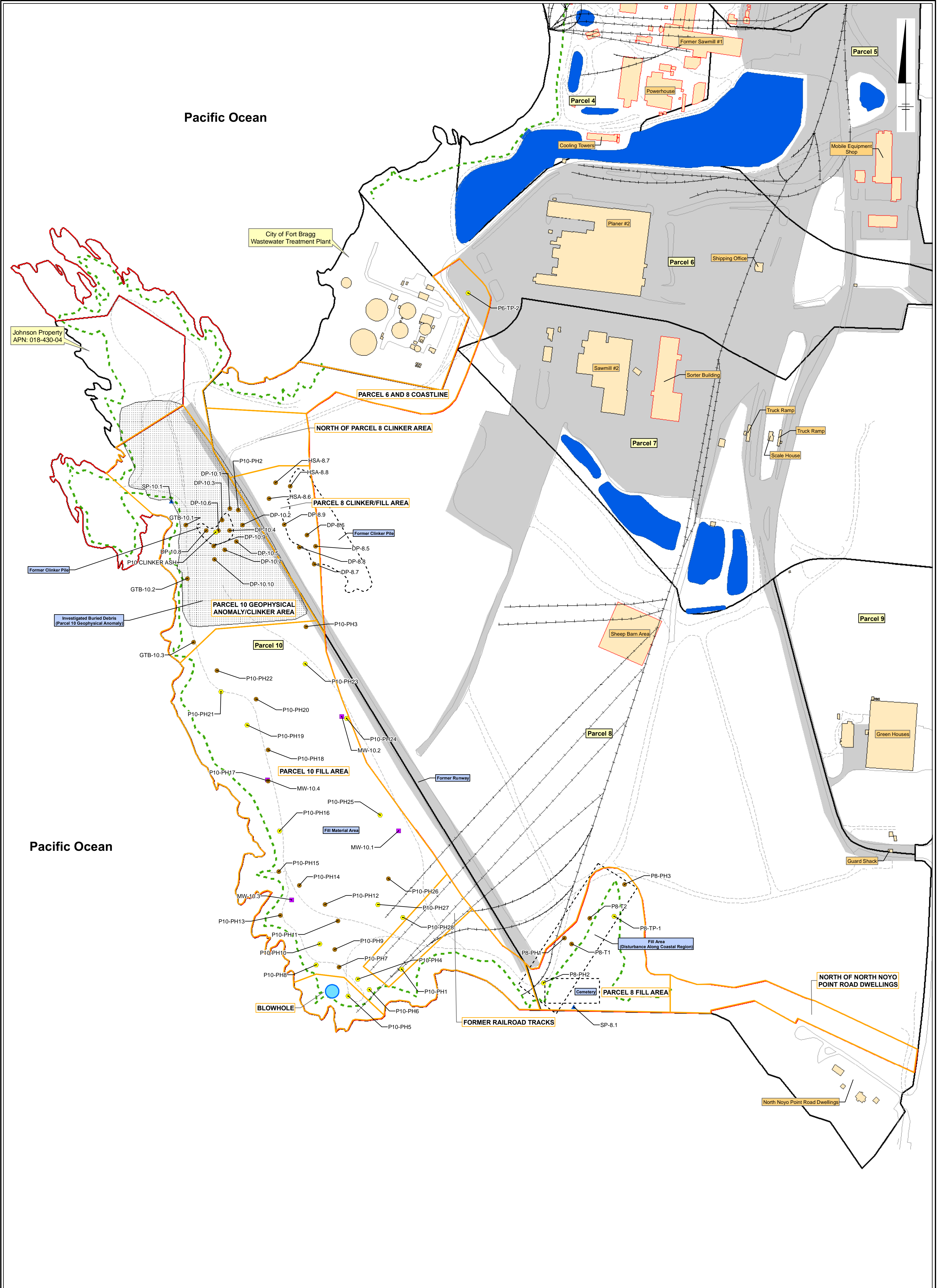
SPRING OR MW SAMPLE	HISTORICAL GEOPHYSICAL AREA	APPROXIMATE TOP OF BLUFF
SOIL/SEDIMENT	UNPAVED ROADWAY	AREA OF INTEREST
SURFACE WATER/GROUNDWATER	PAVED ROADWAY	POND
SOIL/SEDIMENT & SURFACE WATER/GROUNDWATER	RAILROAD TRACK	OU-A
TEST PIT	STRUCTURE	FACILITY PARCEL
	FORMER STRUCTURE	PAVED AREA (APPROXIMATE)



FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
 FORT BRAGG, CALIFORNIA
OPERABLE UNIT A REMEDIAL ACTION PLAN
**PREVIOUS SAMPLE LOCATIONS AND
 SITE FEATURES - NORTH**



FIGURE
2-3



FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
 FORT BRAGG, CALIFORNIA
OPERABLE UNIT A REMEDIAL ACTION PLAN

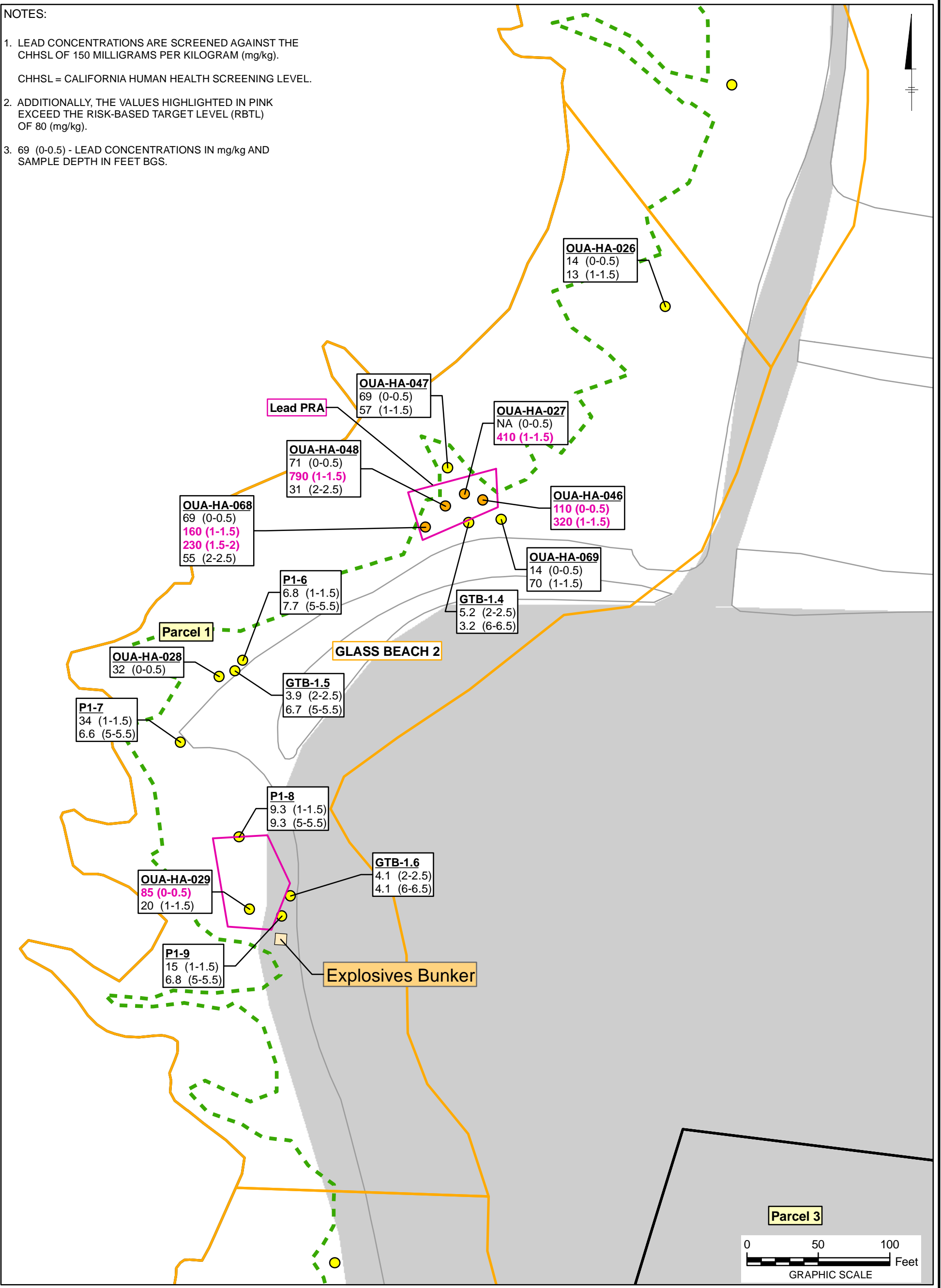
**PREVIOUS SAMPLE LOCATIONS
 AND SITE FEATURES - SOUTH**

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FIGURE
2-4

NOTES:

1. LEAD CONCENTRATIONS ARE SCREENED AGAINST THE CHHSL OF 150 MILLIGRAMS PER KILOGRAM (mg/kg).
 CHHSL = CALIFORNIA HUMAN HEALTH SCREENING LEVEL.
2. ADDITIONALLY, THE VALUES HIGHLIGHTED IN PINK EXCEED THE RISK-BASED TARGET LEVEL (RBTL) OF 80 (mg/kg).
3. 69 (0-0.5) - LEAD CONCENTRATIONS IN mg/kg AND SAMPLE DEPTH IN FEET BGS.



LEGEND

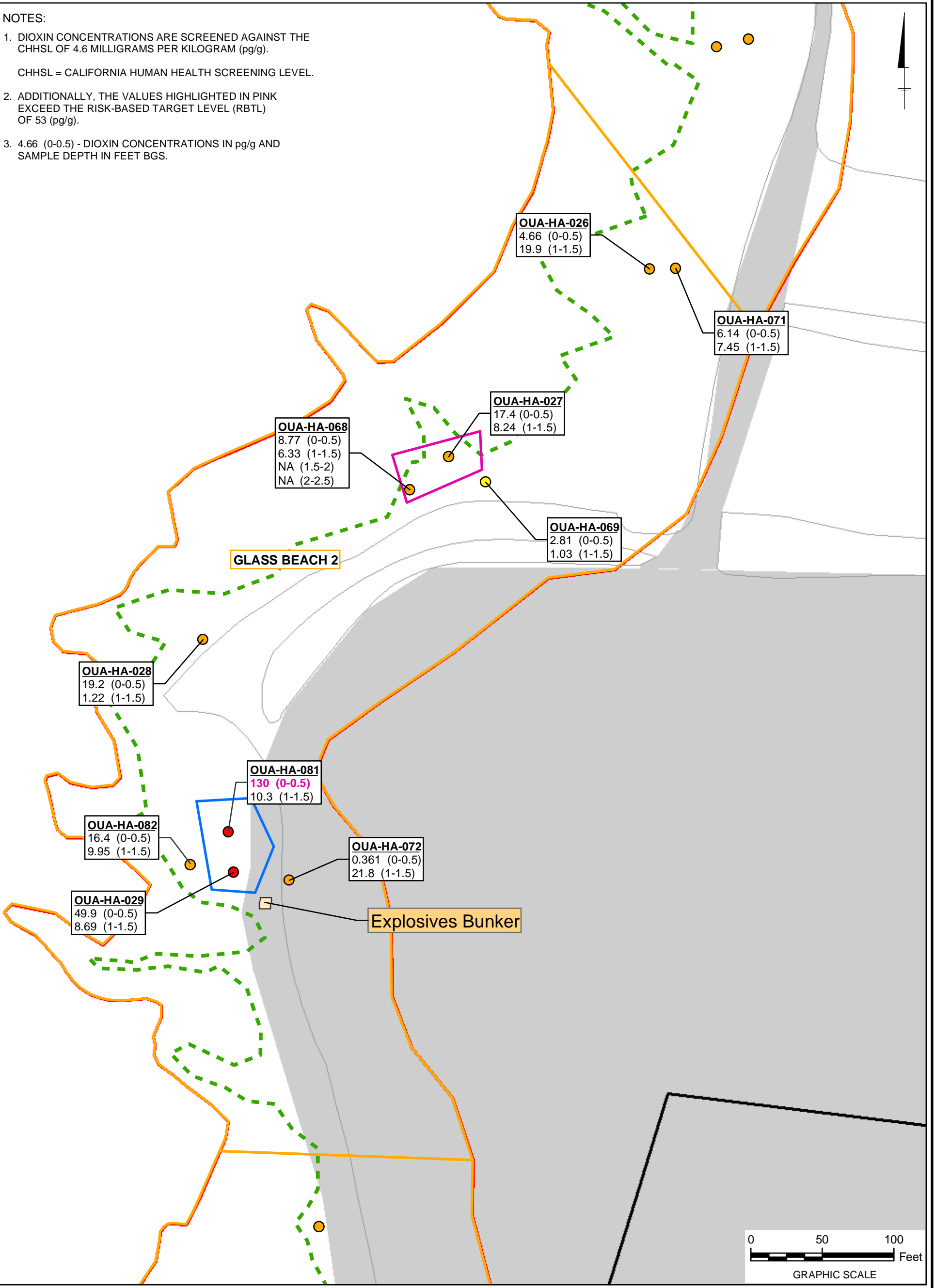
- NOT DETECTED
- DETECTED < SCREENING VALUES
- DETECTED > SCREENING VALUES
- DETECTED > 10 X SCREENING VALUES
- PAVED ROADWAY
- STRUCTURE
- - - APPROXIMATE TOP OF BLUFF
- PRESUMPTIVE REMEDY AREA
- FACILITY PARCEL
- PAVED AREA (APPROXIMATE)
- AREA OF INTEREST

FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
 FORT BRAGG, CALIFORNIA
OPERABLE UNIT A REMEDIAL ACTION PLAN

**LEAD CONCENTRATIONS
 IN SOIL - NORTH**

NOTES:

1. DIOXIN CONCENTRATIONS ARE SCREENED AGAINST THE CHHSL OF 4.6 MILLIGRAMS PER KILOGRAM (pg/g).
 CHHSL = CALIFORNIA HUMAN HEALTH SCREENING LEVEL.
2. ADDITIONALLY, THE VALUES HIGHLIGHTED IN PINK EXCEED THE RISK-BASED TARGET LEVEL (RBTL) OF 53 (pg/g).
3. 4.66 (0-0.5) - DIOXIN CONCENTRATIONS IN pg/g AND SAMPLE DEPTH IN FEET BGS.



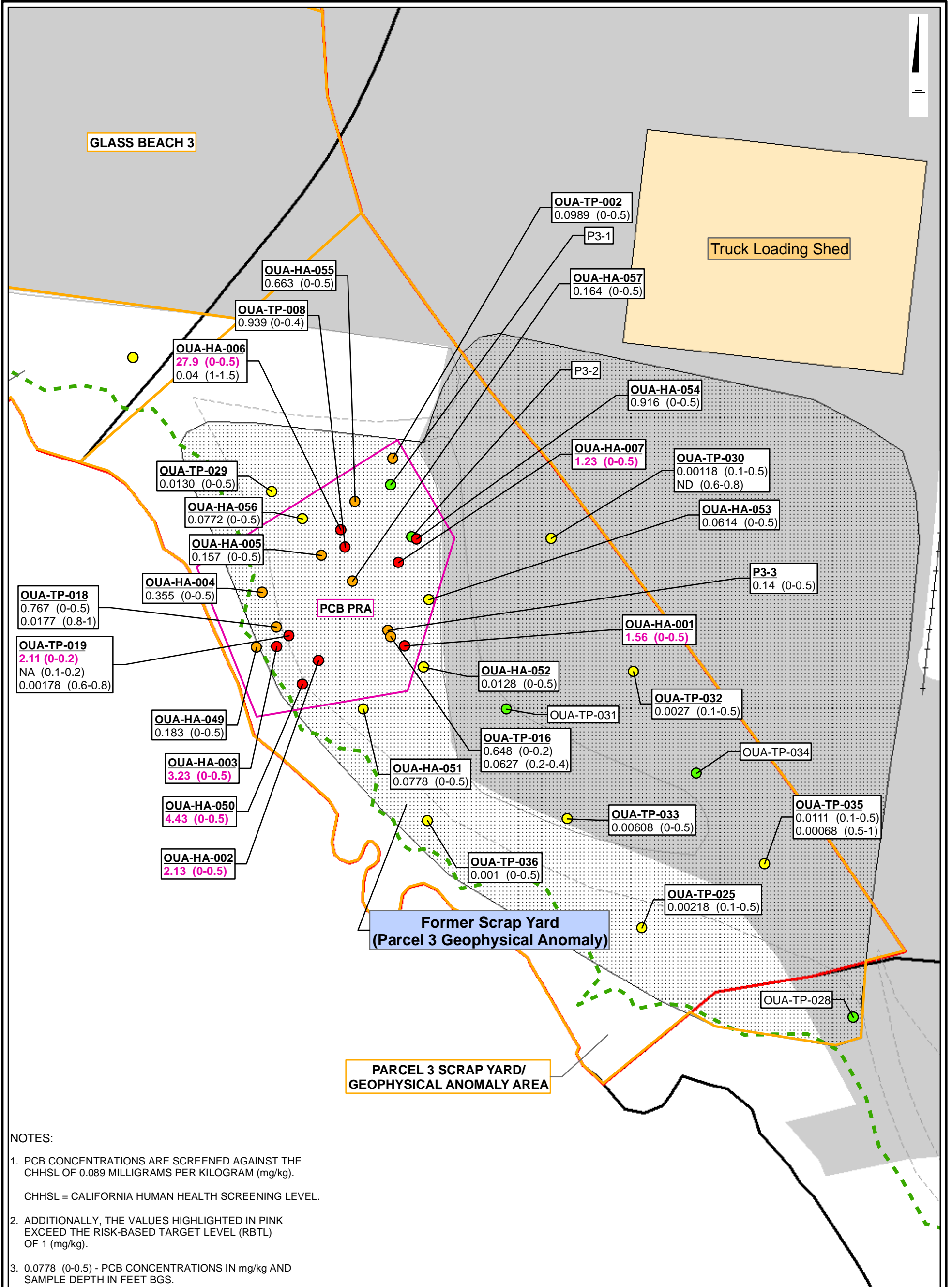
LEGEND

- | | | |
|------------------------------------|---------------------------|-------------------------------|
| ● NOT DETECTED | — PAVED ROADWAY | □ AREA OF INTEREST |
| ● DETECTED < SCREENING VALUES | ■ STRUCTURE | — APPROXIMATE TOP OF BLUFF |
| ● DETECTED > SCREENING VALUES | ■ PRESUMPTIVE REMEDY AREA | ■ NEW PRESUMPTIVE REMEDY AREA |
| ● DETECTED > 10 X SCREENING VALUES | ■ FACILITY PARCEL | ■ PAVED AREA (APPROXIMATE) |

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OPERABLE UNIT A REMEDIAL ACTION PLAN
DIOXIN/FURAN CONCENTRATIONS
IN SOIL - NORTH

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FIGURE
4-2



NOTES:

1. PCB CONCENTRATIONS ARE SCREENED AGAINST THE CHHSL OF 0.089 MILLIGRAMS PER KILOGRAM (mg/kg).
 CHHSL = CALIFORNIA HUMAN HEALTH SCREENING LEVEL.
2. ADDITIONALLY, THE VALUES HIGHLIGHTED IN PINK EXCEED THE RISK-BASED TARGET LEVEL (RBTL) OF 1 (mg/kg).
3. 0.0778 (0-0.5) - PCB CONCENTRATIONS IN mg/kg AND SAMPLE DEPTH IN FEET BGS.

LEGEND

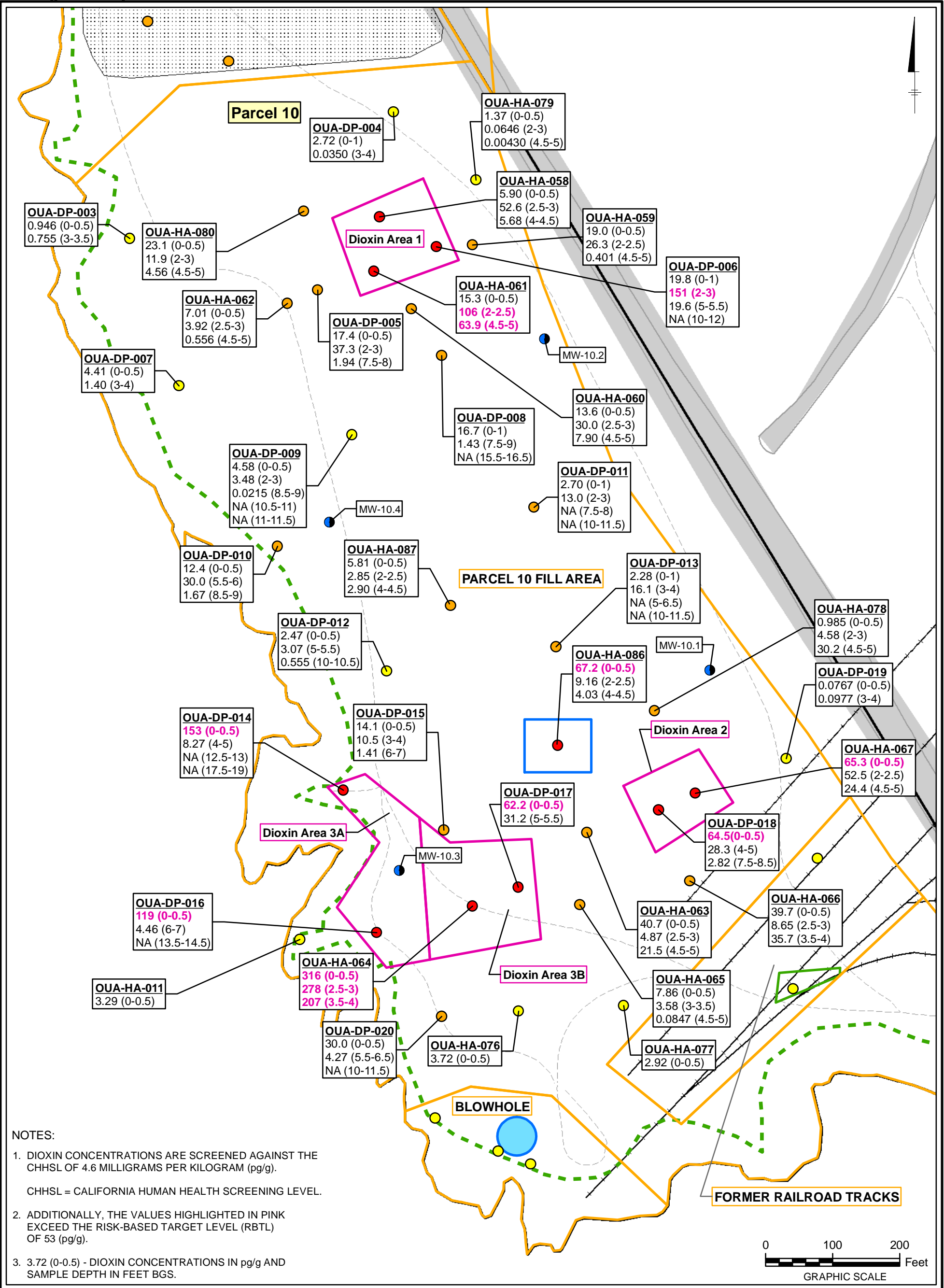
● NOT DETECTED	--- UNPAVED ROADWAY	▨ HISTORICAL GEOPHYSICAL AREA
● DETECTED < SCREENING VALUES	— PAVED ROADWAY	▨ PAVED AREA (APPROXIMATE)
● DETECTED > SCREENING VALUES	—+— RAILROAD TRACK	▨ AREA OF INTEREST
● DETECTED > 10 X SCREENING VALUES	▭ STRUCTURE	▭ OU-A
	--- APPROXIMATE TOP OF BLUFF	
	▭ PRESUMPTIVE REMEDY AREA	
	▭ FACILITY PARCEL	

0 50 100 Feet
 GRAPHIC SCALE

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**PCB CONCENTRATIONS
 IN SOIL - NORTH**

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FIGURE
4-3



LEGEND	
● NOT DETECTED	--- UNPAVED ROADWAY
● DETECTED < SCREENING VALUES	— PAVED ROADWAY
● DETECTED > SCREENING VALUES	— RAILROAD TRACK (INCLUDES APPROXIMATE LOCATION OF HISTORIC TRACKS)
● DETECTED > 10 X SCREENING VALUES	--- APPROXIMATE TOP OF BLUFF
● MONITORING WELL	■ PRESUMPTIVE REMEDY AREA
	■ NEW PRESUMPTIVE REMEDY AREA
	■ ELEVATED PAH LOCATION
	■ HISTORICAL GEOPHYSICAL AREA
	■ PAVED AREA (APPROXIMATE)
	■ AREA OF INTEREST
	■ FACILITY PARCEL

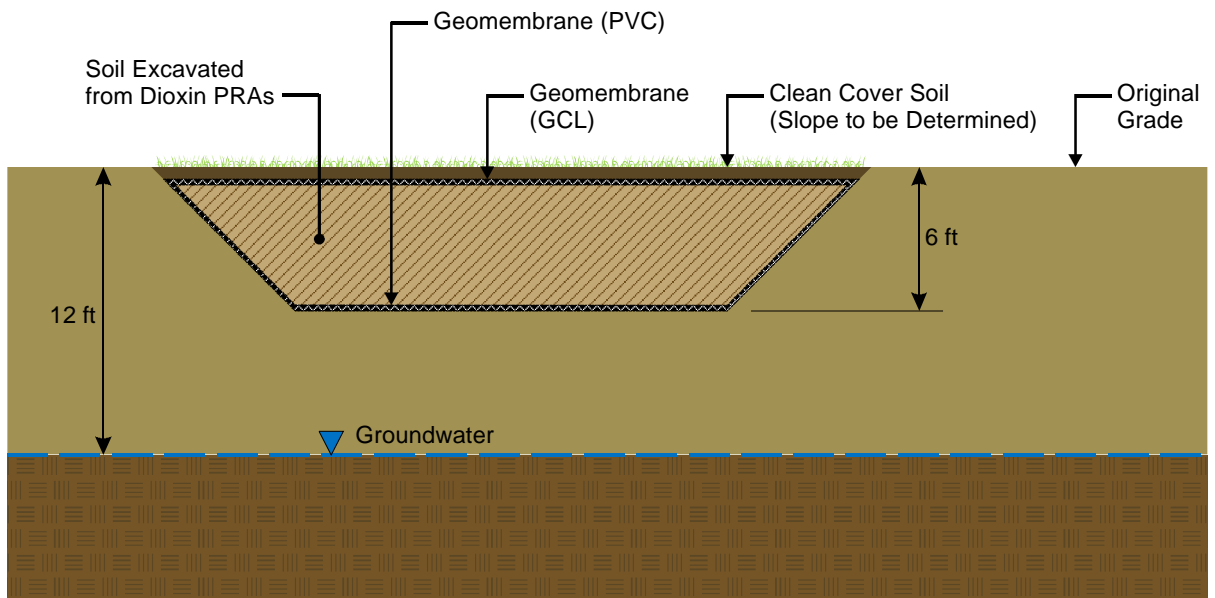
FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
 FORT BRAGG, CALIFORNIA

OPERABLE UNIT A REMEDIAL ACTION PLAN

DIOXIN/FURAN CONCENTRATIONS IN SOIL - SOUTH

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 Infrastructure, environment, facilities

FIGURE 4-4



CROSS SECTION

NOT TO SCALE

LEGEND:

PVC = polyvinyl chloride

GCL = geosynthetic clay liner

NOTE:

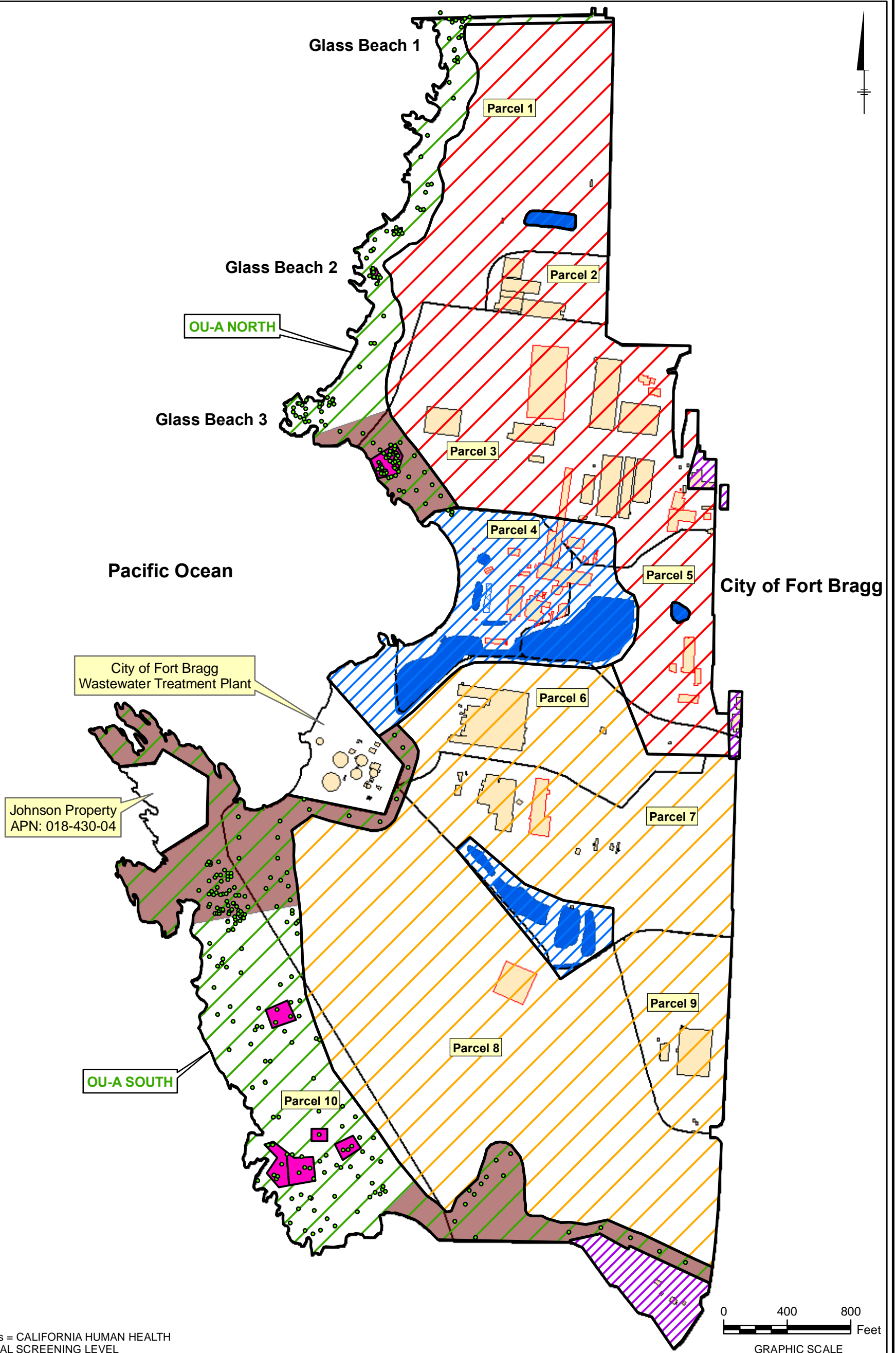
A simple leachate collection system will be installed.

FORMER FORT BRAGG SAWMILL
FORT BRAGG, CALIFORNIA
OPERABLE UNIT A REMEDIAL ACTION PLAN

**CAPPING AND CONSOLIDATION
ALTERNATIVE CROSS SECTION**



FIGURE
4-5



NOTE: CHHSL_Res = CALIFORNIA HUMAN HEALTH RESIDENTIAL SCREENING LEVEL

LEGEND:

- | | | | | | |
|--|------------------|--|---------------------------------------|--|--|
| | POND | | COASTAL TRAIL/PARK ACQUISITION (OU-A) | | SAMPLE LOCATION |
| | FORMER POND | | "OFFSITE" NON-INDUSTRIAL (OU-B) | | PRESUMPTIVE REMEDY AREA |
| | STRUCTURE | | NORTHERN (OU-C) | | AREAS LIKELY TO MEET RESIDENTIAL SCREENING LEVELS CURRENTLY OR FOLLOWING REMEDIATION |
| | FORMER STRUCTURE | | SOUTHERN (OU-D) | | |
| | FACILITY PARCEL | | PONDS/PARK (OU-E) | | |

FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
 FORT BRAGG, CALIFORNIA
OPERABLE UNIT A REMEDIAL ACTION PLAN
AREAS LIKELY TO MEET RESIDENTIAL SCREENING LEVELS CURRENTLY OR FOLLOWING REMEDIATION



FIGURE
5-1

Appendix A

Risk-Based Target Level
Development

A.1.Introduction A-1

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A.1.2 Ecological Receptors	A-3
A.1.2.1 Receptor Selection	A-3
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A.1.2.3 Exposure Scenario	A-5
A.1.2.4 Risk-Based Target Levels Calculation Methodology	A-6

A.2.References A-9

Tables

Table A-1	Blood Risk-Based Target Level Estimates for Hypothetical Future Child Occasional Recreational Visitor Receptor from Exposure to Soil
Table A-2	Risk-Based Target Levels for Wildlife Receptors Most Sensitive to the Chemicals of Concern
Table A-3	Risk-Based Target Level Calculation Inputs for Toxicity
Table A-4	Risk-Based Target Level Calculation Inputs for Tissue Uptake (Bioaccumulation Factors or Regressions)
Table A-5	Risk-Based Target Level Calculation Inputs for Exposure
Table A-6	Risk-Based Target Level Calculation Verification

Figures

Figure A-1	Example RBTL Calculation/Flowchart
------------	------------------------------------

A.1. Introduction

Risk-based target levels (RBTLs) for the protection of human and ecological receptors derived herein for OU-A are not intended to serve as “cleanup” levels in general and are not necessarily relevant to other areas or operable units (OUs). The RBTLs presented in the Remedial Action Plan (RAP) and Feasibility Study (FS) should be considered along with the other post-remedy goals discussed within the RAP to select appropriate success criteria or confirmation goals. Although the protection of human and ecological receptors was not the primary driver or consideration in the initial development of each of the Presumptive Remedy Areas, it is important to ensure that the remedial measures implemented are protective of both human and ecological receptors.

The approach for calculating site-specific RBTLs is provided below for both human and ecological receptors. RBTLs were estimated for lead, total polychlorinated biphenyls (PCBs), and dioxins/furans (as tetrachlorodibenzo-*p*-dioxin toxic equivalents [TCDD TEQs]), as these chemicals were those identified in the OU-A Remedial Investigation (RI) Report (ARCADIS BBL, 2008) and Section 2 of the RAP as chemicals of concern (COCs).

Although these RBTLs may be used to screen post-confirmation results from single samples, these RBTLs should be compared to post-remedy exposure estimates (i.e., 95% Upper Confidence Limits) to determine whether post-remedy conditions are protective of human and ecological receptors, as predicted by the ecological risk assessment contained within the OU-A RI Report (ARCADIS BBL, 2008).

A.1.1 Human Health

In the OU-A RI (ARCADIS BBL, 2008), the highest estimated risks were observed for the frequent onsite visitor, and the primary risk was cancer (non-cancer risks were low). For these reasons the RBTLs estimated and presented herein are based on cancer effects related to the frequent onsite visitor. As noted in the OU-A RI Report (ARCADIS BBL, 2008), lead risks were evaluated using the U.S. Environmental Protection Agency (USEPA) Adult Lead Methodology (USEPA, 2003a,c) and the California Environmental Protection Agency Department of Toxic Substances Control Leadsread model (CalEPA, 1999). The child recreator was the most sensitive receptor for lead and was used to estimate the RBTL for lead.

Consistent with methods outlined by USEPA (1991, 2004), RBTLs for COCs other than lead were estimated using the following equation with intake parameters used in the OU-A RI (ARCADIS BBL, 2008) for the frequent visitor:

$$C(\text{mg} / \text{kg}) = \frac{TR \times AT_c}{EF \left[\left(\frac{IFS \times CSF_o}{10^6 \text{ mg} / \text{kg}} \right) + \left(\frac{SFS \times ABS \times CSF_o}{10^6 \text{ mg} / \text{kg}} \right) + \left(\frac{InhF \times CSF_i}{PEF} \right) \right]}$$

Where:

C = Soil concentration (equivalent to the RBTL)

TR = Target lifetime excess cancer risk (1×10^{-6} unitless)

AT_c = Averaging time for carcinogens (365 day/year \times 70 years)

EF = Exposure frequency (200 days/year)

IFS = Soil ingestion factor: $\frac{ED \times IRS}{BW}$ (milligrams per year/kilograms per day [mg-yr/kg-day]) where ED = 30 years; IRS = 25 mg/day; and BW = 70 kg

CSF_o = Oral cancer slope factor: 1.3×10^5 and 0.4 (milligrams per kilogram per day [mg/kg-day])⁻¹ for dioxin and PCBs, respectively

SFS = Dermal exposure factor: $\frac{ED \times AF \times SA}{BW}$ (mg-yr/kg-day) where ED = 30 years; AF = 0.2 mg/cm²-day; SA = 3000 cm²; and BW = 70 kg

ABS = Absorption factor: 0.03 and 0.1 for dioxin and PCBs, respectively (unitless)

InhF = Inhalation exposure factor: $\frac{ED \times IRA}{BW}$ (mg-yr/kg-day) where ED = 30 years; IRA = 3 m³/day (3 m³/hr for 1 hr/day); and BW = 70 kg

CSF_i = Inhalation cancer slope factor: 1.3×10^5 and 2 (mg/kg-day)⁻¹ for dioxin and PCBs, respectively

PEF = Particulate emission factor (1.32×10^9 cubic meters per kilogram [m^3/kg]).

For lead, the Leadsread model spreadsheet for the child recreator is included as Table A-1.

The resulting estimated RBTLs for the frequent visitor using the methods as described above are 8.8 milligrams per kilogram (mg/kg) for total PCBs, 523 mg/kg for lead (95th percentile Preliminary Remediation Goal from Leadsread), and 53 picograms per gram (pg/g) for TCDD TEQ.

A.1.2 Ec ological Receptors

The RBTLs were calculated using the same risk equations and inputs used to complete the ecological risk assessment in the OU-A RI (ARCADIS BBL, 2008). The following sections provide a summary of the approach and methods used to derive RBTLs using these inputs.

A.1.2.1 Receptor Selection

To develop RBTLs, the American kestrel, killdeer, and ornate shrew were considered based on their sensitivity to PCBs, lead, and dioxins/furans relative to other wildlife receptors based on the risk calculations used in the OU-A RI (ARCADIS BBL, 2008). The killdeer was the most sensitive receptor to lead, followed by the kestrel. The kestrel was the most sensitive species to PCBs and dioxins/furans, although none of the baseline risk assessment scenarios resulted in hazard quotients (HQs) greater than one (due to the assumption that the Presumptive Remedy Areas were removed). The ornate shrew was also evaluated using the methodology described in the following sections to provide RBTLs protective of the most sensitive mammalian receptor in OU-A. The resulting RBTLs for soil for the kestrel, killdeer, and shrew are presented in Table A-2 below.

Table A-2. RBTLs for Wildlife Receptors Most Sensitive to the COCs					
Receptor Basis	SUF Basis	TRV Source	OU-A North		OU-A South
			RBTL	RBTL	RBTL
			Total PCBs (mg/kg)	Lead (mg/kg)	Dioxin/Furan TEQ (pg/g)
American Kestrel <i>TEQ presented as [TEQ-avian]</i>	OUA-N+S (0.45)	BTAG	1.0	11	NA
		ORNL	NA	252	218
		EcoSSL	NA	93	NA
Killdeer <i>TEQ presented as [TEQ-avian]</i>	OUA-N+S (0.2)	BTAG	1.7	14	NA
		ORNL	NA	197	5,564
		EcoSSL	NA	80	NA
Ornate Shrew <i>TEQ presented as [TEQ-mammal]</i>	area specific (1)	BTAG	4.6	4,154	NA
		ORNL	0.5	7,484	2,938
		EcoSSL	NA	978	NA
Selected Risk-Based Target Level			1.0	80	218
TEQ ratio (bird/mammal)					3.7
OU-A TCDD TEQ RBTL presented as [TEQ-mammal]					59
Final/Proposed Risk-Based Target Level			1.0	80	59

The bolded values were selected. For PCBs, the lowest value using the BTAG TRV was selected. For lead, because the BTAG TRV results in a value below background, the lowest value based on the EcoSSL TRV was used. For dioxins/furans, the lowest value based on the ORNL TRV was used (EcoSSL and BTAG do not present TRVs for dioxins/furans).

The selected TCDD TEQ RBTL (for the American kestrel) was converted from an avian TEQ to a mammalian TEQ value. This is necessary to provide all RBTLs on a mammalian TEQ basis for simplicity in comparing across ecological and human receptors. To convert the avian TEQ to a mammalian TEQ, an OU-A South-specific TEQ conversion factor was developed. The conversion factor consisted of the ratio between the avian TEQ exposure point concentration (EPC) and the mammalian TEQ EPC for OU-A South. In other words, the avian TEQ EPC (95% Upper Confidence Limit identified in the OU-A RI [ARCADIS BBL, 2008]) was divided by the mammalian TEQ EPC (55 pg/g / 15 pg/g). The conversion factor was calculated to be 3.7 (i.e., the avian TEQ EPC was 3.7 times larger than the corresponding mammal TEQ).

For all three COCs, at least one of the avian receptors was more sensitive than the shrew (i.e., had a lower calculated RBTL). Therefore, the avian RBTLs developed for this RAP are considered protective of mammalian receptors. For this reason, details on RBTL calculations for the shrew are not included in following sections.

A.1.2.2 Toxicity Effects Level

RBTLs were calculated using derived “mid” toxicity reference values (TRVs) based on the geometric mean of the low (generally representing a no effect exposure level) and the high TRV (generally representing the lowest low effect exposure level). The resulting RBTLs are considered appropriate for supporting risk management decisions recognizing that neither the low nor the high TRV represents a true effect threshold concentration, and the true threshold effect concentration for a given COC likely lies somewhere between the low and high TRVs.

Additionally, because there is some uncertainty with the TRVs, values from multiple sources (Biological Technical Assistance Group [BTAG] TRVs, EFA West, 1998; Oak Ridge National Laboratory [ORNL] TRVs, Sample et al., 1996; and Ecological Soil Screening Levels [EcoSSL] TRVs, USEPA, 2003c) were used.

A.1.2.3 Exposure Scenario

In the OU-A RI Report (ARCADIS BBL, 2008), two different exposure scenarios were evaluated for far ranging receptors. These included (1) a “standard” exposure scenario, which accounted for the receptor’s foraging range relative to the surface area of OU-A North or South; and (2) a “cumulative” exposure scenario that conservatively assumed that a far-ranging receptor foraged only in OU-A North or South, which was recognized to be a conservative scenario. For developing RBTLs (where more realistic

assumptions should be considered), the standard scenario was used, but conservatively assuming the area of both OU-A North and South, corresponding to an area use factor of 0.45 and 0.2 for the kestrel and killdeer, respectively.

A.1.2.4 Risk-Based Target Levels Calculation Methodology

The dose equation and assumptions used to calculate risks for OU-A were presented in the OU-A RI Report (ARCADIS BBL, 2008). The following equation from the OU-A RI was used for determining if the calculated dose represents potential risk.

$$HQ = \frac{Dose}{TRV}$$

Where:

HQ = Hazard quotient

Dose = Daily intake of a COC via ingestion normalized by receptor body weight (mg/kg-day)

TRV = Toxicity Reference Value (mg of COC per kg of bodyweight)

The TRVs used in calculating HQs are presented in Table A-3. The "Dose" (or exposure) parameter portion of the HQ is a separate calculation and discussed below.

Depending on the COC, tissue concentrations (C_{prey} and C_{invert}) were calculated using different combinations of uptake regressions or site-specific uptake factors (UFs). Uptake regressions are linear exponential equations, while UFs are simple multipliers (see below).

$$C_{tissue} = e^a \times (C_{soil})^b \quad or \quad \ln(C_{tissue}) = a + b \times \ln(C_{soil})$$

Alternatively

$$C_{tissue} = UF_{tissue} \times C_{soil}$$

Where:

C_{tissue} = Tissue concentration (mg of COC per kg of tissue or pg of COC per g of tissue)

C_{soil} = Soil concentration (mg of COC per kg of soil or pg of COC per g of soil)

a = Compound-specific regression equation constant (unitless)

b = Compound-specific regression equation constant (unitless)

UF_{tissue} = Uptake Factor from soil to tissue (unitless)

Uptake factors and regression equations used for calculating tissue concentrations are presented in Table A-4.

Incorporating uptake regressions in lieu of a simple uptake factor/bioaccumulation factor in the dose equation (as depicted in the equation below) significantly complicates the overall dose calculation. The equation below presents an example dose equation (dose = TRV) for a receptor when media-to-tissue regressions are used instead of only uptake factors. Because the bioaccumulation regression places C_{soil} subject to an exponential term, solving for C_{soil} becomes extremely cumbersome.

$$Dose = TRV = \frac{SUF \times [IR_{\text{food}} \times (F_{\text{inv}} \times UF_{\text{inv}} \times C_{\text{soil}}) + IR_{\text{food}} \times (F_{\text{prey}} \times e^a \times (C_{\text{soil}})^b) + (IR_{\text{soil}} \times C_{\text{soil}})]}{BW}$$

Where:

Dose = Daily dose resulting from ingestion of food items and incidental ingestion of media (mg of COC per kg of body weight per day)

TRV = Toxicity Reference Value – based on the geometric mean of the no adverse effect level and lowest adverse effect level (mg of COC per kg of bodyweight)

SUF = Site Use Factor (unitless)

IR_{food} = Food Ingestion Rate (kilograms food per day)

F_{inv}	=	Proportion of diet from invertebrate items (unitless)
a	=	Compound specific regression equation constant (unitless)
C_{soil}	=	Soil Concentration (mg of COC per kg of soil or pg of COC per g of soil)
b	=	Compound specific regression equation constant (unitless)
UF_{inv}	=	Uptake Factor from soil to invertebrate (unitless)
F_{prey}	=	Proportion of diet from prey items (unitless)
IR_{soil}	=	Soil Ingestion Rate (kilograms soil per day)
BW	=	Body Weight (kg)

Exposure parameters used in calculating daily doses for RBTL development are presented in Table A-5.

Because of the challenges associated with back-calculating RBTLs with dose equations that rely on exponential regressions for modeling tissue concentrations, a forward-calculation methodology was developed to simplify the calculation steps and reduce the potential for mathematical error. An automated, iterative calculation algorithm was used to combine the dose equation and tissue regression equation(s) into a single forward calculation by using the Microsoft® Solver™ software. Solver™ is an add-on to Microsoft® Excel that finds a solution by iterative trial-and-error that satisfies calculation constraints introduced by having interdependent mathematical equations. In this case, the interdependent equations are the tissue uptake equation(s), which rely on a media concentration and a dose equation that rely on the same media concentration (as the tissue uptake equation) and the solution of the uptake equation(s). The media uptake regression(s) and dose equation were combined using Solver™ and used to calculate RBTLs. Figure A-1 depicts (as an example) a flowchart of the iterative process that was followed and the associated equations that were used to calculate RBTLs for the American kestrel.

An added benefit of using Solver™ to determine the RBTL is that it allows instant confirmation of accuracy. The spreadsheet cell representing C_{soil} (the results output from Solver™) is instantaneously fed back through the tissue uptake, dose, and HQ equations to calculate an HQ. As long as the resulting HQ value equals one

(dose/TRV), it can be confidently concluded that the Solver™ based model performed the calculations correctly and that the resulting C_{soil} is the accurate RBTL.

The final step in RBTL development was verification of calculation accuracy by using each RBTL in a forward calculation (Soil EPC→Tissue EPCs→Dose→HQ) to ensure the RBTL yields a HQ of 1. Table A-6 presents this verification conducted for each of the three selected RBTLs (Total PCBs, lead, and Dioxin TEQ).

A.2. References

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CalEPA. 1999. DTSC Lead Risk Assessment Spreadsheet – Version7. Available at: <http://www.dtsc.ca.gov/AssessingRisk/leadspread.cfm>. California Environmental Protection Agency, Department of Toxic Substances and Disease Control, Human and Ecological Risk Division.

EFA West. 1998. Development of Toxicity Reference Values as Part of a Regional Approach for Conducting Ecological Risk Assessments at Naval Facilities in California. Interim Final. Engineering Field Activity, West, Naval Facilities Engineering Command, United States Navy, San Bruno, California.

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Tables

**Table A-1
Blood Risk-Based Target Level Estimates for Hypothetical Future Child Occasional Recreational Visitor Receptor from Exposure to Soil**

**Remedial Action Plan for Operable Unit A
Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA**

**LEAD RISK ASSESSMENT SPREADSHEET
CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL**

User's Guide to Version 7

INPUT	
MEDIUM	LEVEL
Lead in Air ($\mu\text{g}/\text{m}^3$)	0.028
Lead in Soil/Dust ($\mu\text{g}/\text{g}$)	24.00
Lead in Water ($\mu\text{g}/\text{l}$)	15
% Home-grown Produce	7%
Respirable Dust ($\mu\text{g}/\text{m}^3$)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb ($\mu\text{g}/\text{dl}$)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	($\mu\text{g}/\text{g}$)	($\mu\text{g}/\text{g}$)
BLOOD Pb, ADULT	1.1	2.1	2.4	3.0	3.4	903	1411
BLOOD Pb, CHILD	1.6	2.9	3.5	4.2	4.8	311	523
BLOOD Pb, PICA CHILD	1.6	3.0	3.6	4.3	4.9	249	419
BLOOD Pb, OCCUPATIONAL	1.1	2.0	2.4	2.9	3.4	3475	5464

EXPOSURE PARAMETERS			
	Units	Adults	Children
Days per week	days/wk		1
Days per week, occupational		5	
Geometric Standard Deviation			1.6
Blood lead level of concern ($\mu\text{g}/\text{dl}$)		10	
Skin area, residential	cm^2	5700	750
Skin area occupational	cm^2	2900	
Soil adherence	$\mu\text{g}/\text{cm}^2$	70	200
Dermal uptake constant	($\mu\text{g}/\text{dl}$)/($\mu\text{g}/\text{day}$)		0.0001
Soil ingestion	mg/day	50	50
Soil ingestion, pica	mg/day		200
Ingestion constant	($\mu\text{g}/\text{dl}$)/($\mu\text{g}/\text{day}$)	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	1.2
Inhalation constant	($\mu\text{g}/\text{dl}$)/($\mu\text{g}/\text{day}$)	0.082	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	$\mu\text{g}/\text{kg}$		3.1
Lead in home-grown produce	$\mu\text{g}/\text{kg}$		10.8

PATHWAYS						
ADULTS Pathway	Residential			Occupational		
	Pathway Contribution			Pathway Contribution		
	PEF	$\mu\text{g}/\text{dl}$	percent	PEF	$\mu\text{g}/\text{dl}$	percent
Soil Contact	5.5E-6	0.00	0%	1.4E-5	0.00	0%
Soil Ingestion	1.3E-4	0.00	0%	6.3E-4	0.02	1%
Inhalation, bkgnd		0.01	1%		0.03	3%
Inhalation	3.5E-7	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.84	75%		0.84	75%
Food Ingestion, bkgnd		0.22	19%		0.23	21%
Food Ingestion	2.4E-3	0.06	5%			0%

CHILDREN Pathway	Typical			With Pica		
	Pathway Contribution			Pathway Contribution		
	PEF	$\mu\text{g}/\text{dl}$	percent	PEF	$\mu\text{g}/\text{dl}$	percent
Soil Contact	2.1E-6	0.00	0%		0.00	0%
Soil Ingestion	5.0E-4	0.01	1%	2.0E-3	0.05	3%
Inhalation	4.9E-8	0.00	0%		0.00	0%
Inhalation, bkgnd		0.00	0%		0.00	0%
Water Ingestion		0.96	60%		0.96	58%
Food Ingestion, bkgnd		0.50	31%		0.50	31%
Food Ingestion	5.5E-3	0.13	8%		0.13	8%

Notes:
DTSC Lead Risk Assessment Spreadsheet (version 7, 1999) was used to assess exposure to lead.
Site-specific input values were used where appropriate (shaded values). Risk-Based Target Level in Bold

cm^2 = square centimeter(s)
dl = deciliter(s)
g = gram(s)
kg = kilogram(s)
l = liter
 m^3 = cubic meter(s)

mg = milligram(s)
Pb = lead
PEF = Particular Emission Factor
PRG = Preliminary Remediation Goal
 μg = microgram(s)
wk = week

**Table A-3.
Risk-Based Target Level Calculation Inputs for Toxicity**

**Remedial Action Plan for Operable Unit A
Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA**

Compound	Total PCBs (mg/kg)	Lead (mg/kg)	Dioxin/Furan Avian TEQ (pg/g)
Low TRV	0.09	1.63 ^a	14
High TRV	1.27		140
Geomean of TRVs	0.34		44.3
TRV Reference	BTAG	EcoSSL	ORNL

Notes:

All TRVs are avian toxicity benchmarks.

^a EcoSSL is not presented as a range (i.e., no Low or High TRV).

BTAG = Biological Technical Assistance Group

g = gram

kg = kilogram

mg = milligram

ORNL = Oak Ridge National Laboratory

PCB = Polychlorinated Biphenyl

pg = picogram

RBTL = Risk Based Target Level

TEQ = Toxicity Equivalent

TRV = Toxicity Reference Value

**Table A-4.
Risk-Based Target Level Calculation Inputs for Tissue Uptake (Bioaccumulation Factors or Regression)**

**Remedial Action Plan for Operable Unit A
Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA**

Compound	OU-A Portion	Invertebrate Tissue			Prey Tissue		
		Bioaccumulation Calculation Used	Bioaccumulation Calculation Value ^a	Source	Bioaccumulation Calculation Used	Bioaccumulation Calculation Value ^a	Source
Total PCBs (mg/kg)	North	Regression	$\ln(C_i) = 1.361 * \ln(C_s) + 1.41$	ORNL	Regression	4.8	ORNL
Lead (mg/kg)	North	Regression	$\ln(C_i) = 0.807 * \ln(C_s) - 0.218$	ORNL	Regression	$\ln(C_p) = 0.4422 * \ln(C_s) + 0.0761$	ORNL
Dioxin/Furan Avian TEQ (pg/g)	South	Uptake Factor	0.032	Site specific calculation ^b	Regression	$\ln(C_p) = 1.0993 * \ln(C_s) + 0.8113$	ORNL

Notes:

a. Regression parameters: C_i = invertebrate tissue COPC concentration; C_s = soil COPC concentration; C_p = prey tissue COPC concentration.

b. Site-specific calculation performed using soil and tissue dioxin TEQ (avian) data collected from OU-A South - Appendix F of OU-A RI, ARCADIS BBL (2008).

g = gram

kg = kilogram

mg = milligram

ORNL = Oak Ridge National Laboratory

PCB = Polychlorinated Biphenyl

pg = picogram

RBTL = Risk Based Target Level

TEQ = Toxicity Equivalents

**Table A-5.
Risk-Based Target Level Calculation Inputs for Exposure**

**Remedial Action Plan for Operable Unit A
Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA**

Receptor	American Kestrel	Killdeer
Body Weight (kg)	0.116	0.076
Food Ingestion Rate (kg/day)	0.02	0.015
Soil Ingestion Rate (kg/day)	0.001	0.0025
Vegetation Fraction	0%	0%
Invertebrate Fraction	33%	100%
Prey Fraction	67%	0%
Foraging Range (Acres)	194	437
SUF (basis) ^a	0.45 (FR / [OUA-N + OUA-S])	0.2 (FR / [OUA-N + OUA-S])

Notes:

a. Basis means how the SUF was calculated (i.e. the species FR divided by the sum area of

FR = Foraging Range

kg = kilogram

OUA-N = OU-A North

OUA-S = OU-A South

SUF = Site Use Factor

RBTL = Risk-Based Target Level

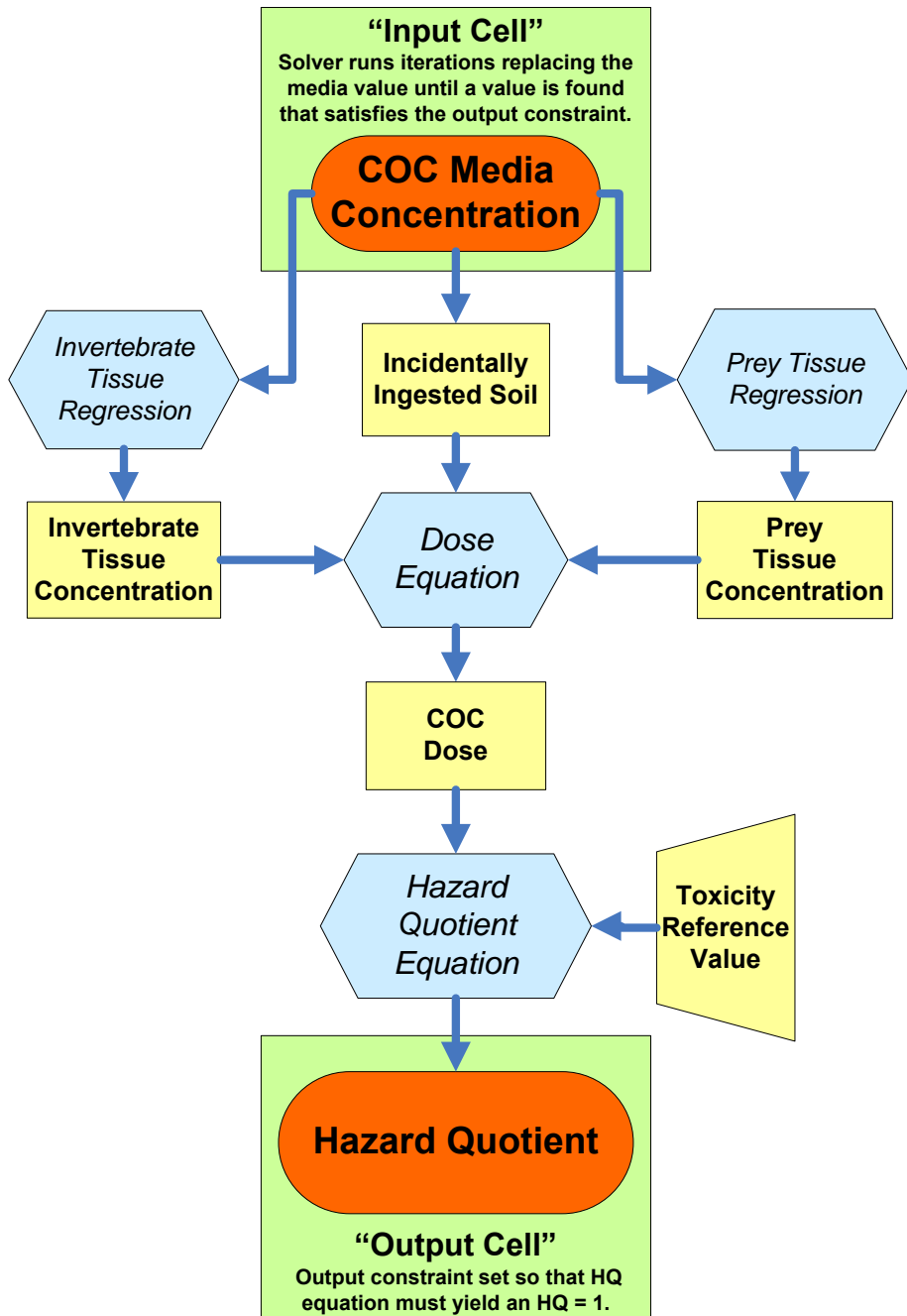
**Table A-6.
Risk-Based Target Level Calculation Verification**

**Remedial Action Plan for Operable Unit A
Former Georgia-Pacific Wood Products Facility
Fort Bragg, CA**

Compound	OU-A Portion	Most Sensitive Receptor	Soil EPC (RBTL)	Invertebrate Tissue EPC		Prey Tissue EPC		Dose Calculation	Avian TRV	HQ Calculation	Hazard Quotient
				Tissue Uptake Calculation	Tissue EPC	Tissue Uptake Calculation	Tissue EPC				
Total PCBs (mg/kg)	North	American Kestrel	0.96	$\ln(\text{Invert Tissue EPC}) = 1.361 * \ln(0.96) + 1.41$	3.87	$\text{Prey Tissue EPC} = 4.8 * 0.96$	4.61	$\left(\frac{(0.02 * 0.33 * 3.87) + (0.02 * 0.67 * 4.61) + (0.001 * 0.96)}{0.116} \right) * 0.45 = 0.34$	0.34	$HQ = \frac{Dose}{TRV} = \frac{0.34}{0.34}$	1.0 ^b
Lead (mg/kg)	North	Killdeer	80.24	$\ln(\text{Invert Tissue EPC}) = 0.807 * \ln(80.24) - 0.218$	27.7	$\ln(\text{Prey Tissue EPC}) = 0.4422 * \ln(80.24) + 0.0761$	7.50	$\left(\frac{(0.015 * 1.0 * 27.7) + (0.015 * 0.0 * 7.50) + (0.0025 * 80.24)}{0.076} \right) * 0.2 = 1.62$	1.63	$HQ = \frac{Dose}{TRV} = \frac{1.62}{1.63}$	1.0 ^c
Dioxin/Furan Avian TEQ (pg/g)	South	American Kestrel	218.34 (= 59 * 3.7) ^a	$\text{Invert Tissue EPC} = 0.032 * 218.34$	6.99	$\ln(\text{Prey Tissue EPC}) = 1.0993 * \ln(218.34) + 0.8113$	839	$\left(\frac{(0.02 * 0.33 * 6.99) + (0.02 * 0.67 * 838.98) + (0.001 * 218.34)}{0.116} \right) * 0.45 = 44.6$	44.3	$HQ = \frac{Dose}{TRV} = \frac{44.6}{44.3}$	1.0 ^d
Notes:								* Dose Calculation Guide			
Differences between RBTLs presented in this table and Table A-2 are attributed to rounding.								$Dose = \left(\frac{(IR_{food} * F_{inv} * C_{inv}) + (IR_{food} * F_{prey} * C_{prey}) + (IR_{soil} * C_{soil})}{BW} \right) * SUF$			
DTSC = Department of Toxic Substances Control EPC = Exposure Point Concentration g = gram kg = kilogram mg = milligram				PCB = Polychlorinated Biphenyl pg = picogram RBTL = Risk-based target level TEQ = Toxic Equivalent				<u>Parameter:</u> HQ = Hazard Quotient Dose = Daily dose resulting from ingestion of food items and incidental ingestion of media mg of COPC per kg of body weight per day TRV = Toxicity Reference Value – based on the geometric mean of the no adverse effect level and lowest adverse effect level (mg of COPC per kg of body weight) SUF = Site Use Factor (unitless) IR _{food} = Food Ingestion Rate (kg food per day) F _{inv} = Proportion of diet from invertebrate items (unitless) C _{inv} = Invertebrate tissue concentration (mg of COPC per kg of tissue or pg of COPC per g media of tissue) F _{prey} = Proportion of diet from prey items (unitless) C _{prey} = Prey tissue concentration (mg of COPC per kg of tissue or pg of COPC per g media of tissue) IR _{soil} = Soil Ingestion Rate (kg soil ingested per day) C _{soil} = Soil Concentration (mg of COPC per kg of soil or pg of COPC per g media of soil) BW = Body Weight (kg)			
a. The final RBTL of 59 is presented in Table A-2, this RBTL is the Avian Dioxin TEQ based RBTL converted to a Mammal TEQ based value using the OU-A South Specific conversion factor of 3.7 [Avian TEQ EPC / Mammal TEQ EPC].											
b. At the request of DTSC the verification calculations have been conducted for Total PCBs using the low and high TRVs (and the RBTL for Total PCBs as the soil input) to provide a "no/low toxicity" HQ (low TRV of 4 and a "known toxicity" HQ of 0.3.											
c. At the request of DTSC the verification calculations have been conducted for lead using the low and high TRVs (and the RBTL for lead as the soil input) to provide a "no/low toxicity" HQ (low TRV) of 1 (rounded from 1.4) and a "known toxicity" HQ of 0.1.											
d. At the request of DTSC the verification calculations have also been conducted for Dioxin TEQ using the low and high TRVs (and the RBTL for Dioxin TEQ as the soil input) to provide a "no/low toxicity" HQ (low TRV) of 3 and a "known toxicity" HQ of 0.3.											

Figures

Figure A-1
Example RBTL Calculation/Flowchart



Formulae and Variables Description

Invertebrate Tissue Regression Equation

$$\ln(C_{inv}) = a + b[\ln(C_{soil})] \quad \therefore \quad C_{inv} = e^a \times (C_{soil})^b$$

Prey Tissue Regression Equation

$$\ln(C_{prey}) = a + b[\ln(C_{soil})] \quad \therefore \quad C_{prey} = e^a \times (C_{soil})^b$$

Dose Equation

$$Dose = \frac{SUF \times (IR_{food} \times [(C_{prey} \times F_{prey}) + (C_{invert} \times F_{invert})] + IR_{soil} \times C_{soil})}{BW}$$

Hazard Quotient Equation

$$HQ = \frac{Dose}{TRV}$$

Where:

- C_{soil} = COC concentration in exposure soil (mg/kg or pg/g)
- C_{inv} = COC concentration in invertebrate tissue (mg/kg or pg/g)
- C_{prey} = COC concentration in prey tissue (mg/kg or pg/g)
- a = compound specific regression equation constant (unitless)
- b = compound specific regression equation constant (unitless)
- Dose = daily dose of COC resulting from ingestion of media and invertebrates (mg/kg*day)
- F_{soil} = fraction of daily diet from incidental ingestion of media (unitless)
- F_{inv} = fraction of daily diet from ingestion of invertebrate tissue (unitless)
- IR = daily ingestion rate of food (kg/day)
- SUF = site use factor (unitless)
- BW = body weight (kg)
- HQ = hazard quotient (unitless)

Appendix B

Volume and Cost Estimates

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Tables

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Table B-2	Lead Offsite Removal and Disposal Cost Estimate
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Table B-6	Summary of Remedial Alternative Cost Estimates

B.1. Introduction

The cost estimates presented in this appendix and the associated cost analysis information are provided for use in evaluating the cost of the alternatives presented in the *Operable Unit A Remedial Action Plan (OU-A RAP) and Feasibility Study (FS)*. These cost estimates are intended to represent the estimated cost within an accuracy range of -30 % to +50%, including ongoing operation, maintenance, and monitoring (OMM) costs.

The cost estimates were prepared in general accordance with regulatory guidance for cost estimating (USEPA, 2000). Unit costs were selected based on previous experience with remedial construction activities at the site, quotes, and the RS Means *Heavy Construction Cost Data Manual* (2003).

Table B-1 presents estimates of the area, volume, and weight quantities to be addressed in the Presumptive Remedy Areas (PRAs). Tables B-2 through B-4 present the preliminary cost estimates for the offsite removal and disposal alternatives, and Table B-5 presents the preliminary cost estimate for the consolidation and capping alternative for the dioxin PRAs. Table B-6 summarizes the costs for all of the alternatives. The actual cost of implementation of the remedial actions at all of the PRAs will likely be lower than the sum of the selected three alternatives, due to overlap of mobilization and site preparation related activities. The main assumptions made in preparing these cost estimates are presented in the following sections.

B.2. General Assumptions

The general assumptions used in developing the preliminary cost estimates are as follows:

- **Excavation Quantities.** The excavation volumes were computed using a geographic information system (GIS). A conversion factor of 1.3 tons per cubic yard (cy) was used to determine tonnage. The excavation volumes are estimated as shown in Table B-1:
- **Staging Area.** Staging areas will be required for excavated materials. Other materials staging areas (i.e., the soil shed) were prepared in the 2006 and 2007 construction seasons. For the purpose of this cost estimate, we assume that mobilization costs will include only minimal costs for constructing staging areas.

- **Duration of Project.** For preliminary planning purposes, we assume in this cost estimate that the project duration (all of the PRAs) will be three to four months. A detailed schedule is provided in the OU-A RAP.
- **Construction Contingencies.** A contingency of 20% is applied to the alternatives.
- **Concurrent Activities.** A separate RAP is being submitted for interim remedial actions in OU-C. Permitting and mobilization/demobilization costs as well as costs for permit compliance and other common costs have been spread across the cost estimates for the two RAPs.

B.3. Capital Cost Assumptions

B.3.1 Mobilization/Demobilization

The cost estimate for mobilization/demobilization assumes the following:

- **Mobilization/Demobilization.** Mobilization and demobilization for all PRAs (as well as the interim actions for OU-C) would occur at the same time. A total cost of \$25,000 to \$30,000 has been assumed for OU-A based on actual costs from 2006 and 2007; taking into account the presence of existing facilities from those previous efforts (note that the consolidate and cap alternative requires additional mobilization). Mobilization/demobilization includes the contractor's cost to transport equipment to the site as well as the installation of several regulatory-required features including site/wetland staking and fencing; marking of exclusion zones; wind monitoring equipment; and any refurbishing of support zones, stockpile areas, and haul routes.

B.3.2 Site Preparation

The cost estimate for site preparation assumes the following:

- **Erosion Controls.** All alternatives include excavation and temporary stockpiling of soil. Based on previous excavations at the site, erosion controls were estimated to have a minimum cost of \$1,000 with \$5000 assumed for the larger dioxin areas. The items needed for erosion control include silt fencing and hay bales for sedimentation control.

- **Temporary Facilities.** Existing facilities include a trailer (office), water service, and a fire protection system. No costs were necessary for this item (included in construction oversight costs).

B.3.3 Removal and Offsite Disposal

The cost estimate for this alternative assumes the following:

- **Excavation.** Based on previous experience with excavations at this site, a unit cost of \$25/cy was used for excavation and loading.
- **Disposal.** Based on quotes from the proposed landfills, a unit cost of \$121/cy or approximately \$93/ton was used for hazardous waste and a unit cost of \$91/cy or \$70/ton was used for non-hazardous waste.
- **Backfill.** Based on previous experience with excavations at this site, a unit cost of \$30/cy is appropriate for importing and placement of clean backfill¹. However, dredged material from Noyo Harbor is available at no cost and is not contaminated. Therefore, a unit cost of \$20/cy was used for hauling, placement, and compaction of backfill.

B.3.4 Capping

The cost estimate for consolidation and capping assumes the following:

- **Excavation.** The same unit cost noted above was used. However, the volume of material that would need to be excavated would be approximately twice the volume of the dioxin PRAs, because the cap location would need to be excavated as well, so a volume of approximately 25,500 cy was used.
- **Backfill.** The material excavated from the dioxin PRAs would be consolidated and compacted in the cap cell. A unit cost of \$5/cy was used for the placement and compaction of the dioxin-contaminated soil. The dioxin PRAs are located in a high spot and backfilling of the entire excavation may not be required. However, the

¹ Fill material will be evaluated based on DTSC's *Information Advisory, Clean Imported Fill Material, October 2001*.

dioxin PRAs would require regrading; some backfill may be needed (from the excavation of the cap area). Any remaining borrow (from the cap area) would remain onsite and be used as clean backfill elsewhere. A cost of \$5/cy was used for grading.

- **Impermeable Liner.** Based on Title 27 requirements, it was assumed that a 40-mil high-density polyethylene liner would be used for the bottom lining of the cap. Based on a cell thickness of 6 feet and a volume of 12,800 cy of material, the area of the cap is approximately 58,000 square feet (sf). Therefore, it is estimated that a total of approximately 58,000 sf of liner (low-density polyethylene) would be needed. A unit cost of approximately \$0.70/sf was estimated based on a vendor quote and experience with installing liners at this site. A geosynthetic clay liner (GCL, such as Bentomat) is proposed for the top at \$1.2/sf.
- **Cap Surface.** It is assumed the liner will be covered with at least 6 inches of clean fill, which results in approximately 800 cy of clean fill. The backfill unit hauling and placement cost was used.

B.3.5 Site Restoration

Site restoration for these alternatives would include the addition of a top layer of clean soil suitable for revegetation and native seeds to the excavation areas. Based on previous excavations at the site, site restoration is estimated to have a unit cost of approximately \$15,000/acre or approximately \$3 per square yard of restoration with a minimum cost of \$1,000. More detailed site restoration information is provided in Appendix C.

B.3.6 Contingency

Note that a 20% contingency was added to the construction-related costs (excluding the mobilization/demobilization and site preparation costs).

B.4. Operation, Maintenance, and Monitoring (Annual Costs)

- Removal and offsite disposal would not have operation and maintenance costs.
- Capping and consolidation

- OMM – It is assumed that OMM will be annual for the first five years, and will then be required every five years. An OMM cost of \$8,000 per year was estimated based on monitoring well sampling, minimal maintenance, and cap surface inspection.

B.5. Periodic Costs

- Removal and offsite disposal would not have periodic costs.
- Capping and consolidation
 - OMM – It is assumed that OMM will be annual for the first five years, and will then be required every five years. For a 30-year cost, there would be periodic costs at 10, 15, 20, 25, and 30 years. An OMM cost of \$8,000 per year was estimated for periodic costs based on monitoring well sampling, minimal maintenance, and cap surface inspection.

B.6. Other Costs

The following outlines other costs that are not specifically construction costs:

- **Permitting.** Permitting costs for the removal and offsite disposal and capping alternatives are assumed to be approximately \$10,000 and would include an amendment to the Coastal Development Permit for the site and grading permits. The portion of the permitting costs for OU-A is assumed to be \$4,500.
- **Inspections.** A geotechnical inspection of the bluffs would be completed prior to equipment mobilization to verify that the setback is appropriate; this will be necessary only for the lead and PCB areas. Other inspections and surveys (e.g., plant surveys, bird surveys) are required as part of permit compliance (see Appendix C). Each alternative includes an estimated lump sum of \$2,000 for these activities.
- **Verification Sampling.** The number of samples was based on the verification sampling plans in Appendix C. Unit costs of \$50, \$600, and \$1,000 per sample for the lead, PCB, and dioxin areas, respectively, were used for laboratory costs (see Appendix C). In addition, the consolidation and capping alternative includes a lump sum of \$10,000 for monitoring well installation.
- **Cultural Resource Monitors.** Cultural resource monitoring would require an archaeologist and a Native American to be present during excavation activities in OU-A North and in OU-A South. Based on a contractor estimate, a unit cost of

\$500/day for a Native American and \$700/day for an archaeologist for a total of \$1,200/day was used. A total of 28 days was assumed for the removal and offsite disposal alternative and twice the number of days for the consolidation and capping alternative.

A cost estimate associated with professional and technical services was made using the USEPA's rule-of-thumb percentages of total project capital cost (USEPA, 2000). The percentages for projects with capital costs ranging from \$2,000,000 to \$10,000,000 (i.e., the alternatives for the dioxin PRAs) were initially evaluated and then modified slightly based on knowledge of the site and permit requirements:

- Project management, 5%
- Construction management, 8%

B.7. References

RS Means. 2003. *Heavy Construction Cost Data*. 17th ed.

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Tables

**Table B-1
Presumptive Remedy Area Quantities**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

PRA	Area (square feet)	Volume (cubic yards)	Weight (tons)
Glass Beach 2: Lead PRA	1834	136	177
Former Scrap Yard: PCB PRA	26732	990	1287
Glass Beach 2: Dioxin PRA	2674	99	129
Parcel 10 Fill Area PRAs			
Dioxin Area #1	19391	3591	4668
Dioxin Area #2	13341	1482	1927
Dioxin Area #3	53216	7008	9110
Dioxin Area #4	7808	578	752
Total of Dioxin PRAs	96429	12759	16586

Notes:

PCB = polychlorinated biphenyls

PRA = Presumptive Remedy Area

Table B-2
Lead Offsite Removal and Disposal Cost Estimate

Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California

Description	Quantity	Unit	Unit Cost	Total
CAPITAL COSTS				
MOBILIZATION/DEMOBILIZATION				
Mobilization and Demobilization	1	LS	\$2,500	\$2,500
SUBTOTAL				<u>\$2,500</u>
SITE PREPARATION				
Erosion Controls	1	LS	\$1,000	\$1,000
SUBTOTAL				<u>\$1,000</u>
EXCAVATION, TRANSPORT, & DISPOSAL				
Excavation	136	CY	\$25	\$3,400
Transportation and Disposal Fees	136	CY	\$121	\$16,456
Backfill Material Placement	136	CY	\$20	\$2,720
SUBTOTAL				<u>\$22,576</u>
SITE RESTORATION				
Site Restoration	1	LS	\$1,000	\$1,000
SUBTOTAL				<u>\$1,000</u>
SUBTOTAL				<u>\$23,576</u>
Contingency	20%			\$4,715
SUBTOTAL (CONSTRUCTION COSTS)				<u>\$31,791</u>
OTHER COSTS				
Permitting	1	LS	\$1,250	\$1,250
Inspections	1	LS	\$2,000	\$2,000
Verification Samples	5	EA	\$50	\$250
Cultural Monitors	2	DAY	\$1,200	\$2,400
Project Management	5%			\$1,590
Construction Management	8%			\$2,543
SUBTOTAL				<u>\$10,033</u>
GRAND TOTAL				\$41,824

Notes:
 CY = cubic yards
 DAY = per day
 EA = each
 LS = lump sum

Table B-3
PCB Offsite Removal and Disposal Cost Estimate

Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California

Description	Quantity	Unit	Unit Cost	Total
CAPITAL COSTS				
MOBILIZATION/DEMOBILIZATION				
Mobilization and Demobilization	1	LS	\$2,500	\$2,500
SUBTOTAL				\$2,500
SITE PREPARATION				
Erosion Controls	1	LS	\$1,000	\$1,000
SUBTOTAL				\$1,000
EXCAVATION, TRANSPORT, & DISPOSAL				
Excavation	990	CY	\$25	\$24,750
Transportation and Disposal Fees	990	CY	\$91	\$90,090
Backfill Material Placement	990	CY	\$20	\$19,800
SUBTOTAL				\$134,640
SITE RESTORATION				
Site Restoration	3000	SY	\$3	\$9,000
SUBTOTAL				\$9,000
SUBTOTAL				\$143,640
Contingency	20%			\$28,728
SUBTOTAL (CONSTRUCTION COSTS)				\$175,868
OTHER COSTS				
Permitting	1	LS	\$1,250	\$1,250
Inspections	1	LS	\$2,000	\$2,000
Verification Samples	25	EA	\$600	\$15,000
Cultural Monitors	3	DAY	\$1,200	\$3,600
Project Management	5%			\$8,793
Construction Management	8%			\$14,069
SUBTOTAL				\$44,713
GRAND TOTAL				\$220,581

Notes:

CY = cubic yards

DAY = per day

EA = each

LS = lump sum

PCB = polychlorinated biphenyl

SY = square yard

Table B-4
Dioxin Offsite Removal and Disposal Cost Estimate

Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California

Description	Quantity	Unit	Unit Cost	Total
CAPITAL COSTS				
MOBILIZATION/DEMOBILIZATION				
Mobilization and Demobilization	1	LS	\$20,000	\$20,000
SUBTOTAL				<u>\$20,000</u>
SITE PREPARATION				
Erosion Controls	1	LS	\$5,000	\$5,000
SUBTOTAL				<u>\$5,000</u>
EXCAVATION, TRANSPORT, & DISPOSAL				
Excavation	12,760	CY	\$25	\$319,000
Transportation and Disposal Fees	12,760	CY	\$91	\$1,161,160
Backfill Material Placement	12,760	CY	\$20	\$255,200
SUBTOTAL				<u>\$1,735,360</u>
SITE RESTORATION				
Site Restoration	10,700	SY	\$3	\$32,100
SUBTOTAL				<u>\$32,100</u>
SUBTOTAL				<u>\$1,767,460</u>
Contingency	20%			\$353,492
SUBTOTAL (CONSTRUCTION COSTS)				<u>\$2,145,952</u>
OTHER COSTS				
Permitting	1	LS	\$2,000	\$2,000
Inspections	1	LS	\$2,000	\$2,000
Verification Samples	70	EA	\$1,000	\$70,000
Cultural Monitors	28	DAY	\$1,200	\$33,600
Project Management	5%			\$107,298
Construction Management	8%			\$171,676
SUBTOTAL				<u>\$386,574</u>
GRAND TOTAL				\$2,532,526

Notes:
 CY = cubic yards
 DAY = per day
 EA = each
 LS = lump sum
 SY = square yard

**Table B-5
Dioxin Capping and Consolidation Cost Estimate**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Description	Quantity	Unit	Unit Cost	Total	
CAPITAL COSTS					
MOBILIZATION/DEMOBILIZATION					
Mobilization and Demobilization	1	LS	\$25,000	\$25,000	
SUBTOTAL				<u>\$25,000</u>	
SITE PREPARATION					
Erosion Controls	1	LS	\$10,000	\$10,000	
SUBTOTAL				<u>\$10,000</u>	
EXCAVATION & CAPPING					
Excavations (dioxin and cap area)	25,500	CY	\$25	\$637,500	
Consolidation/Backfilling of Cap Cell	12,800	CY	\$5	\$64,000	
Grading of Dioxin Excavations	12,800	CY	\$5	\$64,000	
PVC 40-mil Liner (bottom)	58,000	SF	\$0.7	\$40,600	
Geosynthetic Liner (Bentomat - top)	58,000	SF	\$1.2	\$69,600	
Clean Sand Fill (placement)	800	CY	\$20	\$16,000	
SUBTOTAL				<u>\$891,700</u>	
SITE RESTORATION					
Site Restoration	19,000	SY	\$3	\$57,000	
SUBTOTAL				<u>\$67,000</u>	
SUBTOTAL				<u>\$958,700</u>	
Contingency	20%			\$191,740	
SUBTOTAL (CONSTRUCTION COSTS)				<u>\$1,185,440</u>	
OPERATION, MAINTENANCE & MONITORING COSTS (ANNUAL)					
OMM	1	LS	\$8,000	\$8,000	
PERIODIC COSTS					
Description	Year	Quantity	Unit	Unit Cost	Total
OMM Cost	10	1	LS	\$8,000	\$8,000
OMM Cost	15	1	LS	\$15,000	\$15,000
OMM Cost	20	1	LS	\$15,000	\$15,000
OMM Cost	25	1	LS	\$15,000	\$15,000
OMM Cost	30	1	LS	\$15,000	\$15,000
PRESENT VALUE ANALYSIS					
Cost Type	Year	Total Cost	Total Cost Per Year	Discount Factor (6 %)	Present Value
Capital Cost	0	\$1,185,440	\$1,185,440	1.00	\$1,185,440
Annual OMM Cost	1-5	\$40,000	\$8,000	4.21	\$33,699
Periodic OMM Cost	10	\$8,000	\$8,000	0.56	\$4,467
Periodic OMM Cost	15	\$15,000	\$15,000	0.42	\$6,259
Periodic OMM Cost	20	\$15,000	\$15,000	0.31	\$4,677
Periodic OMM Cost	25	\$15,000	\$15,000	0.23	\$3,495
Periodic OMM Cost	30	\$15,000	\$15,000	0.17	\$2,612
TOTAL PRESENT VALUE OF ALTERNATIVE					\$1,240,649

**Table B-5
Dioxin Capping and Consolidation Cost Estimate**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Description	Quantity	Unit	Unit Cost	Total
OTHER COSTS				
Permitting	1	LS	\$2,000	\$2,000
Inspections	1	LS	\$2,000	\$2,000
Verification Samples	70	EA	\$1,000	\$70,000
Monitoring Well Installation	1	LS	\$10,000	\$10,000
Cultural Monitors	52	DAY	\$1,200	\$62,400
Project Management	5%			\$59,272
Construction Management	8%			\$94,835
SUBTOTAL				\$300,507
 GRAND TOTAL				 \$1,541,156

Notes:

CY = cubic yards

DAY = per day

EA = each

LS = lump sum

mil = millimeter

OMM = Operation, Maintenance, and Monitoring

PVC = polyvinyl chloride

SF = square foot

SY = square yard

**Table B-6
Summary of Remedial Alternative Cost Estimates**

**Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Cost Items	Removal and Offsite Disposal Lead PRA	Removal and Offsite Disposal PCB PRA	Removal and Offsite Disposal Dioxin PRAs	Consolidation and Capping Dioxin PRAs
Capital Costs (Total)	\$31,791	\$175,868	\$2,145,952	\$1,185,440
Pre-Construction	\$3,500	\$3,500	\$25,000	\$35,000
Construction	\$28,291	\$172,368	\$2,120,952	\$1,150,440
Other Costs	\$10,033	\$44,713	\$386,574	\$300,507
OMM Costs	\$0	\$0	\$0	\$55,209
Total 30-Year Cost	\$41,824	\$220,581	\$2,532,526	\$1,541,156
Total 30-Year Cost (rounded)	\$42,000	\$220,000	\$2,500,000	\$1,500,000

Notes:

OMM = Operation, Maintenance, and Monitoring

PCB = polychlorinated biphenyl

PRA = Presumptive Remedy Area

Appendix C

Implementation Plan

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- 2 Specifications
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C.1. Introduction

This appendix presents the implementation plan, including design features, permit requirements, and best management practices (BMPs), for the selected remedial alternatives in the *Operable Unit A (OU-A) Remedial Action Plan (RAP) and Feasibility Study (FS)*. This plan is required by the Department of Toxic Substances Control (DTSC) under Section 5.12 of the Site Investigation and Remediation Order for the site (Docket No. HSA-RAO 06-07-150; the Order). Under the order, the implementation plan should include a number of elements, as applicable; the following elements listed in the order are considered applicable for this project:

- Plans and specifications for facilities to be constructed.
- Description of equipment used to excavate, handle, and transport contaminated material.
- A sampling plan addressing sampling during implementation and to confirm achievement of the performance objectives
- A transportation plan identifying routes of travel and final destination of the RAP wastes generated and disposed.
- Identification of any necessary permits and agreements.
- An air monitoring plan.

Note that this implementation plan relies upon other plans previously submitted to and approved by DTSC for other site activities.

C.1.1 Plans and Permitting

Activities at the site are subject to the conditions of existing permits:

- California Coastal Commission (CCC) Coastal Development Permit (CDP A-1-FTB-05-053)
- City of Fort Bragg (City) Permit (CDP #3-04)

- Building Demolition and Dust Control Permit (Mendocino County Air Quality Management District Permit [MCAQMD] #0120-1-20-04-04-10)
- Notice of Intent (NOI) under the National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002 Waste Discharge Requirements for Stormwater Discharges Associated With Construction (WDID 1 23C341984).

An application for an amendment to the CDP A-1-FTB-05-053 (CDP) will be submitted to the CCC, which will describe the planned activities (excavation and hauling of impacted soil, backfilling, grading, capping, and seeding the excavation areas, preparation of the consolidation cell, and capping and seeding the consolidation cell area)¹. The amendment application must be reviewed and approved by the CCC prior to commencement of work.

All excavation, hauling, backfilling, and grading activities will be conducted in accordance with the City of Fort Bragg Municipal Code, Title 18, Article 6, Site Development Regulations. All required permits, including a City Public Works Department grading permit, will be obtained prior to excavation activities.

C.1.2 Coastal Development Permit Conditions

The CDP includes numerous conditions for the protection of sensitive natural resources. The applicable conditions include:

- Protection of Marine and Coastal Biological Resources
 - “All excavation, stockpiling, hauling, and disposal activities shall be performed consistent with the conclusions and recommendations contained in: *Botanical Field Study of Some of the Bluff Areas at the GP Mills Site* (Teresa Scholars, Biological Consultant, 2005a); *Late Season Botanical Survey for the GP Mill Site Bluffs* (Teresa Scholars, Biological Consultant, 2005b); *Avian Habitat Utilization and Impact Assessment* (WRA Environmental Consultants, January 2006); *Rocky Intertidal Environmentally Sensitive Habitat Area Engineering and Biological Assessment* (Acton-Mickelson Environmental, Inc. and WRA Environmental Consultants, February 2006); and *Conceptual Revegetation Plan Former Georgia-Pacific California Wood*

¹ Note that the permit amendment is only required for the areas within OU-A South. Excavation work within Glass Beach 2 and the Parcel 3 Scrap Yard areas is covered under the current permit.

Products Manufacturing Facility (Circuit Rider Productions, Inc., September 22, 2005), and shall implement all mitigation measures contained therein.”

- Additional information on CDP conditions is presented in Section C.3.2 regarding protection of coastal bluff avian resources, protection of rare plant biological resources, and protection of rocky intertidal marine biological resources. Remedial activities in OU-A are not adjacent to or near (i.e., within 50 feet) any wetland or pond areas, so those related CDP conditions do not apply.
- Avoidance of and Minimization of Exposure to Geological Instability
 - “All excavation, stockpiling, and disposal activities authorized by the CDP and amendments shall be performed consistent with the conclusions and recommendations contained in Geotechnical Evaluation – Bearing Support for Heavy Equipment Loads, Blackburn Consulting, Inc., February 2006), and all mitigation measures contained therein.”
 - Additional information on CDP conditions related to bluff instability is presented in Section C.3.3.
- Protection of Archaeological Resources
 - “Contractor shall perform all excavation, stockpiling, and disposal activities authorized by the CDP consistent with the conclusions and recommendations contained in: (1) *Draft Site Specific Treatment Plan for Cultural Resources Georgia-Pacific Lumber Mill Fort Bragg, California* (TRC Companies, Inc., undated); and (2) *Archaeological Survey of the Georgia-Pacific Lumber Mill Fort Bragg, California* (TRC Companies, Inc., March 2003), and all mitigation measures contained therein shall be implemented.”
 - Additional information on CDP conditions related to cultural resources is presented in Section C.3.4
- Conformance with MCAQMD Requirements
 - “If additional permits are required or new permits have been acquired since June 2006, the permittee will submit copies to the Executive Director. The applicant shall inform the Executive Director of any changes to the project required by the MCAQMD. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to the CDP, unless the Executive Director determines that no amendment is legally required.”
 - Building Demolition and Dust Control Permit (Mendocino County Air Quality Management District Permit [MCAQMD] #0120-1-20-04-04-10) is renewed annually by Georgia-Pacific. The permit specifies BMPs for dust control during site activities (details in Section C.4.2), and requires notification of MCAQMD no less than 10 days prior to commencement of construction activities. The permit will be revised to specifically include areas of planned excavations for 2008.

Other CDP conditions are discussed in Section C.3.

C.1.3 Existing Plans

A Storm Water Pollution Prevention Plan (SWPPP) was prepared for construction activities pursuant to the general permit and was reviewed and approved by the RWQCB (BBL, 2006b). The SWPPP addresses grading and stormwater pollution abatement associated with soil excavation at remedial action areas, stockpiling, and transport of the soil across the site for temporary storage (if necessary) and hauling to the disposal facility. The SWPPP also addresses the requirements for capping and stabilizing surface soil.

An Excavation and Soil Management Plan (ESMP) (BBL, 2006a) was created to govern excavation activities onsite and applies to activities planned under this RAP. The ESMP fulfills specific applicable requirements of the MCAQMD and California State Water Resources Control Board. Section C.4 further outlines conditions and procedures specific to this RAP, including specific areas of the site that may be used for temporary stockpiling, which may be required for short periods for the consolidate and cap alternative for the dioxin excavations. Otherwise, soil stockpiling is anticipated to only be necessary during active excavation periods to prepare soil for hauling more efficiently (temporary stockpiling only). Material will generally be directly loaded or, if necessary, stockpiles will be placed temporarily adjacent to the excavation (on plastic) for subsequent truck loading.

The Transportation Plan (BBL, 2006c) for the site describes requirements for transportation and disposal of excavated soil and fulfills specific applicable requirements of the Code of Federal Regulations (CFR), Title 49, Transportation, Parts 100 to 199, and the California Health and Safety Code, Section 25169.3. Figure C-1 shows trucking routes for movement of soil within the site. Routes to potential landfill disposal sites are included in the Transportation Plan. The permittee will notify the MCAQMD of the start and completion dates of the excavation and hauling activities so that they may inspect dust control practices during operations.

C.2. Contractor Health and Safety

As stated in the Site Health and Safety Plan (HASP) (ARCADIS BBLES, 2007), the policy of ARCADIS BBLES (construction management branch of ARCADIS BBL) is to provide a safe and healthy work environment. No aspect of operations is of greater importance than injury and illness prevention. A fundamental principle of safety management is that all injuries, illnesses, and incidents are preventable. ARCADIS

BBLES will take every reasonable step to eliminate or control hazards in order to minimize the possibility of injury, illness, or incident.

The HASP prescribes the procedures that must be followed during activities at the site. Operational changes that could affect the health and safety of personnel, the community, or the environment will not be made without the prior approval of the Project Manager and the Health and Safety Officer. The HASP will be reviewed periodically to ensure that it is current and technically correct. Any changes in site conditions and/or the scope of work will require a review and modification to the HASP. Such changes will be completed in the form of an addendum or a revision to the plan. Based on the activities planned as part of this RAP, no changes to the HASP are anticipated (the current HASP covers the activities herein).

The provisions of the HASP are mandatory for all ARCADIS personnel and ARCADIS subcontractors assigned to the project. Subcontractors may prepare their own site-specific HASPs that must meet the basic requirements of the ARCADIS BBLES HASP. All visitors to ARCADIS work areas at the site must abide by the requirements of the HASP.

C.3. Mobilization and Site Preparation

Prior to initiating remedial action construction, the Contractor will perform mobilization and site preparation activities. At a minimum, it is anticipated that the following site preparation activities will be performed:

- Verify existing site conditions
- Identify the location of, and relocate as necessary, aboveground and underground utilities, equipment, and structures (not anticipated for this scope of work based on a review of utility maps and information)
- Mobilize personnel, equipment, and materials to the site
- Clear and grub areas as necessary to perform the remedial action activities
- Construct equipment and material staging/dewatering areas (as necessary)
- Prepare equipment and personnel decontamination areas

- Establish erosion and sedimentation control measures (as discussed below)
- Construct temporary access roads (as needed) for ingress and egress of construction equipment as well as offsite transportation of excavated materials
- Install temporary fencing or barriers as necessary to protect and secure the work areas.

C.3.1 Erosion and Sedimentation Controls

Erosion and sediment control and storm water management will follow the best management practices (BMPs) described in the SWPPP (BBL, 2006b). Applicable general BMPs that will be implemented during the OU-A remedial activities include, but are not limited to:

- Conduct excavation and IRM activities during the non-rainy season from April 15 through October 15. Hauling activities may occur after October 15, if necessary (Note that the application for amendment to the CDP will include a request to extend the construction season through November 15).
- Ensure all physical controls are in place to minimize stormwater contamination. Verify physical barriers are in place and in good working order. Visually inspect daily.
- Check all equipment for leaks and immediately clean all leaks, drips, and other spills using dry methods (i.e., absorbent materials) if possible to prevent soil or groundwater contamination or residue on paved surfaces.
- As possible, refuel and perform minor maintenance on vehicles and heavy equipment in one designated, contained location away from onsite storm drains, immediately cleaning any spills. Refueling may occur in more than one location, depending on where equipment is operating.
- Perform major maintenance, repairs, and washing of equipment away from the construction area.
- Conduct major repair work at an offsite location.

- Do not hose down pavement or surfaces where materials have spilled. Use dry cleanup methods (i.e., absorbent materials) if possible. Limit water volume to amount necessary for dust suppression.
- Implement dust suppression in accordance with ESMP (BBL, 2006a).
- Store materials or products in original manufacturer containers and under roof cover if possible.
- Keep storage areas orderly to facilitate inspection.
- Load excavated soil directly from backhoe to transport truck if possible.
- Avoid creating excavated soil stockpiles if possible. Some temporary stockpiling may be necessary near active excavation areas. Stormwater contamination prevention and dust suppression BMPs will apply.
- Keep materials out of rain to prevent source runoff contamination. Schedule clearing or earth-moving activities for dry-weather periods. Cover exposed soil piles or construction materials with plastic sheeting or temporary roofs. Before rainfall, sweep and remove materials from surfaces that slope to storm drains.
- Dispose construction wastes in covered dumpsters or recycling receptacles.
- Practice source reduction. Order only necessary material.
- Use recyclable materials if possible. Arrange for pickup of recyclable materials (e.g., concrete, asphalt, scrap metal, solvents, degreasers, cleared vegetation, paper, rocks, and vehicle maintenance material such as used oil, anti-freeze, batteries, and tires).
- Dispose all wastes properly. Materials that cannot be recycled will be taken to the appropriate landfill or disposed of as hazardous waste. Do not store or leave waste materials in the street or near storm drains. Hazardous waste will be placed in the Potentially Hazardous Waste Storage Areas.
- Train employees or subcontractors to use BMPs presented in the SWPPP (BBL, 2006b).

Additional details regarding BMPs for specific activities are provided in the SWPPP (BBL, 2006b).

C.3.2 Biological Resources Monitoring

Biological resources monitoring is required prior to commencement of remedial activities. Biological resources potentially impacted by the activities include marine and coastal biological resources (primarily nesting birds) and rare plants. No wetlands are located in the vicinity of the remedial actions planned in OU-A. Harbor seal haulouts are not present offshore of the Former Scrap Yard Presumptive Remediation Area (PRA). There is a small haulout off of the Glass Beach 2 PRAs where harbor seals have been observed occasionally. The three northernmost Parcel 10 PRAs are not near the bluffs and do not have the potential to disturb harbor seals offshore of Parcel 10, because there are no direct lines of sight between the haulouts and these areas. The southernmost excavation likely extends within 20 feet of the bluff. Also, there is a small haulout offshore of this excavation where there is a direct line of sight to the excavation location. At this time, it is assumed that marine mammal monitoring will be needed during work at Glass Beach 2 and at the southernmost PRA (Dioxin PRA 3a and 3b) in Parcel 10.

Per the CDP, the following monitoring for the protection of marine and coastal biological resources will be conducted prior to remedial actions. Note that text from the CDP has been edited slightly to make it specific to the areas of remedial actions.

1) For the Protection of Coastal Bluff Avian Resources:

- Sensitive Avian Species Nesting Survey – prior to commencement of excavation activities at Glass Beach 2 (lead-impacted soil excavation), in Parcel 3 (PCB-impacted soil in the Former Scrap Yard), and in Parcel 10 near the southernmost dioxin/furan PRAs, and consistent with the applicant's proposed project description, the permittee shall submit for review and approval of the Executive Director, a survey of the associated coastal bluff face and blufftop margin areas, conducted by a qualified biologist or resource ecologist with specific knowledge of threatened, endangered, species of special concern, or treaty-protected migratory birds ("sensitive avian species"), which fully evaluates any and all indications of the presence or absence of these species, and which demonstrates compliance with all of the following:

- a) No less than 14 days and no more than 30 days prior to the beginning of construction, a qualified biologist or resource ecologist shall conduct a non-invasive survey for any sensitive avian species nesting in the coastal bluff face and blufftop margin areas near the excavation locations. If the survey finds any indication that nesting sensitive avian species with unfledged young are present on the bluff face and blufftop margins, project work shall be limited consistent with the mitigation measures identified in the Avian Habitat Utilization and Impact Assessment (WRA Environmental Consultants, 2005; updated 2007), including the imposition of exclusionary buffer areas identified therein, however, in no case shall the exclusionary buffer be less than 100 horizontal feet from the affected nesting site. Work within the exclusionary buffers shall not proceed until a subsequent bird survey has been conducted by a qualified biologist or resource ecologist that demonstrates that the young have fledged and are not nesting in the area for thirty (30) continuous days, and such surveys have been submitted for the review and approval of the Executive Director;
- b) If no indications of nesting sensitive avian species are found during the initial survey, no additional surveys or mitigation is required, provided the project commences within 30 days of completion of the survey, and provided the project does not extend into the commencement of the nesting season of the sensitive avian species;
- c) If more than 30 days have passed since completion of the initial survey and work has not commenced, or if it is determined that work will extend past the commencement of the nesting seasons of the various sensitive avian species (see Avian Habitat Utilization and Impact Assessment, Tables A1, A2, and A3) a new survey shall be conducted and submitted for the review to the Executive Director, no more than 30 days and no less than 14 days prior to the start of the nesting-season or the start of work, and submit a report to the Executive Director for review and approval. If any survey discovers indications of sensitive avian species nesting in the coastal bluff face and blufftop margin areas, human activity in the affected area(s) shall be minimized and construction shall cease until a sensitive avian species survey has been conducted by a qualified biologist or resource ecologist that demonstrates that all young have fledged

and are not nesting in the coastal bluff face and blufftop margins for thirty (30) continuous days, and such surveys have been submitted for the review and approval of the Executive Director; and

- d) Following completion of the excavation, all areas that are excavated or otherwise left with exposed soils shall be revegetated with native plant species. Revegetation of disturbed areas in Glass Beach 2 and in the excavation areas of Parcels 3 and 10 shall be performed in accordance with the Conceptual Revegetation Plan. The permittee shall provide irrigation, maintenance, and replacement of revegetated areas, as needed, to ensure the long-term viability of the plants.

2) For the Protection of Rare Plant Biological Resources:

- Final Plant Restoration Monitoring Program – a final detailed restoration monitoring program designed by a qualified wetland biologist for monitoring of the plant restoration site has been submitted for review and written approval of the Executive Director (Circuit Rider Productions, 2005). The following pre-construction monitoring will be conducted by a qualified botanist:
 - a) Surveying the relative cover and density of each plant species of special concern found in the proposed development (i.e., remediation) area prior to the commencement of construction;
 - b) Monitoring and restoration of the affected areas in accordance with the approved final monitoring program for a period of five years;
 - c) All revegetation planting shall utilize native plants obtained from local genetic stocks;
 - d) Monitoring and reporting of restored areas as set forth in the CDP (annual reports, a final monitoring report to the Executive Director at the end of the five-year reporting period)
 - e) Flagging of the locations of the rare plant species by a qualified botanist prior to commencement of the grading in bluff face and blufftop areas. Work shall only be permitted to occur within 100 feet

of the outer perimeter of the rare plant populations if such work is necessary to perform the required environmental remediation activities on the property;

- f) No storage of equipment or stockpiling of materials within 100 feet of the outer perimeter of the rare plant populations;
- g) If debris or soil removal is necessary within the rare plant sites and/or the 100-foot buffer zones, the following measures shall be required:
 - (1) If a rare species cannot be avoided, the botanist shall make a determination as to the feasibility of whether the species can be removed for the affected area prior to waste removal activities within the area and transplanted back to the affected area after work activities are completed.
 - (2) If possible, work shall be conducted after seed set at locations where rare species are identified.
 - (3) The botanist shall make a determination at each work location as to whether removal of the surface soil (containing the seed bank) for stockpiling is warranted. If warranted, and contingent upon analytical test results for the presence of chemicals of potential concern, stockpiled soil containing the seed bank shall be placed at the location (laterally and vertically) from which it was removed following completion of work activities. The permittee shall follow the recommendations for increasing the likelihood for survival of transplanted rare species as made by the botanist; and
 - (4) Following completion of restoration activities and revegetation, the botanist shall prepare a follow-up report that identifies all measures taken to protect rare plant species in each location and that evaluates the success of the mitigations in protecting and/or re-establishing the rare plant populations. The report shall be submitted to the Executive Director.

- 3) For the Protection of Offshore Rocky Marine Biological Resources (corresponds to Section 3.A.4) of the CDP, with modifications per the amendment approved in 2007):
- a) Baseline observations of pinnipeds in the project area shall be conducted prior to initiating project activities. The baseline study shall be submitted to the Executive Director prior to commencement of development in coastal bluff face and blufftop margin areas. A morning and afternoon count shall be conducted the day prior to work activities are scheduled to commence. Observations shall also be made every morning work is scheduled to occur;
 - b) Survey data shall include type of marine mammals present, numbers, age class, sex (if possible), location, time, tide, type of development activity being conducted, and whether animals respond to the activity. Rates of departure and arrival of animals to and from the haul-out shall be noted;
 - c) If seals flush for a work-related reason, the portion of the project that caused the seals to flush shall be delayed until the animals leave the area;
 - d) Work can only be conducted during daylight hours when visibility allows detection of marine mammals within 200 m (656 ft) of the proposed project area;
 - e) Work can only be conducted when no marine mammals are present within 100 m (328 ft) of the proposed project area;
 - f) During the restoration work, project area must be monitored by NMFS-approved marine mammal observers (MMOs) using 8 x 42 magnification power binoculars or spotting scopes for any potential behavioral changes caused by the activity. The MMOs are to report any incidents to NMFS Office of Protected Resources (301-713-2289) and NMFS Southwest Region (562-980-3232) within 24 hours by phone;
 - g) Work must be stopped immediately if a marine mammal shows behavior changes that are potentially related to restoration activities; and
 - h) Restoration work must be temporarily suspended if a marine mammal wanders within 100 m (328 ft) of the proposed project area, and work shall not restart until the animal leaves the area on its own.

- i) If a Steller sea lion is observed, work activities within the immediate blufftop edge area shall be postponed until the animal(s) leaves the project area;
- j) All surveying data shall be compiled and submitted to the Executive Director at the end of the construction season.

C.3.3 Avoidance of and Minimization of Exposure to Geological Instability

Per the CDP, the following mitigation measures to avoid or minimize exposure to geological instability on the coastal buff areas shall be implemented (note that these conditions apply to the Glass Beach 2 and Parcel 3 Former Scrap Yard PRAs and the southernmost PRA in Parcel 10):

- Heavy mechanized equipment operations shall be staged at locations a minimum of 20 feet landward from the blufftop edge
- Pickup trucks and rubber-tired backhoes may be operated within the 20-foot setback provided the ground in such locations is firm and non-yielding
- Conditions along the base of the bluffs shall be inspected by a California Certified Engineering Geologist (CEG) prior to mobilizing all heavy mechanized equipment conducting work at bluff face and blufftop margin locations. If recent sea cave formation or other significant slope undercutting is observed, the light and heavy mechanized equipment operational and staging setbacks shall be adjusted accordingly.

C.3.4 Cultural Resources Monitoring

Per the CDP, the following monitoring and mitigation measures for the protection of cultural resources are required, consistent with the conclusions and recommendations contained in: (1) Draft Site Specific Treatment Plan for Cultural Resources Georgia-Pacific Lumber Mill Fort Bragg, California (TRC Companies, Inc., undated); and (2) Archaeological Survey of the Georgia-Pacific Lumber Mill Fort Bragg, California (TRC Companies, Inc., March 2003). All mitigation measures contained in these documents shall be implemented, including but not limited to the following mitigation measures as modified below and as applicable to the remedial actions in OU-A (i.e., areas of subsurface disturbance):

- “Prior to commencement of debris removal and investigation of geophysical anomaly areas, surveys [were] conducted to inventory areas where subsurface disturbance [was] likely to occur. [These surveys and additional data gathered during the 2007 field season are sufficient to allow planning for protection of cultural resources during the remedial actions planned for OU-A.]
- If it is determined that soil disturbance cannot be avoided at prehistoric archaeological sites CA-MEN-3141H, -409H, and 6120-01, Phase III (data recovery) surveys will be conducted prior to soil disturbance due to the high potential to uncover historic and prehistoric resources during excavation at these three sites.
- A qualified archaeologist will be present to monitor debris removal in archeological site CA-MEN-1401H and [Former Scrap Yard Area] ~~the Glass Beach 3~~ area to recover and record any artifacts associated with early historic activities.
- A qualified archaeologist will monitor earth-disturbing activities at all prehistoric archeological sites in [excavation areas] ~~debris removal or geophysical anomaly areas~~ in order to record evidence of buried cultural resources.
- If debris removal [i.e., remediation] will not disturb buried resources (i.e., will consist only of removal to existing ground surface) at identified prehistoric archeological sites, additional archaeological investigations are not required.
- In the event prehistoric archaeological resources (marked by shellfish remains, flaked and ground stone tools, fire affected rock, human bone, or other related materials) are unearthed during [earth-disturbing activities] ~~the debris removal or geophysical anomaly investigations~~, all work in the vicinity of the discovery shall cease immediately, the Executive Director shall be notified, and the proper disposition of resources shall be accomplished as required by City of Fort Bragg Land Use Development Code Section 18.50.030.D.
- If cultural resource artifacts or human remains are incidentally discovered within designated low site potential rated areas, all project work shall be halted in the affected area until an archaeologist and/or coroner has assessed the significance of the discovered materials.

Special Condition 5.A was amended in 2007 to the version presented above, which has been slightly modified to apply to RAP activities (modified text is in brackets and

strikethrough). Parts B, C, and D to Special Condition 5 address actions to be taken if an area of cultural deposits is discovered during the project. These actions include stopping work, notifying the Executive Director, and submitting a Supplementary Archeological Plan. The amendment to the permit in 2007 calls for the presence of archeological monitors during disturbance of the subsurface in areas of moderate to high potential for historic and/or prehistoric resources.

As was done in 2006 and 2007 during excavation activities in areas of moderate to high potential for historic or prehistoric significance, a qualified archeologist will be present during any site activities that cause disturbance of the subsurface that could intrude to depths where artifacts may be present. In areas of potential or known prehistoric deposits, a Native American monitor will also be present. Because it is already known that OU-A is an area of high potential for prehistoric deposits, the excavation process and the data recovery process will be combined, as was done in 2007. Note that the contaminated soils are present above the depth of the known prehistoric deposit layers. The archeologist will observe and guide the excavation process to ensure that the prehistoric deposit layer is not disturbed and will also test the area of the excavation for artifacts during the soil removal process. This avoids the need to completely stop work (unless human remains are found), since the excavator or similar equipment is needed to assist in data recovery. If human remains are found, the archeologist may work with the coroner to assess the significance of the materials, and work in the vicinity may need to be halted for a period of time, although work may continue to allow further data recovery. After excavation work is completed, a report of the findings will be prepared by the archeological consultant, Garcia and Associates, and submitted to the Executive Director.

C.3.5 Hydraulic Conductivity Evaluation

To estimate the hydraulic conductivity of the marine deposits in OU-A in support of the consolidation and capping remedy, constant-rate, single-well pumping tests were conducted in monitoring wells MW-10.1, MW-10.2, and MW-10.4 in November 2007. Testing could not be conducted on well MW-10.3 because it was dry as is commonly the case.

Constant-rate, single-well pumping tests were conducted in lieu of slug tests to evaluate hydraulic conductivity. Due to the larger volume of water interacting with the surrounding aquifer during a pumping test, pumping tests are typically more suitable than slug tests for bulk hydraulic conductivity measurements, particularly in formations such as the OU-A marine deposits with relatively high hydraulic conductivities.

Before setting the pump, static water level measurements were collected. The depth of pumping was contingent upon the total water column of the well; the pump was set at approximately 10 feet below static water level at MW-10.1, 5 feet below static water level at MW-10.2, and 3 feet below static water level at MW-10.4. After setting the pump at each well, the water level was allowed to stabilize before pumping began. Pumping rates for MW-10.1, MW-10.2, and MW-10.4 were 8, 0.5, and 5.25 gallons per minute, respectively. Pumping rates were selected such that total drawdown after the first minute of pumping was no greater than 20% of the total height above the pump of the pre-pumping water column. Each well was pumped for 30 minutes.

Water level measurements were collected at 3-minute intervals throughout the duration of pumping. After pumping was completed, water level measurements were collected at 3-minute intervals to monitor recovery of groundwater elevation levels. Attachment 1 provides raw data from each pumping test and calculations.

The data were analyzed using the Cooper-Jacob time-drawdown method (Kruseman and deRidder, 2000). Estimated conductivities were 70.6 feet/day for monitoring well MW-10.1, 2 to 5 feet/day for monitoring well MW-10.2, and 290 feet/day for monitoring well MW-10.4. These estimated conductivities are at least three orders of magnitude greater than the design conductivity of the geosynthetic clay liner (on the order of 0.003 feet per day) and meet the requirement of Title 27.

C.4. General Excavation Procedures, Soil Management, and Monitoring

General procedures for soil excavation and management, as well as monitoring of the work environment and confirmation sampling to verify that impacted soil greater than risk-based target levels (RBTLs) has been removed, are described in the following sections.

C.4.1 General Excavation Procedures and Soil Management

The objective of the RAP is to remediate the seven PRAs identified in the OU-A Remedial Investigation (RI). The seven PRAs include three areas in OU-A North (two areas near Glass Beach 2 and one in the Parcel 3 Former Scrap Yard) and four areas within OU-A South (all within the Parcel 10 Fill Area). These seven areas have been targeted as requiring remedies because of elevated concentrations of lead, PCBs, or dioxins/furans. Impacted soil from two of the areas in OU-A North (the lead area near Glass Beach 2 and the PCB area in the Parcel 3 Former Scrap Yard) will be excavated, transported, and disposed at an offsite landfill permitted to accept the

material. Soil from the one dioxin PRA in OU-A North and from the four dioxin PRAs in OU-A South will be managed onsite by consolidating the material in the subsurface within an area in Parcel 8 (Operable Unit D; see Figure C-1) and placing a cap on the area to prevent exposure to humans and wildlife. All soil, with the exception of the lead area at Glass Beach 2, is non-hazardous.

The approximate PRA excavation areas are presented on Figures 4-1 to 4-4 of the main text and the depths, areas, and volumes to be excavated are provided in Appendix B (excavation depths are based on the soil sampling results showing exceedances of RBTLs). These limits are based on the extensive investigation previously performed at the PRA locations, but the excavation limits may be modified based on results of the confirmation sampling.

In the lead PRA (Glass Beach 2), the area to be excavated measures about 1,840 square feet and averages 2 feet in depth, resulting in approximately 140 in-place cubic yards of soil to be excavated. In the Former Scrap Yard Area of Parcel 3, the area to be excavated measures about 26,750 square feet and averages 1 foot in depth, resulting in approximately 1,000 in-place cubic yards of soil to be removed.

The dioxin PRA in Glass Beach 2 measures about 2,675 square feet and will be excavated to about 1 foot bgs, for approximately 100 cubic yards of soil. The four PRAs for dioxins/furans in the Parcel 10 Fill Area comprise approximately 12,800 in-place cubic yards of soil that require excavation. Area 1 measures about 19,400 square feet and averages 5 feet in depth, resulting in approximately 3,600 in-place cubic yards of soil to be removed. Area 2 measures about 13,350 square feet and averages 3 feet in depth, resulting in approximately 1,500 in-place cubic yards of soil to be removed. Area 3A measures about 25,620 square feet and averages 2 feet in depth, resulting in approximately 1,900 in-place cubic yards of soil to be removed, while Area 3B measures about 27,600 square feet and averages 5 feet in depth, for approximately 5,110 in-place cubic yards of soil to be removed. Area 4 measures about 7,800 square feet and will be excavated to 2 feet bgs, for approximately 580 cubic yards of soil to be removed. Note that all final excavation limits will be surveyed by a licensed surveyor prior to backfilling, capping, and/or regrading.

MW-10.3 is present in Area 3B and will be abandoned prior to excavation activities. This well is often dry and may not be replaced post-excavation, as there will be three wells remaining in Parcel 10 (MW-10.1, MW-10.2, and MW-10.4) that show little impact from site activities and are adequate to characterize groundwater in the area. See Figure 4-4 of the main text for well locations.

A designated work area boundary will be established for excavation activities. Initially, the designated work area boundary will be established at a setback distance of 55 feet from the area of work. The designated work area boundary will be adjusted based on air monitoring results. Volatile organic compounds (VOCs) and petroleum hydrocarbons have not been detected at concentrations of concern in the OU-A PRAs. However, a photoionization detector (PID) calibrated to isobutylene will be available onsite and will be used periodically to monitor the breathing zone of workers at the PRA excavations. Airborne dust will be monitored during all excavation, loading, and hauling activities (see dust control and monitoring activities described in Section C.4.2). Air monitoring will be conducted in accordance with the HASP (ARCADIS BBLES, 2007). Work will be initiated with Level D protection. A PID reading of 1 part per million in the workers' breathing zone sustained for 2 minutes will prompt an upgrade to Level C protection.

The following protocol will be used for excavation of impacted soil at OU-A PRAs:

- Temporary staging areas will be set up within fenced areas for excavated soil stockpiling. Excavated material will be placed on plastic sheeting and covered by plastic sheeting to prevent migration of contaminants, shield the material from elements, and mitigate fugitive dust and stormwater runoff and runoff. Potential locations for temporary stockpiling are shown on Figure C-1.
- For excavation along coastal bluffs, as required by the CDP for the protection of rocky intertidal marine biological resources:
 - Bluff face and blufftop margin grading activities shall only be conducted during the dry season, from April 15 through October 15²
 - Excavation activities shall be initiated leaving a 4-foot-thick strip of fill/topsoil at the sea cliff to prohibit any sediment or water falling onto the rocky intertidal area. Upon completion of excavation activities to the east, the remaining 4-foot-thick strip shall be excavated in a manner to minimize soil or debris dropping onto the rocky intertidal area
 - Manual methods shall be used to remove any material that falls onto the rocky intertidal area.
- Excavation will generally begin at exposed fill atop coastal bluffs and proceed inland until the extent of the PRA is reached. Soil excavation will be performed well

² Note that the application for amendment to the CDP will include a request to extend the construction season through November 15.

above the mean high-tide line, and as discussed above, archeologists will be present to guide excavation work and recover artifacts if necessary. In sensitive cultural resource areas, care will be taken to avoid disturbance of the cultural deposits to the extent possible. Archeologists and monitors will assist the excavator operator in avoiding penetration of the cultural deposit layer by maintaining visual contact and signaling when the bucket is nearing the bottom of the fill material.

- It is anticipated that a Caterpillar 330 track-mounted excavator or similar device will be used during excavation. If excavation is needed within 20 feet of the bluff face (such as Glass Beach 2, the Parcel 3 Former Scrap Yard, and PRA Area 3A in Parcel 10), a rubber-tire backhoe will be used.
- Excavated material will be either directly loaded into trucks or temporarily stockpiled prior to loading trucks. Trucks will be instructed to enter near the excavation and directed to exit away from the excavation once loaded. Drivers will be instructed to maintain a safe distance from the edge of the excavation. Drivers will be instructed to maintain a distance of at least 30 feet from the bluff edge. The bluff edge will be marked with caution tape for better visibility to drivers and other personnel.
- Excavated soil that is proposed to be taken offsite will be transported to a Class I or II landfill by a licensed hazardous waste hauler. Existing data are expected to be sufficient for waste characterization and will be submitted to the disposal facility for waste profiling.
- Following excavation, the excavated areas will be backfilled and/or sloped or graded to blend with surrounding areas as required by the CDP and grading permit.
- A soil berm or line of hay bales will be placed where any excavation intersects the coastal bluff to restrict runoff from the excavated area. A sorbent material berm will be used to supplement the soil berm or hay bales to further safeguard against runoff from the excavated area. Additionally, soil and sorbent berms will be constructed at the perimeter of excavations to restrict surface runoff into or out of excavated areas.

As all excavations are anticipated to be less than 5 feet deep, no engineered controls, sloping, or shoring should be required. However, in the event that the excavations are

more than 5 feet deep and based on a review of CCR Title 8 requirements that would define the soils onsite as Type C soil, the excavation may be executed without engineered controls so long as:

- The maximum allowable slope is 1.5 foot horizontal to 1 foot vertical
- Excavation is performed under the direction of a competent individual.

Entry into the excavations is not anticipated to be required. However, if entry into an excavation is needed, it will be authorized only in accordance with the HASP (ARCADIS BBLES, 2007) and the safe work practices confined space entry procedures as specified in an Entry Permit completed by the Field Team Leader. The Entry Permit will specify the confined space monitoring to be performed and the conditions for acceptable entry. Entry is defined as any part of a person's body passing through the plane of the opening of the excavation.

Although the presence of additional hazardous/unknown materials beyond those identified in previous investigations is not anticipated, the remedial contractor (ARCADIS BBLES) will be prepared to deal with them if encountered. A hazardous materials staging area will be prepared for any buried structures or unknown material uncovered during the course of excavating the PRAs. The approximate location of the hazardous materials staging area (the Former Truck Loading Shed) and details of the hazardous materials staging area is presented on Figure C-1. Unknown material includes any material that does not meet the requirements/description of waste presented in the approved landfill waste profile. Any encountered material will be stored, sampled, and disposed of in accordance with appropriate state and federal regulations.

It is possible that, during excavation of the PCB PRA, a buried fire protection pipeline will be encountered. If the piping material is transite (which is partly composed of asbestos), it will be handled according to safe practices for handling asbestos containing material (ACM), as described in the HASP (ARCADIS BBLES, 2007). Any other suspect ACM encountered during remedial activities will be handled in the same manner. Generally, this includes submitting an Asbestos Notification to Mendocino County Air Quality Management District and an Asbestos Work Notification to California Occupational Safety and Health Administration (CalOSHA). Any asbestos abatement activities will follow the protocol set forth in CCR 8 CCR 1529. An asbestos contractor certified and licensed in the State of California will be required to conduct asbestos abatement projects. All asbestos abatement and removal activities will be

conducted with the appropriate PPE, monitoring, and trained personnel. Regulated ACM will be placed in asbestos bags, labeled as hazardous, and segregated for offsite disposal. The regulated ACM will be disposed at an offsite Class II facility.

During periods of inactivity longer than 12 hours, trench bottoms and sidewalls may be covered with heavy-duty plastic sheeting or other covering to minimize dust emissions to the atmosphere. Open excavations will be demarcated with barricades and caution tape during periods of inactivity and at the end of each workday to reduce the potential of personnel falling into the excavations.

Excavations in OU-A North will be graded and/or backfilled with clean imported soil to mitigate physical hazards and prevent ponding of water during rainfall. Excavations in OU-A South will be graded using the existing soil in the Parcel 10 Fill Area, and/or backfilled with the material from the consolidation pit. The source of imported backfill material will be identified, sampled, and analyzed for COPCs prior to onsite use if not previously characterized. Coarse-grained soils with a minor amount of fines to bind the soil are preferred for use as backfill, because they are easier to compact and allow water to more readily drain into surrounding soils. It is anticipated that clean dredge material from Noyo Harbor, which has been used in the past and approved by DTSC as suitable for backfill, may be used. If Noyo Harbor dredge material is used, and new characterization data are available (i.e., newly dredged material is from a different area than previously used material), the data will be acquired from the Harbormaster and reviewed with DTSC for acceptability prior to use onsite. The dredge material may be too saline to support plant growth. Additional clean fill would come from another local source to fill the top 4 to 6 inches to provide an appropriate substrate for plant growth. A local backfill source/cover material was tested and found acceptable for use in 2007. This source will be used if needed in 2008. If that source is no longer available and a new source is required, analytical testing will be conducted on the material prior to use at the site and the data provided to DTSC. The excavation contractor will use compaction equipment suitable for the resulting excavations.

Additional details regarding excavation procedures are provided in the ESMP (BBL, 2006a).

C.4.2 Capping Methodology and Procedures

For the consolidate and cap alternative for the dioxin PRAs, an excavation slightly larger than the combined volume of the final excavation volumes of the PRAs will be needed. Assuming 12,800 cubic yards and recompaction of the soil, a 6- to 6.5-foot

depth for excavated material, and a 6- to 12 -inch cap thickness, approximately a 1.3- to 1.5-acre area will be needed for this consolidation pit. The sides of the excavation will not exceed a 1:1 slope.

Following excavation of the consolidation pit, the subgrade will be inspected and any ruts and holes filled in as well as any deleterious material (rocks, debris) removed. Following preparation of the cell, the cap and consolidate remedy will consist of the following:

- A 40-mil polyvinyl chloride (PVC) geomembrane liner will be laid on the bottom of the excavation overlain by;
- A simple leachate control system (engineered control to deal with liquids that might accumulate in the cell) such as a slight slope to the bottom of the cell with a collection pipe;
- Soil from the Dioxin PRA areas;
- Geosynthetic clay liner (GCL; Bentofix EC³ or equivalent) over the top;
- A marker material (crushed rock or a visible layer such as orange construction fencing);
- A one-foot layer of clean cover soil (soil with an organic content sufficient to support vegetation) filled slightly above the existing surface, lightly compacted, and graded to promote runoff from the interim cap; and
- Revegetation of the capped area using a native seed mix (see specifications in Attachment 2).

Liner panels and GCL will be installed and seamed daily, as weather allows. Care will be taken to facilitate drainage in the event of precipitation. Installation and seaming will be performed per the specifications (Attachment 2). Seaming will be performed by experienced personnel. Liner placement will not be performed in areas of ponded water, during precipitation events, or in the presence of excessive winds. Liner

³ <http://www.gseworld.com/Products/gcls/bentofix/bentofix.htm?DS044ec>

placement will cease or be postponed when conditions are unacceptable. Note that a Consolidation Cell Design Document will be submitted to DTSC for review prior to implementation of construction of the consolidation cell.

The consolidation pit will be located within the area shown on Figure C-1, which was measured in January 2008 (Attachment 3) to have a depth to groundwater of 12 to 12.5 feet bgs. Therefore, the depth of the pit will maintain a distance of at least 5 feet to groundwater (even assuming a 1 foot rise from the measured depth) which meets Title 27 requirements. The area available for the consolidation pit is over 9 acres in size, so can accommodate any needed additional area (for example, if additional material is removed from the dioxin PRAs based on confirmation sampling results)

C.4.3 Dust Control

During excavation activities, there is potential to generate airborne dust. Dust control measures will comply with BMPs in the CDP and the ESMP (incorporated in the CDP by reference), which include:

- 1) Excavation activities will be suspended if winds exceed 15 miles per hour (mph) sustained (for 15 minutes) or 25 mph (instantaneous gusts).
- 2) Vehicles entering or exiting construction areas will travel at a speed that minimizes dust emissions, but not to exceed 15 mph. Construction workers will park in designated parking area(s) to reduce dust emissions.
- 3) Water will be applied by means of trucks, hoses, and/or sprinklers prior to any removal and excavation activities to minimize dust emissions. A water truck will be onsite at all times.
- 4) Water will be applied to disturbed areas at least four times per day to keep working surfaces moist enough to minimize dust emissions.
- 5) The disturbed work area will be sprayed with water at the end of the work shift to form a thin crust. This application will be in addition to the minimum rate of application (four times per day).
- 6) Onsite paved roads will be washed down at least once per day unless conditions warrant a greater frequency. Parking areas, staging areas, and traffic pathways on the site shall be cleaned, as necessary, to control dust emissions. Adjacent

public streets shall also be cleaned, if necessary, when soil materials from the site are visible.

- 7) Water will be applied to visibly dry unpaved roads at least four times per day to keep road surfaces moist enough to minimize dust emissions. Unpaved roads may be graveled to reduce dust emissions.
- 8) Soil stockpiles will be placed atop and covered with heavy duty plastic sheeting when they are not actively being managed. Stockpile covering will be in good condition, joined at the seams, and securely anchored to minimize headspace where vapors may accumulate.
- 9) When not covered, soil stockpile surfaces will be kept visibly moist by water spray.

The objectives of these BMPs are to minimize generation of visible dust and prevent dust from migrating offsite. In addition, as discussed previously, trucks hauling soil and other loose material will be covered and trucks and tires will be brushed off to minimize tracking of dirt onto site or public roads. These BMPs meet or exceed those specified in the MCAQMD dust permit.

C.4.4 Environmental Monitoring

Environmental monitoring will be conducted throughout the remedial construction activities. Environmental monitoring activities, described below, are anticipated primarily to include dust monitoring (described below) and ambient air monitoring for VOCs and hydrocarbons (described in Section C.4.1) although these are not constituents of concern in the PRAs. Dust monitoring equipment that measures particulate matter of 10 microns or less (PM10, respirable dust) will be employed during excavation activities to evaluate the effectiveness of the BMPs listed above. Locations of the dust monitoring devices for the truck routes will be selected based on the prevailing wind direction in relation to the day's routes, but will generally be at the locations shown on Figure C-1. Work will begin in Level D PPE, which provides no respiratory protection. A reading on the dust monitors of less than 0.5 milligrams per cubic meter (mg/m^3) requires no additional protection. Readings of 0.5 to $5 \text{ mg}/\text{m}^3$ requires donning of dust masks, and a reading greater than $5 \text{ mg}/\text{m}^3$ requires that work stop and the source of the dust investigated. Corrective actions will be taken to reduce readings to below $5 \text{ mg}/\text{m}^3$ or below $0.5 \text{ mg}/\text{m}^3$, if possible, before work is allowed to

resume. Additional information regarding environmental monitoring activities is included in the HASP.

C.4.5 Verification Soil Sampling Program

Verification samples of the floor in the excavation areas will be collected at a frequency of one sample per 5,000 square feet in excavations up to 5,000 square feet in area. For excavations over 10,000 square feet in area, one floor/bottom sample per 2,500 square feet will be collected. For excavations between 5,000 and 10,000 square feet, two or three floor/bottom samples will be collected, depending on the size and shape of the excavation. Sidewall verification samples will be collected at a frequency of one sample per 100 linear feet of sidewall, with a minimum of one per sidewall in smaller excavations. Sample locations will be determined in the field for each excavation segment. In shallow excavations, a sample will be collected using a shovel, trowel, or hand auger. In excavations of 3 feet or greater depth, the excavator bucket will be used to retrieve soil at the sample location, and a sample of the soil will be collected from the bucket after it is brought to the surface. In the lead PRA in Glass Beach 2, samples will be analyzed for lead. In the PCB PRA in the Former Scrap Yard, samples will be analyzed for PCB congeners. In the dioxin/furan PRAs, samples will be analyzed for dioxins/furans. Additional information regarding sampling and analysis methods can be found in the Quality Assurance Project Plan (ARCADIS BBL, 2007).

Results of verification samples will be compared to risk-based target levels (RBTLs) for the protection of human and ecological receptors derived in Section 3.3 of the RAP. These RBTLs are not intended to serve as “clean-up” levels in general and are not necessarily relevant to other areas or OUs. RBTLs were estimated for PCBs (total), lead, and dioxins/furans (TCDD TEQ).

The RBTLs (Appendix A) will be used initially to screen results from individual confirmation samples, but will also be compared to post-remedy exposure estimates (i.e., 95% Upper Confidence Limits [95%UCLs] for OU-A North and OU-A South) to determine whether post-remedy conditions are protective of human and ecological receptors, as predicted by the ecological risk assessment (ERA) and human health risk assessment (HHRA) contained within the OU-A RI Report (see Section 3 of the main text). As discussed in Section 3.4 of the OU-A RAP, the following RBTL comparisons will be made:

- For PCBs in the Former Scrap Yard, a post-remedial 95%UCL of confirmation samples not exceeding 1 milligram per kilogram (mg/kg), the lower of the RBTLs for the most sensitive human receptor (8.8 mg/kg) or ecological receptor (1 mg/kg).
- For lead at Glass Beach 2, a post-remedial 95%UCL of confirmation samples not exceeding 80 mg/kg, the lower of the RBTLs that are greater than background for the most sensitive human receptor (523 mg/kg) or ecological receptor (80 mg/kg), as well as removal of lead that meets the definition of a California Hazardous Waste (California Code of Regulations Title 22 Social Security, Division Health Standards for the Management of Hazardous Waste, Chapter 11). Removal to 80 mg/kg or less should achieve the second criterion.
- For dioxin/furans, post-remedial 95%UCLs expressed as total mammalian TEQs not exceeding 53 picograms per gram (pg/g), the lower of the RBTLs for the most sensitive human receptor (53 pg/g) or ecological receptor (59 pg/g).

If the analytical results of the post-excavation verification samples indicate that constituents of concern remain in soil at 95%UCLs greater than the remedial goals, a 5-foot by 5-foot area will be re-excavated to at least 0.5 feet below ground surface (bgs) around the sample locations exceeding the criteria. Additional verification samples will then be collected from the floor and/or wall of the newly excavated area, as necessary, and compared to the appropriate RBTL(s). This process will be repeated as necessary to achieve the RBTLs on a 95%UCL basis.

C.4.6 Waste Characterization

The soil impacted by lead has been characterized as a California hazardous waste based on analyses conducted of soil samples collected at the planned excavation location. The PCB-contaminated soil, although over the 1 mg/kg Toxic Substances Control Act (TSCA) action level for a performance-based cleanup, is non-hazardous and below the TSCA waste threshold of 50 mg/kg. Soil from the dioxins/furans PRAs is also a non-hazardous waste. Existing results for in situ samples from the PRAs are sufficient for characterization and to obtain approval for offsite disposal at an appropriately permitted facility.

C.4.7 Offsite Disposal/Consolidation

If not directly loaded into trucks, the excavated material will be temporarily stockpiled in an area (or areas) in the vicinity of the excavation. The stockpile area will be

constructed on a paved area of the site or lined with plastic. Stockpiles will be covered with plastic at the end of each day and when not being actively worked on. Sandbags, or other weights, will be used to keep the plastic cover in place.

The excavated material will be loaded onto trucks and transported under an appropriate waste manifest or bill-of-lading to an appropriately permitted landfill, depending on the characteristics of the waste. California hazardous waste will be transported to the Kettleman Hills Waste Management facility. Non-hazardous waste will be transported to Keller Canyon landfill in Pittsburg, California. The soils will be wetted, as necessary, to reduce the potential for dust generation during loading and transportation activities. After each truck is filled, it will be inspected to ensure that the waste soil is securely covered and that the tires of the haul trucks are reasonably free of accumulated soil prior to leaving the site.

Trucks will enter and leave the site by the Cypress Street gate and will sign in with the guard at the gate. Routes from the site to the landfills specified above are included in the Transportation Plan (BBL, 2006c). The truck drivers will be given a map of the route along with the manifest. Trucks will typically arrive at the site by 7 a.m. and depart the site by noon, but could depart as late as 1 p.m., to reach the landfill by closing time. Trucks going to Kettleman Hills may arrive at the site by 6 a.m. and will generally depart the site by 9 a.m.

For non-hazardous soil only 1,000 cy will be transported offsite based on the consolidate and cap remedy being selected. Only 4 to 6 days of trucking will be required (if the consolidate and cap remedy is not implemented and the Dioxin PRA material has to be taken offsite, a total of 52 days additional days would be required to haul the non-hazardous soil to the landfill).

It is anticipated that an average of 15 trucks and a maximum of 25 trucks (loads) per day will leave the site based on the production capacity of the equipment and the hours that trucks can travel from Fort Bragg to the offsite disposal facilities. For non-hazardous soil (approximately 1,000 cy), 55 to 65 truckloads will be required over 4 to 6 days to transport the soil to the designated landfill. For hazardous soil (approximately 140 cy), 8 to 10 truckloads will required over 1 to 2 days to transport the soil to the designated landfill. A full-time person will be assigned to coordinate the proper manifesting and documentation associated with transportation and disposal of the waste materials. Further information on transportation is provided in Section C.4.11.

For the cap/consolidate option, approximately 50 days is estimated for the duration of the excavation work, but trucking will be limited to onsite. A surface soil layer (soil suitable for revegetation) will be hauled onsite.

C.4.8 Liquids Handling and Disposal

Minimal liquid requiring handling and disposal is anticipated to be generated during the remedial activities. Any liquid generated will be collected and drummed for offsite disposal.

C.4.9 Equipment Decontamination

Equipment used to excavate and manage the affected soil will be decontaminated prior to leaving the site. The equipment will be primarily decontaminated by sweeping or brushing to remove visible soil. Soil that cannot be removed by this procedure will be removed from equipment by washing in a prepared decontamination area (Figure C-1). The decontamination area will consist of a bermed containment pad constructed using plastic sheeting to provide containment of the decontamination wash water. Decontamination wash water will be collected, characterized, and appropriately disposed or recycled in accordance with applicable federal, state, and local requirements.

C.4.10 Excavation Backfilling and Site Restoration

PRAs in OU-A North will be backfilled with clean, imported fill material⁴. All but the upper 4 to 6 inches will likely be filled with dredge material from Noyo Harbor. The top layer will be soil from a nearby borrow source (i.e., quarry or similar source) that has been tested for constituents of interest before use at the site, as described in Section C.4.1. The dredge material is too saline to support plant growth, and a layer of material thick enough to support native grasses and forbs is required. The clean fill material will be stockpiled onsite for a short period and then backfilled into the OU-A North PRAs. The fill material will be placed with a rubber-tired backhoe and compacted to 90% standard proctor. The excavated area will then be restored to match existing grade and the area will be revegetated with a native plant seed mix using a hydroseeder.

⁴ Fill material will be evaluated based on DTSC's *Information Advisory, Clean Imported Fill Material, October 2001*.

The PRAs in OU-A South will be regraded with material available in the area and soil from the consolidation cell location, as needed. There is an area of mounded soil in the Parcel 10 fill area that can be used for this purpose. Additional fill material from offsite will not be needed for the OU-A South excavations. The fill material will be placed with a backhoe and compacted to 90% standard proctor. The excavated area will then be restored to match existing grade and the area will be revegetated with a native plant seed mix using a hydroseeder. The capped area will also be revegetated (see specifications in Attachment 2). The seed mix will consist of native coastal plants from a “clean” source (i.e., a seed mix that is as free as possible from non-native plant seeds). To the extent possible, seeds from local sources will be utilized; note that all rare plant restoration will be accomplished using seeds collected onsite. Monitoring of revegetated areas will be completed as described in Section C3.2.

C.4.11 Transportation Plan

The Transportation Plan prepared in 2006 (BBL, 2006c) describes the procedures for offsite transport of waste associated with remedial activities at the site. The Transportation Plan describes the protocol and procedures to be followed to protect human health and the environment during transportation activities to remove waste, concrete, demolition debris, soil, and wastewater from the site and fulfills specific applicable requirements of the CFR, Title 49, Transportation, Parts 100 to 199, and the California Health and Safety Code, Section 25169.3. In addition, all work will be performed in accordance with the HASP (ARCADIS BBLES, 2007) and this document.

The anticipated landfill facilities for disposal of non-hazardous excavated soil listed in the Transportation Plan are the Class III Potrero Hills Landfill in Suisun City, California (Potrero), Waste Management, Inc. Redwood Landfill in Novato, California (Redwood), or the Allied Waste Services Keller Canyon Landfill in Pittsburg, California (Keller Canyon; a Class II, Subtitle D permitted landfill). Due to restrictions on materials accepted by Potrero Hills and Redwood Landfills, it is likely that non-hazardous waste will be disposed at Keller Canyon Landfill in Pittsburg. The anticipated landfill facility for hazardous excavated soil is the Class I Waste Management, Inc. Kettleman Hills Landfill in Kettleman City, California (Kettleman). The Transportation Plan (BBL, 2006c) includes a summary of information for these facilities including waste type, transportation mode, destination facility name, destination address, phone number, and contact person for each respective destination facility, as well as regulatory documentation on the approved status of the facilities. The anticipated facility for disposal of hazardous and non-hazardous wastewater is Evergreen Environmental Services in Newark, California.

Transportation routes for waste have been selected to minimize the amount of time spent en route and within populated areas. DenBeste Transportation, Inc. and Evergreen Environmental Services have been initially selected as the transport companies for the project. A map of the applicable route will be given to each truck driver along with the manifest for the load.

Figure C-2 shows the route to Keller Canyon landfill. The route from the site to the landfill is approximately 200 miles (400 miles round trip). Trucks transporting non-hazardous waste to Keller Canyon Landfill will exit the site and head right (south) on State Highway 1 (Main Street), then turn left onto State Highway 20 heading east. They will continue on Highway 20 to U.S. Highway 101 (US-101) at Willits and then turn right onto US-101 south to State Highway 116 (Hwy. 116, also called Lakeville Highway) at Petaluma. Then they will take Hwy. 116/Lakeville Hwy east and continue south at Lakeville Road, to Hwy 37/Sears Point Road. Then they will travel east on Hwy 37/Sears Point Road to Interstate 80 (I-80) at Vallejo and take I-80 south to I-780 to I-680 South, crossing the Benicia Bridge. After crossing the bridge, the trucks will take I-680-South to Hwy 4 East to Pittsburg and will exit at Bailey Road. The trucks will go right (south) on Bailey Road to Keller Canyon landfill at 901 Bailey Road in Pittsburg.

The route for transportation of hazardous waste to the Kettleman Hills landfill (near Kettleman City, California) is shown on Figure C-3. The route consists of approximately 2 miles of streets in the commercial and rural area proximate to the site, 370 miles of urban and rural interstate, and 2.5 miles of state highway. The total distance from the site is about 375 miles. Trucks transporting hazardous waste to Kettleman Hills will exit the site and turn right onto Highway 1 (Main Street), left onto Highway 20, and right onto US-101 South at Willits. The route proceeds on US-101 South to the I-580 exit, and then east on I-580 towards Richmond Bridge/Oakland. After crossing the bridge, the route continues to the I-580 East/I-880 South split, where the trucks will take I-880 South. They will continue along I-880 South to State Highway 238 (CA-238) South, along CA-238 to I-580 East to I-5 South. The route continues on I-5 South to CA-41 West, on CA-41 West to Old Skyline Road, and then right (north) on Old Skyline Road. Kettleman Hills landfill is at 35251 Old Skyline Road.

The route to Evergreen Environmental Services in Newark, California, is shown on Figure C-4. The route from the site to the facility is approximately 200 miles. Trucks transporting non-hazardous or hazardous wastewater to Evergreen Environmental Services will exit the site and head right (south) on State Highway 1 (Main Street), left onto Highway 20, and right onto US-101 South at Willits. The route proceeds on US-101 South to the I-580 exit, and then heads east on I-580 towards Richmond

Bridge/Oakland. After crossing the bridge, the route continues to the I-580 East/I-880 South split, where the trucks will take I-880 South to the Thornton Avenue/Highway 84 East exit towards the Centerville District (southwest). The trucks will continue on Thornton Avenue, then turn left on Cherry Street and proceed approximately 1 mile and turn right on Smith Avenue. Evergreen Environmental Services is located at 6880 Smith Avenue.

As discussed in Section C4.7, for non-hazardous soil (approximately 1,000 cy), 55 to 65 truckloads will be required over 4 to 6 days to transport the soil to the designated landfill. For hazardous soil (approximately 140 cy), 8 to 10 truckloads will required over 1 to 2 days to transport the soil to the designated landfill.

C.4.12 Project Duration, Work Hours, and Schedule

Work at the site will be conducted Monday through Saturday, typically from 7 a.m. to 5 p.m., although work could be extended to run from 6 a.m. to 6 p.m. Depending on the tasks, Saturday hours may be shorter. Based on the time needed for hauling materials from the site, approximately 18 weeks will be needed to complete the project (2 weeks to prepare for BMPs, up to 14 weeks of trucking and/or capping activities, and 2 weeks for restoration of excavated areas). To complete restoration by October 15, work would need to begin by June 9.

C.4.13 Operation and Maintenance Plan

For the consolidate and cap alternative for the dioxin PRAs, an Operation and Maintenance Plan and a Monitoring Plan will be prepared following completion of the capping effort. The creation and execution of an Operation and Maintenance Plan that includes a Soil Management Plan and financial assurances will be required to address operation and maintenance of the cap (i.e., annual inspections and necessary repairs) and to ensure that soil handling activities onsite in the future will be performed safely and appropriately. Also, creation and execution of a Monitoring Plan will be required to ensure that the dioxins/furans present in the soil do not impact groundwater or other environmental media. The design of the consolidate and cap remedy includes installation of one monitoring well downgradient of the capped area.

C.5. References

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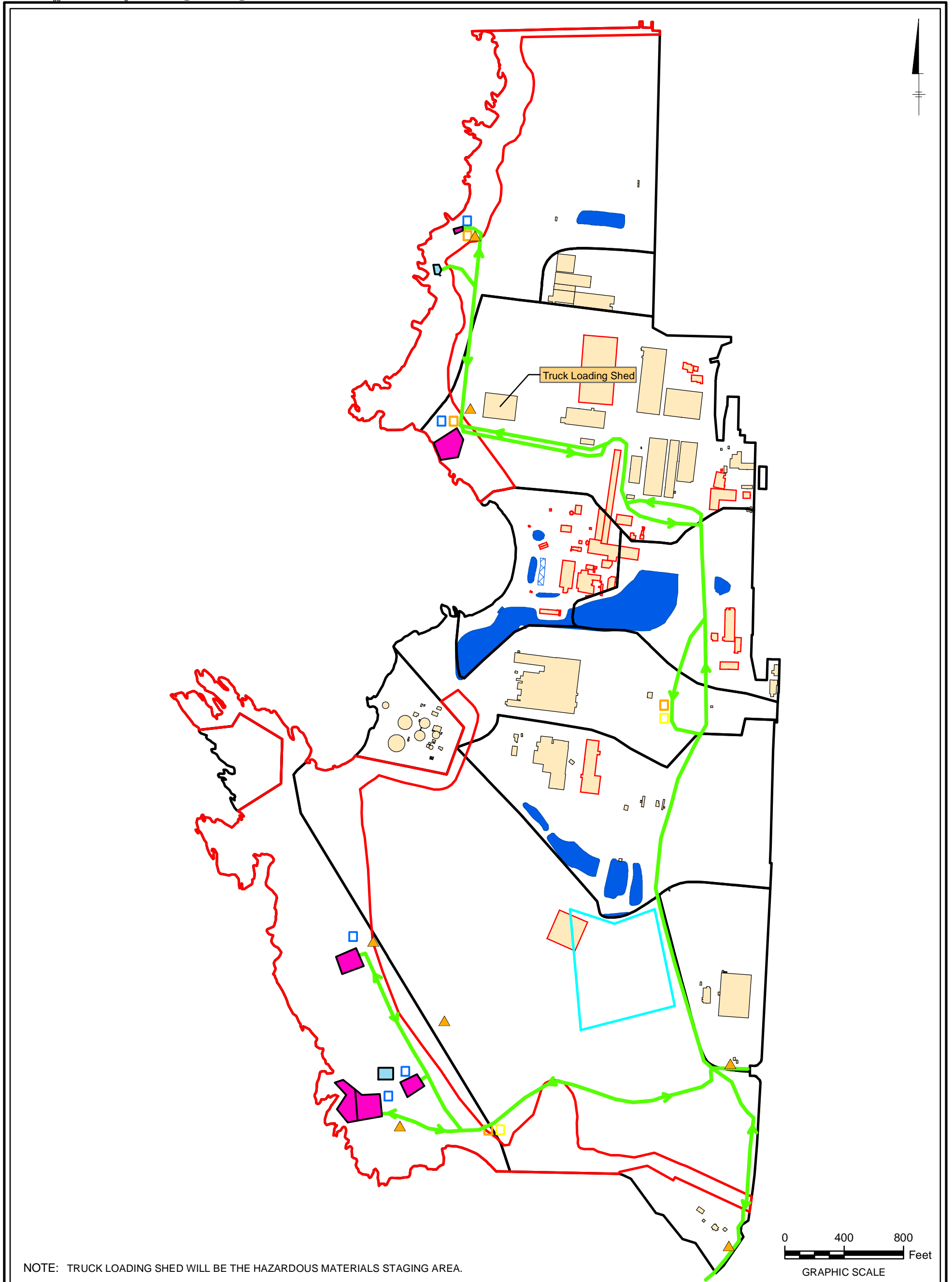
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Figures



NOTE: TRUCK LOADING SHED WILL BE THE HAZARDOUS MATERIALS STAGING AREA.

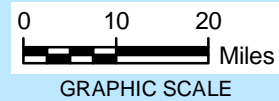
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	PRESUMPTIVE REMEDY AREA		FACILITY PARCEL
	NEW PRESUMPTIVE REMEDY AREA		STRUCTURE
	POND		FORMER STRUCTURE
	FORMER POND		TRUCK ROUTE
	POTENTIAL CONSOLIDATION PIT		AIR MONITORING LOCATION
	TEMPORARY STOCKPILE AREA		DRY DECONTAMINATION
	WET DECONTAMINATION		OU-A

FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
 FORT BRAGG, CALIFORNIA

OPERABLE UNIT A REMEDIAL ACTION PLAN
ONSITE TRUCK ROUTE, STOCKPILE, DECONTAMINATION, AND AIR MONITORING LOCATIONS

ARCADIS BBL
 Infrastructure, environment, facilities

FIGURE C-1



LEGEND:

- TRUCK ROUTE
- URBAN AREA

NOTE:

TOTAL DISTANCE FROM SITE IS ABOUT 200 MILES.

FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
FORT BRAGG, CALIFORNIA

OPERABLE UNIT A REMEDIAL ACTION PLAN

**TRUCK ROUTE FROM SITE TO
KELLER CANYON LANDFILL**

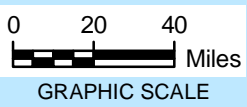
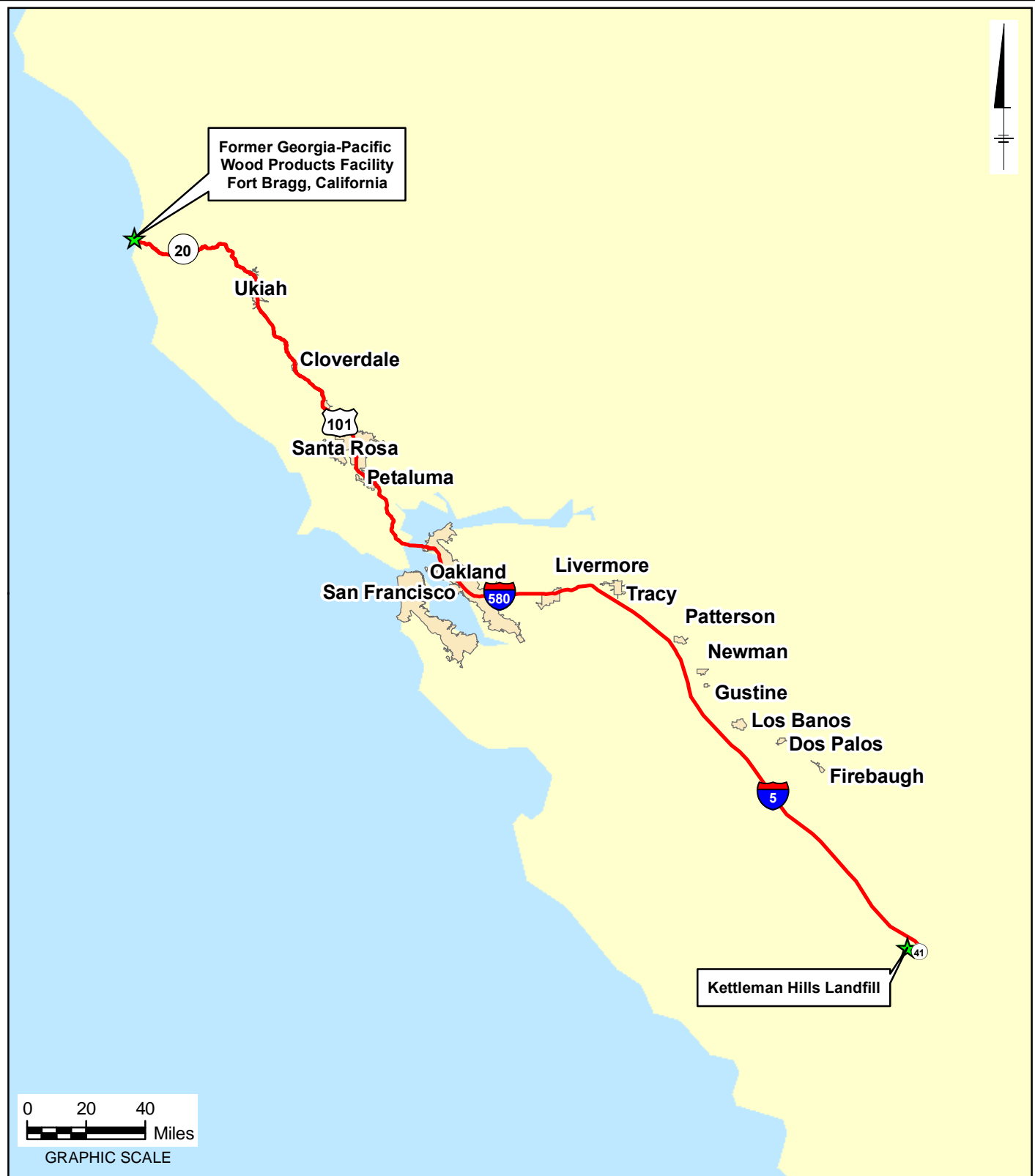


**FIGURE
C-2**



SF-85 ME [CITY-DIV MTK TBR EAB KEW EGH PGL]
Project #66111.0002
Q:\GPI\FortBragg\RAP-OJAI\Mxd\Figure C-2 KellerCanyonLandfill.mxd - 3/10/2008 @ 3:30:48 PM



Former Georgia-Pacific Wood Products Facility
Fort Bragg, California



LEGEND:

-  TRUCK ROUTE
-  URBAN AREA

NOTE:

TOTAL DISTANCE FROM SITE IS ABOUT 375 MILES.

FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
FORT BRAGG, CALIFORNIA

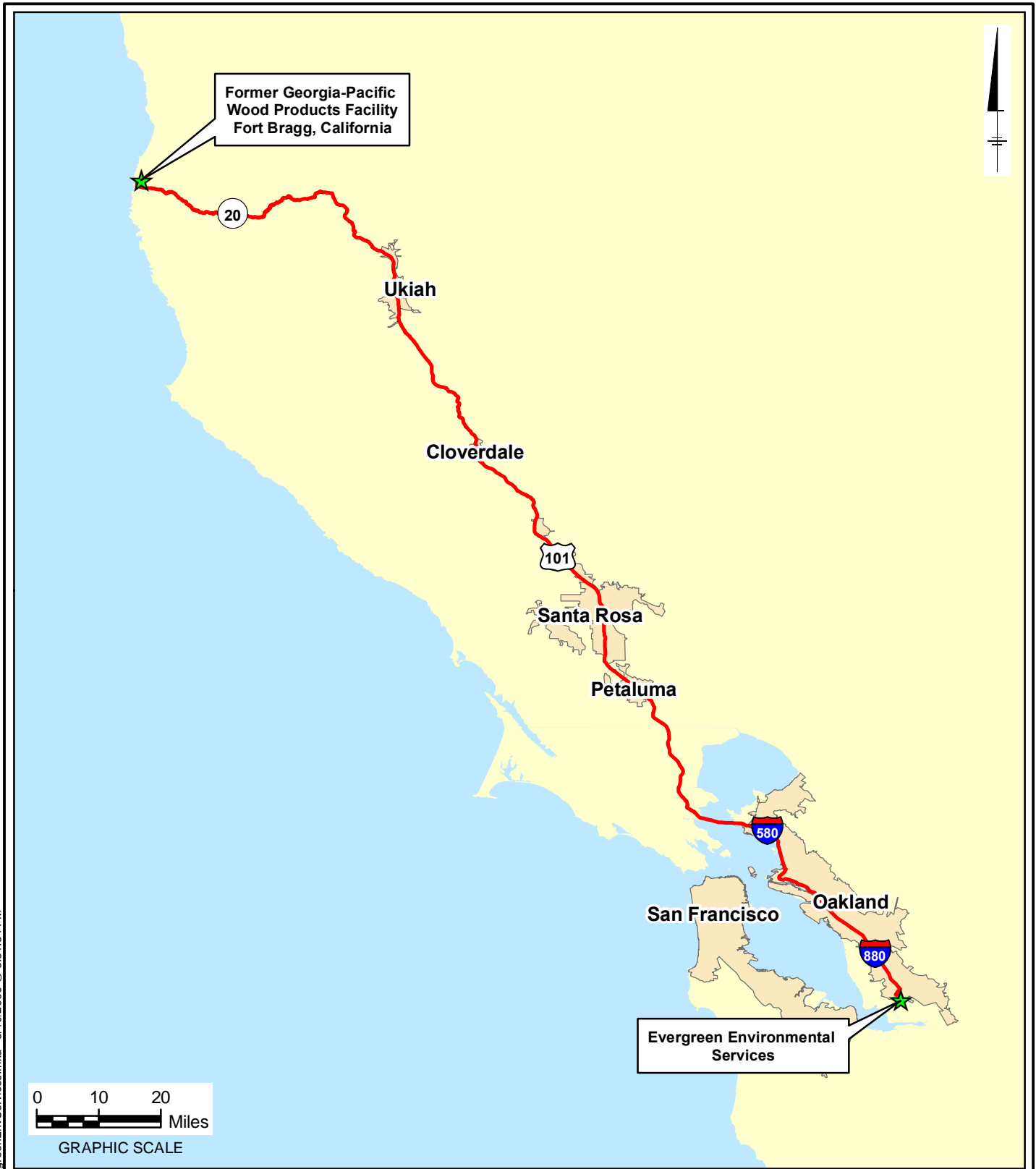
OPERABLE UNIT A REMEDIAL ACTION PLAN

**TRUCK ROUTE FROM SITE TO
KETTLEMAN HILLS LANDFILL**




**FIGURE
C-3**

SF-85 ME [CITY-DIV MTK TBR EAB KEW EGH PGL]
Project #66111.0002
Q:\GP\FortBragg\RAP-OJAI\Mxd\Figure C-4 EvergreenEnvServices.mxd - 3/10/2008 @ 3:31:54 PM



LEGEND:

-  TRUCK ROUTE
-  URBAN AREA

NOTE:

TOTAL DISTANCE FROM SITE IS ABOUT 200 MILES.

FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
FORT BRAGG, CALIFORNIA

OPERABLE UNIT A REMEDIAL ACTION PLAN

**EVERGREEN ENVIRONMENTAL
SERVICES**



**FIGURE
C-4**

Attachment 1

Raw Data and Calculations from
Specific-Capacity Testing

Tables

**Table C.1-1
Hydraulic Conductivity Calculations**

**Attachment 1 to Appendix C - Implementation Plan
Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

T = 264Q/s
T = Transmissivity (gpd/ft)
Q = pumping rate (gpm)
s = drawdown (ft) over one log cycle of time

MW-10.1	
s = 2.04 - 1.64	0.4 ft
Q = 8	8 gpm
T =	5280 gpd/ft
K =	528 gpd/ft ²
K =	70.6 ft/day

MW-10.2 A	
s = 1.61 - 0.39	1.22 ft
Q = 0.5	0.32 gpm
T =	69.25 gpd/ft
K =	19 gpd/ft ²
K =	2 ft/day

MW-10.2 B	
s = 1.78 - 1.2	0.58 ft
Q = 0.5	0.32 gpm
T =	146 gpd/ft
K =	39 gpd/ft ²
K =	5 ft/day

MW-10.4	
s = 1.42 - 0.75	0.67 ft
Q = 5.5	5.5 gpm
T =	2167.16 gpd/ft
K =	2167.164 gpd/ft ²
K =	290 ft/day

Notes:

Bold, blue type indicates that the pumping rate has been adjusted for borehole and well storage.

**Table C.1-2
Monitoring Well MW-10.1
Specific Capacity Test Data**

**Attachment 1 to Appendix C - Implementation Plan
Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Well ID: MW-10.1

Date: 11/07/2007

Initial DTW (ft): 20.11

Total Well Depth (ft): 32.9

Length of Water Column (ft): 6.52

Time	Elapsed Time	Depth to Water (ft TOC)	Drawdown (ft)	Pumping Rate (gal/min)
Begin Pumping				
7:27:00	0.00	20.11	0	8
7:27:30	0.50	21.54	1.43	8
7:28:00	1.00	21.65	1.54	8
7:28:30	1.50	21.77	1.66	8
7:29:00	2.00	21.86	1.75	8
7:29:30	2.50	21.90	1.79	8
7:30:00	3.00	21.95	1.84	8
7:31:00	4.00	21.98	1.87	8
7:32:00	5.00	22.03	1.92	8
7:33:00	6.00	22.03	1.92	8
7:34:00	7.00	22.03	1.92	8
7:35:00	8.00	22.03	1.92	8
7:36:00	9.00	22.03	1.92	8
7:37:00	10.00	22.03	1.92	8
7:38:00	11.00	22.05	1.94	8
7:39:00	12.00	22.06	1.95	8
7:40:00	13.00	22.06	1.95	8
7:41:00	14.00	22.07	1.96	8
7:42:00	15.00	22.08	1.97	8
7:45:00	18.00	22.10	1.99	8
7:48:00	21.00	22.13	2.02	8
7:51:00	24.00	22.15	2.04	8
7:54:00	27.00	22.17	2.06	8
7:57:00	30.00	22.18	2.07	8

**Table C.1-2
Monitoring Well MW-10.1
Specific Capacity Test Data**

**Attachment 1 to Appendix C - Implementation Plan
Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Well ID: MW-10.1

Date: 11/07/2007

Initial DTW (ft): 20.11

Total Well Depth (ft): 32.9

Length of Water Column (ft): 6.52

Time	Elapsed Time	Depth to Water (ft TOC)	Drawdown (ft)	Pumping Rate (gal/min)
Stop test, begin to measure recovery				
7:58:00	31.00	22.85	2.74	-
7:58:30	31.50	20.60	0.49	-
7:59:00	32.00	20.51	0.4	-
7:59:30	32.50	20.47	0.36	-
8:00:00	33.00	20.45	0.34	-
8:00:30	33.50	20.44	0.33	-
8:01:30	34.50	20.42	0.31	-
8:02:30	35.50	20.40	0.29	-
8:03:30	36.50	20.39	0.28	-
8:04:30	37.50	20.38	0.27	-
8:05:30	38.50	20.37	0.26	-
8:06:30	39.50	20.36	0.25	-
8:07:30	40.50	20.36	0.25	-
8:08:30	41.50	20.35	0.24	-
8:09:30	42.50	20.35	0.24	-
8:10:30	43.50	20.34	0.23	-
8:11:30	44.50	20.34	0.23	-
8:12:30	45.50	20.33	0.22	-
8:15:30	48.50	20.33	0.22	-
8:18:30	51.50	20.32	0.21	-
8:21:30	54.50	20.31	0.2	-
8:24:30	57.50	20.30	0.19	-
8:27:30	60.50	20.29	0.18	-
9:05:30	98.50	20.23	0.12	-
9:35:30	128.50	20.20	0.09	-

**Table C-1-3
Monitoring Well MW-10.2
Specific Capacity Test Data**

**Attachment 1 to Appendix C - Implementation Plan
Operable Unit A Remedial Action Plan
Fomer Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Well ID: MW-10.2

Date: 11/07/2007

Initial DTW (ft): 10.78

Total Well Depth (ft): 17.3

Length of Water Column (ft): 6.52

Time	Elapsed Time	Depth to Water (ft TOC)	Drawdown (ft)	Pumping Rate (gal/min)
Begin Pumping				
16:15:00	0.00	11.1	0.32	0.5
16:15:30	0.50	11.27	0.49	0.5
16:16:00	1.00	11.37	0.59	0.5
16:16:30	1.50	11.46	0.68	0.5
16:17:00	2.00	11.52	0.74	0.5
16:17:30	2.50	11.58	0.8	0.5
16:18:30	3.50	11.66	0.88	0.5
16:19:30	4.50	11.78	1	0.5
16:20:30	5.50	11.83	1.05	0.5
16:21:30	6.50	11.89	1.11	0.5
16:22:30	7.50	12.02	1.24	0.5
16:23:30	8.50	12.17	1.39	0.5
16:24:30	9.50	12.27	1.49	0.5
16:25:30	10.50	12.4	1.62	0.5
16:26:30	11.50	12.47	1.69	0.5
16:27:30	12.50	12.52	1.74	0.5
16:28:30	13.50	12.56	1.78	0.5
16:29:30	14.50	12.6	1.82	0.5
16:32:30	17.50	12.7	1.92	0.5
16:35:30	20.50	12.75	1.97	0.5
16:38:30	23.50	12.79	2.01	0.5
16:41:30	26.50	12.79	2.01	0.5
16:44:30	29.50	12.82	2.04	0.5

**Table C-1-3
Monitoring Well MW-10.2
Specific Capacity Test Data**

**Attachment 1 to Appendix C - Implementation Plan
Operable Unit A Remedial Action Plan
Fomer Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Well ID: MW-10.2

Date: 11/07/2007

Initial DTW (ft): 10.78

Total Well Depth (ft): 17.3

Length of Water Column (ft): 6.52

Time	Elapsed Time	Depth to Water (ft TOC)	Drawdown (ft)	Pumping Rate (gal/min)
Stop test, begin to measure recovery				
16:44:30	29.50	12.55	1.77	-
16:45:00	30.00	12.29	1.51	-
16:45:30	30.50	12.1	1.32	-
16:46:00	31.00	11.9	1.12	-
16:46:30	31.50	11.7	0.92	-
16:47:00	32.00	11.55	0.77	-
16:48:00	33.00	11.3	0.52	-
16:50:00	35.00	11.03	0.25	-
16:51:00	36.00	10.93	0.15	-
16:52:00	37.00	10.88	0.1	-
16:53:00	38.00	10.84	0.06	-
16:54:00	39.00	10.82	0.04	-
16:55:00	40.00	10.81	0.03	-
16:56:00	41.00	10.8	0.02	-
16:57:00	42.00	10.79	0.01	-
16:58:00	43.00	10.79	0.01	-
16:59:00	44.00	10.79	0.01	-
17:02:00	47.00	10.78	0	-
17:05:00	50.00	10.78	0	-
17:08:00	53.00	10.78	0	-

**Table C-1-4
Monitoring Well MW-10.4
Specific Capacity Test Data**

**Attachment 1 to Appendix C - Implementation Plan
Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Well ID: MW-10.4

Date: 11/07/2007

Initial DTW (ft): 27.90

Total Well Depth (ft): 32.24

Length of Water Column (ft): 4.34

Time	Elapsed Time	Depth to Water (ft TOC)	Drawdown (ft)	Pumping Rate (gal/min)
Begin Pumping				
13:29:30	0.00	28.38	0.48	5
13:30:00	0.50	28.41	0.51	5
13:30:30	1.00	28.40	0.50	5
13:31:00	1.50	28.43	0.53	5
13:31:30	2.00	28.43	0.53	5
13:32:00	2.50	28.44	0.54	5
13:32:30	3.00	28.44	0.54	5
13:33:30	4.00	28.44	0.54	5
13:34:30	5.00	28.44	0.54	5
13:35:30	6.00	28.44	0.54	5.5
13:36:30	7.00	28.52	0.62	5.5
13:37:30	8.00	28.53	0.63	5.5
13:38:30	9.00	28.59	0.69	5.5
13:39:30	10.00	28.59	0.69	5.5
13:40:30	11.00	28.65	0.75	5.5
13:41:30	12.00	28.65	0.75	5.5
13:42:30	13.00	28.71	0.81	5.5
13:43:30	14.00	28.71	0.81	5.5
13:44:30	15.00	28.71	0.81	5.5
13:47:30	18.00	28.75	0.85	5.5
13:50:30	21.00	28.78	0.88	5.5
13:53:30	24.00	28.78	0.88	5.5
13:56:30	27.00	28.78	0.88	5.5
13:59:30	30.00	28.78	0.88	5.5

**Table C-1-4
Monitoring Well MW-10.4
Specific Capacity Test Data**

**Attachment 1 to Appendix C - Implementation Plan
Operable Unit A Remedial Action Plan
Former Georgia-Pacific Wood Products Facility
Fort Bragg, California**

Well ID: MW-10.4

Date: 11/07/2007

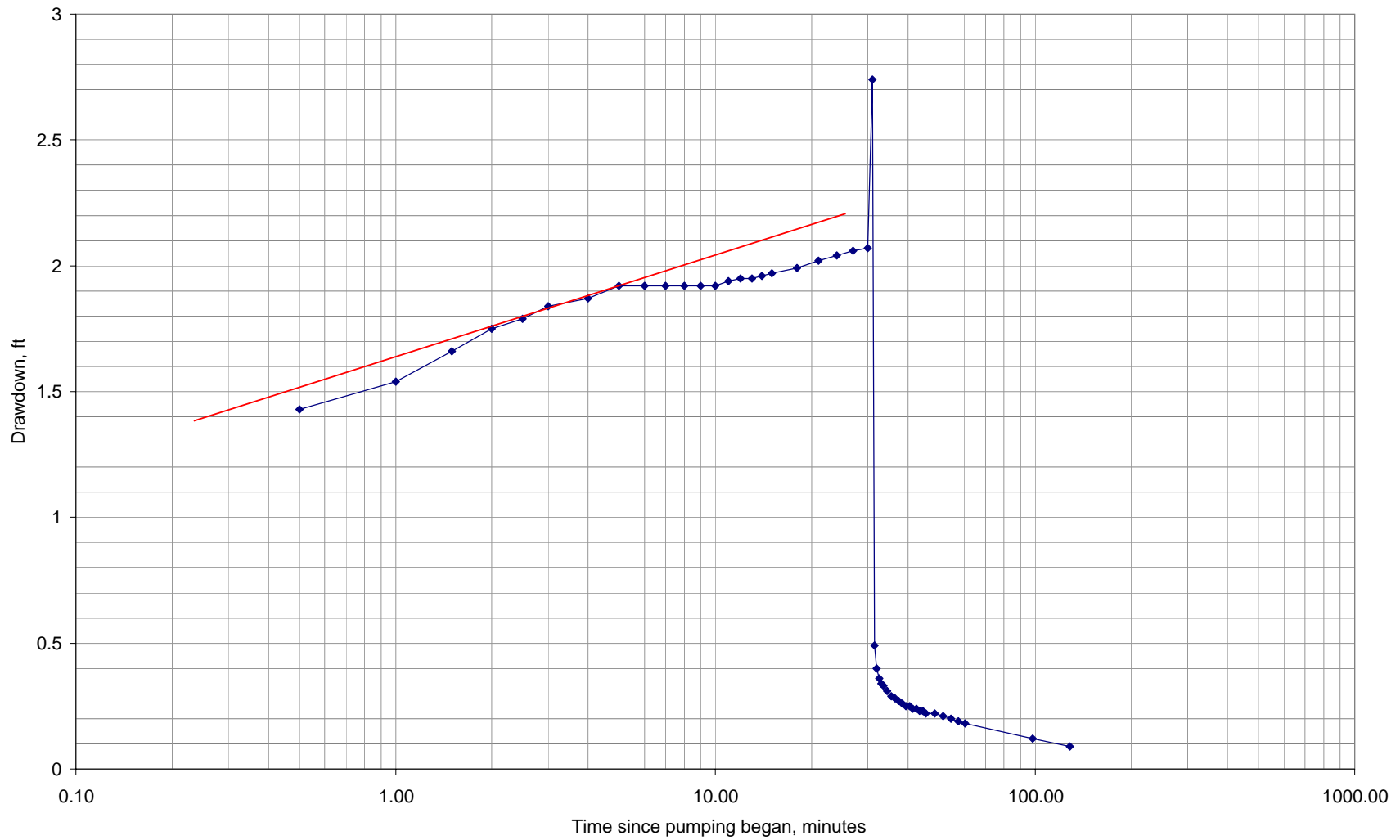
Initial DTW (ft): 27.90

Total Well Depth (ft): 32.24

Length of Water Column (ft): 4.34

Time	Elapsed Time	Depth to Water (ft TOC)	Drawdown (ft)	Pumping Rate (gal/min)
Stop test, begin to measure recovery				
13:59:30	30.50	28.40	0.50	-
14:00:00	31.00	28.30	0.40	-
14:00:30	31.50	28.28	0.38	-
14:01:00	32.00	28.20	0.30	-
14:01:30	32.50	28.20	0.30	-
14:02:00	33.00	28.20	0.30	-
14:03:00	34.00	28.20	0.30	-
14:04:00	35.00	28.20	0.30	-
14:05:00	36.00	28.20	0.30	-
14:06:00	37.00	28.20	0.30	-
14:07:00	38.00	28.20	0.30	-
14:08:00	39.00	28.18	0.28	-
14:09:00	40.00	28.18	0.28	-
14:10:00	41.00	28.18	0.28	-
14:11:00	42.00	28.18	0.28	-
14:12:00	43.00	28.18	0.28	-
14:13:00	44.00	28.18	0.28	-
14:14:00	45.00	28.18	0.28	-
14:17:00	48.00	28.18	0.28	-
14:20:00	51.00	28.18	0.28	-
14:23:00	54.00	28.18	0.28	-
14:26:00	57.00	28.18	0.28	-
14:29:00	60.00	28.18	0.28	-
14:53:00	84.00	28.17	0.27	-
17:01:00	92.00	28.00	0.10	-

Figures



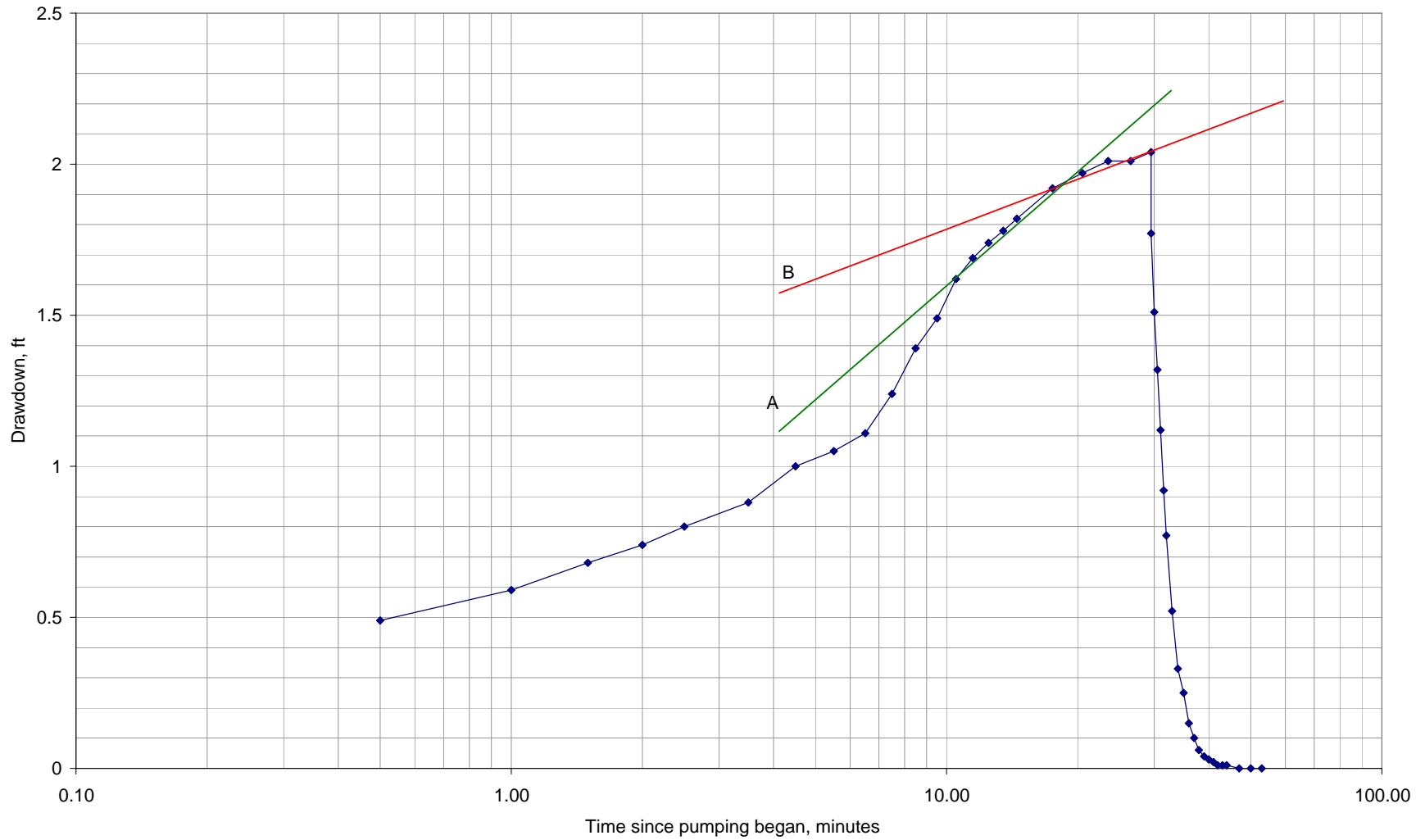
FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
FORT BRAGG, CALIFORNIA

ATTACHMENT 1 TO APPENDIX C - OU-A RAP

**MONITORING WELL MW-10.1
SPECIFIC CAPACITY TEST GRAPH**



**FIGURE
C.1-1**



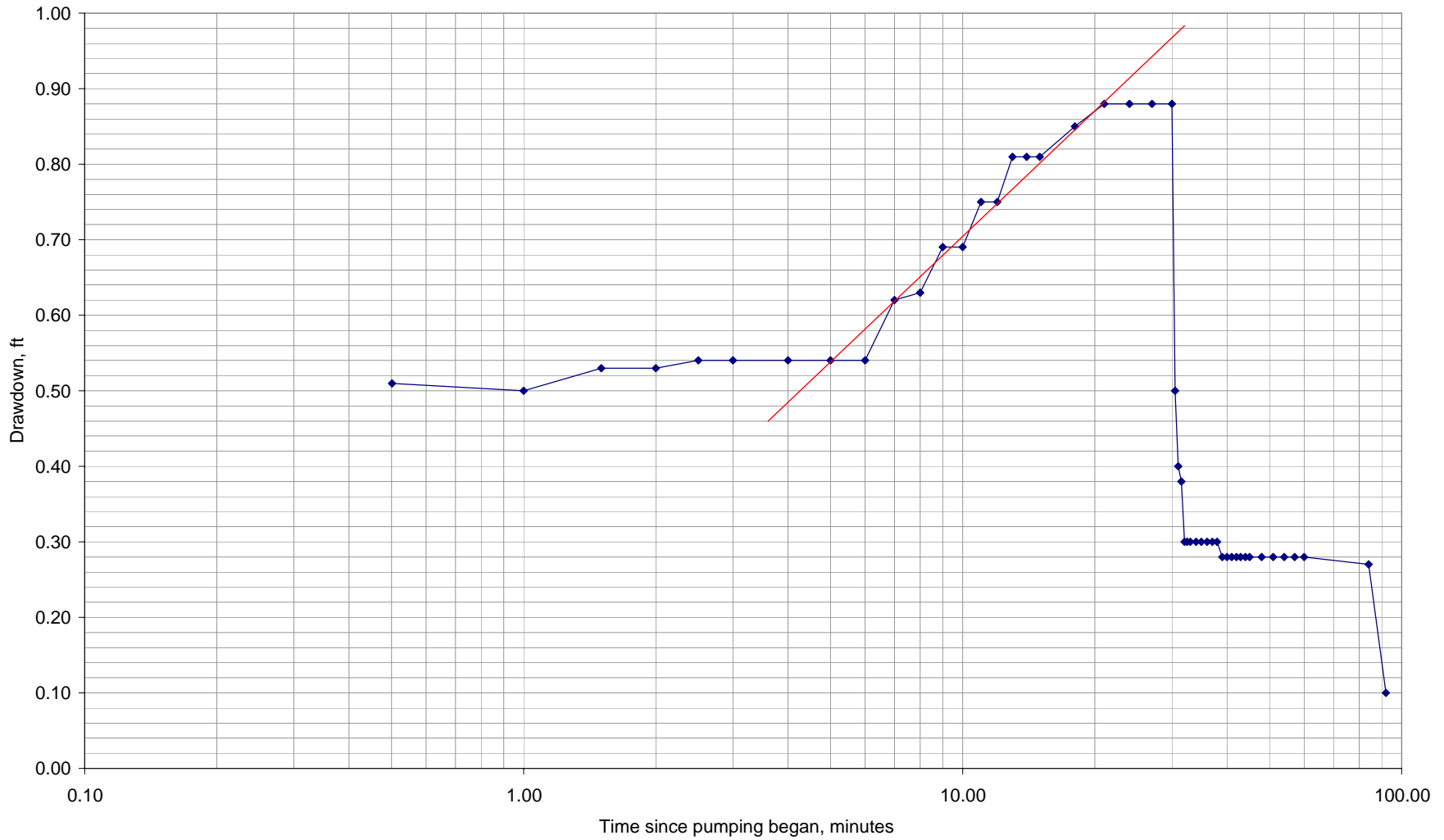
FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
FORT BRAGG, CALIFORNIA

ATTACHMENT 1 TO APPENDIX C - OU-A RAP

**MONITORING WELL MW-10.2
SPECIFIC CAPACITY TEST GRAPH**



**FIGURE
C.1-2**



FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
FORT BRAGG, CALIFORNIA

ATTACHMENT 1 TO APPENDIX C - OU-A RAP

MONITORING WELL MW-10.4
SPECIFIC CAPACITY TEST GRAPH



FIGURE
C.1-3

Attachment 2

Specifications



PVC GEOMEMBRANE FABRICATION AND INSTALLATION SPECIFICATION

August 20, 2006

**PVC Geomembrane Institute – Technology Program
University of Illinois at Urbana-Champaign
2215 Newmark Civil Engineering Laboratory
205N. Mathews Ave.
Urbana, IL 61801
217-333-3929 / 217-244-2839 fax
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<http://www.pvcgeomembrane.com>**

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1.01 Summary

- A. Specification includes fabrication and installation of PVC geomembranes in accordance with PVC Geomembrane Institute (PGI) requirements.

1.02 References

ASTM D4437, “Standard Practice for Determining the Integrity of Field Seams Used in Joining Flexible Polymeric Sheet Geomembranes”, American Society for Testing and Materials, West Conshohocken, Pennsylvania, USA.

ASTM D6214, “Standard test method for determining the integrity of field seams used in joining geomembranes by chemical fusion methods”, American Society for Testing and Materials, West Conshohocken, Pennsylvania, USA

ASTM D6392, “Standard test method for determining the integrity of nonreinforced geomembrane seams produced using thermo-fusion methods”, American Society for Testing and Materials, West Conshohocken, Pennsylvania, USA

ASTM D7177, “Standard test method for air-channel testing of field PVC Geomembrane Seams”, American Society for Testing and Materials, West Conshohocken, Pennsylvania, USA

PVC Geomembrane Institute (PGI), 2004, “PVC Geomembrane Material Specification 1104”, University of Illinois, Urbana, IL, www.pvcgeomembrane.com, January 1, 2004.

1.03 Submittals

- A. Submit under provisions of Section 1.03, Submittals.
- B. Submit the following to the Engineer or Owner, for review and approval, within a reasonable time so as to expedite shipment, fabrication, and installation of the PVC Geomembrane.
 1. Documentation of the manufacturers qualifications as specified in subsection 1.04(A) of this specification.
 2. Manufacturers quality control program manual.
 3. A sample property sheet, including at a minimum all properties specified, including test method used.
 4. Sample of material.
 5. Documentation of fabricator and installers experience, as specified in subsection 1.04(B) and 1.04(C) of this specification.

- a. Submit a list of ten completed facilities. For each installation provide: name and type of facility; its location; the date of installation; name and telephone number of contact at the facility familiar with the geomembrane installation; type and thickness of geomembrane, type of field seaming, and surface area of installed geomembrane.
- b. Submit resumes or qualifications of fabrication manager.
- c. Fabrication quality control program.
- d. Installation quality control program.
- e. Example of Material Warranty and Fabricated Seam Warranty.
- f. Copy of Manufacturers and Fabricator's quality control program.

C. Shop drawings

1. Submit copies of shop drawings within a reasonable time so as not to delay the start of material fabrication and installation.
2. Shop drawings shall show the proposed panel layout identifying seams and details. Wherever possible, field seams should be oriented along the direction of the slope.
3. Placement of geomembrane shall not be allowed until approval has been received from the engineer or owner.

D. Additional submittals (in progress and at completion)

1. Manufacturers warranty (refer to Section 1.07).
2. Fabricated seam warranty – 1 Year.
3. Field seam warranty – 1 Year.
4. Installation warranty – 1 Year.
5. Daily written acceptance of subgrade
6. Low temperature deployment and seaming process
7. Daily field weld test results
8. Field seam destructive test results
9. Field repair/patching of defects
10. Daily field installation reports
11. As-built drawings

1.04 Qualifications

- A. Manufacturers qualifications: The manufacturer of the PVC geomembrane of the type specified shall have at least five years of experience in the manufacture of PVC geomembranes. In addition, the geomembrane manufacturer shall have manufactured at least one million square feet of the specified type of geomembrane in the last five years and be a member of the PVC Geomembrane Institute (PGI).

- B. Fabricators qualifications: The Fabricator of the proposed PVC geomembrane shall have a minimum five million square feet of fabrication experience over the last 3 years and be a member of the PGI.
- C. Installer qualifications: The Geomembrane Installer shall have at least three years of experience in the installation of the specified geomembrane and shall have installed a minimum of five million square feet of the specified geomembrane on a minimum of ten projects. The installer shall be certified by the fabricator to install fabricated products and be a member of the PGI.
 - 1. Installation shall be performed under the direction of a Field Installation Supervisor who shall be responsible throughout the geomembrane installation. Responsibilities include: geomembrane panel deployment, anchorage, seaming, patching, testing, repairs, and all other daily activities of the Geomembrane Installer.
 - 2. Seaming shall be performed under the direction of a Master Seamer (who may also be the Field Installation Supervisor or Crew Foreman) who has seamed a minimum of three million square feet of the type specified, using the same type of seaming apparatus to be used in the current project. The Field Installation Supervisor or Master Seamer shall be present whenever field seaming is being performed.
 - 3. All seaming, patching, other welding operations, and testing shall be performed by a qualified technician employed by the Geomembrane Installer.

1.05 Packaging

- A. Each fabricated panel delivered to the site shall be wrapped with protective material and labeled by the fabricator. The label or marking shall have manufacturers name, material thickness, panel identification number corresponding to panel placement layout, panel dimensions, weight, and be labeled on fabricated material as well as protective cover.
- B. Panels shall be stored on a clean, level, dry area away from high traffic.

1.06 On – Site Conditions

- A. No standing water, mud, snow, or excessive moisture will be allowed on the site. The Geomembrane will not be deployed in the presence of standing water, mud, snow, or frozen subgrade conditions. Geomembrane should not be installed while precipitation is occurring or during excessive winds, or

when temperatures are outside the limits specified in section 3.03 of this specification.

1.07 PVC Geomembrane Material Warranty

As required by specification.

1.08 Factory and Field Fabricated Seam Warranty

A. The Fabricator and Installer shall warrant factory and field fabricated seams, respectively, for a period of one (1) year after installation against defects in workmanship.

1.09 Geomembrane Installation Warranty

A. The Geomembrane Installer shall guarantee against defect in the installation and workmanship for a period of one (1) year commencing with the date of final acceptance.

1.10 Geomembrane Pre-construction Meeting

A. A geomembrane Pre-Construction meeting shall be held at the site prior to installation of the PVC geomembrane. At a minimum this meeting should be attended by the Geomembrane Installer, Owner, Owner's Representative (Engineer or CQA Firm), and the Earthwork Contractor.

B. Meeting topics should include the following:

1. Responsibilities of each party.
2. Lines of authority and communication for the project. Procedures for resolution of any project document ambiguity.
3. Methods for documenting, reporting, and distributing documents and reports.
4. Procedures for packaging and storing archive samples.
5. Review of the time schedule for all installation and testing. Schedule of workdays and/or starting times if third party testing verification is required.
6. Review of panel layout, access, numbering systems for panels, deployment, and seams including details for marking on the PVC geomembrane.

7. Procedures and responsibilities for preparation and submission of as-built drawings.
8. Temperature and weather limitations. Installation procedures for adverse weather conditions. Defining acceptable subgrade or ambient moisture and temperature conditions for working during liner installation.
9. Subgrade conditions, dewatering responsibilities, and subgrade maintenance plan.
10. Deployment techniques including allowable subgrade condition for geomembrane placement.
11. Anchor trench construction, material placement, and backfilling.
12. Plan for minimizing and addressing wrinkles, if any, in the placed geomembrane.
13. Measurement and payment schedules.
14. Covering of the Geomembrane and cover soil placement.
15. Health and safety.

2.01 Source Quality Control

Geomembrane

- A. The geomembrane shall consist of new, virgin materials and be manufactured specifically for this work and will have satisfactorily demonstrated by prior testing to be suitable and durable for such purposes. The geomembrane shall be manufactured and fabricated by a member of the PGI and to the PGI 1104 specifications.

3.01 Subgrade Preparation

- A. The subgrade shall be prepared in accordance with the project specifications. Surfaces to be lined will be smooth and free of all rocks and stones greater than 1/2" diameter, sticks, sharp objects, or debris of any kind. The surface should provide a smooth, flat, firm, unyielding foundation for the geomembrane with no sudden, sharp, or abrupt changes or break in grade.
- B. The stability of PVC geomembrane slopes should be carefully evaluated because the maximum allowable slope depends on the characteristics of the materials underlying and overlying the PVC geomembrane as well as other factors such as rainfall and gas pressure. However, maximum slopes less than 3 horizontal to 1 vertical have been observed to be stable in some applications.
- C. If the liner is to be installed at an elevation below the current or possible future ground water elevation, the OWNER will be responsible for providing

an adequate underdrain system to prevent ground water pressure from developing beneath the geomembrane. Excessive ground water can force the geomembrane upwards through the cover soil and any liquid contained in the impoundment.

- D. The geomembrane installer and the owner's representative shall inspect the subgrade surface to be covered with geomembrane on each day's operation prior to placing the geomembrane to verify suitability.
- E. The Geomembrane installer and Owner's Representative shall provide daily written acceptance for the subgrade surface to be covered in that day's operation. The surface shall be maintained in a manner to ensure subgrade suitability.
- F. All subgrade damaged by construction equipment and deemed unsuitable for geomembrane deployment shall be repaired prior to placement of the geomembrane. All repairs shall be approved by the owner's representative. The responsibility for preparation, repairs, and maintenance of the subgrade shall be defined in the preconstruction meeting.

3.02 Geomembrane Placement

- A. PVC geomembrane shall not be deployed until all applicable submittals, certifications, and quality control certificates listed in subsection 1.03 of this specification are submitted and approved by the owner's representative. Should the PVC geomembrane be deployed prior to approval of the Owner's Representative, it will be at the sole risk of the geomembrane installer and/or contractor. If the material does not meet the specification it shall be removed from the site at no cost to the owner.
- B. The PVC geomembrane shall be installed to the project limits as detailed on the panel layout drawings.
- C. Temperature limitations shall be determined in the preconstruction meeting and approved by the Owner's Representative unless otherwise approved by the owner.
- D. No vehicles, other than those approved by the installer, are allowed on the geomembrane. Small rubber tired equipment with a ground pressure not exceeding 5 psi and a total weight not exceeding 750 lbs will normally be allowed. Typical equipment that is usually used during installation and testing and allowed on the geomembrane include air compressors, generators, etc.

- E. Sandbags or equivalent ballast shall be used as necessary to temporarily hold the PVC geomembrane in position.
- F. Geomembrane placement shall not be performed if moisture present prevents proper subgrade preparation, panel placement, or panel seaming. Moisture limitations shall be defined in the preconstruction meeting.
- G. Damaged panels or portions of damaged panels which have been rejected shall be marked and their removal from the work area recorded.
- H. The geomembrane shall not be allowed to "bridgeover" voids or low areas in the subgrade. In these areas the PVC geomembrane shall be installed with sufficient slack as to allow material to remain in intimate contact with the subgrade or the subgrade repaired.
- I. In general, seams shall be oriented parallel to the line of the maximum slope, i.e., the seam should run down the slope. In corners and odd geometric locations, the total length of the field seam shall be minimized. If at all possible, seams shall not be located at low points in the subgrade unless geometry requires seaming to be done at these locations.
- J. Panel Overlapping for Seaming:
 Chemical Seam – 6-8" overlap with a 2" wide seam.
 Thermal Seams:
 Single Track weld – 4 to 6" overlap and a minimum 1.5" wide seam.
 Dual Track weld – 4 to 6" overlap and minimum 0.5" wide seams

3.03 Seaming Procedures

- A. Cold weather seaming procedures may include the following.
 - 1. Storage of fabricated product in a heated space prior to deployment.
 - 2. Applying preheat immediately in front of area to be welded.
 - 3. QA/QC testing should include additional test welds to determine if field seams can be created to meet the PGI 1104 requirements.
 - 4. The Owners representative shall approve the cold weather procedures and be available to verify that seam quality parameters can be achieved.
- B. High temperature seaming procedures may include the following:

1. Suspension of work if temperatures create a dangerous work environment for the installation crew and inspectors.
 2. Preparation of additional qualification strips to determine if welding can be completed and made to meet PGI 1104 seam strength requirements.
- C. Fishmouths shall be kept to a minimum and when necessary be cut out and repaired so as to create a flat overlap.
- D. All repairs shall extend a minimum of 6" past any cut in all directions. Thus, a circular patch will have a diameter of at twelve inches, i.e., a radius of six inches, for a small hole.

3.04 Seaming Specifications

1. Chemical Seaming
 - A. Prior to starting any field welds each seam crew shall prepare a test seam to verify quality and temperature requirements can be met.
 - B. Panels to be welded using chemicals shall be overlapped a minimum of 6".
 - C. Care should be taken to clean all areas with a rag prior to applying chemicals.
 - D. A sufficient amount of chemical shall be placed on both sheets of the PVC geomembrane to be joined with either a squeeze bottle or paintbrush and form a continuous wide weld path of at least 1.5 inches in width.
 - E. After application of chemical, the seam area should be rolled with a seam roller releasing any air bubbles and forming a continuous seam path. The seaming crew shall take care to always tie-in or weld to the prior chemical seam area as they continue along down the seam.
 - F. Upon completion of each seam, the seam shall be inspected and any loose areas re-rolled and/or chemical added as required to complete the seam.
2. Thermal Welding Specifications
 - A. Each Master Seamer shall complete a trial weld of 5' long and each sample shall be tested in accordance with the PGI 1104 Specification in Section 5.01.

- B. Panels to be seamed together by a thermal weld shall be overlapped 4" to 6".
- C. Panels shall be wiped clean removing dirt and dust prior to seaming. This can be facilitated with the use of hot air welders that blow dirt and dust from the seam area.
- D. Panels should be positioned and all wrinkles pulled out of the seam area prior to seaming.
- E. Master Seamer shall walk with welder at all times and continually check overlap, temperature, and weld quality.
- F. Destructive seam samples shall be pulled at intervals as directed by the Owners Representative or at a minimum of one per 500 lineal feet of thermally welded seam when Air Lance Testing using ASTM D4437 is performed. When Air Channel Testing is performed on the thermally welded seam in accordance with ASTM D7177, no destructive samples will be taken from the production liner. However, destructive samples will be obtained from test welds and/or welds in the anchor trench at the beginning and end of each day.
- G. If destructive sampling is specified, both sides of the weld shall be tested for shear and peel strength sample in accordance with ASTM D6392.
- H. Samples shall be tested and evaluated in accordance with the PGI 1104 Specification in Section 5.01.

3.05 Pipes and Structure Penetration Sealing System

- A. Provide penetration sealing system as shown on the Project Drawings.
- B. Penetrations shall be sealed using the same PVC geomembrane material, flat stock, prefabricated boots, and accessories as shown on the project drawings. The prefabricated or field fabricated assembly shall be field welded to the main PVC geomembrane as shown on the project drawing so as to prevent leakage.
- C. These areas can be welded with any of the methods listed in section 3.04.
- D. All sealed areas shall be Air Lance tested using ASTM D4437 and verified to be leak free.

3.06 Field Quality Control

The Owner's Representative shall be notified prior to all pre-qualification and production welding and testing, or as agreed upon in the pre-construction meeting.

A. Prequalification Test Seams

1. Test seams shall be prepared and tested by the Geomembrane Installer to verify that the seaming parameters are adequate.
2. Test seams shall be made in accordance with ASTM D 4437 by each welding technician at the beginning of each seaming period. Test seaming shall be conducted under the same conditions and with the same equipment and operator as production seaming. The test seams shall be approximately 5' long for all types of field welds.
3. Samples shall be tested and evaluated in accordance with the PGI 1104 Specification in Section 5.01. It should be noted that conditioning of samples and appropriate temperature and humidity requirements must be met to allow for proper testing of the PVC geomembrane.
4. If there is no area on site to provide for these requirements, seam strength can be verified for production using trial welds sent to an independent lab to verify quality.
5. For peel and shear testing see Destructive Field Seam Testing Section 3.06(C) of this document. Field peel and shear strength values should meet the requirements of PGI-1104.
6. If a test seam fails, an additional test seam shall be immediately completed. If the additional test seam fails, the seaming apparatus shall be rejected and not used until the deficiencies are corrected and a successful full test seam can be produced.
7. Each test seam shall be labeled with date, geomembrane temperature, number of seaming unit, panel identification, seam number or test location, technician performing the test seam and a pass or fail description.

B. Non-Destructive Field Seam Testing

1. All field seams shall be non-destructively tested by the Geomembrane Installer over the full length of the seams before the seams are covered. Each seam shall be numbered or otherwise designated. The location, date, test unit, name of QC person, and outcome of all non-destructive shall be recorded and submitted to the Owner's Representative.

2. Testing should be performed as the seaming progresses, not at the completion of all field seaming, unless agreed to in advance by the Owner's Representative. All defects found should be repaired, re-tested and remarked to indicate acceptable completion of repair.
3. Non-destructive testing shall be performed using either the air lance test method (ASTM D4437) or air-channel pressure test method (ASTM D7177).

4. Air Lance Testing

- a. Chemical and solid thermal, i.e., single track, welds can be tested utilizing the Air Lance Test Method ASTM D 4437.. The Geomembrane Installer shall provide an air compressor, air hose, and air lance wand with a pressure gauge capable of measuring the air flow at the tip. The testing shall be performed by experienced technicians familiar with this testing procedure.
- b. This non-destructive test involves placing the air lance wand ¼" to ½", but not more than 2", from the edge of the completed seam and closely monitoring the backside of the sheet for any air penetration through the seam, loose edges, ripples, and/or noise . If air penetrates the seam area, the technician will either see this visibly or hear it audibly.
- c. All seams tested by the air lance method shall be marked with the date tested, name of the technician, length of the seam, and test results. As with all QC work this should be documented on all QC paperwork and preferably witnessed by the Owners Representative or his designated employee.

5. Air Channel Testing

- a. Dual track thermal seams with an enclosed air channel shall be pressure tested by the Geomembrane Installer in accordance with ASTM D7177.
- b. Equipment for testing dual track thermal seams shall be comprised of but not limited to: an air pump equipped with a pressure gauge capable of generating and sustaining a pressure of 420 kPa (60 psi), mounted on a cushion to protect the geomembrane; and a manometer equipped with an approved pressure feed device.
- c. The testing activities shall be performed by the geomembrane installer. Both ends of the seam to be tested shall be sealed and an approved

pressure feed device inserted into the channel created by the dual track thermal weld. The air pump shall be adjusted to a pressure corresponding to the following table from ASTM D1777.

- d. The remainder of the air-channel test procedure is described in ASTM D7177 and should be used.

Sheet Temperature °F	Air Pressure (psi)	Pressure Hold Time
40	60	30 seconds
45	56	30 seconds
50	52	30 seconds
55	47	30 seconds
60	42	30 seconds
65	40	30 seconds
70	36	30 seconds
75	34	30 seconds
80	29	30 seconds
85	27	30 seconds
90	25	30 seconds
95	24	30 seconds
100	22	30 seconds
105	20	30 seconds
110	19	30 seconds

- e. If the air-channel test does not meet the specified pressure for that sheet temperature (see table above), the faulty area shall be located, repaired and retested by the geomembrane installer.
- f. Results of the air pressure testing shall be marked on the seam tested and logged on the air pressure testing record.

6. Vacuum Box Testing

Vacuum Box testing is usually not used on PVC geomembranes because the geomembrane can be pulled up into the vacuum box unless a screen covers the box opening. The vacuum box test procedure is described in ASTM D4437.

C. Destructive Field Seam Testing

- 1. When Air Lance Testing is performed using ASTM D4437, a minimum of one destructive sample per 500 lineal feet of field seam or at another pre-

determined length should be obtained and tested in accordance with ASTM D6392 by the Geomembrane Installer from a location specified by the Owner's Representative. To obtain test results prior to completion of geomembrane installation, destructive samples shall be cut by the geomembrane installer as directed by the owner's representative as seaming progresses. The Geomembrane Installer shall not be informed in advance of the sample location. When Air Channel Testing is performed, no destructive samples will be taken from the production liner but destructive samples can be obtained from the anchor trench or test welds.

2. All field samples shall be marked with their sample number and seam number. The sample number, date, time, location, and seam number shall be recorded. The geomembrane installer shall repair all holes in the geomembrane resulting from obtaining the samples. All patches shall be repaired and tested using an air lance test. All destructive seam areas shall be patched and tested the same day as the destructive sample.
3. The destructive sample size shall be 300 mm (12" wide by 1m (36") long with the seam centered lengthwise. The sample shall be cut length-wise. The sample shall be cut into three equal sections and distributed as follows; one section given to the owners representative as an archive sample, one section given to the owners representative for laboratory testing as specified in paragraph five (5) of this section, i.e., 3.06(C)(5), and one section given to the geomembrane installer for field testing as specified in paragraph four (4) of this section, i.e., 3.06(C)(4).
4. For field testing of destructive samples, the geomembrane installer shall cut 10 identical 25mm (1 inch) wide replicate specimens from his sample. The geomembrane installer shall test five replicate specimens for seam shear strength and five for peel strength. Peel strength tests will be performed on both the inside and outside of dual track welds. To be acceptable an average of five specimens must pass PGI 1104 specification field seam testing requirements shown in Section 5.01.
5. If independent seam testing is required by the specifications, it shall be conducted in accordance with ASTM D 6214 for chemical seams and ASTM D 6392 for thermal seams by an accredited laboratory who is a member of the PGI.
6. Reports of the results of examinations and testing shall be prepared and submitted to the owner's representative.
7. For field seams, if laboratory tests fail, that shall be considered an indicator of possible inadequacy of the entire seam length corresponding to the test sample. Additional destructive samples of the subject seam

shall be taken by the geomembrane installer at locations indicated by the owner's representative, typically 3 meters (10 feet) on either side of the failed sample and laboratory seam tests shall be performed. Passing tests shall be an indicator of adequate seams. Failing tests shall be an indicator of inadequate seams. All destructive sample locations shall be repaired with a cap strip either thermally or chemically welded into place. All cap stripped seams shall be non-destructively tested with an air lance test.

D. Identification of Defects

1. Panels and seams shall be inspected by the geomembrane installer and the owner's representative during and after panel deployment to identify all defects, including holes, blisters, and undispersed raw materials.
2. Seams shall be inspected by the geomembrane installer and the owner's representative before, during, and after field seaming to identify all dirty and wrinkled areas and any defects.

E. Evaluation of defects: Each suspect location (both in geomembrane seam and non-seam areas) shall be non-destructively tested using the air lance test method in ASTM D4437. Each location which fails non-destructive testing shall be marked, numbered, measured, and posted on the daily installation drawings and subsequently repaired.

1. If a destructive sample fails the field or laboratory tests, the geomembrane installer shall repair the seam between the two nearest passed locations on both sides of the failed destructive sample location.
2. Defective seams, tears, or holes shall be repaired by re-seaming or applying a cap strip.
3. Re-seaming may consist of either:
 - a. Removing the defective area and rewelding the parent material using the original welding equipment, or
 - b. Re-seaming by cap stripping as described in section 3.06(C)(7).
4. Each patch shall extend a minimum of 150 mm (6 inches) in all directions beyond the defect.
5. All repairs shall be measured, located, and recorded.

F. Verification of repairs on seams: Each repair shall be non-destructively tested using the air lance test in ASTM D4437. Tests which pass the non-

destructive test shall be taken as an indication of a successful repair. Failed tests shall be re-seamed and retested until a passing test result is obtained. The number date, location, technician, and test outcome of each patch shall be recorded.

G. Daily field installation reports: At the beginning of each day's work, the installer shall provide the engineer with daily reports for all work accomplished the previous work day.

Reports shall include the following:

1. Total amount and location of geomembrane placed;
2. Total length and location of seams completed, technician name, and welding unit numbers;
3. Drawings of the previous day's installed geomembrane showing panel numbers, seam numbers, and locations of non-destructive and destructive testing;
4. Results of the pre-qualification test seams;
5. Results of non-destructive testing.
6. Results of destructive testing.
 - a. Destructive test results shall be reported prior to covering the lining or within 48 hours.

3.07 Liner Acceptance

- A. The PVC Geomembrane will be accepted by the Owners Representative when all of the following have been completed:
1. The entire installation is finished or an agreed upon subsection of the installation is finished.
 2. All Installers QC documentation is completed and submitted to the owner.
 3. Verification of the adequacy of all field seams and repairs and associated geomembrane testing is complete.

3.08 Anchor Trench Construction and Backfilling

- A. Construct and line anchor trench as specified on contract drawings.
- B. The anchor trench should be backfilled and compacted by the contractor as approved by the INSPECTOR. Trench backfill material should be placed in loose lifts and compacted.
- C. Care should be taken when backfilling the anchor trench to prevent any damage to the geomembrane or other geosynthetics. At no time will construction equipment come into direct contact with the geomembrane. If damage occurs, it will be repaired, at the backfilling contractor's expense, prior to the completion and backfilling of the anchor trench.

3.09 Covering the Geomembrane

- A. The PVC geomembrane must be covered with a minimum of 12 inches of clean soil, free of sticks, stones larger than ½ inch diameter, rubbish, or any other material which may damage the liner. The cover material should be placed over the liner as soon as practical after the liner is installed.
- B. Care should be taken when covering the liner to prevent any damage to the geomembrane or other geosynthetics. At no time will construction equipment come into direct contact with the geomembrane. If damage occurs, it will be repaired, at the contractor's expense, prior to the completion of geomembrane covering.
- C. Cover soil shall be only placed over the geomembrane from the base of the slope to the top of the slope. Cover soil should never be pushed down the slope.
- D. Cover soil should be “rolled” onto the installed geomembrane and not pushed along the geomembrane which can result in damage and wrinkling of the geomembrane.

3.10 Disposal of scrap materials

- A. On completion of installation, the geomembrane installer shall dispose of all waste and scrap material in a location provided and approved by the owner. The installer should also remove all equipment used in connection with the work herein, and shall leave the premises in a neat acceptable manner. No scrap material shall be left on the completed surface of the PVC geomembrane.

4.01 Measurement and Payment

As per project specification or contract.

5.01 PGI 1104 Specification

Specification is also available at www.pvcgeomembrane.com. This material specification has also been adopted by the American Society for Testing and Materials (ASTM) and is listed as ASTM D7176.

PGI 1104 Specification¹

Effective January 1, 2004

Certified Properties ²	ASTM	PVC 10	PVC 20	PVC 30	PVC 40	PVC 50	PVC 60
Thickness	D-5199	10 ±0.5 mil 0.25±.013mm	20 ±1 mil 0.51 ± .03 mm	30 ±1.5 mil 0.76 ± .04 mm	40 ±2 mil 1.02 ± .05 mm	50 ±2.5 mil 1.27 ± .06 mm	60 ± 3 mil 1.52 ± .08 mm
Tensile Properties ³	D-882⁴ Min						
Strength at Break		24 lbs/in 4.2 kN/m	48 lbs/in 8.4 kN/m	73 lbs/in 12.8 kN/m	97 lbs/in 17.0 kN/m	116 lbs/in 20.3 kN/m	137 lbs/in 24.0 kN/m
Elongation		250%	360%	380%	430%	430%	450%
Modulus at 100%		10 lbs/in 1.8 kN/m	21 lbs/in 3.7 kN/m	32 lbs/in 5.6 kN/m	40 lbs/in 7.0 kN/m	50 lbs/in 8.8 kN/m	60 lbs/in 10.5 kN/m
Tear Strength	D-1004⁴ Min	2.5 lbs 11 N	6 lbs 27 N	8 lbs 35 N	10 lbs 44 N	13 lbs 58 N	15 lbs 67 N
Dimensional Stability	D-1204⁴ Max Chg	4%	4%	3%	3%	3%	3%
Low Temperature Impact	D-1790⁴ Pass	-10° F -23° C	-15° F -26° C	-20° F -29° C	-20° F -29° C	-20° F -29° C	-20° F -29° C
Index Properties ⁵	ASTM	PVC 10	PVC 20	PVC 30	PVC 40	PVC 50	PVC 60
Specific Gravity	D-792 Typical	1.2 g/cc	1.2 g/cc	1.2 g/cc	1.2 g/cc	1.2 g/cc	1.2 g/cc
Water Extraction Percent Loss (max)	D-1239⁴ Max Loss	0.15%	0.15%	0.15%	0.20%	0.20%	0.20%
Average Plasticizer Molecular Weight	D-2124^{4,5}	400	400	400	400	400	400
Volatile Loss Percent Loss (max)	D-1203⁴ Max Loss	1.5%	0.9%	0.7%	0.5%	0.5%	0.5%
Soil Burial	G160⁴ Max Chg						
Break Strength		5%	5%	5%	5%	5%	5%
Elongation		20%	20%	20%	20%	20%	20%
Modulus at 100%		20%	20%	20%	20%	20%	20%
Hydrostatic Resistance	D-751⁴ Min	42 psi 290 kPa	68 psi 470 kPa	100 psi 690 kPa	120 psi 830 kPa	150 psi 1030 kPa	180 psi 1240 kPa
Seam Strengths	ASTM	PVC 10	PVC 20	PVC 30	PVC 40	PVC 50	PVC 60
Shear Strength ³	D-882⁴ Min	20 lbs/in 3.47 kN/m	38.4 lbs/in 6.7 kN/m	58.4 lbs/in 10 kN/m	77.6 lbs/in 14 kN/m	96 lbs/in 17 kN/m	116 lbs/in 20kN/m
Peel Strength ³	D-882⁴ Min	10 lbs/in 1.8 kN/m	12.5 lbs/in 2.2 kN/m	15 lbs/in 2.6 kN/m	15 lbs/in 2.6 kN/m	15 lbs/in 2.6 kN/m	15 lbs/in 2.6 kN/m

Notes:1. PGI 1104 replaces PGI 1103 Specification effective 1/1/04.

2. Certified properties are tested by lot as specified in [PGI 1104 Appendix A](#).

3. Metric values are converted from US values and are rounded to the available significant digits.

4. Modifications or further details of test are described in [PGI 1104 Appendix B](#).

5. Index properties are tested once per formulation as specified in [PGI 1104 Appendix A](#).



INTRODUCTION TO SAMPLE SPECIFICATION - GEOMEMBRANES

The following specification guideline reflects current industry installation procedures and geomembrane quality control test procedures. This guideline is presented as a sample format to be used as a guide only in preparing project specific specification.

This information is provided for reference purposes only and is not intended as a warranty or guarantee. GSE assumes no liability in connection with the use of this information.
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SECTION 02311 - GEOTEXTILE

1 GENERAL

1.1 SCOPE

Contractor shall furnish all geotextile, labor, incidental materials, tools, supervision, transportation, and installation equipment necessary for the installation of geotextile, as specified herein, and as shown on the drawings.

1.2 REFERENCES

ASTM D 5261, Standard Test Method for Measuring Mass per Unit Area of Geotextiles

ASTM D 4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles

ASTM D 4533, Standard Test Method for Index Trapezoidal Tearing Strength of Geotextiles

ASTM D 4833, Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes and Related Products

ASTM D 4491, Standard Test Method for Water Permeability of Geotextiles by Permittivity

ASTM D 4751, Standard Test Method for Determining Apparent Opening Size of a Geotextile

ASTM D 4354, Standard Practice for Sampling of Geosynthetics for Testing

ASTM D 4759, Standard Practice for Determining the Specifications Conformance of Geosynthetics

1.3 SUBMITTALS

- A. Prior to material delivery to project site, the contractor shall provide the engineer with a written certification or manufacturers quality control data which displays that the geotextile meets or exceeds minimum average roll values (MARV) specified herein.
- B. The contractor shall submit, if required by the engineer, manufacturer's quality control manual for the geotextile to be delivered to the site.

2 PRODUCT

2.1 GEOTEXTILE

- A. Geotextile material used on the project shall be NW8 (Table 1.1) or approved equivalent.
- B. The non-woven needle punched geotextile specified herein shall be made from polypropylene staple fiber.

- C. The geotextile shall be manufactured from prime quality virgin polymer.
- D. The geotextile shall be able to withstand direct exposure to ultraviolet radiation from Sun for up to 30 days without any noticeable effect on index or performance properties.
- E. Geotextile shall meet or exceed all material properties listed in Table 1.1.

Table 1.1 – Minimum Average Roll Values (MARV) Required for Nonwoven Needlepunched Geotextiles:

TESTED PROPERTY	TEST METHOD	FREQUENCY	NW4	NW6	NW8	NW10	NW12	NW16
Product Code			GEO 0408002	GEO 0608002	GEO 0808002	GEO 1008002	GEO 1208002	GEO 1608002
AASHTO M288 Class			3	2	1	>1	>>1	>>>1
Mass per Unit Area, oz/yd ² (g/m ²)	ASTM D 5261	90,000 ft ²	4 (135)	6 (200)	8 (270)	10 (335)	12 (405)	16 (540)
Thickness	ASTM D 5199	1/90,000 ft ²	45 mil	70 mil	80 mil	100 mil	110 mil	155 mil
Grab Tensile Strength, lb (N)	ASTM D 4632	90,000 ft ²	120 (530)	170 (755)	220 (975)	260 (1,155)	320 (1,420)	390 (1,735)
Grab Elongation, %	ASTM D 4632	90,000 ft ²	50	50	50	50	50	50
Puncture Strength, lb (N)	ASTM D 4833	90,000 ft ²	60 (265)	90 (395)	120 (525)	165 (725)	190 (835)	240 (1,055)
Trapezoidal Tear Strength, lb (N)	ASTM D 4533	90,000 ft ²	50 (220)	70 (310)	95 (420)	100 (445)	125 (555)	150 (665)
Apparent Opening Size, Sieve No. (mm)	ASTM D 4751	540,000 ft ²	70 (0.212)	70 (0.212)	80 (0.180)	100 (0.150)	100 (0.150)	100 (0.150)
Permittivity, sec ⁻¹	ASTM D 4491	540,000 ft ²	1.50	1.50	1.50	1.20	0.80	0.70
Permeability, cm/sec	ASTM D 4491	540,000 ft ²	0.22	0.30	0.30	0.30	0.29	0.27
Water Flow Rate, gpm/ft ² (l/min/m ²)	ASTM D 4491	540,000 ft ²	120 (4,885)	110 (4,480)	110 (4,480)	85 (3,460)	60 (2,440)	50 (2,035)
UV Resistance (% retained after 500 hours)	ASTM D 4355	per formulation	70	70	70	70	70	70
Roll Length ⁽¹⁾ , ft (m)			600 (182)	600 (182)	600 (182)	300 (91)	300 (91)	300 (91)
Roll Width ⁽¹⁾ , ft (m)			15 (4.6)	15 (4.6)	15 (4.6)	15 (4.6)	15 (4.6)	15 (4.6)
Roll Area, ft ² (m ²)			9,000 (836)	9,000 (836)	9,000 (836)	4,500 (418)	4,500 (418)	4,500 (418)

NOTES:

- The property values listed are in weaker principal direction. All values listed are Minimum Average Roll Values (MARV) except apparent opening size in mm and UV resistance. Apparent opening size (mm) is a Maximum Average Roll Value. UV is a typical value.
- ⁽¹⁾Roll lengths and widths have a tolerance of ±1%.

2.2 MANUFACTURE

All rolls of the geotextile shall be identified with permanent marking on the roll or packaging, with the manufacturers name, product identification, roll number and roll dimensions.

2.3 TRANSPORT

- A. Transportation of the geotextile shall be the responsibility of the contractor.
- B. During shipment, the geotextile shall be protected from ultraviolet light exposure, precipitation, mud, dirt, dust, puncture, or other damaging or deleterious conditions.
- C. Upon delivery at the job site, the contractor shall ensure that the geotextile rolls are handled and stored in accordance with the manufacturer’s instructions as to prevent damage.

3. EXECUTION

3.1 QUALITY ASSURANCE

- A. The engineer shall examine the geotextile rolls upon delivery to the site and report any deviations from project specifications to the contractor.
- B. The engineer may decide to arrange conformance testing of the rolls delivered to the job site. For this purpose, the engineer shall take a sample three feet (along roll length) by roll width according to ASTM Practice D 4354. The sample shall be properly marked, wrapped and sent to an independent laboratory for conformance testing.
- C. The pass or fail of the conformance test results shall be determined according to ASTM Practice D 4759.

3.2 INSTALLATION

- A. The geotextile shall be handled in such a manner as to ensure that it is not damaged in any way. Should the contractor damage the geotextile to the extent that it is no longer usable as determined by these specifications or by the engineer, the contractor shall replace the geotextile at his own cost.
- B. The geotextile shall be installed to the lines and grades as shown on the contract drawings and as described herein.
- C. The geotextile shall be rolled down the slope in such a manner as to continuously keep the geotextile in tension by self weight. The geotextile shall be securely anchored in an anchor trench where applicable, or by other approved or specified methods.
- D. In the presence of wind, all geotextiles shall be weighted by sandbags or approved equivalent. Such anchors shall be installed during placement and shall remain in place until replaced with cover material.
- E. The contractor shall take necessary precautions to prevent damage to adjacent or underlying materials during placement of the geotextile. Should damage to such material occur due to the fault of the contractor, the latter shall repair the damaged materials at his own cost and to the satisfaction of the engineer.
- F. During placement of the geotextile, care shall be taken not to entrap soil, stones or excessive moisture that could hamper subsequent seaming of the geotextile as judged by the engineer.
- G. The geotextile shall not be exposed to precipitation prior to being installed and shall not be exposed to direct Sun light for more than 15 days after installation.
- H. The geotextile shall be seamed using heat seaming or stitching methods as recommended by the manufacturer and approved by the engineer. Sewn seams shall be made using polymeric thread with chemical resistance equal to or exceeding that of the geotextile. All sewn seams shall be continuous. Seams shall be oriented down slopes perpendicular to grading contours unless otherwise specified. For heat seaming, fusion welding techniques recommended by the manufacturer shall be used.

- I. The contractor shall not use heavy equipment to traffic above the geotextile without approved protection.
- J. The geotextile shall be covered as soon as possible after installation and approval. Installed geotextile shall not be left exposed for more than 15 days.
- K. Material overlying the geotextile shall be carefully placed to avoid wrinkling or damage to the geotextile.

END OF SECTION

SECTION 02312 – GEOSYNTHETIC CLAY LINER

GENERAL Scope - This specification details the technical requirements for the supply and installation of a needlepunched Geosynthetic Clay Liner (GCL). The material(s) furnished and installation performed shall be in strict accordance with these requirements and the contract drawings.

- 1.1. Definitions - For the purposes of this specification the following definitions shall apply:
- 1.1.1. Geosynthetic Clay Liner (GCL) - A factory manufactured hydraulic barrier consisting of granular sodium bentonite clay, sandwiched between, supported and encapsulated by two geotextiles, held together by needlepunching.
 - 1.1.2. Geotextile - A semi-permeable woven or nonwoven fabric used to contain the bentonite used in a GCL.
 - 1.1.3. Sodium Bentonite - The high swelling clay component of GCLs consisting primarily of the mineral Montmorillonite.
 - 1.1.4. Needlepunching - A GCL manufacturing process whereby boards of barbed needles incorporate the staple fibers from a nonwoven geotextile, through a sodium bentonite clay layer, into the matrix of a second geotextile layer.
 - 1.1.5. Thermal Locking - A needlepunching enhancement process utilizing heat to bond the needlepunched fibers and more permanently lock them into the second geotextile to increase the internal shear strength characteristics.
 - 1.1.6. Minimum Average Roll Value (MARV) - The minimum average value of the material in a particular lot calculated as the mean of the tested values minus two standard deviations providing a 95% confidence level.
- 1.2. References - The following test methods shall be incorporated into this specification in their entirety, subject to the indicated test modifications:
- ASTM D 4632, "Standard Test Method for Grab Breaking Load and Elongation of Geotextiles"
 - ASTM D 4643, "Determination of Water (Moisture) Content of Soil by the Microwave Oven Method"
 - ASTM D 5084, "Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter"
 - ASTM D 5261, "Standard Test Method for Measuring Mass Per Unit Area of Geotextiles"
 - ASTM D 5321, "Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method"
 - ASTM D 5887, "Measurement of Index Flux Through Saturated Geosynthetic Clay Liner Specimens Using a Flexible Wall Permeameter"
 - ASTM D 5888, "Standard Guide for Storage and Handling of Geosynthetic Clay Liners"
 - ASTM D 5889, "Standard Practice for Quality Control of Geosynthetic Clay Liners"
 - ASTM D 5890, "Standard Test Method for Swell Index of Clay Mineral Component of Geosynthetic Clay Liners"

- ASTM D 5891, "Standard Test Method for Fluid Loss of Clay Component of Geosynthetic Clay Liners"
- ASTM D 5993, "Standard Test Method for Measuring Mass Per Unit of Geosynthetic Clay Liners"
- ASTM D 6102, "Standard Guide for Installation of Geosynthetic Clay Liners"
- ASTM D 6243, "Standard Test Method for Determining the Internal and Interface Shear Resistance of Geosynthetic Clay Liner by the Direct Shear Method"
- ASTM D 6496, "Standard Test Method for Determining Average Bonding Peel Strength Between the Top and Bottom Layers of Needle-Punched Geosynthetic Clay Liners"
- ASTM D 6768, "Standard Test Method for Tensile Strength of Geosynthetic Clay Liners"
- ASTM E 96, "Standard Test Methods for Water Vapor Transmission of Materials"

- 2.0 QUALIFICATIONS - The GCL Manufacturer, Installer and Construction Quality Assurance (CQA) inspector shall all be skilled in accordance with the following experience requirements. Any exceptions must be approved by the project engineer prior to the project bid.
- 2.1. GCL Manufacturer - The GCL manufacturer selected for use on this project shall have successfully produced at least 10,000,000 square feet of needlepunched GCL product.
- 2.2. GCL Installer - The installer shall provide to the engineer sufficient evidence of installation experience and competence with the specified geosynthetic materials.
- 2.2.1. GCL Only Installation - The GCL installer shall demonstrate a minimum of 1,000,000 square feet of GCL installation experience, shall provide sufficient evidence of installation experience and competence with other geosynthetics or shall demonstrate an acceptable level of training and supervision will be utilized in order to ensure the quality of the installation.
- 2.2.2. Multi-Component Composite Liner System - The GCL shall be installed by the lining contractor responsible for the installation of the overlying FML. The GCL/FML lining contractor shall demonstrate a minimum of 1,000,000 square feet of successfully completed multi-component composite liner installation experience or shall provide sufficient evidence of the appropriate level of installation experience and competence with other geosynthetics.
- 2.3. Construction Quality Assurance (CQA) Inspector - The third party project inspector shall be designated a minimum of 15 business days prior to construction in order to facilitate the possibility of in plant material pre-qualification.

The specific CQA inspector designated by the CQA contractor shall be responsible for all aspects of the QA program, including the documentation and monitoring of the manufacturing and installation processes. The CQA inspector shall be an independent, third party consultant with a minimum of 1,000,000 square feet of GCL inspection experience, on a minimum of 5 projects.

- 2.4. Submittals - Three copies of the project submittals shall be forwarded to the project engineer as designated below:
- 2.4.1. Unit Prices Bid - The square footage and associated pricing shall be based on “measured in place” quantities or quantity delivered to the project site as determined by the project engineer.
- 2.4.1.1. Measured In Place - Measured in place quantities shall be determined from the project drawings, including any allowances for waste, overlap, and anchoring. Final quantities will be payable based on the as-built drawings.
- 2.4.1.2. Delivered to Site - Delivered pricing quantities shall be determined from the manufacturer’s shipping documents and reflect the total square footage delivered to the project site.
- 2.4.2. Information With Bid - The following shall be submitted with the bid:
- 2.4.2.1. Statement of experience from the proposed GCL supplier.
- 2.4.2.2. Statement of experience from the proposed GCL Installer.
- 2.4.3. Prior to Installation - The following information shall be supplied to the project engineer for review within 10 business days of the Contract Award to ensure that the materials and parties selected for use on the project meet the requirements of this specification:
- 2.4.3.1. Samples of GCL proposed for use on the project.
- 2.4.3.2. Reference list supplied by GCL Manufacturer indicating the appropriate experience level as required by the specification.
- 2.4.3.3. Reference list supplied by the GCL Installer indicating the appropriate experience level as required by the specification.
- 2.4.3.4. Reference list supplied by the proposed CQA Inspector indicating the appropriate experience level as required by the specification.
- 2.4.4. Prior to Deployment - The following information shall be submitted by the Lining Contractor to the Project Engineer prior to the deployment of any GCL material to ensure that the materials and subgrade preparation meet the requirements of this specification:
- 2.4.4.1. GCL Manufacturer’s Quality Control Certifications.
- 2.4.4.2. Certifications of subgrade acceptance for each area covered by GCL, signed by the earthwork Contractor and CQA inspector.

- 3.0 GCL MATERIALS - The GCL product supplied to the project shall be in full accordance with the requirements of this section. The GCL shall be manufactured by mechanically bonding the geotextiles using a needlepunching process to enhance frictional and internal shear strength characteristics.

In order to maintain these characteristics, no glues, adhesives or other non-mechanical bonding processes shall be used in lieu of the needlepunch process. Their use to enhance the physical properties of the GCL is permitted.

- 3.1. Description - Acceptable GCLs for this project include the Bentofix EC , or any other needlepunched GCLs which meet the requirements of this specification.

- 3.2. GCL Manufacturing - The GCL supplied in accordance with this project shall be manufactured by needlepunching as described in Section 1.2 - Definitions.
- 3.2.1. The needlepunched GCL shall be thermally locked. The thermal lock process must heat set the nonwoven fibers where they protrude from the second geotextile (woven or nonwoven depending upon product) to more permanently secure the reinforcement in place. Other means may be used to lock the fibers in place if the process demonstrates similar performance to the thermal lock process.
- 3.2.2. To demonstrate the uniformity of the manufacturing process, no delamination of the geotextile components from the bentonite core shall occur when the GCL is exposed to 80 degree tap water for one hour.
- 3.3. Alternative Materials - Prior to considering an alternative GCL material, the Contractor shall submit certified test results and statements of quality from the proposed GCL supplier to the engineer, indicating without exception that the proposed GCL meets the requirements of this specification. Submittals shall be delivered to the engineer a minimum of five business days in advance of the bid.

No other manufacturing techniques shall be approved unless it can be suitably demonstrated that the GCL exhibits uniform shear strength characteristics across the entire width of the panel. Isolated sewn or stitched rows do not constitute uniform reinforcement for the purposes of this specification.

- 3.4. GCL Physical Properties - The GCL material shall be in accordance with the test methods, test frequencies and material physical properties as listed in the Appendix.
- 3.4.1. Standard Conditions - For projects where a standard woven - bentonite - nonwoven GCL will provide sufficient interface shear properties, the GCL supplied for this project shall be in accordance with the test methods, test frequencies and material physical properties as listed in the attached Product Data Sheet Bentofix EC GCL.
- 3.5. Dimensions - The minimum acceptable dimensions for the GCL panels shall be 15 feet wide and 125 feet long. Short rolls (rolls less than 125 feet long) may be supplied, but at a rate not to exceed 5% of the total square footage produced for this project.
- 3.6. Overlap Markings - A minimum overlap guide-line and a construction match-line delineating the overlap zone shall be imprinted with non-toxic ink on both edges of the GCL panel to ensure the accuracy of the seam. These lines shall be used during CQA to ensure the minimum overlap is achieved. The minimum overlap guideline shall indicate where the edge of the panel must be placed in order to achieve a full six inches of bentonite overlap for each panel.
- 3.7. Manufacturing Quality Control - The GCL shall be tested for compliance with this specification by the test methods and frequencies indicated on the material specification in Appendix A or B as appropriate. GCL materials may be tested pre-approved at the manufacturing location.

- 3.7.1. Manufacturer Quality Control Certification - Quality Control certificates shall be issued by the GCL manufacturer to the project engineer, CQA inspector or other designated party for each delivery of material. The certifications shall be signed by the quality control manager of the GCL manufacturer or other responsible party and shall include the following information:
- Shipment Packing List - A list indicating the rolls shipped on a particular truckload.
 - Bill of Lading - The shipping documents for the truck used for the shipment.
 - Letter of Certification - The letter indicating the material is in conformance with the physical properties specified.
 - Physical Properties Sheet - The material specification for the GCL supplied in accordance with this specification.
- 3.7.2. Manufacturer Quality Control Submittal - Quality Control submittals shall be issued by the GCL manufacturer to the project engineer, CQA inspector or other designated party for each lot of material if necessary. The submittals shall include the following information:
- 3.7.2.1. Bentonite Manufacturer Certification - Bentonite manufacturer quality documentation for the particular lot of clay used in the production of the rolls delivered.
 - 3.7.2.2. Geotextile Manufacturer Certification - Geotextile manufacturer quality control documentation for the particular lots of geotextiles used in the production of the rolls delivered.
 - 3.7.2.3. GCL Manufacturer Tracking List - Cross referencing list delineating the corresponding geotextile and bentonite lots for the materials used in the production of the rolls delivered.
 - 3.7.2.4. Manufacturing Quality Control Data - The manufacturing quality control test data indicating the actual test values obtained when tested at the appropriate frequencies for the properties specified in Appendix A or B.
- 3.8. Packaging - All GCL rolls shall be packaged in moisture resistant plastic sleeves. The cardboard cores shall be sufficiently strong to resist collapse during transit and handling.
- 3.9. Roll Identification and Labeling - Prior to shipment, the manufacturer shall label each roll, both on the GCL roll and on the surface of the plastic protective sleeve. Labels shall be resistant to fading and moisture degradation to ensure legibility at the time of the installation. At a minimum the roll labels shall identify the following:
- Length and width of roll
 - Total weight of roll
 - Type of GCL material
 - Production Lot number and Individual Roll number

- 3.10. Accessory Bentonite - Any accessory bentonite used for sealing seams, penetrations, or repairs, shall be the same granular bentonite as used in the production of the GCL itself.
- 4.0 EXECUTION - The following installation procedures are as specific as possible while recognizing that the specific requirements of the project may necessitate minor modifications. Significant deviations from these procedures shall be pre-approved by the project engineer or other designated party.
- 4.1. Shipping and Handling Equipment - The party responsible for unloading the GCL shall contact the manufacturer prior to shipment to determine the correct unloading methods and equipment if different from the pre-approved and specified methods.

Bentofix Geosynthetic Clay Liner (GCL) must be supported during handling to ensure worker safety and prevent damage to the liner. Under approved circumstances only, shall the rolls be dragged, lifted from one end, lifted with only the forks of a lift truck or pushed to the ground from the delivery vehicle.

The QCA inspector shall verify that proper handling equipment exists which does not pose any danger to installation personnel or risk of damage or deformation to the liner material itself. Suitable handling equipment is described below:

- 4.1.1. Spreader Bar Assembly - A spreader bar assembly shall include both a core pipe or bar and a spreader bar beam. The core pipe shall be used to uniformly support the roll when inserted through the GCL core while the spreader bar beam will prevent chains or straps from chafing the roll edges.
- 4.1.2. Stinger - A stinger is a rigid pipe or rod with one end directly connected to a forklift or other handling equipment. If a stinger is used, it should be fully inserted to its full length into the roll to prevent excessive bending of the roll when lifted.
- 4.1.3. Roller Cradles - Roller cradles consist of two large diameter rollers spaced approximately 3 inches apart, which both support the GCL roll and allow it to freely unroll. The use of roller cradles shall be permitted if the rollers support the entire width of the GCL roll.
- 4.1.4. Straps - Straps may be used to support the ends of spreader bars but are not recommended as the primary support mechanism. As straps may damage the GCL where wrapped around the roll and generally do not provide sufficient uniform support to prevent roll bending or deformation, great care must be exercised when this option is used.
- 4.2. GCL Inspection Upon Delivery - Each roll shall be visually inspected when unloaded to determine if any packaging or material has been damaged during transit. Repairs to damaged GCL shall be performed in accordance with Section 4.6.5 of this specification.
- 4.2.1. Rolls exhibiting damage shall be marked and set aside for closer examination during deployment.

- 4.2.2. Minor rips or tears in the plastic packaging shall be repaired with moisture resistant tape prior to being placed in storage to prevent moisture damage.
 - 4.2.3. GCL rolls delivered to the project site shall be only those indicated on GCL manufacturing quality control certificates.
- 4.3. Storage / Stockpiling / Staging - Storage of the GCL rolls shall be the responsibility of the installer or other designated party. All GCL rolls shall be stock-piled and maintained dry in a flat location area away from high-traffic areas but sufficiently close to the active work area to minimize handling.

For needlepunched GCLs, the presence of free-flowing water within the packaging shall require that roll to be set aside for further examination to ascertain the extent of damage, if any. Free-flowing water within the packaging of unreinforced GCLs shall be cause for rejection of that roll.

- 4.3.1. GCL should be stored no higher than three to four rolls high or limited to the height at which the handling apparatus may be safely handled by installation personnel. Stacks or tiers of rolls should be situated in a manner that prevents sliding or rolling by “choking” the bottom layer of rolls.
 - 4.3.2. Rolls shall not be stacked on uneven or discontinuous surfaces in order to prevent bending, deformation, damage to the GCL or cause difficulty inserting the core pipe.
 - 4.3.3. An additional tarpaulin or plastic sheet shall be used over the stacked rolls to provide extra protection for GCL material stored outdoors.
 - 4.3.4. Bagged bentonite material shall be stored and tarped next to GCL rolls unless other more protective measures are available. Bags shall be stored on pallets or other suitably dry surface which will prevent undue prehydration.
- 4.4. Manufacturing Quality Assurance Documentation - Third party GCL MQA sampling and testing for compliance with this specification shall be coordinated by the third party CQA inspector as necessary to support the manufacturer’s MQC data.
- 4.5. Subgrade Preparation - The surfaces upon which the GCL shall be suitable for the placement of GCL material, subject to the applicable section of this specification (Earthen - 4.5.1 or Geosynthetic - 4.5.2).
- 4.5.1. Earthen Subgrade - The surface upon which the GCL material will be installed shall be inspected by the CQA inspector and certified by the earthwork contractor to be in accordance with the requirements of this specification.
 - 4.5.1.1. The subgrade soil shall be well graded containing no gravel greater than 2 inches and no sharp stones larger than 0.75 inches.
 - 4.5.1.2. In applications where the GCL is the sole barrier and will be subjected to a hydraulic head that exceeds the confining stress, subgrade surfaces consisting of gravel or granular soils may not be appropriate due to their large void content. For these applications, the subgrade will contain no sharp stones greater than 0.75 in.
 - 4.5.1.3. Site specific compaction requirements should be followed in accordance with the project drawings and specifications. At a minimum, the level of compaction should be such that no rutting is

caused by installation equipment or other construction vehicles which traffic the area of deployment (typically 85% of standard proctor or greater).

- 4.5.1.4. The surfaces to be lined shall be smooth and free of any debris, vegetation, roots, sticks, sharp rocks, or other deleterious materials larger than two inches as well as free of any voids, large cracks or standing water or ice.
- 4.5.1.5. Directly prior to deployment of the GCL, the subgrade shall be final-graded to fill remaining voids or desiccation cracks to eliminate sharp irregularities or abrupt elevation changes. The surfaces to be lined shall be maintained in this smooth condition.
- 4.5.2. Geosynthetic Subgrade - Prior to GCL deployment the geosynthetic surface as well as other underlying geosynthetics upon which the GCL material will be installed shall be inspected and approved by the third party CQA inspector in accordance with the requirements of the project specification documents.
- 4.5.3. Anchor Trench - An anchor trench shall be excavated by the earthwork contractor or liner installer to the lines and grades shown on the project drawings at the top of slopes.
 - 4.5.3.1. The anchor trench shall be constructed free of sharp edges or corners and maintained in a dry condition. No loose soil shall be permitted beneath the GCL within the trench.
 - 4.5.3.2. The anchor trench shall be inspected and approved by the CQA inspector prior to GCL placement, back-filling and compaction of the anchor key material.
- 4.5.4. Subgrade Inspection - The earthen or geosynthetic subgrade shall be continuously inspected, approved and certified by the CQA inspector prior to GCL placement.

Subsequent to the CQA inspector's approval, it shall be the installer's responsibility to indicate to the Engineer any change in the subgrade condition that could cause it to be out of compliance with any of the requirements of this section or the project specification.

- 4.6. GCL Placement - GCL Material shall be placed in general accordance with the procedures specified below, or modified to account for site specific conditions.
 - 4.6.1. GCL Orientation - GCL panels should be placed with the nonwoven side up (heat burnished side down) to maximize the shear strength characteristics. In base or flat areas, the GCL does not require any particular orientation.
 - 4.6.2. GCL Panel Position - Where possible, all slope panels should be installed parallel to the maximum slope while panels installed in flat areas require no particular orientation.
 - 4.6.3. Panel Deployment - GCL materials shall be installed in general accordance with the procedures set forth in this section, subject to site specific conditions which would necessitate modifications.

Reinforced GCL shall be used on both slopes as well as the flat areas to ensure the GCL withstands the rigors of the installation and subsequent low load hydration.

- 4.6.3.1. Deployment should proceed from the highest elevation to the lowest to facilitate drainage in the event of precipitation.
- 4.6.3.2. The GCL may be deployed on slopes by pulling the material from a suspended roll, or securing a roll end into an anchor trench and unrolling each panel as the handling equipment slowly moves backwards.
- 4.6.3.3. Deployment on flat areas shall be conducted in the same manner as that for the slopes, however, care should be taken to minimize “dragging” the GCL. Slip-sheet may be used to facilitate positioning of the liner while ensuring the GCL is not damaged from underlying sources.
- 4.6.3.4. Overlaps shall be a minimum of 6 inches and be free of wrinkles, folds or “fish-mouths”.
- 4.6.3.5. The contractor shall only install as much GCL that can be covered at the end of the day. No GCL shall be left exposed overnight. The exposed edge of the GCL shall be covered by a temporary tarpaulin or other such water resistant sheeting until the next working day.
- 4.6.4. Anchoring- All GCL material installed on slopes shall be anchored to prevent potential GCL panel movement.
 - 4.6.4.1. Standard Anchor - The GCL shall be placed into and across the base of the excavated trench, stopping at the back wall of the excavation.
 - 4.6.4.2. “Run-Out” Anchor - On gentle slopes or locations where it is difficult to create an anchor trench, the GCL may alternatively be anchored by a material run-out past the crest of the slope. The length of the run-out shall be pre-approved by the project engineer prior to the use of this method.
- 4.6.5. Seaming - A 6-inch lap line and a 9-inch match line shall be imprinted on both edges of the upper geotextile component of the GCL to assist in installation overlap quality control. Lines shall be printed as continuous dashes in easily observable non-toxic ink.
 - 4.6.5.1. Overlap seams shall be a minimum of six inches on panel edges and one foot on panel ends.
 - 4.6.5.2. Loose granular bentonite should be placed between panel overlaps at a rate of 0.25 pound per lineal foot.
- 4.6.6. Detailing - Detail work, defined as the sealing of the liner to pipe penetrations, foundation walls, drainage structures, spillways, and other appurtenances, shall be performed as recommended by the GCL Manufacturer.
- 4.6.7. Damage Repair - Prior to cover material placement, damage to the GCL shall be identified and repaired by the installer. Damage is defined as any rips or tears in the geotextiles, delamination of geotextiles or a displaced panel.
 - 4.6.7.1. Rip and Tear Repair (Flat Surfaces) - Rips or tears may be repaired by completely exposing the affected area, removing all foreign objects or soil, and by then placing a patch cut from unused GCL over the

damage (damaged material may be left in place), with a minimum overlap of 12 inches on all edges. Accessory bentonite should be placed between the patch edges and the repaired material at a rate of a quarter pound per lineal foot of edge spread in a continuous six inch fillet.

- 4.6.7.2. Rip and Tear Repair (Slopes) - Damaged GCL material on slopes shall be repaired by the same procedures above, however, the edges of the patch should also be adhered to the repaired liner with an adhesive to keep the patch in position during backfill or cover operations.
- 4.6.7.3. Displaced Panels - Displaced panels shall be adjusted to the correct position and orientation. The adjusted panel shall then be inspected for any geotextile damage or bentonite loss. Damage shall be repaired by the above procedure.
- 4.6.7.4. Premature Hydration - If the GCL is prematurely hydrated greater than 30% moisture, installer shall notify the QA/QC technician and project engineer for a site specific determination as to whether the material is acceptable or if alternative measures must be taken to ensure the quality of the design.

- 4.7. Cover Material - The cover materials shall be compatible as well as suitable for use over the GCL, and placed in a manner appropriate to the particular subgrade. Regardless of the cover material, the uncovered edge of GCL panels shall be protected at the end of the working day with a waterproof sheet which is secured adequately with ballast.
 - 4.7.1. Earthen Cover Soil - If the cover material is soil or gravel, a minimum thickness of 12 inches shall be placed over the GCL. The soil cover shall be free of sharp-edged stones greater than 0.75 inches in size.
 - 4.7.1.1. Equipment - Soil cover shall be placed with low ground pressure equipment. Care should be taken to avoid damaging the GCL by making sharp turns or pivots with equipment as well as sudden starts or stops.
 - 4.7.1.2. Placement - Soils may be placed on the GCL by pushing with a track dozer or by carefully placing it with a loader or a back-hoe. The use of scrapers or pans directly over the GCL is strictly prohibited.
 - 4.7.1.3. Thickness - A minimum thickness of 12 inches of cover shall be kept between heavy equipment and the GCL at all times. No heavy vehicles should be driven directly on the GCL until the proper thickness of cover has been placed.
 - 4.7.1.4. Compaction - To prevent damage to the GCL, the initial lift(s) of soil cover shall not be compacted in excess of 85 percent Modified Proctor density or as specified by the engineer.
 - 4.7.1.5. Slope Placement - When covering GCL on sloped areas, cover soil should be pushed up-slope to minimize tension on the GCL.
 - 4.7.2. Geosynthetic Cover - Precautions shall be taken to prevent damage to the GCL by restricting the use of heavy equipment over the liner system.
 - 4.7.2.1. Equipment - Installation of the overlying geosynthetic component can be accomplished through the use of lightweight, rubber-tired

equipment such as a 4-wheel all-terrain vehicle (ATV). This vehicle can be driven directly on the GCL, provided the ATV makes no sudden stops, starts, or turns.

4.7.2.2. Placement - Smooth HDPE may be dragged across the GCL surface with equipment or by hand labor during positioning. Similarly, the HDPE may be unrolled with the use of low ground pressure equipment.

4.7.2.3. Use of Textured Liners - If a textured geomembrane is placed over the GCL, a slip sheet (such as 20-mil smooth HDPE) may first be placed over the GCL in order to allow the geomembrane to slide into its proper position. Once the overlying geomembrane is properly positioned, the slip-sheet shall be carefully removed paying close attention to avoiding any movement to the geomembrane.

5.0 ACTIVATION - If the GCL will be utilized for the control of non-aqueous phase liquids, prehydration may be necessary. The GCL manufacturer shall be contacted for these cases for site specific recommendations.

6.0 WARRANTY - GCL material as well as installation warranties provided by the manufacturer and installer shall be made a part of the final submittal documents.

END OF SECTION



GSE STANDARD PRODUCTS

Product Data Sheet

Bentofix® EC GCL

Bentofix® "EC" geosynthetic clay liner (GCL) is a lightly needlepunched reinforced composite comprised of a uniform layer of granular sodium bentonite encapsulated between a woven and a nonwoven geotextile. It is intended for use on relatively flat slope surfaces where minimal internal shear strength is required.

Product Specifications

GEOTEXTILE PROPERTIES	TEST METHOD	FREQUENCY	VALUE (ENGLISH)	VALUE (SI)
Product Code			BFX1000EC	
Cap Nonwoven, Mass/Unit Area	ASTM D 5261	1/200,000 ft ² (1/20,000 m ²)	3.0 oz/yd ² Typical	100 g/m ² Typical
Carrier Scrim Woven, Mass/Unit Area	ASTM D 5261	1/200,000 ft ² (1/20,000 m ²)	3.1 oz/yd ² Typical	105 g/m ² Typical
BENTONITE PROPERTIES				
Swell Index	ASTM D 5890	1/100,000 lb (50,000 kg)	24 ml/2 g min	24 ml/2 g min
Moisture Content	ASTM D 4643	1/100,000 lb (50,000 kg)	12% max	12% max
Fluid Loss	ASTM D 5891	1/100,000 lb (50,000 kg)	18 ml max	18 ml max
FINISHED GCL PROPERTIES				
Bentonite, Mass/Unit Area ⁽¹⁾	ASTM D 5993	1/40,000 ft ² (1/4,000 m ²)	0.75 lb/ft ² MARV	3.66 kg/m ² MARV
Tensile Properties, Tensile Strength ⁽⁴⁾ Grab Strength ⁽²⁾ Grab Elongation ⁽²⁾	ASTM D 6768 ASTM D 4632 ASTM D 4632	1/40,000 ft ² (1/4,000 m ²)	30 lb/in MARV 80 lb Typical 100% Typical	5 kN/m MARV 354 N Typical 100% Typical
Peel Strength ⁽³⁾	ASTM D 6496 ASTM D 4632	1/40,000 ft ² (1/4,000 m ²)	0.8 lb/in Typical 5 lb Typical	140 N/m Typical 22 N Typical
Hydraulic Conductivity ⁽⁴⁾	ASTM D 5887	1/Week	5 x 10 ⁻¹¹ m/sec max	5 x 10 ⁻¹¹ m/sec max
Index Flux ⁽⁴⁾	ASTM D 5887	1/Week	1 x 10 ⁻⁸ m ³ /m ² /sec max	1 x 10 ⁻⁸ m ³ /m ² /sec max
Internal Shear Strength ⁽⁵⁾	ASTM D 6243	Periodically	100 psf Typical	4.8 kPa Typical
ROLL DIMENSIONS				
Width x Length ⁽⁶⁾	Typical	Every Roll	15.5 ft x 150 ft	4.7 m x 45.7 m
Area per Roll	Typical	Every Roll	2,325 ft ²	216 m ²
Packaged Weight	Typical	Every Roll	2,600 lb	1,179 kg

NOTES:

- ⁽¹⁾Oven-dried measurement. Equates to 0.84 lb/ft² (4.1 kg/m²) when indexed to a 12% moisture content.
- ⁽²⁾Measured at maximum peak, in weakest principal direction. Elongation is provided for reference only.
- ⁽³⁾Modified to use a 4 in (100 mm) wide grip. The maximum peak of five specimens averaged.
- ⁽⁴⁾4 in (100 mm) wide sample, average of 5 specimens.
- ⁽⁵⁾Typical peak value for specimen hydrated for 24 hours and sheared under a 200 psf (9.6 kPa) normal stress.
- ⁽⁶⁾Roll widths and lengths have a tolerance of ±1%.

Bentofix is a registered trademark of NAUE GmbH & Co. KG.

DS044ec R03/07/06

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Asia Pacific	GSE Lining Technology Company Limited	Bangkok, Thailand		66 2 937 0091	Fax: 66 2 937 0097
Europe & Africa	GSE Lining Technology GmbH	Hamburg, Germany		49 40 767420	Fax: 49 40 7674234
Middle East	GSE Lining Technology-Egypt	The 6th of October City, Egypt		202 2 828 8888	Fax: 202 2 828 8889

MATERIALS AND PERFORMANCE - SECTION 02210

TOPSOIL & SEEDING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

1. The furnishing and placement of topsoil, fertilizer, seed, and/or mulch.
2. The maintenance required until acceptance.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. If topsoil is needed (i.e., if backfill is not suitable to support native plants), imported topsoil shall be used that consists of unfrozen friable clayey loam free from clay lumps, stones, roots, sticks, stumps, brush, and foreign objects. The topsoil shall have a pH ranging between 5.0 and 7.5 and an organic content between 5 and 20 percent, as determined by laboratory testing of representative samples.
- B. Fertilizer shall be standard quality commercial carrier of available plant food elements. A complete, prepared, and packaged material containing a minimum of 6 percent nitrogen, 20 percent phosphoric acid, and 20 percent potash shall be required.
1. Each bag of fertilizer shall bear the manufacturer's guaranteed statement of analysis.
- C. Seed mixtures shall be commercial stock of the current season's crop and shall be delivered in unopened containers bearing the guaranteed analysis of the mix.
1. All seed shall meet the State standards of germination and purity.
 2. Seed can be purchased from:

<u>LeBallisters seed & fertilizers</u>	<u>Pacific Coast Seed</u>
1250 Sebastopol Rd.	533 Hawthorne Place
Santa Rosa, Ca 9507	Livermore, CA 94551
(707) 526-6733	(925) 373-4417
 3. Approximately four acres shall be seeded at rate of 35 lbs./acre, totaling 140lbs of grass mix.
 4. Estimated seed costs are as follows: \$13.75/lb. x 140 lbs. = \$1,925.00
 5. The required erosion control species and pounds per acre are presented below.

MATERIALS AND PERFORMANCE - SECTION 02210

TOPSOIL & SEEDING

Common Name	Scientific Name	Rate of app. lbs./ per acre	Totals
Tufted Hairgrass	<i>Deschampsia caespitosa</i>	1.75	7 lbs.
Molate Fescue	<i>Festuca rubra</i>	17.5	70 lbs.
Meadow Barley(salt)	<i>Hordeum brachyantherum</i>	10.5	42 lbs.
Three Weeks Fescue	<i>Vulpia microstachys</i>	5.25	21 lbs.
		Totals	35 lbs. 140 lbs

6. Mulch shall be stalks of oats, wheat, rye, or other approved crops free from noxious weeds.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The area to receive topsoil (if deemed necessary) shall be graded to a depth of not less than 6 inches, or as specified, below the proposed finished surface. If the depth of topsoil existing prior to construction was greater than 6 inches, the topsoil shall be replaced not less than the greater depth.
- a. All debris and inorganic material shall be removed and the surface loosened for a depth of 2 inches prior to the placing of the topsoil.
 - b. The topsoil shall not be placed until the subgrade is in suitable condition and shall be free of excessive moisture and frost.
 - c. All topsoil shall be free from stones, sticks, and other foreign substances and shall not be placed in a frozen or muddy condition.
 - d. Seeding and mulching shall not be done during high winds (greater than 15 miles per hour).
- B. The fertilizer shall be applied uniformly. After the topsoil surface has been fine graded, the seed mixture shall be uniformly applied.
- C. The mulch shall be hand or machine spread to form a continuous blanket over the seed bed. Excessive amounts or bunching of mulch will not be permitted.
- 1. Mulch shall be anchored by an acceptable method.
 - 2. Unless otherwise specified, mulch shall be left in place and allowed to disintegrate.
 - 3. Any anchorage or mulch that has not disintegrated at time of first mowing shall be removed. Anchors may be removed or driven flush with ground surface.

MATERIALS AND PERFORMANCE - SECTION 02210

TOPSOIL & SEEDING

- D. Seeded areas shall be watered as often as required to obtain germination and to obtain and maintain a satisfactory sod growth. Watering shall be in such a manner as to prevent washing out of seed.
- E. Hydroseeding may be accepted as an alternative method of applying fertilizer, seed, and mulch.

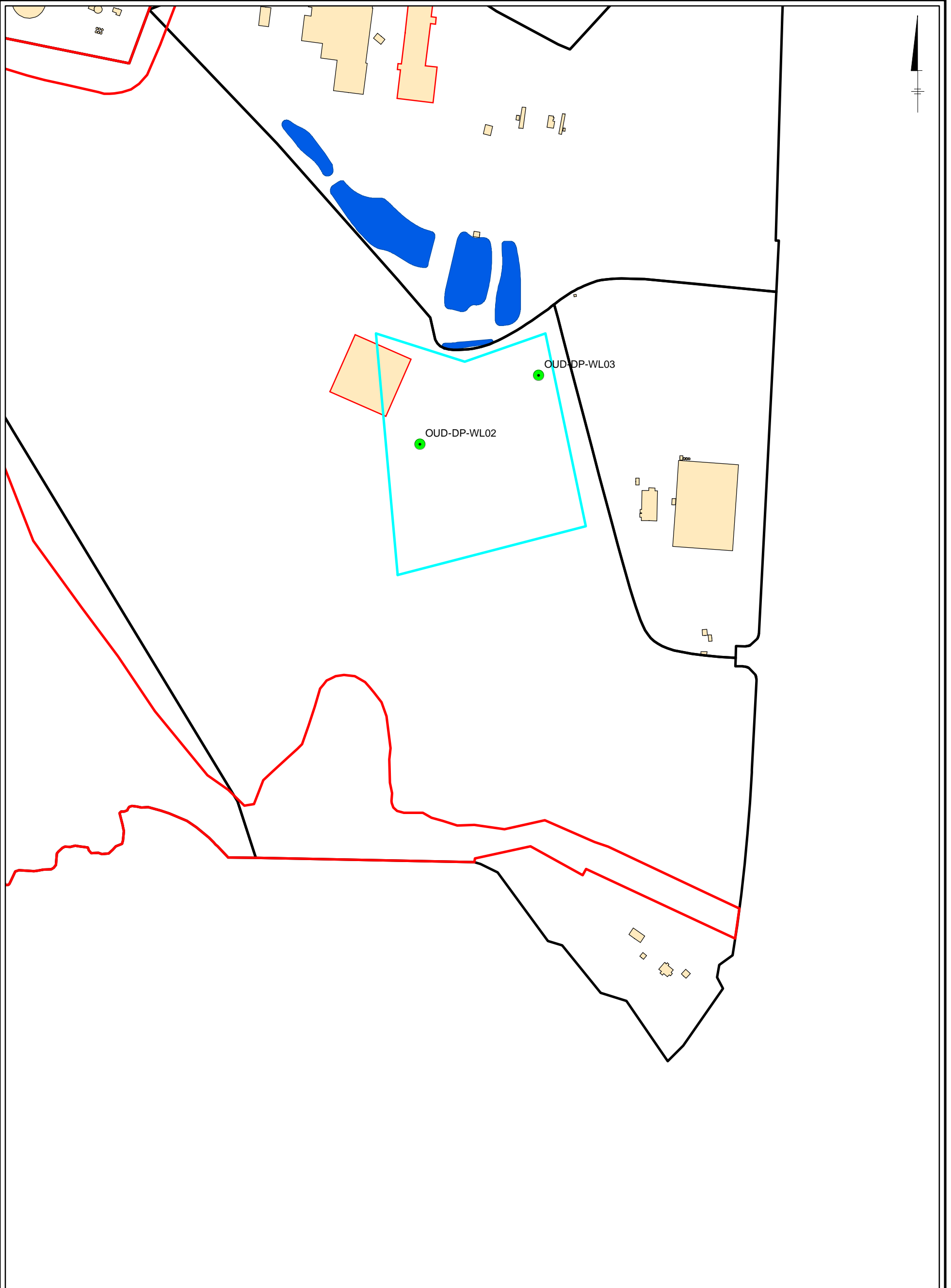
3.02 MAINTENANCE

- A. All erosion rills or gullies within the topsoil layer shall be filled with additional topsoil and graded smooth, and reseeded and mulched.
- B. The Contractor shall be responsible for repairs to all erosion of the seeded areas until all new grass is firmly established and reaches a height of not less than 4 inches. All bare and poorly vegetated areas must be reseeded and mulched.





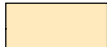


- END OF SECTION -

Attachment 3

Boring Logs (Consolidate and Cap Area)



LEGEND:

-  SOIL BORING LOCATION
-  POND
-  POTENTIAL CONSOLIDATION PIT
-  FACILITY PARCEL
-  STRUCTURE
-  FORMER STRUCTURE
-  OU-A



FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
FORT BRAGG, CALIFORNIA
OPERABLE UNIT A REMEDIAL ACTION PLAN

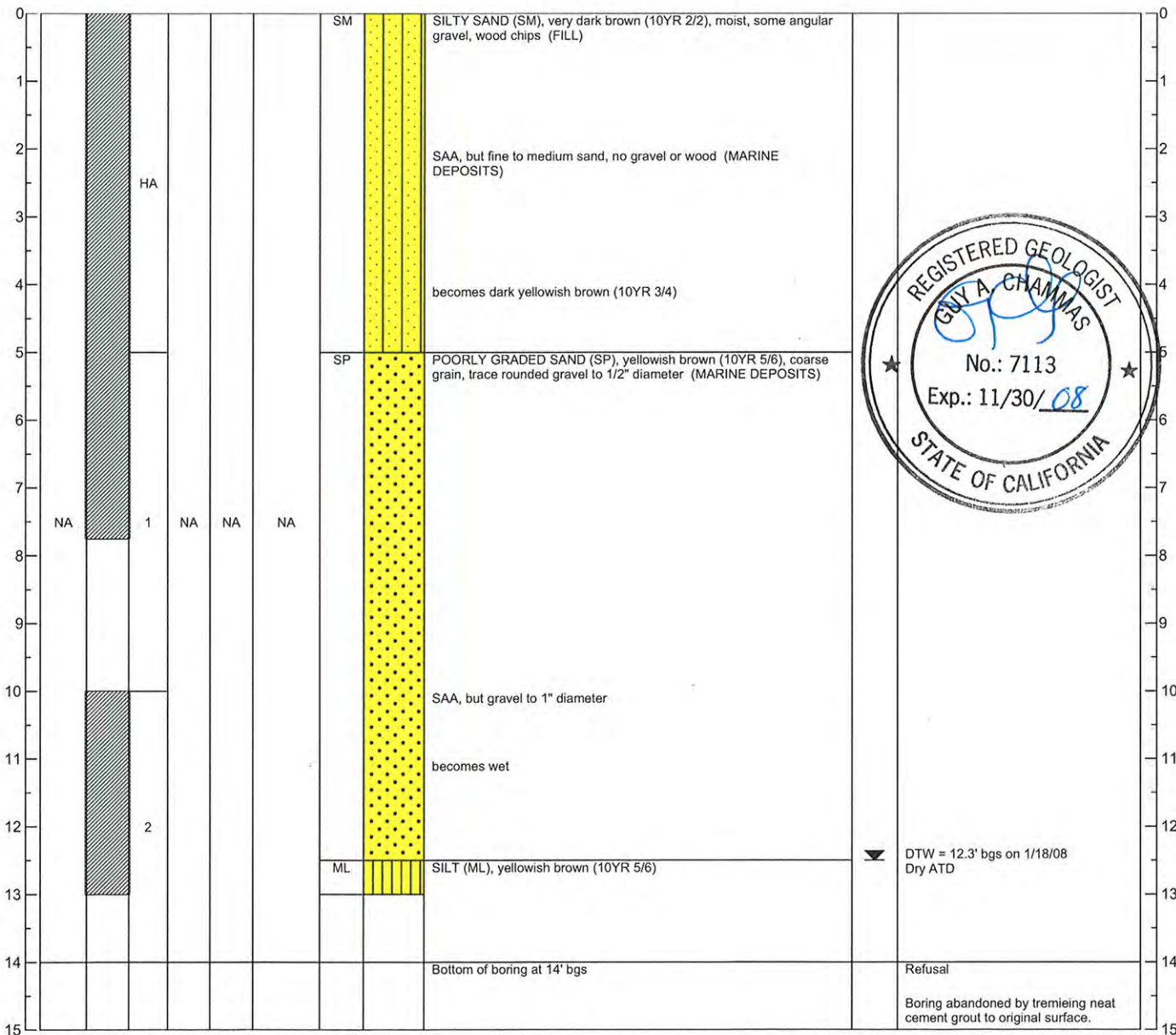
CONSOLIDATION CELL BORINGS



FIGURE
C.3-1

Date Drilled:	1/17/2008	Drilling Method:	Hand Auger/Geoprobe	ID:	OU-DP-WL02
Northing (Y):	2289381.10 feet	Drilling Contractor:	Cascade Drilling, Inc.		
Easting (X):	6050365.33 feet	Driller's Name:	Jason Hernandez	Client:	Georgia-Pacific LLC
Total Depth:	14 feet bgs	Logged By:	Bill Copeland	Location:	90 West Redwood Ave.
Project #:	B0066111.0000.00008	Reviewed By:	Guy Chammas, PG No. 7113		Fort Bragg, California

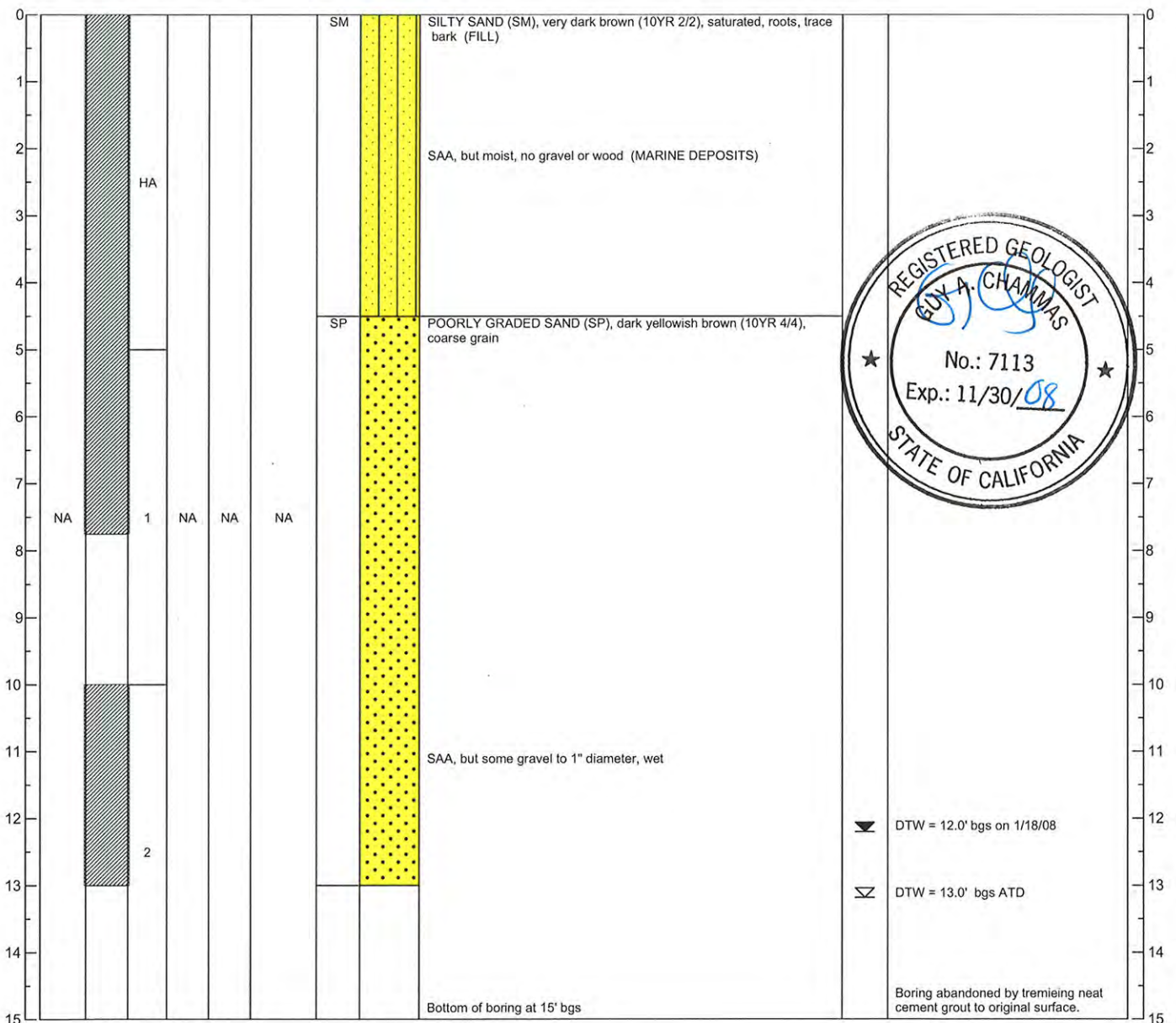
Depth (feet bgs)	Blow Counts per 6"	Recovery	Run Number	Sample ID	PID Reading (ppm)	Odors	USCS Code	Geologic Column	Lithologic Description	Hydrostratigraphy	Comments	Depth (feet bgs)
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Footnotes: ATD = at time of drilling, bgs = below ground surface, DTW = depth to water, HA = hand auger, NA = not analyzed/not applicable, ppm = parts per million, PID = photoionization detector, SAA = same as above

Date Drilled: 1/17/2008	Drilling Method: Hand Auger/Geoprobe	ID: OUD-DP-WL03
Northing (Y): 2289613.25 feet	Drilling Contractor: Cascade Drilling, Inc.	
Easting (X): 6050765.70 feet	Driller's Name: Jason Hernandez	Client: Georgia-Pacific LLC
Total Depth: 15 feet bgs	Logged By: Bill Copeland	Location: 90 West Redwood Ave.
Project #: B0066111.0000.00008	Reviewed By: Guy Chammas, PG No. 7113	Fort Bragg, California

Depth (feet bgs)	Blow Counts per 6"	Recovery	Run Number	Sample ID	PID Reading (ppm)	Odors	USCS Code	Geologic Column	Lithologic Description	Hydrostratigraphy	Comments	Depth (feet bgs)
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Footnotes: ATD = at time of drilling, bgs = below ground surface, DTW = depth to water, HA = hand auger, NA = not analyzed/not applicable, ppm = parts per million, PID = photoionization detector, SAA = same as above

**ACTON •
MICKELSON •
ENVIRONMENTAL, INC.**

LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-7.9

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 1 (North End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,651/2,290,021 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 72.66' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 12' BGS
	Weather: Rainy/Cool
Drilling Started: 4/12/06 0855	Logged By: C. O'Donnell
Drilling Finished: 4/12/06 0950	Checked By:

Source: Original field notes	PID/FID: PID
------------------------------	--------------

DEPTH (feet)	SAMPLE INTERVAL	SAMPLE ID	BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
			BLOWS/6 IN. (N)	IN. RECV'D					
0					pond water and plant debris depth = 5'.				
5		DP-7.9-5 Dupe 52	30		ORGANIC SOIL (OH), black (2.5Y 2.5/1), loose, wet, wood fragments, organic matter 30% fine sand, 70% fines.	OH	0915	0.1	
			12		FAT CLAY (CH), grayish brown (2.5Y 5/2), medium dense, wet, wood fragments	CH			
			12		CLAYEY GRAVEL (GC), dark yellowish brown (10YR 3/6), dense, dry to moist, terrace deposits, mottled w/ light grayish brown coloration, gravels rounded to subrounded	GC			
10		DP-7.9-10	24		5% fine gravel, 1 cm clast, 35% fine sand, 60% fines.		0920	0.5	
							Boring terminated Total depth = 12'		

**ACTON •
MICKELSON •
ENVIRONMENTAL, INC.**

LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillside Circle #100
El Dorado Hills, CA 95762

DP-7.10

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 1 (South End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,657/2,289,837 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 72.66' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 10.5' BGS
	Weather: Rain
Drilling Started: 4/12/06 1354	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/12/06 1520	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE INTERVAL	SAMPLE ID	BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
			BLOWS/6 IN. (N)	IN. RECD/D					
0					pond water and plant debris depth = 2'.				
3.5		DP-7.10-2	36		ORGANIC SOIL (OH), black (2.5Y N2/), very loose, wet, pond sediments 70% fines, 30% organic matter.	OH	1450	0.3	
4.5			4		FILL - LEAN CLAY (CL), olive gray (5Y 5/2), loose, wet, fill 100% fines.	CL			
7.5		DP-7.10-7	12		SILTY GRAVEL (GM), olive (5Y 5/6), medium dense, moist, marine terrace deposits, rounded clasts 60% gravel, 7.5 cm clast, 30% fine to medium sand, 10% fines.	GM	1520	0.4	
10.5							Boring terminated Total depth = 10.5'		

**ACTON •
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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-7.11

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 2 (North End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,522/2,290,050 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 70.47' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 18' BGS
	Weather: Cloudy
Drilling Started: 4/5/06 0830	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/5/06 0945	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
0					pond water and plant debris depth = 8'.				
35					ORGANIC SOIL (OH), black (2.5Y 2.5/1), pond sediment, 30% organic material.			0920	2.0
60					CLAYSTONE, olive (5Y 4/4), low hardness, deeply weathered.			0930	
10		DP-7.11-10							
12.5		DP-7.11-12.5							
15		DP-7.11-15						1030	0.7
Boring terminated Total depth = 18'									

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 8/7/06

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-7.12

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 2 (South End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,497/2,289,927 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 70.47' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 15.2' BGS
	Weather: Clear/Slightly Windy
Drilling Started: 4/5/06 1520	Logged By: C. O'Donnell
Drilling Finished: 4/5/06 1630	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
0					pond water and plant debris depth = 8'.				
5									
10		DP-7.12-10		31	ORGANIC SOIL (OH), very dark brown (10YR 2/2), loose, wet, organic matter, saturated 70% fine to medium sand, 30% fines.		OH		
					FAT CLAY (CH), dark gray (2.5Y 4/1), medium dense, moist, mottled with red brown coloration, wood fragments		CH	15:35	0.4
					5% fine gravels, >1 cm clast, 35% fine sand, 60% fines.		CS		
15		DP-7.12-15		24	CLAYSTONE, dark grayish brown (2.5Y 4/2), dense, moist, 10% fine gravel, >1 cm clast.			15:50 Boring terminated Total depth = 15.2'	0.3

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-7.17

Address: 90 W. Redwood Ave.
Fort Bragg, CA


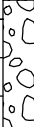
AME Project No.: 16017.08

Area No./ Description: Pond 4 (West End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,486/2,289,719 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 68.63' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 13' BGS
	Weather: Clear/Cool
Drilling Started: 4/13/06 0930	Logged By: C. O'Donnell
Drilling Finished: 4/13/06 1005	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECD/D					
0					pond water and plant debris depth = 5'.				
5		DP-7.17-5	4.5		FAT CLAY (CH), yellowish brown (10YR 5/6), loose, wet, organic material, rounded gravels 15% fine to coarse gravel, 1 cm clast, 40% fine to medium sand, 45% fines.		CH	0935	1.4
10		DP-7.17-10	57		POORLY GRADED GRAVEL (GP), dark brown (7.5YR 3/3), dense, wet, terrace deposits, subrounded gravels 5% fine gravel, >1 cm clast, 75% fine to medium sand, 25% fines.		GP	1000	2.8
								Boring terminated Total depth = 13'	

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-7.18

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 4 (East End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,574/2,289,729 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 68.63' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 13' BGS
	Weather: Sunny

Drilling Started: 4/13/06 0830	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/13/06 0855	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. REC'D					
0					pond water and plant debris depth = 5'.				
5		DP-7.18-5	20		FAT CLAY (CH), olive brown (2.5Y 4/4), very loose, wet, pond sediments 100% fines.		CH	0840	2.0
					LEAN CLAY (CL), olive gray (5Y 5/2), medium dense, wet, 10% fine sand, 90% fines.		CL		
10		DP-7.18-10	44		POORLY GRADED GRAVEL (GP), olive yellow (5Y 6/6), dense, moist, marine terrace deposits, subrounded clasts 60% fine gravel, 0.5 cm clast, 30% fine to medium sand, 10% fines.		GP	0850	0.0
								Boring terminated Total depth = 13'	

Appendix D

Preliminary Non-Binding Allocation of
Responsibility

PRELIMINARY NONBINDING ALLOCATION OF RESPONSIBILITY

Health and Safety Code (HSC) section 25356.1(e) requires the Department of Toxic Substances Control (DTSC) to prepare a preliminary nonbonding allocation of responsibility (the "NBAR") among all identifiable potentially responsible parties (PRPs). HSC section 25356.3(a) allows PRPs with an aggregate allocation in excess of 50% to convene an arbitration proceeding by submitting to binding arbitration before an arbitration panel. If PRPs with over 50% of the allocation convene arbitration, then any other PRP wishing to do so may also submit to binding arbitration.

The sole purpose of the NBAR is to establish which PRPs will have an aggregate allocation in excess of 50% and can therefore convene arbitration if they so choose. The NBAR, which is based on the evidence available to DTSC, is not binding on anyone, including PRPs, DTSC, or the arbitration panel. If a panel is convened, its proceedings are de novo and do not constitute a review of the provisional allocation. The arbitration panel's allocation will be based on the panel's application of the criteria spelled out in HSC section 25356.3(c) to the evidence produced at the arbitration hearing. Once arbitration is convened, or waived, the NBAR has no further effect, in arbitration, litigation or any other proceeding, except that both the NBAR and the arbitration panel's allocation are admissible in a court of law, pursuant to HSC section 25356.7 for the sole purpose of showing the good faith of the parties who have discharged the arbitration panel's decision.

DTSC sets forth the following preliminary nonbinding allocation of responsibility for the Former Georgia-Pacific Wood Products Facility, located at 90 West Redwood Avenue, Fort Bragg, Mendocino County, California:

Georgia-Pacific LLC is allocated 100% responsibility.

Appendix E

Responsiveness Summary

**FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY
90 WEST REDWOOD AVENUE, FORT BRAGG, CALIFORNIA**

**RESPONSIVENESS SUMMARY FOR PUBLIC COMMENTS RECEIVED
ON THE COASTAL TRAIL AND PARKLAND (OPERABLE UNIT-A)
REMEDIAL ACTION PLAN & FEASIBILITY STUDY**

August 20, 2008

I. Introduction

From March 13, 2008 through April 14, 2008, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) circulated for public review and comment, a draft Remedial Action Plan/Feasibility Study for Operable Unit A (OU-A RAP) and a draft Interim Action Remedial Action Plan/Feasibility Study (IARAP) for site remediation activities proposed to be conducted at the former Georgia-Pacific Wood Products Facility, Fort Bragg, California. Also circulated for review was an Initial Study/draft Mitigated Negative Declaration (MND) prepared pursuant to the requirements of the California Environmental Quality Act (CEQA). On March 26 and April 11, 2008, public meetings were held at the Redwood Elementary School located at 324 South Lincoln Street, Fort Bragg. The purpose of these meetings was to provide information regarding the OU-A RAP and IARAP, and to solicit public comments on the adequacy of these documents and the Initial Study/draft MND. Advance public notice of the meetings was placed in the Fort Bragg Advocate News and posted on DTSC's and the City's public websites. Fact sheets discussing the draft OU-A RAP and IARAP were mailed out on March 11, 2008. In response to community request, DTSC extended the public comment period for an additional fourteen days to April 28, 2008. Postcards notifying the community about the public comment period extension were sent out on April 11, 2008. DTSC also held a second public meeting on April 11, 2008 in response to community requests. Postcards announcing the second public meeting were sent out on March 25, 2008. DTSC also conducted two small group meetings to discuss the proposed alternatives presented in the OU-A RAP and IARAP. These small group meetings were held on March 13, 2008.

The RAP proposed the following activities to address lead-, PCB- and dioxin/furan-contaminated soils in OU-A:

- For the lead-impacted area: Soil will be excavated to an average depth of 2 feet. Excavated soil will be transported to a Class I landfill (Kettleman Hills) by a licensed hazardous waste hauler. Excavated area will be backfilled with clean imported soil, regraded, and revegetated after remediation is complete.
- For the PCB-impacted area: Soil will be excavated to an average depth of 1 foot. Excavated soil will be transported to a Class II landfill (Keller Canyon) by a licensed hauler. Excavated area will be backfilled with clean imported soil, regraded and revegetated after remediation is complete.

- For the dioxin/furan-impacted area: Soil will be excavated to depths between 1 and 5 feet. Excavated soil will be transferred to the proposed consolidation area located in Operable Unit D (OU-D). The proposed consolidation and containment cell will be engineered and constructed to conform to California Code of Regulations, Title 27 requirements. Key components of the consolidation cell include a 40-millimeter synthetic cell polyvinyl chloride (PVC) liner, geosynthetic clay capping, crushed rock and/or gravel beneath the cell and on top of the cap, and clean soil cover over the cap. Graded and otherwise exposed soils over and around the consolidation cell will be re-vegetated with native plant species, consistent with the requirements of the Conceptual Revegetation Plan developed for the project site and the Mitigation Measure Monitoring and Reporting Program (MMRP) prepared for the OU-A RAP and incorporated by reference in the Mitigated Negative Declaration Addendum. Land use restrictions/controls will be recorded in the chain of title for all areas where dioxin/furan contamination remains above residential land use levels (OU-A north & south and consolidation area). Restricted areas will require long-term operation and maintenance work and financial assurance.

Following review of all comments received, DTSC filed a CEQA Notice of Determination and approved the IARAP on June 3, 2008, deferring approval of the OU-A RAP until additional information was accumulated and examined in response to comments received during the public comment period. A Responsiveness Summary for the IARAP was prepared and made available at the repositories listed on the following page.

The verbal and written comments on the proposed OU-A RAP received during the referenced public meetings and comment period have been compiled and included in this Responsiveness Summary. The purpose of this document is to present DTSC's written responses to these comments.

This Responsiveness Summary is organized as follows:

- Section I is the Introduction.
- Section II lists the comments received and provides responses to these comments.
- Attachment A provides a list of all comments received. These comments have been numbered and also include a description of the comment origin, the date received, and the author's initials.
- Attachment B provides a copy of the transcript from the community meetings held on March 26, 2008 and April 11, 2008.
- Attachment C provides a copy of the map depicting the OU-A.
- Attachment D provides copies of the fact sheet, public notice and postcards associated with the OU-A RAP.

A copy of the OU-A RAP and other site-related documents are available for review at:

Fort Bragg Library
499 East Laurel Street
Fort Bragg, CA 95437
(707) 964-2020

Fort Bragg City Hall
Planning Counter
416 N. Franklin Street
Fort Bragg, CA 95437
(707) 961-2823

Dept. of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, CA 94710
(510) 540-3826
(appointment required)

II. Response to Comments

The verbal and written comments received during the public comment period were sorted based on their content. Many of the comments received were very similar in nature. In these instances, the comments were synthesized into one comment which captures the intent of the original comments. A general response to the synthesized comment is then provided. Some of the original comments were also paraphrased for clarity. The original comments are numbered and can be located in Appendix A.

II.1 RAP Evaluation Criteria

- II.1.1 Comment: The RAP seems to me to be a temporary remediation. But shouldn't the mechanism for the permanent remediation be built in to the RAP? How do you think this can or should be done?

Commenter: Wade Gray – Comment 19

Response: “Long-term effectiveness and permanence” is one of nine criteria required by State and Federal regulations when evaluating remedial alternatives. The selected remedy is intended to be permanent. Operation and maintenance requirements are intended to assure that the selected remedy remains protective of human health and the environment for the long term. The land use restrictions will remain in perpetuity. As discussed in Section 4.3 of the OU-A RAP, the remedy selected from among potential alternatives meets this criterion.

- II.1.2 Comment: Cost estimates for the remedial alternatives (including a 30-year cost estimate) should be provided. A financial analysis should be conducted to compare the cost of operations and maintenance (O&M) to other remedial alternative costs.

Commenter: David Russel/Thais Mazur – Comment 155 & 292

Response: Cost estimates for the remedial alternatives (including 30-year cost estimates) are provided in Appendix B of the OU-A RAP. Cost is one of nine criteria required by State and Federal regulations when evaluating remedial alternatives. Section 4.3 of the OU-A RAP includes a cost analysis and comparison of all remedial alternatives, including O&M components. Additional detailed information is provided in Appendix B of the OU-A RAP.

- II.1.3 Comment: Have the risks of onsite sequestration of wastes been compared to the risks of offsite transportation of wastes?

Commenter: Skip Wollenberg – Comment 192

Response: The trade-offs between the effectiveness and potential risks of onsite vs. offsite management of waste materials are taken into consideration when

selecting remedial alternatives. For example, soils excavated from OU-A having lead or PCB concentrations high enough to be classified as hazardous waste or exceeding other regulatory levels will be transported offsite and disposed of in an approved landfill. Soils excavated from OU-A containing dioxins/furans do not have concentrations high enough to be classified as hazardous waste and will be safely managed onsite in a secure engineered cell and capping system. Onsite containment and management of these soils as specified in the OU-A RAP is considered to be a safe and effective remedy. Offsite transport may involve potential highway accidents and increased environmental impacts or exposures associated with approximately 1,000 truckloads of material.

II.1.4 Comment: Does community disapproval/disagreement factor into the chosen alternative?

Commenter: Sheila Dawn Tracy – Comment 230; David Russel/Thais Mazur – Comment 289

Response: “Community acceptance” is one of nine criteria required by State and Federal regulations when evaluating remedial alternatives. As discussed in Section 4.3 of the OU-A RAP, the selected remedies/alternatives meet this criterion.

II.2 Additional Characterization

II.2.1 Comment: The site is inadequately characterized. TAG is aware of far more historical information than is noted in the citations of the MND. For example, the acre-plus on-site cell where dioxin-contaminated soil is to be consolidated has not been characterized. This obviously increases the risk that soil now present at this uncharacterized site will have to be removed, which obviously will require removing the (previously consolidated) overburden (DTSC staff have acknowledged this possibility.) The dioxin cell issue is merely representative of the lack of thorough characterization of the overall project site. Absent such characterization, proper environmental analysis is not possible, and the MND is flatly inadequate.

Commenter: Toxics Assessment Group (TAG) – Comment 427

Response: The OU-A RAP addresses the OU-A, a workable portion of the entire Site, where enough information is available to design and implement appropriate protections. Numerous technical investigations and reports (multiple areas and multi-volume reports) for soils as well as groundwater monitoring conducted quarterly dating back to 2003 support the OU-A RAP and the analysis contained in the Initial Study and Mitigated Negative Declaration (IS/MND), and an Addendum to the MND dated August 20, 2008. For OU-A specifically, almost 500 soil samples and over 60 groundwater samples have been collected, and a Remedial Investigation report (which included a human health and ecological risk

assessment) was approved by DTSC in February 2008. The area of proposed remediation has been adequately characterized. With respect to OU-D, borings in the area of the cell showed that the soil is native (undisturbed), and no fill material or disturbed soil was observed. Additionally, the area of the proposed cell was historically used for log storage only, and sufficient historical information (Sanborn maps and aerial photographs) are available to demonstrate the site usage in this area. Finally, there are provisions in the RAP for sampling of the material planned for excavation from the cell either in place or once stockpiled.

II.3 Bioremediation

- II.3.1 Comment: Bioremediation of dioxin-contaminated soils should be evaluated and given closer consideration as a remedial alternative. What are the limitations associated with this type of remedial technology?

Commenter: Maggie Watson – Comment 28 & 52; Joy Macgregor – Comment 31; Bess Donley – Comment 34; Mary Jane DeVore – Comment 37; William & Karen Inwood – Comment 38; Sheila Tracy – Comment 53; Wade Grey – Comment 72; Brent Rusert – Comment 76; Sandra Patterson – Comment 87; Linda Leitner – Comment 94; Zoe Bachelor – Comment 103; Lenora Shepard – Comment 106 & 107; Charles Acker – Comment 110; Antonio Wuetke – Comment 112 & 239; Dan Ladermann – Comment 119; Rafael Borrás – Comment 122; David Russell & Thais Mazur – Comment 128, 150 & 242; Gail & David Daly – Comment 224; Anonymous – Comment 228; Zoe Bachelor – Comment 235; Donna Schuler – Comment 237; Anonymous – Comment 238; Leslie Scales – Comment 244; Sheila Tracy – Comment 250; Debra Scott – Comment 253; Margaret Paul – Comment 333; Julia Larke – Comment 337; Jody Sparks – Comment 351 & 465; Lisa Steadman – Comment 416; Zac Zachary – Comment 417; Carmen Fraser – Comment 418; Liz Helenchild – Comment 432; Alice Chouteau – Comment 439; Bette Goldfarb – Comment 445; George Reinhardt – Comment 466; Margaret Drumm – Comment 477; Lorraine Buranzon – Comment 492; Marybeth Arago – Comment 497.

Response: The OU-A RAP included an evaluation of bioremediation as an option (see Section 4.2.5). However, based on a review of the available literature and conversations with treatment scientists, bioremediation of dioxins in soil with fungi or other microorganisms is an unproven technology and conditions at the site may not favor that method. Limitations include: coastal temperatures that are not ideal for growth of white rot fungus, the need to evaluate other factors such as nutrient levels, carbon source and substrate for the fungi, soil pH, and time frame required to remediate the soils to reach the cleanup level. Because no successful field trial data are available, bioremediation could not be further evaluated in a manner similar to the other alternatives (costs and the time to successfully remediate, as well as effectiveness and implementability could not be assessed). Therefore, this option was not carried forward into the next stages of evaluation in the RAP.

In response to community requests, DTSC, the City of Fort Bragg, Georgia-Pacific, NewFields and interested community members are working on developing a bench scale study to test the effectiveness of mycoremediation technology in reducing dioxin concentrations in soil/sediment.

II.4 Cap

- II.4.1 Comment: What type of soil is located in the proposed consolidation area? Has the proposed consolidation area been characterized? How close is the proposed consolidation area to the main street (downtown) of Fort Bragg? Please provide characterization data and a map with this data.

Commenter: Jody Sparks – Comments 2 & 3; David Russell & Thais Mazur – Comments 157 & 305; Margaret Paul – Comments 167, 302 & 334; David Jensen – Comment 202; Rafael Borrás – Comment 265; Undeterminable – Comment 345.

Response: Borings in the area of the cell showed that the soil is native (undisturbed), and silty sand in nature. No fill material or disturbed soil was observed. The proposed cell's location is within an area of the site historically used only for log storage and with no known or suspected chemical use. This location is approximately 1000 feet from Fort Bragg's Main Street. Also, as discussed in Appendix C of the OUA-RAP, the material removed from the area to create the cell will be tested, and if suitable, will be used as backfill.

The location of the consolidation cell is shown on Figure C-1 in Appendix C of the OU-A RAP.

- II.4.2. Comment: Will the consolidation area be susceptible to rising sea levels due to global warming, earthquakes, or tsunamis? Would natural disasters cause the release of contaminants?

Commenter: Brent Rusert – Comment 4; Julia Larke – Comment 193 & 336; David Russell & Thais Mazur – Comments 129 & 312; Norman de Vall – Comment 315; Andrea Luna – Comment 390; Alice Chouteau – Comment 440; Jody Sparks – Comment 460.

Response: The proposed cell's location is more than 1000 feet from the bluff edge, as the California Coastal Commission recommended, to protect it from bluff erosion. The depth of the cell, consistent with California Code of Regulations Title 27 requirements, has been designed to leave at least 5 feet between the bottom the consolidation cell and the highest measured groundwater level; this also protects the cell from contact with groundwater in the event of sea level rise. The material used to line the cell will be a flexible

membrane polyvinyl chloride (PVC) liner. Flexible membrane liners are meant to remain flexible during seismic events to reduce the risk of a breach.

Many requirements exist for the capped cell. Annual inspections, ongoing monitoring of groundwater to detect any possible releases from the cell are required, liner repair or other remedy to address any breach detected through this monitoring, as well as financial assurances that would cover any future action needed. All of these items are under DTSC oversight. The materials being placed in the cell consist of soil and ash containing dioxins/furans only. Dioxins/furans are very stable, virtually insoluble in water, and therefore, do not migrate readily.

II.4.3 Comment: What is the liner material made of? What is the longevity of the liner?

Commenter: Jody Sparks – Comment 10; Don Hoenigke & Toni Orans – Comment 25; Zida Boreich – Comment 35; Donna Schuler – Comment 85; Thais Mazur – Comment 126; David Russell & Thais Mazur – Comment 130 & 309; Mitch Clogg – 261; Lenora Shepard – Comment 318; Undeterminable – Comment 355; Andrea Luna – Comment 392; Margaret Drumm – Comment 471.

Response: To comply with the applicable or relevant and appropriate requirements (ARARs) provided by the North Coast Regional Water Quality Control Board on May 8, 2008, from the California Code of Regulations Subdivision entitled Consolidated Regulations for Treatment, Storage, Process, or Disposal of Solid Waste (Title 27, Division 2, Subdivision 1), the material used to line the cell (on the bottom and the sides) will be a flexible membrane polyvinyl chloride (PVC) liner. Flexible membrane liners are meant to remain flexible during seismic events to reduce the risk of a breach. The top layer of the cell will also be covered by a geosynthetic clay liner which prevents water from entering the consolidation cell and also aids in preventing water from running through that consolidated material.

Very strict protocols are used for testing the seams and overall integrity of the liner during installation. Georgia-Pacific and the manufacturer are providing specialized personnel to oversee the installation. DTSC will also provide additional oversight during construction of the consolidation cell.

Studies conducted on the PVC liner material has shown good performance over a 30-year period. The longest test on the material to date is 30 years.

Conditions in Fort Bragg can add to the longevity of the liner. The liner will not be exposed to sunlight/UV rays (a soil cap and vegetation will cover the plastic liner), the climate has no extremes in temperature, and the material encapsulated (soils and ash with dioxins only) is not chemically reactive so it will not degrade the liner.

II.4.4 Comment: Will dioxin-containing soils consolidated on site be safe over the long term?

Commenter: Rafael Borrás – Comment 271; Dan Ladermann – Comment 303; David Russell & Thais Mazur – Comment 310; Baile Oakes Bannon – Comment 316

Response: Dioxin molecules bind strongly to soil particles, making them largely immobile in the environment. Even if they were not encapsulated within the sealed liner of an engineered containment cell, the soil and dioxins would be unlikely to migrate. The liner system provides an extra measure of safety and will prevent rain water, groundwater, or seawater from entering the cell.

Under DTSC oversight, Georgia-Pacific will maintain and inspect the cap, and wells near the cell will be monitored for any impacts to groundwater. Land use controls (i.e., a land use restriction recorded with the County Assessor's office as well as a written operations and maintenance plan) will also be used to prevent activities that might damage the cap or cell, such as digging, driving posts or other subsurface activity. A barrier layer of crushed rock will not only mark the location of the cap, but will prevent burrowing by animals.

DTSC's cleanup law also requires a financial assurance mechanism (Health and Safety Code section 25355.2) such as a letter of credit or DTSC-approved surety bond to provide long-term funding for the cell, cap and monitoring program.

II.4.5 Comment: Will the cap have liner on the walls (sides)?

Why doesn't the cap liner design include multiple layers and monitoring of the space between the layers? Would the cap include a rock layer? Would multiple layers increase cap life?

What is the distance from bottom of consolidation area to groundwater? And what is the required distance?

Commenter: Judith Parker – Comment 36; Skip Wollenberg – Comment 42; Rafael Borrás – Comment 148; David Russell & Thais Mazur – Comment 291 & 308; Undeterminable – Comment 452.

Response: The cap will include a liner on the bottom and on the sides of the cell as well as a cap on the top. See Figure 4-5 of the OU-A RAP.

A thicker liner would be less effective. The flexible nature of the liner material allows it to move if settlement or seismic events occur. Furthermore, a "double" liner as some have proposed would not improve the cap performance. Having two layers adjacent to one another could actually decrease the liner life if water

or air were to get trapped between the layers. A barrier layer of crushed rock will be included in the cap design not only to mark the location of the cap, but will also prevent burrowing by animals.

A single liner of this thickness and material is a proven and reliable barrier because very strict protocols are used for testing the seams and overall integrity of the liner during installation. Georgia-Pacific and the manufacturer are providing specialized personnel to oversee the installation. DTSC will also provide additional oversight during construction of the consolidation cell.

As described in the OU-A RAP, the dioxin-impacted material would not be in contact with groundwater. In the potential locations for the cap, the depth to groundwater is approximately 12 feet below ground surface (bgs). The maximum depth of the cell would be approximately 6 feet bgs. This would exceed the requirement for five feet of separation between the highest anticipated elevation of underlying groundwater and the waste material [Title 27, CCR Division 2 Chapter 3 (c)].

Further descriptions of the cap design are provided in Section 4.2.4 and Appendix C of the OU-A RAP.

- II.4.6 Comment: How will fresh groundwater recharge over a 9 – 11 acre impermeable barrier?

Commenter: Undeterminable – Comment 357

Response: There would not be any impact to the ponds, drainages, or streams onsite from the placement of the consolidation cell. The proposed cap has a footprint of approximately 1.3 acres. Groundwater recharge over this area is not expected to be significantly impacted. The Coastal Development Permit (CDP) and Stormwater Pollution Prevention Plan (SWPPP) for the site (both described in Appendix C of the OU-A RAP) require erosion controls in place around construction areas that prevent any runoff from construction areas. Once in place, the materials placed in the cap will be isolated and will not impact surrounding areas.

- II.4.7 Comment: Harbor dredging should not be used to cover the dioxin contaminated soil storage site. They are blowy, salty, and contaminated themselves. The savings of \$10/yd³ does not make sense. The plan is to top the harbor dredging with only 4-6 inches of clean soil. That is not enough soil for native plants to take root adequately.

Commenter: Cecilia Dzurella – Comment 408

Response: Any and all soil used as backfill or cover (as outlined in the Implementation Plan; Appendix C of the OU-A RAP), will be sampled according

to DTSC guidance and approved by DTSC prior to use. The minimum of 6 inches of cover soil (which is required to be soil that will support plant growth) is sufficient to support the native plant seed mix planned for usage. Circuit Riders (native plant biologists familiar with the site and area) have been consulted and will conduct the oversight of re-vegetation work.

Stockpiled dredge material from Noyo Harbor is a proposed source based on prior testing. The US Army Corps of Engineers' previously analyzed the material and deemed it appropriate for upland placement. Salt content testing indicates that it is also suitable to support vegetation growth. This material has also been approved by DTSC for use in the IARAP for the interim capping in the powerhouse area.

II.4.8 Comment: How will it be verified that the cap is being properly maintained and monitored? What land use restrictions would be implemented?

How will Georgia-Pacific be held responsible for future O&M of the cap or the fate of the dioxin contaminated soil if the liner fails? How will Georgia-Pacific be held financially responsible?

Commenter: Wade Gray – Comment 73 & 317; Baile Oakes Bannon – Comment 80; Zoe Bachelor – Comment 101; David Russell & Thais Mazur – Comment 131, 145, 149 & 314; Debra Scott – Comment 251; Andrea Luna – Comment 391.

Response: Under DTSC oversight, Georgia-Pacific will maintain and inspect the cap, and monitor wells near the cell for any impacts to groundwater. Land use controls (i.e., a land use restriction recorded with the County Assessor's office as well as a written operations and maintenance plan) will also be used to prevent activities that might damage the cap or cell, such as digging, driving posts or other subsurface activity. A barrier layer of crushed rock will not only mark the location of the cap, but will prevent burrowing by animals.

DTSC's cleanup law also requires a financial assurance mechanism (Health and Safety Code section 25355.2) such as a letter of credit or DTSC-approved surety bond to provide long-term funding so that the cell, cap and monitoring program can be maintained over time.

II.4.9 Comment: Explain details of liner material: What is the product? How it is installed? How will it be ensured that the liner is installed properly?

Commenter: Jody Sparks – Comment 197 & 198

Response: The material used to line the cell (on the bottom and up the sides) will be a polyvinyl chloride, also known as a flexible membrane liner (or FML); FMLs are meant to remain flexible during seismic events to reduce the risk of a

breach. The cell will also be covered with a geosynthetic clay liner, which prevents water from entering that pit and also aids in preventing water from running through that material.

Very strict protocols are used for testing the seams and overall integrity of the liner during installation. Georgia-Pacific and the manufacturer are providing specialized personnel to oversee the installation. DTSC will also provide additional oversight during construction of the consolidation cell.

Further descriptions of the cap design are provided in Section 4.2.4 and Appendix C of the OU-A RAP. Appendix D also contains very detailed specifications on the installation and testing of the liner.

II.4.10 Comment: Why is so little money estimated for monitoring of the proposed cap? Will other media (besides groundwater) be monitored? Who is responsible for cost overruns?

Commenter: Rafael Borrás – Comment 54 & 269; Undeterminable – Comment 367.

Response: The \$8,000 per year estimated is sufficient for annual inspections and downgradient groundwater monitoring. It should be noted that the cost estimates provided in Appendix B of the OU-A RAP are in fact estimates and actual costs could vary. An Operations and Maintenance Plan will be required prior to site certification that will outline the requirements for long-term monitoring in detail, as well as the financial assurance mechanism supporting it.

II.4.11 Comment: What is the seasonal affect on the groundwater table? How often is the groundwater table depth measured? Is this going to be upheld by a DTSC order to make sure that it is done properly and under the standards of California environmental laws? Please clarify the effect of infiltration or runoff on the groundwater table/depth.

Commenter: David Russell & Thais Mazur – Comment 62

Response: Groundwater levels are and will continue to be measured quarterly across the site, and the groundwater monitoring program is under DTSC's oversight. DTSC's existing order clearly specifies that compliance with the order does not exempt any from compliance with other laws, including environmental laws.

The cell will also be covered with a geosynthetic clay liner, which prevents water from entering that pit and also aids in preventing water from running through that material. This will limit any adverse effects on local hydrology.

II.4.12 Comment: What is the process by which the quality of the remediation alternative implementation by GP is monitored?

Commenter: David Russel & Thais Mazur – Comment 61; Lorrain Buranzon – Comment 489

Response: DTSC will provide oversight on the implementation of the RAP and an Implementation Report (also sometimes called a Completion Report) is required to be submitted following implementation. Additionally, an O&M Plan is required before the site can be certified by DTSC. DTSC will provide continuing oversight for annual inspections and will review monitoring reports.

II.4.13 Comment: Can the 1.3-acre capped area be safely used for anything in the future?

Commenter: David Russell – Comment 83 & 310; Don Hoenigke & Toni Orans – Comment 96; Donna Schuler – Comment 279; Rafael Borrás – Comment 304.

Response: A variety of land uses are compatible with the capping remedy being proposed. For example, because the cell will be below the ground surface the area could be used for parking or roadways, open space, recreational facilities (such as ball fields), or commercial buildings if their slab foundations are designed to not penetrate or otherwise impair the encapsulation cell.

Similar remedial actions have been approved by DTSC in communities throughout California. Since the material will be entirely contained within the consolidation cell and under the engineered cap, there would be no exposure to people or animals.

Under DTSC oversight, Georgia-Pacific will maintain and inspect the cap, and wells near the cell will be monitored for any impacts to groundwater. Land use controls (i.e., a land use restriction recorded with the County Assessor's office as well as a written operations and maintenance plan) will also be used to prevent activities that might damage the cap or cell, such as digging, driving posts or other subsurface activity. This record is to remain with the County Assessor's office until such point that the contaminated soil is removed from the previously restricted area.

DTSC's cleanup law also requires a financial assurance mechanism (Health and Safety Code section 25355.2) such as a letter of credit or DTSC-approved surety bond to provide long-term funding so that the consolidation cell, cap and monitoring program can be maintained over time.

II.4.14 Comment: What materials will be consolidated and capped? Are these materials toxic? Please explain what TTLC means versus toxic to human health.

Commenter: Jonathan Shepard – Comment 124; David Russell & Thais Mazur – Comment 306.

Response: The materials proposed for the capped cell are soils and ash with only dioxins/furans and no other chemicals of concern. The average concentration of dioxins/furans in the material to be placed in the capped cell is approximately 100 ppt, which is 100 times lower than the hazardous waste level (called the Total Threshold Limit Concentrations, or TTLIC). So the material is not considered hazardous waste and is only 2 times the cleanup level for the park and trail area of 53 ppt. Because the material will be completely enclosed or encapsulated, there would be no exposure and therefore no risk to humans or to the environment from contact with the material after placed in the consolidation cell.

II.4.15 Comment: Is it possible to cap material onsite and use bioremediation?

Commenter: Leslie Scales – Comment 220; Anonymous – Comment 229; Dan Ladermann – Comment 482; Lorraine Buranzon – Comment 491.

Response: Based on a review of the available literature and conversations with treatment scientists, bioremediation of dioxins in soil with fungi or other microorganisms is an unproven technology and conditions at the site may not favor that method. Limitations include: coastal temperatures that are not ideal for growth of white rot fungus, need to evaluate other factors such as nutrient levels, carbon source and substrate for the fungi, soil pH, time frame required to remediate the soils to reach the cleanup level, etc. Because no successful field trial data are available, bioremediation could not be further evaluated in a manner similar to the other alternatives (costs and the time to successfully remediate, as well as effectiveness and implementability could not be assessed). Therefore, this option was not carried forward into the next stages of evaluation in the RAP.

In response to community requests, DTSC, the City of Fort Bragg, Georgia-Pacific, NewFields and interested community members are working on developing a bench scale study to test the effectiveness of mycoremediation technology in reducing dioxin concentrations in soil/sediment.

II.4.16 Comment: Will approval of the proposed cap result in additional caps or onsite consolidation of contaminated material? Have additional caps or onsite consolidation areas already been proposed?

Commenter: David Russell & Thais Mazur – Comment 132; Donna Schuler – Comment 221.

Response: Additional capping or onsite sequestration is not currently proposed or under review. Any future RAP document for other site areas would be

evaluated independently and any capping proposed in a future RAP evaluated based on the information in that future RAP.

II.4.17 Comment: What is the role of the Coastal Commission for creating the capping area on-site?

Commenter: David Russell & Thais Mazur – Comment 307

Response: The Coastal Commission oversees the Coastal Development Permit (CDP) for the site which governs how coastal construction activities are managed, and includes various Special Conditions to protect natural and cultural resources. The CDP for the site will most likely be amended to include the consolidation and cap area implementation. The Coastal Commission also made recommendations for the location of the consolidation and cap area. In response to the Commission's comment, the OU-A RAP now places the consolidation and cap area further inland to protect against future bluff erosion.

II.4.18 Comment: Sequestration – does it require a “double” exposure due to uplifting and depositing, or opposed to off hauling with a “single” exposure?

Commenter: David Russell & Thais Mazur – Comment 331

Response: The OU-A RAP includes and requires dust control monitoring and other measures because dust may be generated during excavation and during transfer of the material to the consolidation cell. In excavation and off-hauling the materials, the soils are placed directly into a truck to be transported offsite or may be temporarily stockpiled then loaded into trucks. For the consolidate and cap remedy, the same procedure is used, except that materials are not trucked offsite, but are trucked onsite to the cap location and placed into the consolidation cell. Section C4.3 of Appendix C of the OU-A RAP describes the dust control measures used during any and all earth-moving activities and Section C4.4 describes dust monitoring. These measures will ensure that there are no offsite exposures to dust.

A Work Notice will be sent out prior to remediation activities commencing. The DTSC project manager, Ed Gillera, can be contacted at (510) 540-3826 with any concerns with regards to dust during the implementation. DTSC is also coordinating with Bob Scaglione from the Mendocino County Air Quality Management District. He can be contacted at (707) 463-5707.

II.5 Schedule

II.5.1 Comment: Are activities of the Coastal Commission, Coastal Conservancy, and others affecting the RAP process? Is there the possibility of extending the time for the coastal trail funding?

Commenter: Jody Sparks – Comment 9; Sheila Tracy – Comment 24; Brent Rusert – Comment 78; Sandra Patterson – Comment 88; David Russell & Thais Mazur – Comment 133, 154 & 285; Theresa Morris – Comment 211; Margaret Paul – Comment 335; Undeterminable – Comment 370; Toxics Assessment Group – Comment 421; Marty Roderick – Comment 437; Hyla Bolsta – Comment 443; Brent Rusert – Comment 447;

Response: DTSC recognizes the interest that many other agencies and organizations have in the OU-A RAP and cleanup of the mill site. However, the pace and steps of the remedial investigation, RAP development, and cleanup process are governed by State and Federal regulations and the complexity of the mill site. DTSC plays no role in the funding or development of the Coastal Trail.

II.5.2 Comment: When will the remediation take place? How long after the end of the comment period will remediation begin?

Commenter: Derek Hutchinson – Comment 98; David Russell & Thais Mazur – Comment 136

Response: With approval of the OU-A RAP and contingent on issuance of other agency permits, implementation of the selected RAP is expected to begin early spring of 2009. Remediation activities are scheduled to last through mid to late summer, totaling four to five months. The long-term monitoring program will continue to assure the remedy performs as designed.

II.5.3 Comment: One thing that seems like it's been overlooked is when the City Council, aka Fort Bragg Redevelopment Agency, voted for Polanco, to enact the Polanco Act, it gave them, as I understand it, the ability to be the lead agency in whatever goes on, the remediation, the investigation and the redevelopment on the site. If we all come to the meeting Monday and if even half of what we've said today comes up Monday night, we could be on the way to getting them to slow things down. I think our motto should be, "What's the hurry?"

Commenter: Margaret Paul – Comment 207

Response: DTSC remains the lead regulatory agency for review and approval of the OU-A RAP and cleanup of the mill site. During this process, DTSC has been in contact with the Fort Bragg City Council and Redevelopment Agency as the City continues its planning for future extension of the Coastal Trail and redevelopment of the mill site. The City of Fort Bragg also has a role through the Polanco process.

II.6 **Financial Responsibility**

- II.6.1 Comment: Who is the responsible party for the site investigation, cleanup, and fulfilling long-term operation and maintenance requirements?

Commenter: Jody Sparks – Comment 21; Undeterminable – Comment 365 & 371; Margaret Drumm – Comment 479; Lorraine Buranzon – Comment 490 & 495.

Response: DTSC issued a Site Investigation and Remediation Order to Georgia-Pacific in February 2007. Georgia-Pacific is responsible to comply with the terms of that Order which includes completing a full investigation of the site (as defined in the Order) as well as implementing any required remediation. The Order also requires compliance with operation and maintenance (O&M) requirements and a review of completed remedial actions every five years. Any areas subject to O&M requirements will have a land use covenant placed in the chain of title such that these requirements will transfer to any subsequent landowners.

- II.6.2 Comment: Will a bond of sufficient size be posted to cover remedial investigation, remediation, long term monitoring, clean up when the encapsulation cell is breached, etc.? Who will determine the amount? What is entailed in the long term monitoring and maintenance of the encapsulated cell?

Commenter: Undeterminable – Comment 366

Response: Georgia-Pacific is responsible to comply with the terms of the Order which requires compliance with all operation and maintenance (O&M) requirements, including financial responsibility. DTSC's cleanup law requires a financial assurance mechanism (Health and Safety Code section 25355.2) such as a letter of credit or DTSC-approved surety bond to provide long-term funding so that the cell, cap and monitoring program can be maintained over time.

Under DTSC oversight, Georgia-Pacific will maintain and inspect the cap, and wells near the cell will be monitored for any impacts to groundwater. Land use controls (i.e., a land use restriction recorded with the County Assessor's office as well as a written operations and maintenance plan) will also be used to prevent activities that might damage the cap or cell, such as digging, driving posts or other subsurface activity.

II.7 **Sampling**

- II.7.1 Comment: Provide clarification about the explosives shed within OU-A including: what was stored in the shed, how were they used, and was soil tested for explosive compounds.

Commenter: Jody Sparks – Comment 22; Undeterminable – Comment 344.

Response: The shed was used solely to store dynamite for use offsite (to break up log jams). No explosives were used onsite and no other types of explosives or other materials were stored in this shed. The soil around the shed was sampled for explosives compounds associated with dynamite and none were found. This area, therefore, was not evaluated in the OU-A RAP.

- II.7.2 Comment: Clarify the sources of dioxins/furans in OU-A soils and also how soil depths for sampling were selected.

Commenter: Jody Sparks – Comment 65; Undeterminable – Comment 343; Andrea Luna – Comment 393.

Response: Sources of dioxins include ash from the boilers placed on the southern portion of Operable Unit A and burn debris from the community dump in the northern portion of Operable Unit A. Soils were sampled to characterize fill materials and generally extended to the depth of native soils, which was shallower in OU-A north and deeper in OU-A south. Cross-section diagrams were provided in the Operable Unit A Remedial Investigation Report which show the presence of ash in OU-A south. Samples were collected and analyzed for several analytes, including dioxins/furans in areas where ash or burn debris was observed or the history of open burning was known.

The details of the sources of dioxins, the sampling design, and the rationale for sampling depths within Operable Unit A were provided in the Operable Unit A Remedial Investigation Report, which is available on DTSC's EnviroStor website, (www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=23240008).

II.8 Cultural Resources

- II.8.1 Comment: Have archaeological/cultural artifacts along the trail area been considered in the process of choosing alternatives? Has there been an effort by Public Participation at DTSC in outreach to the Native American community (in regards to archaeological artifacts and the consolidation area)?

Commenter: David Russell & Thais Mazur – Comment 140; Jody Sparks – Comment 349 & 361.

Response: In compliance with CEQA, archival review and historical and archaeological above-ground surveys have been conducted throughout much of the Site, including OU-A, as part of the site investigation activities. Additional subsurface archaeological investigation has been undertaken in areas identified as "sensitive" because of the likely presence of archaeological deposits. To protect these important cultural resources, specific information on the location and content of archaeological sites is not included in publicly-circulated documents such as the Initial Study or RAP. However, the Initial Study acknowledges that archaeological resources have been identified in areas near

enough to activities proposed in the OU-A RAP that the Coastal Commission has included Special Conditions in the Coastal Development Permit (CDP) and its amendments to ensure their protection from significant project impacts.

Remediation work will be conducted in compliance with the cultural resource requirements in the CDP and as outlined in Appendix C of the OU-A RAP. Primarily, onsite observation of excavation and other ground disturbing activities in areas where such resources are likely to be present will be undertaken by a qualified archaeologist with authority to halt work upon the discovery of potentially significant cultural resources; subsurface disturbances in or near documented Native American cultural resources, or at the site of any incidental discovery of such resources shall also be monitored by a Native American representative.

In areas where contaminated soils are present above the depth of known prehistoric archaeological strata, the archaeologist will observe and guide the excavation process to ensure that the prehistoric site or its artifacts are not disturbed, and will also test the area of the excavation for artifacts during the soil removal process. In this way the operator of the excavator or similar equipment can assist in data recovery.

In the unexpected event that human remains are exposed during project-related activities, work in the vicinity of the find will stop immediately and remain halted until the project archaeologist has conferred with the county coroner, the property owner, regulatory agencies including DTSC and the “Most Likely Descendant” designated by the Native American Heritage Commission, to evaluate the origin of the human remains and carry out a culturally-appropriate disposition, such as reburial in an area that is not subject to further disturbance. This process is specifically directed by Public Resources Code section 5097.98.

DTSC’s Public Participation, Site Mitigation Program, and Planning and Environmental Analysis staff have been in contact with with local Coastal Pomo representatives, who are traditionally affiliated with the project area. Representatives of the Noyo River Indian Community provided input for consideration in the CEQA analysis for OU-A and have participated in archaeological investigations throughout much of the Site.

II.9 Fencing

II.9.1 Comment: Are there plans to do some fencing of the Coastal Trail Area? How extensive will be the fencing be and when would it be installed?

Commenter: Jody Sparks – Comment 17; Margaret Paul – Comment 398.

Response: In compliance with the Site Investigation and Remediation Order, the site will be fenced to prevent access by the public and signs posted as required. The Coastal Trail and Parkland areas will be fenced following the sale/dedication of the land and before the public is allowed access to the trail and park (public access may not occur for several years as the City needs to fund, initiate and complete a planning process for the trail and park). The fencing will extend along the entire boundary of Operable Unit A to prevent any entry by the public to the remainder of the mill site until such a time as those areas are investigated and appropriately addressed.

II.10 Chemicals

II.10.1 Comment: Is cadmium a problem on the GP site?

Commenter: David Russell & Thais Mazur – Comment 286

Response: Cadmium was not detected at levels of concern within Operable Unit A; cadmium in other portions of the site will be investigated as part of future investigation and remediation planning efforts. Note that cadmium is a naturally occurring inorganic chemical (metal) and background levels for cadmium have been established for the mill site.

II.10.2 Comment: Are the dioxins that will be placed in the consolidation cell stable? Could there be synergistic effects with the different types of dioxins or with other chemicals in the contaminated soils?

Commenter: Mary Walsh – Comment 191; Undeterminable – Comment 356

Response: Dioxins are persistent organic chemicals. They do not degrade appreciably in the environment, they are exceedingly stable and also do not migrate through soil, because they stick tightly to soil particles. The way that dioxins are evaluated for risk includes accounting for additive effects of all the different forms of dioxins (no synergistic effects are known or documented).

The soil proposed to be consolidated and capped contains dioxins only and no other chemicals of concern.

II.11 Process

II.11.1 Comment: Is it a condition for the creation of the Coastal Trail that these soils be removed?

Commenter: David Russell & Thais Mazur – Comment 146

Response: The Remedial Investigation report for OU-A identified several presumptive remedy areas where chemical concentrations in soil exceeded risk-

based cleanup criteria. These soils must be removed from the trail area before DTSC can certify that OU-A poses no significant risk to human health and the environment, therefore making safe any future public use of the area, whether for future development of the Coastal Trail or other similar land use.

II.11.2 Comment: What is the process for review and approval or rejection of the RAP?

Commenter: Jody Sparks – Comment 57; Susan Nutter – Comment 66

Response: Under regulatory and statutory guidelines, DTSC is required to review the draft RAP submitted by the responsible party, including evaluation of risk assessments, remedial alternatives, and all supporting documentation. The OU-A RAP complies with regulatory requirements, and the selected remedy is technically sound and will be protective of human health and the environment.

All public comments received within the public comment period were reviewed and considered by DTSC in making its decision to approve the RAP.

II.11.3 Comment: The response to comments can generalize the community's comments/concerns, and may not fully address our questions and concerns.

Commenter: David Russell & Thais Mazur – Comment 138

Response: Identical or similar comments do not necessarily require individualized responses, but all written or verbal comments received within the public comment period are reviewed and considered by DTSC before a decision is made to approve or reject the RAP.

II.11.4 Comment: Request for extension of the public comment period.

Commenter: Thais Mazur – Comment 89; Sheila Tracy – Comment 120; Skip Wollenberg – Comment 168; Lorraine Paul – Comment 203; Zoe Bachelor – Comment 226; Sandra Patterson – Comment 227; Jody Sparks – Comment 248; Mitch Clogg – Comment 264; Margaret Paul – 332; Undeterminable – Comment 364

Response: DTSC extended the required 30-day public comment period by two weeks to provide additional time for public review and input on the OU-A RAP and associated CEQA document. An additional public meeting was also held.

All public comments received within the public comment period were reviewed and considered by DTSC in making its decision to approve the RAP.

II.12 **Excavation**

II.12.1 Comment: Is it possible to treat the contaminated material onsite? Please keep the material onsite, if possible.

Commenter: Steven Gray – Comment 7; Lenora Shepard – Comment 243

Response: At this point, there are no proven technologies to treat dioxin/furan contaminated soils. The OU-A RAP proposes consolidating and capping the soils with dioxins/furans only, thus leaving the material onsite but encapsulated such that there will be no exposure to human or ecological receptors.

The material with lead and PCBs exceeds hazardous waste regulatory levels (whereas the dioxin/furan soils do not) which would make implementation of a consolidation and cap remedy more difficult. Although offsite trucking of material is not necessarily an ideal remedy, the small volume of lead- and PCB-impacted soils (approximately 65 truckloads) could be hauled offsite within approximately one week, minimizing the risks from such an activity.

II.12.2 Comment: Why are dioxin contaminated soils considered a threat to human health but are not considered hazardous for disposal purposes?

What concentration of dioxin in soil is considered to be hazardous for disposal purposes?

How would contaminated soils be managed and transported/disposed of offsite?

Commenter: Jody Sparks – Comment 13 & 147; Julia Larke – Comment 340; Lorrain Buranzon – Comment 493

Response: Targeted soils containing dioxins/furans are not considered hazardous waste. Soils to be excavated from the locations specified in the RAP do not have dioxin concentrations high enough to be managed as hazardous waste under either state or federal law. The hazardous waste level for dioxins is not based on health risk. They therefore do not need to be disposed of in an off-site licensed landfill. In fact, although these soils exceed site-specific risk-based levels, analytical results show their concentrations are 100 times lower than hazardous waste disposal level of 10,000 picograms per gram (pg/g). To permanently prevent exposure to surrounding soils, they can be effectively consolidated on site within a 1.3-acre sealed consolidation cell.

A soil management plan and transportation plan, referenced in Appendix C of the OU-A RAP describes methods for handling and transporting soils offsite, including manifesting.

II.12.3 Comment: I also think that carting the toxic dirt off to someone else's backyard is a terrible idea. This option would expose thousands of people to the toxic airborne particles inherent in moving dirt around.

Commenter: Zoe Bachelor – Comment 102

Response: The short-term effects of each alternative were evaluated during the feasibility study. During excavation, measures will be taken to reduce the short-term risks, such as airborne or windblown dust or traffic accidents. Appendix C of the OU-A RAP, the Implementation Plan contains specific details regarding implementation of the excavation alternatives. Mitigation measures, including dust control, will be implemented to minimize or prevent exposure to dust.

Transporters will be familiar with the Fort Bragg area. The transporters will be licensed and trained as required by law. Trucks will follow DTSC-approved routes out of Fort Bragg, along Highway 20 to Route 101, then south to landfills near the Bay Area or in southern California.

II.12.4 Comment: In regard to the sampling that took place in Parcel 10 - the dioxin impacted soils - why were they only sampled for metals and dioxin/furans? Given the questionable historical practices of moving, burning, and disposing of wastes at the site, why would you not analyze for PCBs? In fact, it would seem to me that there would be need to test for the full spectrum of possible contaminants, unless, of course, it was just assumed from the get go that the waste material would be placed in an onsite "cell".

Commenter: Jody Sparks – Comment 99

Response: Repeat testing for PCBs was not required in 2007 because previous investigations had analyzed soil samples from Parcel 10 for PCBs. During the 2007 remedial investigation, soil samples from Parcel 10 were analyzed for metals, PAHs, TPHd, TPHmo, TPHg, VOCs, and dioxins/furans. The OU-A RAP requires all PCB-containing material to be excavated and taken offsite for disposal.

II.12.5 Comment: Will there be measures to facilitate transportation for this project?

Commenter: David Russell & Thais Mazur – Comment 287

Response: Appendix D of the OU-A RAP (Implementation Plan) provides a summary of the Transportation Plan. Transportation routes are also provided in Figures C2 through C4.

II.12.6 Comment: Where do the different classes of waste get hauled off to?

How (according to where it gets hauled off to) will the material be handled during disposal?

Commenter: Mitch Clogg – Comment 196; David Russell & Thais Mazur –

Comment 288

Response: Upon determination of hazardous waste classification, the material will be transported to either Keller Canyon Landfill (Class II waste) or Kettleman Hills Hazardous Waste Facility (Class I waste). The materials will be handled similarly and in accordance with Appendix D of the OU-A RAP (Implementation Plan).

II.12.7 Comment: What are the excavation volumes and depths? What is this depth based on, leaching or depth of contamination?

Commenter: David Russell & Thais Mazur – Comment 156 & 290

Response: The area impacted with lead will be excavated to a depth of approximately 2 feet, for a total volume of approximately 140 cubic yards. The area impacted with PCBs will be excavated to a depth of approximately 1 foot, for a total volume of approximately 990 cubic yards. The areas impacted with dioxins will be excavated to depths between 2 to 5 feet, for a total volume of approximately 13,000 cubic yards.

The excavation limits (depth and area) were determined based on comparing soil data with site cleanup criteria.

II.12.8 Comment: Set aside funding to pay for transport of contaminated soils to Kettleman Hills hazardous waste disposal facility, in case remediation is unsuccessful and the liner/cap fails, allowing dioxins to migrate out of the landfill in concentrations which pose a health threat to wildlife and/or humans. It is preferable not to handle or transport contaminated soils more than necessary, but Fort Bragg's higher rainfall and groundwater make it harder to keep dioxins out of the water table.

Commenter: Margaret Drumm – Comment 478

Response: Groundwater levels are and will continue to be measured quarterly across the site and the groundwater monitoring program is under DTSC's oversight. The depth of the cell, consistent with California Code of Regulations Title 27 requirements, has been designed to leave at least 5 feet between the bottom the consolidation cell and the highest measured groundwater level; this also protects the cell from contact with groundwater in the event of sea level rise. The material used to line the cell will be a flexible membrane PVC liner. Flexible membrane liners are meant to remain flexible during seismic events to reduce the risk of a breach. The cell will also be covered with a geosynthetic clay cap which prevents water from entering that pit and also aids in preventing water from running through that material. This will limit effects on local hydrology.

II.12.9 Comment: Commenting on the RAP as currently proposed, I urge DTSC to

select Removal/Offsite Disposal for both the areas containing lead, and the areas containing dioxin. I do not find the alternative of consolidation and capping acceptable for this location. I do not find the proposal for bio-remediation to be realistic or scientifically feasible for this location, based on DTSC reports, and find the proposal to contain and cap until bioremediation can be done in the future an unrealistic approach that will prove costly to the City of Fort Bragg. There are many documented locations nearby. Where fly ash from the GP site was dumped, that could be used for bioremediation research on a private basis if there is interest in doing so. (See Water Quality records on the McGuire ranch)

Commenter: Lorraine Buranzon – Comment 487

Response: Comment noted.

II.12.10 Comment: Why not use a barge? Why not use the harbor for a barge? To haul away the waste.

Commenter: Mark Perkins – Comment 69

Response: The proposed disposal facilities are not located along the coast; they are located inland. Thus, the waste will be trucked from the site to the disposal facilities. Hauling materials by barge would have many additional risks, including loading the material over water in possible rough water conditions and transport of the material by water. In the unfortunate event of a release, a release to water is more difficult to mobilize for and contain. And because the disposal facilities are not on the water, a similar loading and offloading operation would still be required when the barges neared their destinations to move the materials back into trucks.

II.12.11 Comment: Where will the clean backfill come from? How will the excavated material be handled?

Commenter: David Russell & Thais Mazur – Comment 144 & 277

Response: All backfill materials are required to be sampled as discussed in the RAP documents, according to DTSC requirements prior to onsite use if not previously characterized. Sources of clean backfill are listed and discussed in Appendix C of the OU-A RAP, including clean sand from Noyo Harbor, as well as soil excavated to create the capped cell. Other sources of cover material may be obtained from local quarries or other sources.

II.12.12 Comment: Noyo Harbor dredgings contained 58 ppm chromium when tested between May 18 and May 21, 1982. Harbor dredgings are powdery in consistency and tend to blow around in the wind.

Commenter: Cecilia Dzurella – Comment 403

Response: Comment noted.

II.12.13 Comment: Will building a berm on the bluff's edge with harbor dredged material (as is required by the RAP for the OU-A) disturb native vegetation and invite invasive species (like pampas grass) to establish?

Commenter: Cecilia Dzurella – Comment 407

Response: Most excavation areas are actually within areas that are unvegetated or where there are non-native grasslands (Please see Figure 2-2 of the OU-A RAP for sensitive plant communities present onsite). The rare coastal terrace prairie habitat is in OU-A South, and over 1,000 feet from the nearest excavation area. Consistent with the requirements listed below, the Implementation Plans require all disturbed areas to be re-vegetated with native plants and monitoring and removal of invasive species such as pampas grass.

The Coastal Development Permit (CDP) that governs site work requires surveys and staking for rare plants and several other mitigation measures prior to and during implementation of remedial measures (outlined in the Implementation Plans; Appendix C of the OU-A RAP).

The CDP and OU-A RAP require: "A soil berm or line of hay bales will be placed where any excavation intersects the coastal bluff to restrict runoff from the excavated area." Clean sand from the harbor could be used for this or hay bales, as stated. But the permit does not allow sensitive plants to be disturbed, or if disturbed they are required to be mitigated for. Most likely, hay bales will be used, but if Noyo Harbor sand (after testing and DTSC approval) or other clean fill are used, the material and berm will be removed after remediation.

II.13 Risk

II.13.1 Comment: How was the 53 pg/g cleanup level derived? Does it address adults and children and also reasonable assumptions for recreational users? Why was a recreational cleanup level selected instead of residential? Will there be any "hot spots" remaining after the remediation?

Commenter: Jody Sparks – Comment 14, 16 & 328; David Russell – Comment 84; Sheila Tracy – Comment 121; David Russell & Thais Mazur – Comment 134, 142 & 152 ; Thais Mazur – Comment 186 & 199; Mary Walsh – Comment 294; Rafael Borrás – Comment 297; Undeterminable – Comment 352, 353 & 463.

Response: The methods used to develop the cleanup level for dioxins are summarized in Sections 3.3 and 3.4 of OU-A RAP. Details of the cleanup goal development are outlined in Appendix A (Risk-Based Target Level Development) of OU-A RAP.

The risk assessment presented in the OU-A Remedial Investigation evaluated a number of scenarios, all based on the future use of OU-A as coastal trail and parkland. Both adult and child recreational users were evaluated as well as construction workers (who might be involved in building the trail) and maintenance workers (such as workers who might work on native plant restoration). The recreational user was shown to be the most sensitive human receptor and also more sensitive than ecological receptors, so the cleanup level was based on that most sensitive receptor.

In the recreational land use scenario, assumptions were made about how much time people would spend on the trail and park, how much soil they would ingest, how much soil they would get on their skin, and how much dust they would inhale. It was assumed that young children from zero to six years in age and then children from six years of age and for the next twenty-four years would visit the park and trail for one hour a day, for 200 days a year. And even though people were assumed to spend only 1 hour per day on the trail, it was assumed that 50% of the soil they would be exposed to each day through ingestion or skin contact came from the park and trail. The one hour per day assumption only applied to the inhalation rate by a jogger.

Using these conservative (protective) exposure assumptions and the toxicity criteria for the contaminants detected on the trail, cleanup levels were calculated, based on recreational use of the trail and a target risk of one-in-a-million for carcinogens and a target hazard index of one for non-carcinogens. These target thresholds represent an insignificant risk and a safe hazard index. Thus, the soil cleanup concentrations represent safe (acceptable) levels for all potential adverse health effects.

A residential cleanup level was not used as the trail and park is not planned, or zoned, for residential use (a land use restriction will be placed on the land and the Coastal Conservancy Grant requires that it remain a passive recreational use area in perpetuity). For the same reason, an industrial cleanup level was not considered for the coastal trail. Cleanup decisions made by DTSC are risk-based and consider future land use.

Some areas of higher dioxins will remain onsite; however, on average the dioxin concentration is expected to be approximately 21 ppt or less following remediation, well below the target cleanup level of 53 ppt. The assumption is that a person would not remain rooted to one spot on the trail but would, over time and on different visits, spend time over the entire trail area, hence, the use of a conservative (high) estimated mean concentration for any contaminant left in the trail is reasonable and protective.

Using a value of 10 times the residential California Human Health Screening Level CHHSL to identify "hot spots" is a conservative identifier, since 10 times

the residential CHHSL would be equal to a soil value representing a cancer risk of one-in-100,000 (10E-5) which is in the middle of the acceptable risk range established by the US EPA in its Superfund program.

II.13.2 Comment: Would cleanup levels for trespassers be any different than the recreational cleanup levels? How about residential or industrial uses and why aren't cleanup levels for those scenarios being considered?

Commenter: Jody Sparks – Comment 15; David Jensen – Comment 295

Response: Trespassers were not considered because the park and trail will be open to the public and so there would not be any “trespassing” per se. Cleanup levels for trespassers, however, would likely be higher than a recreational use cleanup level since true trespassers (individuals that enter properties unlawfully) would not be onsite for an estimated 200 days per year for 30 years. Industrial cleanup levels were not estimated as the use will be restricted to passive recreational so no commercial or industrial uses will be allowed. However, it is expected that commercial/industrial cleanup levels would be similar to those for recreational uses since a similar pattern of exposure would occur, with possibly longer durations, but also no exposure to children.

II.13.3 Comment: What happens if at a further date the acceptable levels of a toxic go down? What if any is the responsibility for further clean-up and who would be responsible?

Commenter: Jody Sparks – Comment 12; Undeterminable – Comment 30

Response: DTSC has the authority to re-evaluate the site in the future if deemed necessary. The responsible party or parties for the land at that time would be responsible for any additional cleanup.

Every five years, DTSC will also conduct a formal review of the cleanup in place at this site. The review consists of six steps: community involvement and notification; relevant document review; data review and analysis; site inspections, interviews, and assessment of the site remedy. Assessment of the remedy includes answering questions, such as the following: Is the remedy functioning? Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives still valid? Has any other information been obtained that could call into question the protectiveness of the remedy?

II.13.4 Comment: The pervasive presence of dioxins and numerous other chemicals and petro-chemicals accumulated during the over 120 years of industrial impacts on the site years, and our past and potential future exposure to them is very troubling and of grave concern to myself, a citizen of Fort Bragg, and the citizens of our coastal communities who regularly come to Fort Bragg as a commercial center.

Commenter: Andrea Luna – Comment 380

Response: Comment noted.

II.13.5 Comment: Also, I personally believe that the Remedial Action Plan is lacking. All of the things about dioxin that we know that it causes to humans and all life should be listed in the Remedial Action Plan, and that is missing as well as the fifty-three parts per trillion, and I think the public has the right to know, and they have the right to know through having the document in our hands.

Aside from cancer, what are the other adverse health effects of dioxin especially on pregnant women, fetuses, people with compromised immune systems, and children?

Commenter: Thais Mazur – Comment 255; Undeterminable – Comment 376

Response: Elevated exposure to dioxins is thought to cause multiple health effects including: developmental toxicity, reproductive impairment, and immunological effects. In addition, dioxin exposure may increase the risk of getting cancer. Detailed information on health effects may be found at <http://www.atsdr.cdc.gov/toxproz.html>. See also response to Comment II.13.8

II.13.6 Comment: Was dust from OU-A blowing onto adjacent property considered in setting the cleanup level at recreational?

Commenter: Barbara Moller – Comment 48; David Jensen – Comment 296; Andrea Luna – Comment 389.

Response: Dust blowing from OU-A is the major mechanism by which contaminants could affect surrounding areas. In the OU-A Remedial Investigation, an evaluation of wind-blown dust from OU-A (following remediation to recreational standards) migrating to adjacent areas was evaluated, and no unacceptable risks were predicted.

II.13.6 Comment: What are the dust monitoring procedures to be taken? Please place the monitoring stations in the appropriate places, so as to get the most relevant readings.

Also, provide information on work activities to the community (especially those individuals adjacent to the site) and provide a contact for air/dust issues.

Commenter: Toxics Assessment Group – Comment 424

Response: Details on dust control and air monitoring procedures are provided in Sections C4.3 and C4.4 of Appendix C of the OU-A RAP. Air monitoring stations

are shown in Figure C1 and include both upwind and downwind stations near all areas of work activities. It is expected that dust control measures during the remediation of the trail and park area will be effective in preventing dust migrating to adjacent areas. The adjacent areas are still within site boundaries and will be investigated in near-term future studies. The results of these studies will be used as the basis of future cleanup necessary to protect the public health and the environment.

A Work Notice will be sent out prior to remediation activities commencing. The DTSC project manager, Ed Gillera, can be contacted at (510) 540-3826 with any concerns during the implementation.

II.13.7 Comment: If site were to be cleaned up to Industrial Level, how much soil would be removed as opposed to clean up to Recreational Level?

Commenter: Undeterminable – Comment 352

Response: Industrial cleanup levels were not estimated as the use will be restricted to passive recreational so no commercial or industrial uses will be allowed. However, commercial/industrial cleanup levels would be similar to those for recreational uses since a similar pattern of exposure would occur, with possibly longer durations, but also no exposure to children. Since the cleanup levels would be similar, the affected soil volume should also be similar.

II.13.8 Comment: Community members request that the DTSC address their concerns regarding the possible health effects associated with exposure to dioxins. Though in previous presentations by the DTSC, there was discussion regarding the risk assessment cleanup numbers and the associated increase in cancer rate -- cancer is but one of the problems associated with exposure to dioxins. What are the other known health effects associated with exposure to dioxins on the population in general and more sensitive populations, such as pregnant women, fetuses, people with compromised immune systems, and so forth.

Commenter: Jody Sparks – Comment 1

Response: Short-term exposure of humans to high levels of dioxins may result in skin lesions, such as chloracne and patchy darkening of the skin, and altered liver function. Long-term exposure is linked to impairment of the immune system, the developing nervous system, the endocrine system and reproductive functions. Chronic exposure of animals to dioxins has resulted in several types of cancer. TCDD was evaluated by the World Health Organization's International Agency for Research on Cancer (IARC) in 1997. Based on animal data and on human epidemiology data, TCDD was classified by IARC as a "known human carcinogen". However, TCDD does not affect genetic material and there is a level of exposure below which cancer risk would be negligible.

Due to the omnipresence of dioxins, all people have background exposure and a certain level of dioxins in the body, leading to the so-called body burden. Current normal background exposure is not expected to affect human health on average. (Source: World Health Organization, Fact Sheet No. 225, November 2007)

II.13.9 Comment: Why are there no public health evaluations for each of the remediation alternatives in the RAP?

Commenter: Undeterminable – Comment 378

Response: Protection of human health and the environment is one of nine criteria required by State and Federal regulations when evaluating remedial alternatives. Section 4.3 of the OU-A RAP includes an analysis and comparison of all remedial alternatives relative to the nine criteria.

II.14 Offsite

II.14.1 Comment: Third point, last point, are the offsite contaminated areas in Fort Bragg and environs going to be included in the plans, contaminated areas such as the Mendocino soccer field and numerous ball fields in the Fort Bragg area? I would suggest the fly ash under these fields and playgrounds came from only one source, the smokestacks of the Georgia Pacific mill. It follows that the corporation should also be held responsible for the cleanup of these offsite contaminated areas.

I wish to thank the several officials and toxicologists of the DTSC for their patience and professionalism in their relationship with me these several years I have been involved in this immensely challenging cleanup project.

Commenter: Jonathan Shepard – Comment 123

Response: Comment noted.

II.14.2 Comment: As most everyone knows, G.P. sold or gave away truckloads of fly ash to citizens on the coast. Apparently, none of it was ever tested for contaminants before it left the mill site. We have ball fields built on fly ash. Our local compost, Albert's Best, was made with fly ash, which means there is fly ash in just about every garden here from Westport to Elk.

I have friends on Navarro Ridge who have a beautiful garden. They grow most of their own food, all organic, except for the truckloads of fly ash they mixed into their soil back twenty years ago when fly ash was called a soil amendment.

I have a friend in Casper who, several years ago, ordered a load of topsoil for her garden and wound up with a load of fly ash instead. The pile is still sitting in

her front yard. Who is going to clean that up? How are we going to clean that up? Bioremediation gives us a chance.

Commenter: Lenora Shepard – Comment 105

Response: Comment noted.

II.14.3 Comment: In the summer of 1980, I observed fly ash blowing all over Highway One and beyond from the west, particularly around Cypress Street. Apparently some sections of the log deck were without logs at that time. There were a lot of air pollutions complaints from citizens of Fort Bragg. 246 Main Street is where air pollution was being monitored.

Commenter: Cecilia Dzurella – Comment 409

Response: Comment noted.

II.14.4 Comment: Have background samples been taken off site?

Commenter: David Russell & Thais Mazur – Comment 139; Undeterminable – Comment 354

Response: The determination of background concentrations, in regards to dioxin, is still under deliberation with DTSC and Georgia-Pacific.

II.14.5 Comment: In addition GP must in cooperation with DTSC, the Coastal Community and the City of Fort Bragg: Clean up all toxic school grounds. Clean up all private lands and gardens.

Commenter: Linda Leitner – Comment 215

Response: Comment noted.

II.15 Oversight

II.15.1 Comment: Who is responsible for making decisions regarding cleanup of the mill site, and who provides oversight of the work?

Commenter: Baile Oakes Bannon – Comment 27; Judy Frank – Comment 39

Response: DTSC is the lead regulatory agency for the mill site, and therefore has primary responsibility for decision making, including review and approval of the OU-A RAP and other required documents. During implementation of the remedy the DTSC will monitor and oversee all aspects of the project, including long-term monitoring after construction is complete.

II.12.2 Comment: Who are the “Resource Trustees” on the project? What process has DTSC implemented for input from “Resource Trustees” for this project? Why isn’t NOAA (National Oceanic and Atmospheric Administration) at the table? Who is the DTSC contact person regarding the “Resource Trustee” issue?

Commenter: Undeterminable – Comment 372

Response: The Natural Resource Trustees involved in the project include NOAA, California Department of Fish and Game, and U.S. Fish and Wildlife. These agencies are part of the agency group that receives and has the opportunity to comment on all site documents, in addition to several other agencies. DTSC regularly communicates and coordinates with them, and is the main point of contact for all the agencies.

II.17 Trucking

II.17.1 Comment: The risk of transporting material offsite, including accidents and exposure, should be considered. The carbon footprint of transporting material should also be considered?

What measures will be taken to reduce risks related to transporting? Will the transporters be familiar with the local area? Will the transporters be HAZWOPER trained?

Commenter: Brent Rusert – Comment 79; Zoe Bachelor – Comment 102; Skip Wollenberg – Comment 113; David Russell & Thais Mazur – Comment 217, 218, & 278

Response: The short-term effects of each alternative were evaluated during the feasibility study. During excavation, measures will be taken to reduce the short-term risks, such as airborne or windblown dust or traffic accidents. See Appendix C of the OU-A RAP, the Implementation Plan for specific details regarding implementation of the excavation alternatives.

Transporters will be familiar with the Fort Bragg area. The transporters will be licensed and trained as required by law. Trucks will follow DTSC-approved routes out of Fort Bragg, along Highway 20 to Route 101, then south to landfills near the Bay Area or in southern California.

II.17.2 Comment: Will the trucks be covered for short hauls (on-site)?

Commenter: David Russell & Thais Mazur – Comment 219

Response: If not directly loaded into trucks, the excavated material will be temporarily stockpiled in an area (or areas) in the vicinity of the excavation. Stockpiles will be placed on plastic and covered with plastic at the end of each

day and when not being actively worked on. Sandbags, or other weights, will be used to keep the plastic cover in place. The soils will be wetted, as necessary, to reduce the potential for dust generation during loading and transportation activities. After each truck is filled, it will be inspected to ensure that the tires of the haul trucks are reasonably free of accumulated soil. Short-haul trucks (onsite) will not be covered, but the soils will be wetted prior to the trucks leaving the excavation area and also as it is unloaded (such as into the consolidation cell).

II.18 Geology & Hydrogeology

II.18.1 Comment: The coverage of seismicity and its ramifications is very weak. Along with the San Andreas Fault (SAF) and the Mendocino Triple Junction (MTJ), the presence of the Maacamas Fault should be noted. Expected maximum Modified Mercalli intensities and ground accelerations at the coastal trail portions of the millsite from earthquakes on the Maacamas, as well as from quakes on the San Andreas and Triple Junction/Cascadia faults should be estimated, taking into consideration millsite bluff orientations and properties of millsite artificial fill, coastal terrace deposits and fractured Coastal Belt bedrock.

The threat of tsunamis originating from distant earthquakes, as well as from more local events on the SAF and associated with the MTJ should be recognized, as should tsunamis from turbidity flows (either earthquake-triggered or non seismic) on the Mendocino Escarpment and in submarine canyons closer to the millsite. The effects of tsunamis on the site, especially on bluffs of the coastal trail portion should be recognized and estimated, as should runup distances for various tsunami scenarios, taking into the consideration the site's topography.

Commenter: Skip Wollenberg – Comment 329

Response: Comment noted.

II.18.2 Comment: Given the recent observations by Mr. Hoyle of a substantial flow of groundwater debouching into the shallow intertidal zone in a sea cave under the southern portion of parcel 10, a detailed characterization of groundwater flowpaths in that area should be made. The presence of a sea cave outlet raises questions that include: Are there discrete conduits for groundwater in the fractured bedrock? If so, what is the nature of their orientation and extent? What is the role of the terrace deposit / bedrock contact in the movement of groundwater?

Irrespective of the concentrations of possible contaminants in that water, it is imperative that the source(s), pathways and outlets of groundwater beneath, through and from the millsite be delineated. A hydrogeological program integrating surface-based geophysical surveys leading to the siting, drilling and

monitoring of observation wells to determine flow rates, flow directions, and contaminant concentrations of waters in those flow paths now appears necessary to properly characterize the groundwater setting.

Properly addressed, these concerns have the potential of elevating these sections' conclusions from, "Less Than Significant" to "Potentially Significant" impacts.

Commenter: Skip Wollenberg – Comment 330

Response: Comment noted. Georgia-Pacific undertook a sea cave survey and sampled several seeps. Although no clear hydrological or geological connection to OU-A was found, further monitoring is being required. Whenever new information warrants, DTSC will require additional measures as needed.

II.19 Intertidal

II.19.1 Comment: Has there been any characterization of the intertidal and/or offshore areas?

Commenter: Derek Hutchinson – Comment 8; David Russell – Comment 40; Warren Wade – Comment 51; Thais Mazur – Comment 125; Debra Scott – Comment 182; Unidentifiable – Comment 350; Jody Sparks – Comment 459

Response: The intertidal zone is not part of OU-A, and therefore, is included in the OU-A RAP currently under review. However, it should be noted that an intertidal study, sampling sediment and water from this zone, as well as a mussel study have been completed and are currently under review by DTSC and the Natural Resource Trustees for the site. The Natural Resource Trustees include the California Department of Fish and Game (CDFG), the U.S. Fish and Wildlife Service (USFWS) and the National Oceanographic Atmospheric Administration (NOAA). Following review of the intertidal and mussel studies, a recommendation will be made regarding any further action with regards to the intertidal zone.

II.19.2 Comment: One last thing, with regards to the intertidal zone on the Coastal Trail area, I know there was at least one trench leading out of the bluffs where G.P. would dump PCBs and other toxics because there was a trench that got filled in the day before the EPA was supposed to arrive and investigate the PCB spill from the broken capacitor back in I think it was 1987.

Commenter: Lenora Shepard – Comment 44

Response: Contamination of the beach and intertidal zone from discharge activities at the GP site have been evaluated in an intertidal zone sediment study. The results of this study are currently under review by the DTSC and

Natural Resource Trustees. Based on these reviews, a decision will be made regarding the need for any further investigation, and the rationale behind this decision will be presented to the Community.

II.19.3 Comment: I have some concerns about the intertidal zone. Who is in charge of the cleanup for this critical area? What about the caves? We understand that it was the practice of the G.P. company back in the day to dump truckloads of material off the bluffs, and all kinds of material went into the ocean. Rumor has it that the City of Fort Bragg also participated in the dumping. This whole aspect of the cleanup seems to have fallen through the cracks, and yet it may prove to be the most critical aspect of the project.

Commenter: Jonathan Shepard – Comment 45

Response: The DTSC has oversight for the evaluation of the intertidal zone as part of the whole site, which is not part of OU-A. As noted above, a study has been conducted and is currently under review by DTSC and the Resource Trustees. The results of these reviews will form the basis for deciding if additional investigations are required in the intertidal zone.

II.19.4 Comment: I also have some observations on the intertidal zone. Irrespective of jurisdiction, ownership and agency responsibility, the intertidal zones must be protected for the long-term and remediated if found contaminated. There are places on the mill-site bluffs I am sure where groundwater that has moved under the mill site is day lighting [sic], coming up under the surface, and the interface between the overlying terrace sediments and the underlying bedrock is a principal pathway for such a migration. From examination of nearby coastal bluffs offsite, groundwater does emanate from this interface and flows down ponds and beaches.

For this reason, ecological risk assessments for rational scenarios should be of high priority. From Dr. Chernoff's comments at the remedial investigations meeting in February, I expect that he might agree with these concerns. A risk adjustment comparable to the one he did for the upland biota would be appropriate for the beaches.

NOAA and California Fish and Game Mussel-Watch program avoided or ignored Fort Bragg even though there is a sewer treatment outfall and millpond outlet pipe disgorging [sic] into the shallow marine environment directly offshore the mill site. Therefore, there are no data upon which to establish a baseline for comparison of preexisting and post-remediation intertidal and shallow marine conditions.

You can't rely on the mussels sold at Berkeley Bowl and compare those to the mill-site mussels. That's not a fair or even an adequate valid assessment for intertidal conditions, nor can we just accept the assumption that the energy of the

waves disperses contaminants for adequate dilutions. There need to be scientifically credible studies of intertidal biota that lead to credible risk assessments.

Stopping the investigations at the top of the bluffs leaves out an important ecological consideration, and this should be rectified.

Commenter: Skip Wollenberg – Comment 114

Response: DTSC agrees that groundwater from the site enters the intertidal zone. This groundwater pathway has been evaluated in an intertidal zone study which also included sediment sampling, and a separate mussel tissue study. The results of these studies are currently under review by the DTSC and the Natural Resource Trustees. If contaminants are identified, further action may be required to fully characterize the amount and extent of contamination prior to conducting an ecological risk assessment.

II.19.5 Comment: A further water quality issue is the sea cave problem. Site related documents describe a “blowhole” on the southern portion of the site. There are historical aerial photographs and maps in the public record (known to DTSC staff) indicating roads and rail lines extending to the vicinity of the blowhole from at least 1957 to as recently as 1973. Related text and testimony from past workers indicates that the blowhole was used as a dump area for a variety of known and unknown substances, including pentachlorophenol. Proper characterization of the site requires that such issues be carefully researched and their implications properly analyzed for health and environmental impacts. The MND cannot be considered adequate until such research is conducted and the entire site is properly characterized.

Commenter: Toxics Assessment Group – Comment 426

Response: Soils on the bluff above the “blowhole” were evaluated in the OU-A Remedial Investigation. The “blowhole” itself was not evaluated since it is not part of OU-A. A cave investigation has recently been completed which is under review by the DTSC and Natural Resource Trustees. In this study, seep water from the “blowhole” was collected and analyzed for a variety of potential contaminants.

II.19.6 Comment: [O]ne more thing I want to point out was that the man who explored the cave, it was right here.

Right about there, all right. I've been living here a long time and visiting here a long, long time before that, and the intense industrial activity on this site was not here.

You know, there's a runway for G.P.'s aircraft, and this I assume is the entrance to the bay, that is Noyo Bay.

So if he found, if the water falling on this man made him break out the next day and if he observed that there was much less marine life in there, then I will submit to you that these places where the activity around that mill site for decades and decades and decades is much more intense, then all the caves that he did not explore around here are likely to show those signs that he saw vastly more emphatically than what he saw.

Commenter: Mitch Clogg – Comment 263

Response: Based on the recent disclosure of caves in the bluffs at the site, a Sea Cave Investigation has been conducted and is currently under review by the DTSC and the Natural Resource Trustees. Based on the results of these reviews, a decision will be made regarding any further actions that may be necessary.

II.19.7 Comment: Local papers say the extent of dioxin and other toxins on this site have been characterized. However, it seems that the following paths for toxins are just now being tested. To complete site characterization, these possible paths of contamination are essential:

- 1) Migration of toxins through groundwater into the tidal zone and ocean.
- 2) Bioaccumulation of toxins in affected marine life, especially fixed filter feeders. Differences in tidal and offshore marine life populations in "background" areas compared to affected areas.

Commenter: Margaret Drumm – Comment 472

Response: The potential migration of contaminants through the groundwater to the intertidal zone has been investigated in an intertidal study which is currently under review by the DTSC and the Natural Resource Trustees. If contaminants with the potential to bioaccumulate are detected at concentrations of concern, further action may be required.

II.19.8 Comment: Where did the idea that the high tide line is halfway up the bluffs? If that was true, there wouldn't be any fish going down Noyo, but that is another question. Maybe that will be answered sometime.

Commenter: John Malony – Comment 246

Response: The U.S. Geological Survey defines the mean high tide line as the average altitude of all high tides recorded at a given place over a 19-year period.

With regard to site definition, reference to “mean high tide line” was taken from the Mendocino County Assessors Office description of associated site parcels.

II.19.9 Comment: Where is NOAA as a resource trustee?

Commenter: David Russell & Thais Mazur – Comment 141

Response: NOAA, along with the CDFG and USFWS are Natural Resource Trustees at this site, and are involved in the review of documents pertaining to their areas of jurisdiction.

II.19.10 Comment: Has there been studies, or are there studies being currently conducted to track if these contaminants are migrating into the ocean?

Commenter: David Russell & Thais Mazur – Comment 153

Response: As discussed earlier, there are three studies investigating the migration of contaminants from the site into the intertidal zone, and subsequently into the ocean. The studies are: an intertidal study of sediment and water, a mussel tissue study, and a sea cave study of seep water and cave ecology.

II.19.11 Comment: Here is a few things I'd like to ask. One I want to know is how deep are the samples that were taken so far. Will you please answer that?

I'd also like to ask that this information that NOAA, and I know they're going to review things. I've talked to Denise Klimas today, that we the public, I think we need time to be able to review those so we can then make comments on the comments presented by NOAA. Is that going to fall within the time limit, you know, the extension time for public comment?

The other thing is that North Coast Action years ago gave the Regional Water Quality Control Board a list of responses by past Georgia-Pacific employees that talked about dumping into the ocean, trenches having solvents running down these cement pipes into ocean, these cement trenches and pipes.

We have a lot of anecdotal information... about dumping into the ocean. I would think that could be taken into account.

Commenter: Thais Mazur – Comment 170

Response: Intertidal sediments were collected at varying depths to a maximum of 2 feet. In the majority of samples, depth was restricted by the presence of rock and cobble. The results of this sampling is under review by NOAA, as well as the DFG, USFWS, and DTSC.

II.19.12 Comment: I used to dive for sea urchins, and years ago, probably about fifteen years ago, we dove off Soldier's Point there for sea urchins, and the ones we grabbed up, we couldn't even eat they tasted so bad.

Now, I'm not sure if that's from the water treatment plant or from other toxins or whatever, but my question is, I was confused because you said that Fish and Game collected samples of mussels for this mussel study and that they'd come to some conclusion, and it's been published on your web site or whatever, but the conclusions were still not conclusive. My question is: What are the conclusions? Were there dioxins in the mussels?

[So are those safe, regarded as safe levels for human consumption in the Health and Safety Code?]

Commenter: David Gurney – Comment 171

Response: The Mussel Study is currently under review by the DTSC and the Natural Resource Trustees. The tissue analysis, conducted by the DTSC laboratory, did not detect dioxins, furans, or PCB-like dioxins above the method detection levels. Based on this finding, it appears that the mussel tissue collected does not contain elevated levels of dioxins, furans or PCB-like dioxins.

II.19.13 Comment: I'm a cave explorer. I'm the person that was supposedly a diver. I'm a cave explorer, and I've been exploring and diving in caves on the Mendocino coast for sixteen years. I'm a member of the National Speleological Society. We're affiliated with the National Science Foundation, and I'm a long-time cave explorer... I decided to explore one of the caves on the mill property... caves are often a conduit for groundwater to enter the ecosystem invisibly.

What I discovered in this cave... has five entrances, and there's considerable groundwater coming into it.

Now, there's more than just one cave on the property, and I don't understand why they're being ignored. They are conduits for water to enter the ecosystem invisibly.

If you look at the mill property, it's dry except for the water that is in ponds, and this cave gets you soaking wet when you come fifteen or twenty feet into the entrance, so the water is flowing in.

Many of the sea caves along the coast do have sea life in them. This is common knowledge for anybody that explores caves.

One of the things I noticed about this cave was there wasn't as much sea life as in all the caves I've explored and mapped south towards Mendocino. Those are just rampant with life. It's amazing. This cave didn't have as much life.

Granted, sea caves are dynamic environments, so you probably don't have a lot of life, but there are little areas. There's a particular area in the photograph where there should be sea urchins and stars and bat stars, and there's nothing, and I don't understand that.

Also at the entrance to this cave... you can see where G.P. has filled in a ravine of former drainage. They filled it in with slag which is actually down at the waterline. I don't know if there's toxins in the slag, but it's definitely there.

There's timbers. There's iron parts, rails coming out of it. You can see, when you get to that photograph, the algae that's coming out that has contact with the bedrock is stained orange most likely from the iron that's buried there from the bluff top, and you cannot tell that this exists. It just looks like part of the bluff top.

Also, to the south of this cave, there's a giant litoris sinkhole which is just a big hole in the ground with an entrance to the ocean. There's metal debris in the bottom of that that you would not believe. That was probably that hole that they were talking about where they dumped stuff into.

The other thing I want to point out... It was a minus tide or a low tide so it would be easier to get to.

By the way, I don't recommend anybody going into this cave. It's quite dangerous to get there. You need to do rock climbing and such, and I've been doing this for a long time, so trust me...

So I am concerned that contaminants could be entering into the ecosystems through the caves...

[The caves] should be looked into because we don't know where the water is coming from. I mean you get showered. You need an umbrella when you stand in this thing. That's how much water there is entering into that cave.

Commenter: Derek Hoyle – Comment 177 & 225

Response: Based on the information presented in this comment, a sea cave investigation has been conducted, identifying caves along the GP bluffs, water samples and analysis for a variety of potential contaminants, and a general description of the cave ecology. The report of this study is currently under review by the DTSC and the Natural Resource Trustees. The results of the review will be used to determine if any additional action is required.

II.19.14 Comment: There have been a number of conversations with community members and others about the definition of the "site" as it is defined in the Order

of February 2007 and the term "intertidal zone". We have reviewed the Order in its entirety and focused on those portions of the Order relative to the definition of the "site".

Please define what is meant by the term "intertidal zone". Please define "intertidal zone" as it relates to the G/P site.

Does the "site" as defined in the Order include the sides of the cliffs/bluffs? Beaches?

The Order identifies a number of Mendocino County Assessor's parcel numbers that comprise the "site" as defined in the Order. The Order also includes Exhibit A which is a map prepared by G/P's consultant that defines the boundaries of the "site." Do any of the parcels listed in the Order include, within the boundaries of the parcel, an intertidal zone area?

Could you please clarify if caves, as those described by the diver in last Friday night's meeting, are part of the intertidal zone? Are they a part of the "site" as defined in the Order.

Commenter: Jody Sparks – Comment 213

Response: OU-A is defined in the Order as an approximately 100- to 110-foot-wide pathway that traverses the top of the coastal bluff. The intertidal zone is the area of the shore under tidal influences. At the GP site, it is the area below the mean high time line which is half way up the bluff on the western boundary of the site.

Because the Order defines the Site to include the full extent of contamination at the site, past and future investigations will determine the actual boundaries of the Site for purposes of the Order. Initial Site boundaries had to be determined as a starting point for work and to render the Order enforceable and understandable. DTSC can unilaterally amend the Order to adapt to new information once verified and appropriate within our existing resources.

With regards to the caves, its relationship to the Site remains under discussion with DTSC.

II.19.15 Comment: The RAP does not seem to address the intertidal zone. Is there a reason this cannot/should not be addressed by this RAP? Is there another RAP that will address these locations?

Commenter: Wade Gray – Comment 214

Response: The intertidal zone is not addressed in the OU-A RAP because, the intertidal zone is not part of OU-A as they are both defined under the Order. If

contaminants posing an unacceptable risk to ecological or human receptors are identified in the intertidal zone, and if a removal action is necessary, then DTSC procedure would suggest that a removal action plan would be required.

II.19.16 Comment: I totally agree with all the comments here. We have to slow this process way down and keep people off that and remediate not only the whole site but also look at that ocean.

Commenter: Baile Oakes Bannon – Comment 116

Response: Comment noted.

II.19.20 Comment: I also urge you to slow down the process of approval until the intertidal zone around the mill site has been thoroughly tested, and other inquiries can be made as issues arise.

Commenter: Liz Helenchild – Comment 433

Response: Comment noted.

II.19.21 Comment: This is a huge issue for those of us that live on the coast and love our ocean and coastline.

So if only because there's no conclusion and this hasn't been studied in depth, it would be reason enough to extend the public comment period for a while longer I would say.

But it's the same ecosystem. It's the watershed. It's connected. I mean that's ridiculous.

Commenter: Andrea Luna – Comment 169

Response: Comment noted.

II.19.22 Comment: It sounds like further certified testing needs to be done. I mean it sounds like an informal test that wasn't specifically designed for the site that the Fish and Game conducted.

Commenter: David Gurney – Comment 172

Response: Comment noted.

II.19.23 Comment: My personal focus has been on the underground water and things like that.

Before I go on, I'd like to pass on what I was just informed, that a certain diver has gone -- This is an old map, 1900s. It shows highlighted in yellow -- I'm sure it's very difficult for you to see.

Highlighted in yellow are crisscrossing creeks. This is 1900, circa 1900 more or less, and it shows us we have little, little crisscrossing in this area. This is where, this is where the mill site is, between the Noyo River and Pudding Creek.

The Noyo River kind of has an exposure that enters into the area. There's a fresh water flow that flows underground into the mill site, and many of the original flows had been blocked or changed and put into pipes or whatever, but really relevant is what Thais just told me, that a diver, a diver entered under here, and there's a waterfall of water coming out of this area.

This area is alive. This area is alive with water. It's flowing, and the idea of building I will address, because it is the tidal zone that we're talking about. The mussel study I think is a total false thing because if you look at the, if you look at the satellite photographs of these areas, you'll see a strong current going north so that the pollution is not hanging around Soldier's Bay. It's moving north, and this is the flow of the water.

We have a major problem here, and this diver went into this cave. There's a waterfall coming out.

The fact that they're not responsible for the tidal zone, but that poison is traversing that mill site, so that responsibility is yours, and you need to own it.

Commenter: Rafael Borrás – Comment 175

Response: Comment noted.

II.19.24 Comment: In addition GP must in cooperation with DTSC, the Coastal Community and the City of Fort Bragg: Test and clean up the Tidal Zone.

Commenter: Linda Leitner – Comment 216

Response: Comment noted.

III. Mitigated Negative Declaration

The Department of Toxic Substances Control (DTSC) conducted an Initial Study under the California Environmental Quality Act (CEQA) to determine whether the proposed project (including both the OU-A RAP and the IARAP) could have a significant effect on the environment. This Initial Study concluded that only biological resources could have potentially significant impacts resulting from the proposed project. Consequently, mitigation measures were incorporated into the project to avoid or reduce biological impacts to less than significant levels, and DTSC prepared a Mitigated Negative Declaration in compliance with CEQA and its Guidelines.

DTSC collected and reviewed the public comments received, obtained additional information and data regarding sea cave conditions, and has included additional protective and monitoring requirements to ensure that significant impacts associated with OU-A RAP activities will continue to be avoided or reduced to less than significant levels. These measures are described in an Addendum to the Mitigated Negative Declaration.

Mitigation Measure Monitoring and Reporting Program has been prepared under the California Environmental Quality Act (CEQA) to ensure that the mitigation measures incorporated into the OU-A RAP portion of the overall project are measurable and enforceable.

DTSC found that there is no substantial evidence that the OU-A RAP portion of the project will have a significant effect on the environment, and that the Mitigated Negative Declaration reflects DTSC's independent judgment and analysis. Consequently, DTSC has adopted the Mitigated Negative Declaration with its Addendum and approved OU-A RAP portion of the proposed project.

RESPONSIVENESS SUMMARY
REMEDIAL ACTION PLAN
FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY

ATTACHMENT A

Comments Received

Document	Comment Origin	Date	Author	Number	Original Comment
Other	EM	4/2/2008	JS	1	Community members request that the DTSC address their concerns regarding the possible health effects associated with exposure to dioxins. Though in previous presentations by the DTSC, there was discussion regarding the risk assessment cleanup numbers and the associated increase in cancer rate -- cancer is but one of the problems associated with exposure to dioxins. What are the other known health effects associated with exposure to dioxins on the population in general and more sensitive populations, such as pregnant women, fetuses, people with compromised immune systems, and so forth.
OU-A	EM	3/28/2008	JS	2	I have been asked by a community member to get clarification from the DTSC regarding the proposed encapsulated cell site for dioxin contaminated soils now under comment. Could you refer me to where the characterization information is regarding the specific area that is now proposed for the "cell." It is unclear to me if the area that has been designated for the initial cell has been thoroughly characterized. If it has not, could that not lead to a situation in the future where the dioxin laden soils in the "cell" would have to be excavated once again? Please advise me as to the level and completeness of the characterization of the area in question.
OU-A	EM	3/29/2008	JS	3	Based on an e-mail that I received over the weekend, community representatives, upon review of my original e-mail below, have augmented the request to include that a map be provided that indicates the location (outline) of the proposed encapsulated "cell" with an overlay of the sampling locations that were taken in that specified area along with the sampling results.
OU-A	EM	3/26/2008	BR	4	3.) "Cap in place" at the edge of the ocean during a time when sea levels are rising doesn't make good sense.
Other	EM	3/27/2008	ZB	5	I'm writing because I couldn't attend the meeting at Redwood Elementary Wednesday evening, and I would like to voice my opinion about the mill site cleanup. I am very concerned about the Dioxins and other toxins on our beautiful coastline. I was born and raised in Fort Bragg, and my grandfather worked at the mill for most of his life. He died of cancer a year and a half ago. As you can imagine, this is a subject close to my heart.
Other	EM	3/27/2008	LL	6	Listen to the People. We do not want toxic material (more tons of it than quoted at last night's meeting, because it will be found all over the site, not just in the trail zone) buried in our down town.

OU-A	EM	3/29/2008	SG	7	<p>I just read the Fact Sheet, March 2008, for the cleanup of the toxic substances on the Georgia-Pacific Mill site in Fort Bragg.</p> <p>Removing 1,100 cubic yards of lead- and PCB-contaminated soil by truck would be very expensive, considering the cost of diesel and the number of truckloads needed (65) as stated in this report.</p> <p>But is cleaning the soil on site an option?--maybe not because of the kind of equipment needed if, indeed, there is such equipment. And, of course, capping the soil still leaves it in place for some future generation to deal with.</p>
Other	EM	3/31/2008	DH	8	<p>I would also suggest that the appropriate agency do toxicology tests on the sea life, particularly abalone, in the intertidal and near shore areas in front to the GP land.</p>
OU-A	EM	4/2/2008	JS	9	<p>Community members are concerned that the Draft RAP does not provide supporting documentation relative to the transfer/purchase of land from G/P to the City (Letter of agreement). Nor is there documentation from the Coastal Conservancy regarding the apparent deadline associated with the funding availability from the Coastal Conservancy to the City of Fort Bragg associated with the Coastal Trail area. In addition, community members have expressed concern that the City does not, in fact, have anything in writing from G/P as to an agreement to transfer the land associated with the Coastal Trail to the City. It is clear that the "driver" that is moving the Coastal Trail remediation efforts is the apparent deadline for the funding from the Coastal Conservancy and yet there is nothing in the Draft RAP that supports this rush to judgment. The above mentioned supporting documentation is missing from the Draft RAP and must be provided in order to legitimize the "push" that we are facing in commenting on a remediation activity, where, in the minds of many community members, there are so many unanswered questions and unresolved issues that must be addressed.</p>
OU-A	EM	3/27/2008	JS	10	<p>During the final moments of the formal Community meeting on March 26th, you made a comment to the audience that I felt was in error. You referenced comments made by community members as they related to the life of a liner being 30 plus years. You stated something to the effect that liners actually had a 300 plus life span (those are not your exact words, but you get the drift).</p> <p>Based on my experience over the 25 plus years in the business and dealing with multiple landfills and remediation sites, in most instances, liner failure is a given at some point in time. It is not so much that the plastic material fails, but rather the "seams" fail and come a part. The plastic comes in rolls and these rolls are laid down by workers and seamed together, resulting in the "liner" for the unit.. Judging by the description in the Draft RAP for OUA, that would be the case of the proposed encapsulation "cell" currently under discussion at the G/P site. There are be many variables that can impact the life of a "liner" system. They include: the chemical properties of the materials that are placed in the "cell"; the ability to limit water from entering the "cell" and therefore the integrity of the capcomes into play; workmanship on the part of the installers of the liner to ensure that the seams are of excellent quality and that there are no pin holes or other openings in the "liner" system; and so forth. I am sure that the actual plastic material that is a component of the liner would last for 300plus years. However, that is not necessarily the case of a liner made up of the plastic material for a</p>

					"cell" or landfill -- whatever one wants to call it.
Other	EM	4/1/2008	JS	11	<p>Community member continue to impress upon me their fears and concerns about children and exposure to dioxin contaminated soils, whether this exposure occurs from wind blown dust containing dioxin, coming in physical contact with dioxin contaminated soils on the proposed Coastal Trail, in a garden, or in play fields at schools local schools. I am at a loss as to how to address their concerns especially given the literature on children's health and dioxin exposure.</p> <p>In an October 5, 2004 ATSDR Health Consultation document on a different Georgia Pacific site, ATSDR stated, "...It is important to remember children are not small adults. Children are more sensitive to the affects of dioxins/furans than are adults. Few studies have looked at how dioxins/furans can affect a child's health...Children drink more fluids, eat more food, and breathe more air per kilogram of body weight than do adults. Children have a larger skin surface in proportion to their body volume. A child's diet --that often differs from that of an adult's--and a child's behavior and lifestyle can also influence exposure. Children, especially small children, are closer to the ground than adults. They crawl on the floor, put things in their mouths, and might ingest inappropriate items such as dirt or paint chips. Children also spend more time outdoors than do adults. Finally, and perhaps most importantly, children do not have the judgment of adults for avoiding hazards (ATSDR 1998)."</p>
OU-A	EM	3/29/2008	JS	12	<p>Community members have requested clarification as to future definitions of what levels of dioxin or other hazardous waste constituents might be considered "safe" for public health and/or the environment.</p> <p>Let us say that portions of the dioxin contaminated areas are remediated to a specific level that is currently determined to not cause a significant risk to human health and/or the environment. This remediation has occurred in a portion of the property that is readily accessible on a daily basis by people and animals. Ten years pass, and the scientific/regulatory world decides that levels previously thought to be health/environmentally protective, are in fact not.</p> <p>Now what happens? Given that the area that had been remediated to previously thought to be safe levels, is now considered to be problematic, is the portion of the site with the "elevated" levels "re-remediated"? If not, why not? If so, who would be responsible for picking up the bill for the supplementary remediation?</p>
OU-A	EM	4/6/2008	JS	13	<p>If the dioxin contaminated soils would not be considered hazardous for the purposes of disposal, then would these dioxin wastes be "manifested" ? Or be accompanied by a "bill of lading".? Or no documentation -- as to what the contamination was or how much was in the vehicle? If the dioxin contaminated wastes were manifested, they would have to be transported by licensed hazardous waste haulers. What if a bill of lading was used? What if no documentation accompanied the wastes, given that the wastes would not be hazardous for the purposes of disposal? If the wastes are not manifested, then what authority does the DTSC have on the wastes and the vehicles after the wastes have left the G/P Mill Site</p>

				<p>and are on the California highway and road systems? Department of Transportation? CalTRANS? Please provide information about each of the possible scenarios, as it relates to the safe transportation of this material out of the site and on the roadways?</p> <p>If manifested, what mechanism is in place for the Keller Canyon Landfill to handle manifests? Is Keller Canyon permitted to accept dioxin contaminated soils? At what levels? Are there limitations on how this contaminated soil can be used once it is onsite at the Keller Canyon Landfill? If so, what are the uses and what is prohibited?</p> <p>If the wastes were manifested as a hazardous wastes and therefore had to go to a Class I landfill for disposal, there would be a record by way of the manifests, that the wastes went to the Class I landfill from G/P (Cradle to Grave responsibility). If the wastes is not manifested as a hazardous wastes, is there a "Cradle to Grave" tracking of the waste?</p>
OU-A	EM	4/1/2008	JS	<p>14 Community members have several question regarding remedial cleanup levels that are proposed for the Coastal Trail.</p> <p>According to our understanding, the DTSC proposes to require cleanup of those areas on the proposed Coastal Trail where levels of dioxins have been found to exceed what would be protective to human health and the environment and pose an "unacceptable" risk. This level is based on the "Recreational User" scenario. Dioxin contaminated soil levels that do not exceed this level will be left in place, and though these soils would be contaminated with lower levels of dioxin than what soils had been removed, would readily be accessible to individual walking/playing, or digging on the trail. Is that correct? In this context, what does "unacceptable" mean? "Unacceptable" to whom? Given that the community of Fort Bragg has already been impacted over the years by the dioxin that has been dispersed throughout the community via a number of pathways (smoke, dust, ash in yards and schools, worker exposure and so forth), it continues to remains unclear to community members , based on the DTSC's presentations, as to how the these cumulative impacts of exposure to dioxins have been taken into account in the DTSC's determination of what is an "acceptable risk" for the community.</p> <p>Though the DTSC has agreed with G/P that the cleanup level of remediation for the Coastal Trail should be derived from using the "Recreational User" scenario, what would the clean up level be if the "Industrial Use" scenario (Industrial Use being more "protective" than Recreational Use) were used and how much soil would need to be removed in order to reach that "acceptable risk" level for the dioxin contaminated wastes that would remain? What would the clean up level be if the "Residential Use" scenario (Residential Use being more "protective" than Industrial Use) were used and how much soil would need to be removed in order to reach that "acceptable risk" level for dioxin contaminated wastes that would remain? Since the community remains unclear as to the total amount of dioxins contaminated soils that would have to be removed using either the "Industrial Use" or "Residential Use" scenario, would removal of these increased amounts of contaminated soils undermine the integrity of the trail area? Furthermore, is there any legal requirement (statutory, regulatory, Order, or policy) that would limit the RP or DTSC from only considering the "Recreational User" scenario -- In other words, is being "more protective" something that can not be done due to some legally binding requirement?</p>

OU-A	EM	4/6/2008	JS	15	<p>Please include "Trespasser" scenario, in addition to the "Residential" and "Industrial" below .</p> <p>Though the DTSC has agreed with G/P that the cleanup level of remediation for the Coastal Trail should be derived from using the "Recreational User" scenario, what would the clean up level be if the "Industrial Use" scenario (Industrial Use being more "protective" than Recreational Use) were used and how much soil would need to be removed in order to reach that "acceptable risk" level for the dioxin contaminated wastes that would remain? What would the clean up level be if the "Residential Use" scenario (Residential Use being more "protective" than Industrial Use) were used and how much soil would need to be removed in order to reach that "acceptable risk" level for dioxin contaminated wastes that would remain? Since the community remains unclear as to the total amount of dioxins contaminated soils that would have to be removed using either the "Industrial Use" or "Residential Use" scenario, would removal of these increased amounts of contaminated soils undermine the integrity of the trail area? Furthermore, is there any legal requirement (statutory, regulatory, Order, or policy) that would limit the RP or DTSC from only considering the "Recreational User" scenario -- In other words, is being "more protective" something that can not be done due to some legally binding requirement?</p>
OU-A	EM	4/1/2008	JS	16	<p>Community members have advised me of additional and related questions to the ones stated below as they relate to risk assessment and cleanup levels:</p> <p>How and when was the 53 pg/g value arrived at for dioxin? Community members do not recall seeing this number prior to the recent Community meeting on the Draft RAP.</p> <p>It's highly unlikely that the remaining dioxin-contaminated soils would have a even distribution of dioxins. How can we be certain that there will not be locations where dioxin levels are, for example, 50 pg/g? Or even greater than 53 pg/g defined as "safe," since hot spots were defined by having 2 or more adjacent sample locations greater than 10 times the residential CHHSL of 4.5 pg/g?</p> <p>What convention guides the choice of 10 times the residential CHHSL to identify locations as "hot spots"?</p>
OU-A	EM	4/1/2008	JS	17	<p>Community members have raised an number of additional questions to those posed in previously submitted e-mail to you by TAG on the risk assessment process and the exposure scenario utilized for the "Recreational User" of the Coastal Trail. We also spoke this afternoon about specific issues of the Trail as it relates to fencing and access by the public to areas that have not been remediated.</p> <p>Based on our discussion today, it is my understanding that there are plans to do some fencing of the Coastal Trail Area, however, you were not clear as to how extensive the fencing would be or when the fencing would be installed. Also, you stated that based on the discussions that you have had with the parties involved, that the actual opening of the Coastal Trail would not occur for about 5 years (I assume that would be 5 years after the remediation of the Trail and transfer of the property.)</p>
Other	EM	3/30/2008	JS	18	<p>Community members have requested clarification regarding the locations of: any historical and current piping (including a purported transit pipe that stretches the entire length and width of the G/P Property); any cisterns or dry wells that were used in conjunction with main structures, outbuilding or sheds; and the location of any septic tanks, systems or leach lines. Community members have stated that they can not locate these on the maps that have been made available to date and are therefore are unclear if these types</p>

					of uses have been considered in the current proposals before us as to the excavation and redisposal of waste materials onsite.
OU-A	EM	4/2/2008	WG	19	The RAP seems to me to be a temporary remediation. But shouldn't the mechanism for the permanent remediation be built in to the RAP? How do you think this can or should be done?
Other	EM	3/30/2008	MP	20	It's been over 6 years since GP has been actively involved in the investigation of the Mill Site to ascertain the necessary information about the extent, location, and nature of the toxins. Four years ago, GP produced their investigation results in two voluminous documents, entitled Phase I and Phase II, as an attempt to characterize the site. Upon closer examination by qualified people (PhD toxicologists in the community and others), it was determined that this was basically junk science. The community was hopeful that such a characterization would occur now that DTSC is the lead agency. This has not happened. There is still no full site characterization. Without a full characterization, the remediation process becomes a piece meal operation, creating additional problems as it goes forward.
OU-A	EM	4/2/2008	JS	21	Community members have raised concerns regarding the ultimate financially responsible RP as it relates to G/P and Koch Industries and how the DTSC's Order plays out in all of this. If, in fact, Koch Industries, purchased G/P in Fort Bragg, did G/P continue to be responsible for any costs associated with the remediation of the Fort Bragg site? Community members find it difficult to get a handle on how G/P could be financially responsible for the site, into the future, when G/P has been bought out (apparently) by Koch Industries. If the DTSC's Order is to G/P but they are out of business (so to speak), and G/P does not comply with cleaning up the site or the long-term operation and maintenance requirements that come out of the remediation process, then what are the DTSC options for resolution?
OU-A	EM	3/27/2008	JS	22	<p>The purpose of this e-mail is to obtain clarification from you regarding the Explosives shed located in OUA. I do not consider this to be a formal comment. Rather, a comment may be forthcoming, depending upon your response.</p> <p>Based on our previous discussions and your presentations, the Explosive shed contained "dynamite" and that the dynamite was used offsite for the purposes of breaking up log jams. Further information and clarification is requested:</p> <p>When were explosives first stored at the facility by either G/P or other entity, within the boundaries of the site as currently defined?</p> <p>What was the period of time that this specific Explosive shed in OUA, was used for the storage of explosives?</p> <p>At anytime in the operation of the facility (whether by G/P or any other previous entity) was an explosives shed or storage area ever used within the boundaries of the site as currently defined, other</p>

				<p>than the location of the known Explosive Shed cited above? If so where and what time period?</p> <p>What types of explosives were stored at the site, other than dynamite? Fuses, flares, and so forth?</p> <p>When was the Explosive shed in OUA first constructed? Was it always used for the storage of explosives? If not, what other items were stored in the shed? What type of floor was the shed constructed with (dirt, cement, asphalt)?</p> <p>What constituents were analyzed for in the soil directly under and adjacent to the Explosives shed in OUA? What constituents were tested for in the soils that are associated with the use of explosive materials? Groundwater?</p> <p>How did G/P dispose of explosive materials that were no longer viable or useful?</p> <p>Who was the manufacturer and provider of explosive materials to G/P?</p> <p>Did any explosive material contain perchlorate or other like substance?</p>
Other	EM	3/30/2008	JS	<p>23 Several community members have raised the issue of the G/P Mill Site as being a sensitive area as it relates to Native American history. Unfortunately, this is a subject matter that I am not proficient in. However, I have worked on sites in southern California where the interests and concerns of local tribes certainly had a impact of the remediation of a site, resulting in the inclusion of a hierarchy of federal and state regulatory and oversight agencies becoming intimately involved in the project.</p> <p>The community requests that the DTSC clearly lay out the efforts that they have gone through as it relates to the involvement of the Native Americans in the area. Has the DTSC done any outreach to the federal oversight agencies to ensure that the tribal interests are being taken into consideration? Community members have advised me that portions of the G/P Site are considered to be sacred lands and that there are artifacts on the site.</p> <p>Knowing the DTSC's and the current Administration's sensitivity to the concerns and interests of the Native American tribes in California, it would seem prudent for the DTSC to review this matter with those parties of interest and confirm with the community that nothing has been overlooked.</p>
OU-A	CC	3/26/2008	ST	<p>24 What is the date that money for the coastal trail are no longer available from the Coastal Conservancy.</p> <p>What is the date the RAP goes for approval to the Coastal Commission.</p> <p>Are those dates pushing the process for the RAPs.</p>

OU-A	CC	3/26/2008	DHTO	25	<p>We'd like to comment on the proposed clean up of the mill site in Fort Bragg. We've been listening to all sides of this issue and think that the bottom line is to remove as much of this toxic waste as possible without causing recurrence in the future.</p> <p>It seems to us that all interests want to find the best solution to the clean- up of this toxic waste. After looking at the various proposals for clean up, we think more study is necessary without the constraints of financial pressure for development. One proposal was to create a landfill and cap it. But this doesn't seem like a good idea, because the enclosure would only last thirty years.</p> <p>Maybe the earth could be removed and filtered in some way. We really don't know what the best answer is but we know our children will be dealing with this mess when they have kids, if we don't deal with this now.</p> <p>We therefore would like to encourage the responsible parties to take more time to research a better solution than what's being proposed (i.e. putting the toxic waste into a capped container) and then act accordingly.</p>
Other	CC	3/26/2008	BM	26	<p>Georgia-Pacific needs to take financial responsibility - \$. They reaped the benefits \$ at the expense of the public.</p>
Both	CC	3/26/2008	BOB	27	<p>Clarification regarding agency/people responsible for making the decision regarding the plan for toxins on the mill site.</p>
OU-A	CC	3/26/2008	MW	28	<p>This is a rare opportunity to do the right thing from the get go. Bioremediation offers the community a chance to clean up a beautiful area, discover and educate how to break down these toxins and create an environment worth that will safe for future generations.</p>
Other	CC	3/26/2008	OE	29	<p>Considering the impact that non native people have made on this land, we must not allow the agenda of any person or group of people to take precence. The land should be given our full attention and respect. Can we hear the answer to the question - What should we do to help you?</p>
OU-A	PM	3/26/2008	LM	30	<p>What happens if at a further date the acceptable levels of a toxic go down? What if any is the responsibility for further clean-up and who would be responsible?</p>

OU-A	CC	3/26/2008	JM	31	More time in studies - bioremediation, containment pit is not feasible - move off site. Time in studies - more.
OU-A	CC	3/26/2008	SL	32	We MUST consider the health of our children's children's children. 50 years from now, people will look back to our generation and ask - WHY?! Bioremediation is the only solution!!!
OU-A	CC	3/26/2008	BD	33	Has the cost of mycoremediation (mushrooms) been realistically explored? Let's not just bring toxic waste! Let's do this right and be as patient as possible to ensure the safest possible future for this site.
OU-A	CC	3/29/2008	BD	34	We need to think about all the parties involved, meaning those communities around the sites of off-site disposal areas. Bioremediation should be considered for all of the sites and then, after re-evaluations, hopefully there will be much less toxic substances/areas to deal with. Hold off on the coastal trail, let's do this the right way - keeping our water and coastal land safest for future generations.
OU-A	CC	3/26/2008	ZB	35	Capping for 30 years is short sighted - even 100 years. Shipping this stuff out also is no good. Please get Paul Stammitts in here for bio-remediation FOREVER.
OU-A	CC	3/26/2008	JP	36	I know that more sophisticated pit liners are often designed with multilayers and continual monitoring of the space between - why wasn't this proposed for GP site.
OU-A	CC	3/26/2008	MJD	37	This is an opportunity for learning how to bioremediate PCB's. There should be access to the sequestered contaminants, so tests can be done until we find a way to break it down.

OU-A	CC	3/26/2008	WKI	38	We support bio-remediation of PCB's, Furans, lead, and any other chemicals which would respond. Offsite trucking poses risk factors which are unacceptable. Mycoremediation should be given every chance for success.
Both	CC	3/26/2008	JF	39	Who will "supervise" the clean up and toxic waste removal and dispersal. Who would we contact if it isn't being done properly.
Other	PM	3/26/2008	DR	40	My comments tonight are in a couple areas. The first area I'd like to comment on is, my understanding of the Remedial Action Plan is that the zone or the definition of the area that is covered by it stops at the high tide mark down below the bluffs, and because this Remedial Action Plan covers a coastal zone where we know people will be recreating -- That's the whole point. It seems to me crazy that we are not seriously investigating the intertidal zone between the high and low tide watermarks and even out into the ocean because we know people will be wading, fishing, gathering abalone, surfing and so on as soon as that trail is open, as soon as they have access. So that's my first comment.
Other	PM	3/26/2008	SP	41	For starters, the whole site has yet to be characterized, meaning thoroughly examined for exactly what remains there after a century of industry. By many accounts, there are many toxic areas throughout the four-hundred-plus ocean front acreage. I personally don't think a trail should be allowed through the area until the whole area is made safe for use.
OU-A	PM	3/26/2008	SW	42	<p>I have a two-part comment. One has to do with onsite sequestration of the dioxin-laden soil.</p> <p>So given these concerns, I believe that onsite sequestration in a properly engineered repository at the appropriate location is the best method to deal with the dioxin-laden soil, and to accomplish this, the Remedial Action Plan needs to be sharpened.</p> <p>I was going to say, in my written comments, I said, "Please refer to figure four D of the Remedial Action Plan." Specifications for the six-foot-deep, one-and-a-half-acre pit to accommodate the initial thirteen-thousand cubic yards should include, one, and there's the cross-section over here, but it's been improved, that accommodates one of the recommendations, that the sidewalls, as well as the bottom of the pit, be covered with liner. That was not evident in the Remedial Action Plan document.</p> <p>Also, to prevent infiltration by burrowing animals, an exterior zone of angular rock, at least one-foot thick, should be emplaced on the bottom and the sides before the installation of liner.</p> <p>These types of considerations should be carried forward in the plans for future onsite sequestration.</p> <p>Another question along these lines I would also appreciate being addressed in the revised RAP is: Would a multi-layered or a thick</p>

				<p>single-layered liner of thickness well in excess of the forty mill, which is sort of like the liner people put on their ponds in their backyards, be even -- Would thicker liner better assure and improve longevity of the integrity of the so-called pit?</p> <p>My last part of that initial comment was a question I would really appreciate being addressed in the revised RAP: Would a multi-layered or single-layered liner of thickness well in excess of the forty mill liner, which is presently under consideration, even better assure improved longevity of the integrity of the pit? Would the pit's effective life be lengthened in proportion to the thickness of the liner? And I think that's a technical question that perhaps could be responded to.</p>
Other	PM	3/26/2008	DS	43 <p>I'm glad that we finally come tonight to slow down I think, and I'm hearing that from more than a few people here, that when the site was first described, it was described as no more polluted than a gas station, and I'm in no hurry to see the mill cleaned up so that I can walk on a park. I love walking all over around the coast here. I've lived on Whipple Street, just right up Oak Street here, for thirteen years downwind, and I heard the mill every day, every night, whistles, and I'm very excited about the mill site being redeveloped. I am eager to see it cleaned up.</p>
Other	PM	3/26/2008	LS	44 <p>One last thing, with regards to the intertidal zone on the Coastal Trail area, I know there was at least one trench leading out of the bluffs where G.P. would dump PCBs and other toxics because there was a trench that got filled in the day before the EPA was supposed to arrive and investigate the PCB spill from the broken capacitor back in I think it was 1987.</p> <p>Now I understand there are actually close to thirty such trenches, plus a concrete pad or unloading dock which you can back a truck up to and heave your toxic waste off the edge. I also would like to know if this area has been tested.</p> <p>We're getting exposed to our four-point-six- parts-per-trillion residential level when I take the kids to play soccer, and we're getting another potential recreational twenty parts per trillion when we start hiking the trail. We're still waiting to get the results back on this field out here I understand. We don't know what our parts per trillion hit is now on this field.</p> <p>If we go and play with the sea anemones there at low tide, I'd like to know what level of toxicity we're running into there and what level we're planning to clean it up to.</p> <p>I would just like to finish with the fact that according to the National Academy of Science, there is no safety level for dioxins.</p>
Other	PM	3/26/2008	JS	45 <p>Two, I have some concerns about the intertidal zone. Who is in charge of the cleanup for this critical area? What about the caves? We understand that it was the practice of the G.P. company back in the day to dump truckloads of material off the bluffs, and all kinds of material went into the ocean. Rumor has it that the City of Fort Bragg also participated in the dumping. This whole aspect of the cleanup seems to have fallen through the cracks, and yet it may prove to be the most critical aspect of the project.</p>

Other	PM	3/26/2008	CA	46	<p>I'm the president of the Board of Trustees of the Mendocino Unified School District. I also manage two small water districts on the south coast at Elk and Irish Beach, and I've been doing this water work for over thirty years and learned the main object is to keep contamination out. So I encourage that the proposal to dispose of soils onsite be reconsidered. These water resources are more precious than ever and will continue to be so.</p>
Both	PM	3/26/2008	PW	47	<p>I want to start with a couple of observations. I'm fairly new to this issue, but I have about fifteen years of public service, a lot of it spent preparing CEQA documents for public agencies, and I'd like to start off by saying the availability of funding should never preclude the necessity for sound planning, and having said that, economic imperatives must not trump ecological reality.</p> <p>So I have some questions about the CEQA process in particular. I don't expect the panel to address these right now, but I'm first of all curious about how the decision to prepare a mitigated negative declaration as opposed to a full E.I.R. was arrived at, and I ask you this question because it's clear to me that there is great potential, I would say probably absolute probability that the surrounding area will undergo numerous other remedial measures, site development through the state parks. Already there's plans for a trail project down at an adjacent parcel. The opening of the Pudding Creek Trestle is bringing more people out to the coastal area of Fort Bragg.</p> <p>I have yet to see in the environmental document, and I have given it a brief review, any address of the potential for cumulative impact as a result of this project.</p> <p>So that's my first question, is why is a full E.I.R. not called for in this particular case, either the extensiveness of the project, the likelihood that there will be further projects related to site remediation as well as the full site development.</p> <p>And in closing, I wanted to bring up a couple of things. Under Mandatory Findings of Significance on page sixty-seven of the draft Mitigating Negative Declaration, one of which has already been addressed by a couple of speakers, the finding that this does not have the potential to significantly degrade the environment, I've seen nothing in this document to justify any of these findings. The marine environment is certainly one of those issues that has not been addressed in terms of toxicity. There's no justification, for instance, for anyone who's out there working on revegetation. How are those people going to be protected from their possible exposure to the contamination from some of these burial sites.</p> <p>The impacts are individually limited but cumulatively considerable. That was considered to be not an impact, and again, I did not see any address of cumulative impact in this document, and again, this does not have environmental effects that will cause substantial adverse effects on human beings either directly or indirectly, and I contend that there's absolutely nothing in this document that demonstrates that that's a sure thing.</p>

OU-A	PM	3/26/2008	BM	48	I am concerned about the soil contamination on a windy day. Dust, lots of dirt blows over across the highway, and who knows how far, but the soil is contaminated, and so is the dust. There needs to be an observance of respiratory and blood-borne cancer rates in this area, The dust blows as far across the highway to hit residential areas. This needs to be addressed. Thank you.
Other	PM	3/26/2008	TM	50	...but now I want to let you know that as part of public participation, I have a comment, and that is that we have a huge Spanish-speaking population here in the City of Fort Bragg. They're very interested in this. Where is the information in Spanish? It makes up one third of the size of the City of Fort Bragg, and that really should be addressed.
Other	PM	3/26/2008	WW	51	I am representing the Mendocino Coast Audubon Society, and I basically am going to repeat, and not dwell on, several of the concerns that have already been voiced. In particular, the intertidal zone has not been sampled well, and more than that, the sediment on the bottom of the ocean, the near ocean, has not been sampled at all. It's not only a question of people going into the water, but in the case of a strong storm, heavy waves, we have the water breaking up over the coastal trail. We have foam and spray in every heavy storm. The coast may look high, but they're covered with water after a storm. So we need to know what's in the ocean and what's in the intertidal zone and how it's going to affect the cleanup, the Coastal Trail and the rest of this site.
OU-A	PM	3/26/2008	MW	52	My son was, is one of the kids that played on that soccer field in Mendocino. You know, when I look at my 15-year-old, and I have no idea what his future holds; I was one of the kids that, in my day when the DDT trucks would go up and down the roads, we would run behind them in the fog thinking it was a wonderful summer thing to do to get rid of the mosquitoes. What will my future be like? We have an opportunity here. We have been given a gift. The offering of bioremediation to alter the way our community has been impacted is something that I think we should not turn our backs to. It can be an educational experience for our children and for the rest of the planet. It can be an opportunity for a cleaner and healthier environment, and it can give the people of our community a way to do hands-on work that will impact the future of our lives and especially our children. This is what we have to do.
OU-A	PM	3/26/2008	ST	53	My second point is that Mr. Gillera stated at the last public meeting that the -- He said that proposals for bioremediation had not been thoroughly explored, and yet when he gave his proposal, there was just a very superficial mention of bioremediation.

OU-A	PM	3/26/2008	RB	54	Another point is, why is only \$8,000 a year being allocated for monitoring of this site? This is in the budget. Only \$8,000 a year is being allocated for the monitoring of this toxic. That means drilling wells and doing many, many things to test. This doesn't sound like a sufficient amount to me.
Other	PM	3/26/2008	AW	56	So I just wanted to point out that capping is a time-proven technique. G.P. used to practice it. They'd bury a hole and put the stuff in there and pour concrete over it, and at least put a mill bailing on top of it, but that's just out of curiosity. Closed doors don't keep it hidden. There's no sense in capping a site with concrete in the middle of downtown Fort Bragg.
Both	PM	3/26/2008	JS	57	<p>This is a question that I'd actually like for you to answer at this evening's meeting because I think it's important for the community to clearly understand the process that they are involved in. Georgia-Pacific prepared the draft Remedial Action Plan that we are commenting on this evening. On the 11th, you are going to have another similar meeting, but the community needs to understand what the process is regarding the document.</p> <p>I believe that there are those that believe that the document is going to be changed and come out again for public comment, and in fact, that isn't what usually happens. So I think it's important, very important. Everyone is making their comments, but I think the department needs to clarify. You're going to do a Response to Comments, but what does that mean as far as the document?</p> <p>Georgia-Pacific has prepared a document, has laid out certain alternatives that they chose to look at. You have approved the document in that it meets the basic needs of the department. Georgia-Pacific has chosen what alternatives they want to use.</p> <p>This community comes here, and they are telling you what they like, what they don't like. What do you do with that information, not just a Response to Comments? How does it change what is happening? Does it change what is happening?</p> <p>So what I was trying to get to is after the community, after the community comments, you prepare the Response to Comments, then you will weigh that, and you will make a decision. If you make the decision, as an example, of going along with the recommendation that is in the document, is it challengeable by the public, or do they just accept that? I just kind of want you to go through the whole thing.</p>
Other	PM	3/26/2008	VB	58	I feel insulted by this. I feel like it's some sort of placating the natives or something. Like why are we here if all we're doing is, you know, telling each other that we're concerned about this? And what's going to happen when you guys take this back is just going to get, you know, like answer the people and keep going with your idea that nobody wants.

Other	PM	3/26/2008	TO	59	<p>I just wanted to comment that I've seen, I've looked at the paper with all your names and e-mail addresses and whatnot, and I noticed that you're all somewhere out of this area. You all live somewhere away. So the only thing I want to say is we all live here, and that you have to take into account that we live here. We live on the earth on this soil. We work. We play. We eat. We do all of our lives here, and so it's a very important issue for us, as well as you, but I think in some respects, that we have a different kind of attachment, and it impacts our lives in such an incredible way that we need to just really pay attention, all of us, including yourselves please, to the fact to what we're really asking you, I feel from having listened to all these comments, is more time to research what the really wise decision would be in terms of what impacts our lives for the next thousands of years, not just thirty years but hundreds and hundreds and hundreds of years, how every decision you make for us, for our community, how that is going to impact all of our children, grandchildren, great-grandchildren, great-great-grandchildren forever, and that we can't just take this lightly and say, "Oh, well, we'll maybe increase the thickness of the wall of the cap." That's not going to do it. So it improves it for another hundred years. That's not good enough.</p> <p>You need to look at what the long-term prospects are of not just containing but cleaning this entire area, which is not just about cleaning or encapsulating the dioxins and all the other toxins that are on the site itself but wherever else. It's in my garden for God sake. It's on the school grounds where my daughter goes to school. You need to look at all that and not take it so lightly.</p> <p>Excuse me. I'm sorry. I'm getting very emotional, but I feel like it can't just be taken, "Well, okay, we'll look at this, and maybe we'll change that." How, after this evening's hour-and-a-half worth of comments you could say, "Well, maybe we'll change something here, or maybe we won't"? It has to change. You cannot possibly go ahead with this plan the way it is now</p>
Other	PM	3/26/2008	JT	60	<p>My understanding is that the City Council of Fort Bragg sitting as the Board of the Redevelopment Agency also votes on the Remedial Action Plan. What happens if you accept it but they do not, if they vote against it, if they don't pass it?</p>
OU-A	EM	3/29/2008	DR/TM	61	<p>What is the process by which the quality of the remediation alternative implementation by GP is monitored?</p>
OU-A	EM	3/29/2008	DR/TM	62	<p>What is the seasonal affect on the groundwater table?</p> <p>How often/when was the groundwater table depth measured? In the future how will this be measured? Is this going to be upheld by a DTSC order to make sure that it is done properly and under the standards of California environmental laws?</p> <p>Please clarify the effect of infiltration or runoff on the groundwater table/depth (runoff off Highway 1, the 8-9 acre area to be capped.)</p>

Other	EM	4/1/2008	JS	<p>63 Community members have requested information regarding the historical practices of G/P relative to the disposal of hazardous wastes/substances. Though the question goes to the site as a whole, at this time the community would appreciate clarification as it relates to the areas under current comment and evaluation, including the areas that have been proposed for the landfarm and the encapsulated cell. However, in the broader sense, the questions go to the history of the site as a whole and need to be addressed.</p> <p>It would be helpful to have a table that lists out all the buildings, underground conveyances, structures, sheds, specialized equipment, incinerators, cooling towers, and so forth that existed on the site, including the size of the structure, the date it was built, the date it was removed, the purposes/uses of the structure over time, types of floor and when floor was installed or replaced, underground conveyances associated with the site, chemicals stored/used, disposal methods used, and so forth. It would be important to include items such as: mercury dials and manometers; fluorescent lighting tubes and fixtures; transformers; pesticides/herbicides; solvents; explosives; and the like in the use description.</p> <p>Are there any records of how G/P disposed of any hazardous wastes/substances during the history of the site through bill of lading or the the California manifesting systems? If so, what types of wastes were "manifested" offsite for disposal/treatment during the history of the G/P site being active? What is the earliest dated recorded for these wastes going offsite for disposal/treatment?</p> <p>Prior to 1995, did G/P undertake any remediation activities at the site that required the manifesting of wastes offsite for the purposes of disposal/treatment? If so, please provide the information.</p> <p>Are there any records of hazardous wastes/substances being accepted at the G/P Fort Bragg site in the past, either from other G/P facilities or from other entities. In other words, has the G/P site in Fort Bragg ever accepted hazardous wastes/substances from another party for the purposes of storage, disposal, treatment or incineration?</p>
Other	EM	4/1/2008	JS	<p>64 As you are aware, community members have raised additional concerns regarding the use of pentachlorophenol at the G/P site.</p> <p>Based on our phone conversation today, it is my understanding that G/P has stated that there was, in fact, historical use of pentachlorophenol at the site. You stated that you had been advised by G/P that pentachlorophenol was only utilized in a dipping structure at only one location on the site -- in Parcel 3. What was the structure used for dipping and was it above or below ground? Does the structure still exist today or has it been dismantled? How large was the structure and how much pentachlorophenol did the structure hold? How was the liquid pentachlorophenol disposed of after it was no longer useful? Where was the pentachlorophenol stored prior to being placed in the dipping structure? Has the area where the pentachlorophenol was used been characterized? If so, what are the results and the parameters of the testing that took place? Where is the location the pentachlorophenol dipping structure in relationship to the currently proposed Interim Action for the petroleum contaminated hydrocarbons and the related "landfarming" remediation area?</p> <p>Has any of the dioxin contaminated wastes been found to be attributable as a common contaminant of pentachlorophenol?</p>

					TAG has been advised by community members that workers at the site use to spray pentachlorophenol of stacks of logs at the site. DTSC may want to further explore this issue with community members.
OU-A	EM	4/2/2008	JS	65	<p>Community members had asked for clarification regarding the source of the dioxin contaminated soils in OUA and the depth of testing in the area.. We discussed this in our phone conversation on April 1, 2008. Based on the discussion, it is my understanding that the source of the dioxin in the northern reaches of OUA is from opening burning that took place in that area and that the source of dioxin in the southern portion of OUA comes from the disposal of ash from the incinerator. In the northern portion of OUA, testing was only completed to a depth of 1 1/2 feet to 2 feet. You explained that in the southern area of OUA, where ash from the incinerator was disposed, that a great deal of fill material was brought in, and that testing was done to a depth of 10 feet.</p> <p>When the testing was done on the northern portion of OUA, did sampling occur in such a way that the depth of the ash was actually encountered and determined or was it decided to only extend the testing to 1 1/2 to 2 feet? Since it appears that a great deal of earth movement occurred on the site, how was it decided where to test for wastes? In the case of the dioxin contaminated soils associated with open burning practices, were sampling points decided from visual inspection of the surface area? If not, how were sampling locations decided upon? Why was testing only done to 1 1/2 to 2 feet?</p> <p>When the testing was done on the southern portion of OUA, did sampling occur in such a way that the depth of the ash was actually encountered and determined or was it decided to only extend the testing to a certain depth? Since it appears that a great deal of earth movement occurred on the site, how was it decided where to test for wastes? In the case of the dioxin contaminated soils associated with incinerator ash, were sampling locations decided upon based on visual inspections of the surface area? If not, how were sampling locations decided up on? Why was testing only done to 10 feet? What was the range of testing depths associated with the sampling in the southern portion of OUA? Was a cross-section figure provided of the southern portion of OUA as it relates to the ash encountered and the locations and depths of testing that occurred?</p>
Other	PM	3/26/2008	SN	66	Will you review the comments heard tonight by April 11th, and when you come back here, give us a definitive answer whether or not you're going to revise the plan, and if so, what areas you're going to revise, if you could at least give us a preliminary response that you will stand by? You can't give a preliminary response of what your position is at that point in time, by April 11th?
Other	PM	3/26/2008	CD	67	I've had a career in a bureaucracy for twenty-one years, and I'm finished with it, but I have a lot of experience in the kind of mind-set that comes with being in a bureaucracy. People in this community and myself, we're looking for a longer-term vision and opportunity to take and really actually do something creative towards a better life on the planet. I beg you, think outside the bureaucracy. Take a chance. Stand up for life. Thank you.

Other	PM	3/26/2008	RP	68	<p>I've got a couple questions. Is there anybody from the City present tonight? Yes? From Fort Bragg representing us? [Display of Hands] Great. Okay. Short of an amendment, can we reject this plan? We can't reject it? So as a community, we can only make -- You're only going to amend something? We can't have it rejected? We can't go, "You know this plan, we've looked at it; we've seen it, and we don't like it; it's not for our community"? So we're stuck? That's what it sounds like.</p>
OU-A	PM	3/26/2008	MP	69	<p>Why not use a barge? Why not use the harbor for a barge? To haul away the waste.</p>
Other	PM	3/26/2008	WG	70	<p>So a company made and sold lumber, and they made a lot of money doing that. Mistakes were made, largely because I think people didn't know: What happens if you burn this? What happens if you burn that? A bunch of guys threw stuff into the fire and saw what happened, and then mistakes got spread around our community, the soccer field, people's gardens, et cetera.</p> <p>So my big questions are: Why the hurry, and how do we make sure the permanent solution happens?</p> <p>Since nobody else has done it, I just have to. All these great posters, but I think the key posters are the ones that are higher: Be Kind, Be Safe, Be Responsible.</p>
Other	EM	4/8/2008	JS	71	<p>Based on my multisystem query to the USEPA's Envirofacts Database on the G/P Mill Site in Fort Bragg, I have but another concern regarding the historical activities of the G/P facility. Databases being what they are, it would certainly be important for DTSC to verify what I have gathered from reviewing the Toxic Release Inventory (TRI) of the Reporting Year 2001. I would be happy to scan and forward to you the printed report that I have downloaded from the USEPA website.</p> <p>The multisystem report states that in reporting year 2001, "chemicals released to the air" from stack or point emissions included "dioxin and dioxin-like compounds (0.20759 pounds)," "lead compounds (52 pounds)" and "manganese compounds (1389 pounds)". The report goes on to state that "chemical released to the land surface" include "dioxin and dioxin-like compounds (0.0831 pounds)" and "lead compounds (592 pounds)" and in each instance, the "Land Disposal" method identified is by "Land treatment/application farming."</p> <p>This suggests that G/P actively applied and disked in dioxin and lead contaminants in identifiable Land Treatment Units. Please identify the location of the G/P Land Treatment Units. Were these Land Treatment Units or Landfarms permitted by the RWQCB?</p> <p>It would be helpful if the DTSC obtained the previous TRI data submittals to USEPA.</p> <p>It would also be helpful to know more about the source of the manganese compounds that were apparently released from the stack into the environment.</p> <p>[The report goes on to list what appears to be two 800 gallon</p>

					storage tank (possibly the same tank listed twice), one of which appears to have been used for the management of a RCRA-regulated waste, and what appears to be two 150 gallon containers (possibly the same container listed twice), one of which was used for the management of a RCRA-regulated waste.]
OU-A	PM	3/26/2008	WG	72	So now we have a problem, and we know there is progress to be made in bioremediation. You're talking to a town where Paul Stamets showed us miracles, what mushrooms have done in some situations. Our hopes are up. We're looking at this and saying, "Wow, who can do this?" Are our high school kids gonna do a science project and solve this problem? Maybe. I think that this will be the solution. Bioremediation is the long-term permanent solution.
OU-A	PM	3/26/2008	WG	73	So the key question: If we cap the dioxins, who's responsible for the permanent solution? And while it's sitting there for maybe thirty years when the liner runs out or hopefully a lot shorter because we've figured out what to do and are pulling it back out and getting rid of it completely, we need to have someone doing that work.
Other	EM	4/2/2008	WG	75	The RAP does not seem to address the mill pond. Is there a reason this cannot/should not be addressed by this RAP? Is there another RAP that will address these locations? How will the coastal trail work if the mill pond isn't remediated?
OU-A	EM	3/26/2008	BR	76	2.) Land farming is a GREAT idea. Now do more research. Paul Stamets appears to have done at least a decade of research into myco remediation of various substances. The mill site would be a great spot to do conformational studies. A link to an Intro: http://www.fungi.com/mycotech/mycova.html . I know I am not the first to mention Stamets.
OU-A	EM	3/26/2008	BR	78	1.) Why the rush to clean up the trail area? Better to lose the trail and have a properly remediated site.
Both	EM	3/26/2008	BR	79	4.) You can't be serious about trucking that soil through town to Kettleman City

OU-A	PM	3/26/2008	BOB	80	<p>I would like to know -- I have more questions here than comments. I want to know where Georgia-Pacific's responsibility starts and stops because putting a big trash bag this large on this site is not a solution. It's a way to get off cheap and leaves future generations to a lot of toxicity.</p> <p>In all humility, the human species has not shown itself to be a species that can really hold on to large concepts and be responsible a large period of time on the planet.</p> <p>One half dioxin has no half life. It does not break down. So what happens a hundred years from now, five hundred years from now, a thousand years from now, fifteen hundred years from now? I want answers in these reports about how Georgia-Pacific is going to be responsible for their poo-poo. You know, they're leaving stuff all over this place, and so here's questions that I have for you: In your risk management report, did you take into effect climatic change? Did you take into effect the defenses for the scientific community around the world that sea levels are going to rise, possibly twenty feet in a hundred, two hundred, three hundred years? It's a possibility that this site could be under water three hundred years from now. Have you taken that into effect?</p>
Other	PM	3/26/2008	BM	82	<p>A suggestion, the area is not good for human habitation. So develop wind and solar energy onsite. Use this instead of wave energy, and save the ocean. Take the initiative, please.</p>
OU-A	PM	3/26/2008	DR	83	<p>And the third thing I'd like to comment on is the whole idea of capping and sequestering this material within an area which will become the City of Fort Bragg. The City of Fort Bragg's streets are going to be extended into what's now the hillside. The City of Fort Bragg is bound to be growing west, not east, when this project is completed, and is it really good public policy to be sequestering soil which we know has some or is hazardous in an area that we're going to be living right around.</p> <p>I know there's a lot of concerns about the problems with hauling it offsite, and there's a lot of people who are interested in other options like sequestering it for a while until we can figure out some bioremediation that might work, but my concern is that if we cap it now, it's gonna stay there for a long time, probably forever until somebody digs it up a hundred years from now to put a shopping center there, and they don't even remember. Where is the historic memory or the institutional memory to make sure that fifty or a hundred years from now that this cap soil is still capped? Will G.P. be still around to maintain the cap, to monitor what's going on and so on? So my concern is that capping within a city is not a good cleanup method, and it just doesn't make sense for a residential area.</p>
OU-A	PM	3/26/2008	DR	84	<p>My second comment is that it seems to me that when we look at the figure for dioxins that DTSC has presented tonight, fifty-three pecograms per gram, I would really like more information on how that cleanup level was established. It is my understanding that residential background levels in the State of California and even city levels that are considered sort of the going rate are much lower than that, more like five pecograms per gram for non-city-type areas and maybe more for a city but certainly not fifty-three. So why are we accepting a standard of fifty-three pecograms per gram if there's that or less, I mean that or more will clean it up, but if it's fifty-two</p>

					pecograms per gram, we're gonna let it stay? I don't understand where that standard's coming from.
OU-A	PM	3/26/2008	DS	85	I don't want to be shortsighted and cap something that somebody else will have to deal with in fifty, a hundred years or whenever it is. I want it done right. I want it done slowly. I understand all the options. I've read the draft interim, and I like the word "draft" because I think it's gonna get drafted for a long time, and I really don't want to rush this process. That's about all I have to say, and I would give some of my time to somebody else if they use their three minutes.
OU-A	PM	3/26/2008	SP	87	My personal favorite vision is to totally remediate it all onsite by use of mushrooms. Let's try it. It's not something that can be rushed and finished by the time this grant runs out. It's too soon to develop any part of this area.
OU-A	PM	3/26/2008	SP	88	I realize tonight the only topic under discussion here is the Coastal Trail and making the decision before the end of the year to begin work on it, but I say no. Let's not be hurried into a hasty action to develop even a trail through this G.P. mill site. How we proceed with this needs a lot of thought, discussion and care. I have lived in this area for twenty-five years. I have long witnessed the plume for the mill site spreading a gray pall over Fort Bragg. I was glad when it finally stopped. I'm aware many people lost jobs at that time, and I'm sorry for that. I hope they're all okay. I have heard there are many with problems.
OU-A	PM	3/26/2008	TM	89	Why are we rushing ahead? That's my big question for tonight. I want to say to all of you sitting at that table representing a state agency, entrusted by the citizens of the State of California, to protect our health and the health of our environment and don't get caught up in this rush to get the trail area cleaned up by adopting an incomplete investigation and Remedial Action Plan.
Other	EM	3/29/2008	DR/TM	90	In future meetings, please make available a more detailed map which labels streets, population centers, so that it shows the City of Fort Bragg in relation to the site to make it more relatable and comprehensive, especially in the handouts. Community members could not read the street names. Please (if possible) provide aerial maps to provide points of reference (i.e. McGuire Ranch, Podesta Farms, schools and soccer fields that are known to have fly ash dumped
Other	EM	3/27/2008	LL	92	I attended the meeting last night at Redwood School, Fort Bragg, and I will attend the next one on April 11. Testing for toxins and proper clean up of the entire GP site must be accomplished before any portions of the site including the Coastal Trail zone is open to the public. The former plant engineers and executive officers of the GP Mill know where chemicals, toxic trash and dioxins were dumped. I hope

					they will come forward with this information as a means of reconciling some of their former activities.
Other	EM	3/27/2008	LL	93	<p>GP has devised a bait and switch game. They want to distract The Community with promises of a trail, while they shove through inadequate clean up measures. The People of Mendocino County will not be fooled.</p> <p>Our health and safety are at risk now because GP has created a toxic dump in our community. Our health and safety will continue to be at risk into a long future, if the plan now proposed by GP is followed.</p> <p>DTSC has the mission to "provide the highest level of safety, and to protect the public health and the environment from toxic harm."</p> <p>Listen to the citizens. We are the public, the environment is our home community. GP is a corporation that got rich off our county. GP is not the public. Remember, your mission is to protect The Public, not any corporation.</p>
OU-A	EM	3/27/2008	LL	94	Test the new mushroom and pampas grass cleanup technologies.
OU-A	CC	3/26/2008	DHTO	96	We definitely don't think we can develop this area until all toxic waste is dealt with and removed or cleaned up so that there aren't any more health risks
Other	EM	3/31/2008	DH	97	Removing the contaminated soil, while costly, seems like the best option for our community if we want to be able to use and or have access in the near future to the incredible coastal bluffs, which are now contaminated and closed. I am opposed to capping the contaminated soil on site. I would appreciate being kept up to date on the process.
OU-A	EM	3/31/2008	DH	98	I am writing this comment letter in regards to the remediation of the Georgia pacific site in Fort Bragg, CA. As an industrial use area for many years the GP land has suffered substantial degradation due to a wide range of toxic material left in the soil of the site. While no solution is ideal, I would like to see a cleanup of the site, particularly the coastal trail and access areas of the site happen in a timely manner.

OU-A	EM	4/9/2008	JS	99	In regard to the sampling that took place in Parcel 10 - the dioxin impacted soils - why were they only sampled for metals and dioxin/furans? Given the questionable historical practices of moving , burning, and disposing of wastes at the site, why would you not analyze for PCBs? In fact, it would seem to me that there would be need to test for the full spectrum of possible contaminants, unless, of course, it was just assumed from the get go that the waste material would be place in an onsite "cell " .
IARAP	EM	4/9/2008	JS	100	Supplementary comment relative to the characterization of the proposed Landfarming unit for the bioremediation of TPH soils: Community members have requested clarification from the DTSC regarding the proposed landfarming area associated with IA Draft RAP now under comment. Could the DTSC refer us to where the characterization information is regarding the specific area now proposed for the location of the "landfarm"? It is unclear if the area that has been proposed for the landfarming unit has been thoroughly characterized. If not, it could lead to a situation in the future where it would be necessary, in order to do a complete characterization of the site, for the landfarm to be removed. What was the deepest depth for a sample in the area? How many samples were taken and analyzed?. Please provide an overlay of the proposed landfarming unit and the samples that have been taken and analyzed, along with a separate descriptive page that includes the type of samples taken, the depth of those samples, and a description of the constituents that were analyzed.
OU-A	EM	3/27/2008	ZB	101	I would hate to see the mill site's toxins capped. I believe that this is the worst possible option. Georgia Pacific has not been a steward of the land thus far, and I know that their ultimate goal is to get out of this mess by spending the least amount of money possible, which means that they may not be as diligent in monitoring a capped toxic site as our community needs.
OU-A	EM	3/27/2008	ZB	102	I also think that carting the toxic dirt off to someone else's backyard is a terrible idea. This option would expose thousands of people to the toxic airborne particles inherent in moving dirt around.
OU-A	EM	3/27/2008	ZB	103	I believe the best option is to use the mushroom bioremediation to clean up the toxins. Even though this is a new technology, this is the only way that we can actually clean the land. Please keep my opinion and wishes in mind when making your decision.
Other	EM	3/27/2008	ZB	104	I have a few questions as well. How do you ultimately choose a solution? What elements do you take into account to make your decision? Will you be testing the soil for Dioxin levels off of the mill site land, maybe 10 miles up the coast to get a real idea of the "natural" dioxin levels in the area? If you won't be doing outside testing, why not? Don't you think outside testing would give this community a better, more realistic long term solution? Are you an elected official? If not, who appointed you and the other people that will be making this decision? Do you have any affiliation with GP or its new owner?

Other	PM	3/26/2008	LS	105	<p>As most everyone knows, G.P. sold or gave away truckloads of fly ash to citizens on the coast. Apparently, none of it was ever tested for contaminants before it left the mill site. We have ball fields built on fly ash. Our local compost, Ablert's Best, was made with fly ash, which means there is fly ash in just about every garden here from Westport to Elk.</p> <p>I have friends on Navarro Ridge who have a beautiful garden. They grow most of their own food, all organic, except for the truckloads of fly ash they mixed into their soil back twenty years ago when fly ash was called a soil amendment.</p> <p>I have a friend in Casper who, several years ago, ordered a load of topsoil for her garden and wound up with a load of fly ash instead. The pile is still sitting in her front yard. Who is going to clean that up? How are we going to clean that up? Bioremediation gives us a chance.</p>
OU-A	PM	3/26/2008	LS	106	<p>I understand from the draft RAP that there were some challenges regarding bioremediation. The potential benefits are so great on so many different levels, it really deserves future exploration.</p> <p>Paul Stamets, P-a-u-l, S-t-a-m-e-t-s, lists five mushrooms which are effective for dioxin. Did you look at all five? If it's too cold, what about a greenhouse? What about some creative solutions to some of the problems with that? I mean I understand time constraints prohibit bioremediation on the trail area. I would like to see the draft RAP include the option to remove materials from the trail area for storage elsewhere onsite for bioremediation and field testing.</p> <p>If our community were among the first to develop these new technologies, if we were able, for example, to build a bioremediation training and demonstration center on the mill site, it would help pave the way to a brighter economic future for our coast.</p> <p>The fishing is gone. The logging is gone. The tourists still make it up here, but with the state of the economy and higher gas prices, they come up with less and less expendable income when they get here.</p> <p>Environmental pollution is our second biggest problem in the world after climate change. People would come to learn these techniques, and our local economy could be given a real boost. We could help other people in our county.</p> <p>We have Masonite over the hill. They have big problems. There are mill sites all the way up northern California. This site is just the beginning. Bioremediation would also give us a chance to deal with a larger community-wide toxics problem.</p> <p>We would like to see the new technologies division of the DTSC up here working on this. Superintendent from Mendocino County Stone has offered the Mendocino soccer field as a test site. Paul Stamets has made himself available. We have community support.</p>
OU-A	PM	3/26/2008	LS	107	<p>If bioremediation on the trail area is not possible and if we can't move the contaminated soil for bioremediation elsewhere on the site, then soil removal is the only other option we can really consider for the long-term health and safety of our community. There is a long list of reasons why capping on this site is not an acceptable solution. We may not remember where we buried it or what we buried. The site will require constant monitoring and will be in close proximity to sensitive habitat and lots of people.</p>

Other	PM	3/26/2008	WW	108	My second point is that I would like to repeat [NAME REMOVED] point, which we should not be dependent on the economics of this cleanup. We should instead be asking: How can the cleanup best be done for the longest period of time so that we are all healthy in the future?
OU-A	PM	3/26/2008	CA	110	<p>We have met Paul Stamets and have listened to a proposal about bioremediation on that site, and our board and our superintendent all are in accord with the idea of doing a bioremediation project with Paul Stamets guiding us in the process. We believe that this would be a relatively low-cost solution to a problem that is not only local but is widespread as has been explained from earlier comments.</p> <p>The school district could be a test ground. You can see in a fairly limited project what the success might be, and if it proves successful, which I believe it would, it would be a win-win solution for all concerned. Just the publicity of such an ingenious approach to actually a very widespread problem would be very positive for the community and for really worldwide, and it would be great publicity for Mendocino, Fort Bragg, Georgia-pacific and all the others involved.</p>
OU-A	PM	3/26/2008	AW	112	So far we haven't really heard any constructive visions for bioremediation, and I wanted to announce that we have good news. Paul Stamets, the internationally known mushroom expert, had taken samples from the G.P. site of his visit in January I think it was, samples of pampas grass, and had inoculated them in a climate similar to ours to see if his five mushroom types that are known to tie up toxins, particularly dioxin, would work using pampas grass as the organic matter, and he sent us e-mail yesterday saying, and I'm paraphrasing, "I was excited to see it growing so well. If the pampas grass uptakes the contamination and the fungi break it down, then you have a pathway to follow for cleaning up your site. We go over the processes in our seminars. We will see you then." That is myself and another member of the community going to his workshop in April to get the details on how to implement the bioremediation model.
Both	PM	3/26/2008	SW	113	<p>As with all waste disposal consideration, transportation is the weakest link in the chain of activity, and the mill site is no exception.</p> <p>Information from local truckers indicates that twenty cubic-yard-capacity truck rigs would average about six-and-a-half miles per gallon for the approximately four-hundred-mile round trip from Fort Bragg to Keeler Canyon in Pittsburg. This works out to about forty-three-thousand gallons or about three-hundred-thousand pounds of diesel for those seven-hundred round trips.</p> <p>This was a substantial but avoidable input of carbon into the atmosphere, and the probability of at least one of those seven-hundred trucks tipping over on Highway 1 is a tangible probability, and the South Fork of the Noyo River, James Creek and North Fork of Big River are very sensitive habitats for coho and steelhead.</p> <p>You people represent not only we in Fort Bragg but you represent the people of the State of California, and you're charged with protecting from the standpoint of toxicity the population of State.</p> <p>In that respect, you have to take into consideration the pathway, the truckloads of what is considered a toxic waste given the thresholds of contamination that have been mandated. Those truckloads passing through, right through the middle of communities such as Willits and Ukiah, Boyes Hot Springs, Cordelia, and/or Richmond to</p>

					reach the Keeler Canyon Dump and then the people of Pittsburg who are going to take that material under their wing for the rest of its nominal life, and with respect to the material that goes twice that far to Kettleman Hills, you have communities along Interstate Five that have concerns and the people of Kettleman Hills and the people who live down the hydrologic gradient from the Kettleman Hills site. I hope you take that, those considerations also in response to our local concerns.
Other	PM	3/26/2008	SW	114	<p>I also have some observations on the intertidal zone. Irrespective of jurisdiction, ownership and agency responsibility, the intertidal zones must be protected for the long-term and remediated if found contaminated. There are places on the mill-site bluffs I am sure where groundwater that has moved under the mill site is daylighting, coming up under the surface, and the interface between the overlying terrace sediments and the underlying bedrock is a principal pathway for such a migration. From examination of nearby coastal bluffs offsite, groundwater does emanate from this interface and flows down ponds and beaches.</p> <p>For this reason, ecological risk assessments for rational scenarios should be of high priority. From Dr. Chernoff's comments at the remedial investigations meeting in February, I expect that he might agree with these concerns. A risk adjustment comparable to the one he did for the upland biota would be appropriate for the beaches.</p> <p>NOAA and California Fish and Game Mussel-Watch program avoided or ignored Fort Bragg even though there is a sewer treatment outfall and millpond outlet pipe discharging into the shallow marine environment directly offshore the mill site. Therefore, there are no data upon which to establish a baseline for comparison of preexisting and post-remediation intertidal and shallow marine conditions.</p> <p>You can't rely on the mussels sold at Berkeley Bowl and compare those to the mill-site mussels. That's not a fair or even an adequate valid assessment for intertidal conditions, nor can we just accept the assumption that the energy of the waves disperses contaminants for adequate dilutions. There need to be scientifically credible studies of intertidal biota that lead to credible risk assessments.</p> <p>Stopping the investigations at the top of the bluffs leaves out an important ecological consideration, and this should be rectified.</p>
Other	PM	3/26/2008	BOB	116	<p>I totally agree with all the comments here. We have to slow this process way down and keep people off that and remediate not only the whole site but also look at that ocean.</p>
Other	PM	3/26/2008	BOB	117	<p>I believe that global warming is not or climate change is not the biggest issue that we face. The biggest issue that we face is toxicity in our environment. We have had climate change for millennia, for millions of years. The toxicity of the outside climate and environment is over the last hundred years, and this is a big, big impact.</p> <p>Georgia-Pacific has taken billions of dollars out of our forests. Whatever we do, even if we go the full extent, total bioremediation, greenhouses and everything else on the site, it's still going to be a fraction of what was earned off this property and off the lives of people in Fort Bragg.</p>

					<p>Can human beings really plan and not just deal with some big person with a lot of money and influence in Sacramento right now? I'd like to see answers to how much money is Georgia-Pacific paying lobbyists in Fort Bragg to go to your bosses and wine and dine them and talk to them about the future economy. How much money are they spending on Arnold Schwarzenegger's office? I want to know how can citizens have impact on that level at levels of government.</p> <p>I think you're all doing great work, but I see it as kind of a shell game upfront with the big stuff that's happening in Sacramento. I'd like the answers to these questions and these comments. Let's see.</p> <p>The other thing is in all humility, we don't understand a lot of what the impact of these toxins are doing in your population in long-term. Right now you have certain thresholds of what you're taking out of here because of certain health risks to the human population.</p> <p>I just have one question that I didn't make real clear that I'd like to see answered in your Response to Comments. There's a bigger picture happening in Sacramento, and it's called lobbying, and lots of times, no matter what the wonderful plan you come up with in the community, it's overseen by big business, big government. I'd like to know specifically who are the people, names, e-mail addresses, phone numbers, who are going to make this decision on this plan. I think it's total democracy to allow the citizens to lobby these people, not just the people in big government and big business that have the money to do so. So please allow us to know who's really making these decisions.</p>
IARAP	EM	4/9/2008	JS	118	<p>As to the IA comment below, that the "...soils identified to be landfarmed generally do not contain metals and PCBs above screening levels..." What does "generally" mean? It suggests that actually the proposal is to not only landfarm TPH impacted soils, but also a tad of PCB's and heavy metals.</p> <p>Is that correct?</p>
OU-A	PM	3/26/2008	DL	119	<p>I'd first like to say that I agree that the bioremediation should be our first choice, and if it's possible, it's the best way to go, but if it's not, the contaminants must be moved offsite.</p>
Both	PM	3/26/2008	ST	120	<p>So I would like to know: What action has been pursued in the last two weeks, and what action does the department intend to pursue?</p> <p>My question is if the community was overwhelmingly in opposition to the plan, say ninety percent, maybe ninety-five percent, would that be enough to compel the department to revise the draft plan?</p> <p>I additionally want to say this community has often been beset by bureaucracy, and time and time again, we do not expect decisions by people who don't live here affecting the people who do live here. So expect resistance.</p>

OU-A	PM	3/26/2008	ST	121	<p>The Remedial Action Plan states using child-sensitive allowances for residential use. However, for recreational use by omission I assume that they're using adult tolerance levels for acceptable levels of contamination.</p> <p>To me, there are no acceptable levels of contamination, and we really need to have the same levels that we have for children for ourselves.</p> <p>I want to know how we can justify using adult tolerance levels for a recreational trail when this trail presumably is going to be used by families with young children whose immune systems are undeveloped and leaving them at even greater risk for toxic contamination.</p> <p>Also, the exposure for recreational use is proposed to be one hour for recreational use. Most people spend whole days recreating and hiking over trails.</p>
OU-A	PM	3/26/2008	RB	122	<p>There are other things. I feel that microbes, which is mushrooms, bioremediation has not adequately been searched and may offer a solution.</p>
Other	PM	3/26/2008	JS	123	<p>Third point, last point, are the offsite contaminated areas in Fort Bragg and environs going to be included in the plans, contaminated areas such as the Mendocino soccer field and numerous ball fields in the Fort Bragg area? I would suggest the fly ash under these fields and playgrounds came from only one source, the smokestacks of the Georgia Pacific mill. It follows that the corporation should also be held responsible for the cleanup of these offsite contaminated areas.</p> <p>I wish to thank the several officials and toxicologists of the DTSC for their patience and professionalism in their relationship with me these several years I have been involved in this immensely challenging cleanup project.</p>
OU-A	PM	3/26/2008	JS	124	<p>In my view, the timing of the construction of the trail and the invitation to citizens to visit the mill site on the 4th of July a couple of years ago and the suggestion of a lined pit for toxic material do not impress me as either wise or well thought out.</p> <p>Referring to the latter, potential toxics heading for this pit include heavy metals, including lead, polycyclic aromatic hydrocarbons (PAHs they call them), dioxins, furans, polychlorinated biphenyls (PCBs), petroleum hydrocarbons and volatile organic compounds, among other things, will be in that pit. What evidence do we have regarding these and any other toxic materials heading for the pit regarding toxicity over time? Since we know the shelf life of the pit liner is thirty years, how many of these materials would be rendered inert before the liner failed, and how many would remain harmful after the liner failed? What assurances do we have regarding the accuracy of these timetables, and what happens if the information is incorrect and we are left with a hot toxic pile and a disintegrated liner? Who would be responsible for that cleanup?</p> <p>Finally, does it not strike anyone besides myself that these questions alone, regardless of the answers, suggest that this proposal sounds like a very bad idea, likely to come back and haunt us years and decades down the line?</p>

Other	PM	3/26/2008	TM	125	<p>Where is NOAA? Why aren't they at the table? Where is the test for the intertidal zone? Where is that? DTSC has been focusing on the land site of the investigation and remediation for the trail. However, North Coast Action, along with numerous phone calls from mill-site workers, told you and the Regional Quality Control Board for years that there was dumping on the beaches of contaminated refuse. There was trenches that ran from the powerhouse and the machine where people were dumping solvents, including PCBs, and they would go through the trenches and go on to the beaches. Where is the intertidal report?</p> <p>You can't have a trail in a town where sociologically and culturally we live off the coast. We eat off the coast. We surf. We kayak. We play. We swim. Where is the report for oceans? What about the ocean's sediment?</p> <p>That report that came out March 3rd, 2008, I read through that. I don't think there can be a sweeping statement by Georgia-Pacific that the oceans are safe. There has to be further investigation, and this should be included in the trail because the trail is allowing access to the beaches.</p> <p>Now, that's for the locals. What about the millions of tourists that come here to enjoy Fort Bragg and get out there on the beaches? Is this fair? What is the human health risk of going out into an intertidal zone with an infant who's eating sand, people who are eating abalone, surfing? What is the human health risk for that? Do we have that information? How can we possibly be okaying a Remedial Action Plan for a trail if we don't know what the human health risk is at the beaches? We need to know that. We need that information, and I think NOAA should have a seat at the table. It's very important.</p> <p>As far as the cultural and sociological aspects of this community, what is being measured? We are not an urban environment. We don't just walk our dogs out there after work. We live here on the coast. Have you looked at that, how much time, not just two hours a day, for a recreational setting of what the levels should be of contaminants? We spend a lot more time there. Have you looked at the cultural and sociological aspects of this community regarding the time spent on the coast?</p>
OU-A	PM	3/26/2008	TM	126	<p>And as far as capping, I think it's a horrible idea that you're putting it Cyprus Street and Highway . The community needs to know that it's nine acres designated capping, one point three just for a thousand truckloads of contaminated soil in a liner that may last thirty years. It might, and the City of Fort Bragg voted in a precautionary principle. Is a precautionary principle being used here? Are we looking at that? And the only redevelopment that's going to happen is going to be in the center of town. People have already said that.</p> <p>When that liner gives out, what is the human health risk? Has that been looked at? I'd like to know that. I'd like to see that in the next Remedial Action Report.</p>
Other	PM	3/26/2008	TM	127	<p>Here is a question: What is the human health risk of people walking on a coastal trail next to a major cleanup of contaminated soil? I've seen nothing in the DRAC about that. What is the human risk to that? When we know that there is arsenic, dioxins, PCBs and hydrocarbons and heavy metal, what is the risk? What is the human health risk? We need a full-site investigation.</p>

OU-A	EM	3/29/2008	DR/TM	128	<p>Seems RAP is limited in terms of bioremediation; are there other bioremediation technologies?</p> <p>Please check the bioremediation technologies used at the Arcata site.</p> <p>Can another parcel be used for testing in-situ technologies to be applied at this OU? Or other OU's?</p>
OU-A	EM	3/29/2008	DR/TM	129	<p>Is the area chosen for consolidation area tsunami-safe?</p>
OU-A	EM	3/29/2008	DR/TM	130	<p>What is the longevity of the liner? What is the material of the liner (what is it made of)?</p>
OU-A	EM	3/29/2008	DR/TM	131	<p>Is there capping alternative with a lifetime guarantee? This is an issue, because in 30 years the landscape of Fort Bragg may change (in terms of buildings, developments, etc.)</p> <p>Who pays for the upkeep of the cap?</p> <p>How will we know if the contained soils will still be toxic? (in the future)?</p> <p>Does Georgia Pacific (GP) have the responsibility of upkeeping the cap forever or just until the liner fails?</p>
OU-A	EM	3/29/2008	DR/TM	132	<p>Would the capping on-site open up the possibility of other addition dumping of toxic material on this site?</p>
OU-A	EM	3/29/2008	DR/TM	133	<p>Paperwork for this "deadline" should be provided. I understand from city council members that there is NO WRITTEN AGREEMENT between GP and the city of Fort Bragg.</p>
OU-A	EM	3/29/2008	DR/TM	134	<p>There is a disconnect that the cleanup is down to recreational levels, even though it is located in the heart of town.</p> <p>Why were residential levels not chosen, as opposed to recreation purposes?</p>

Other	EM	3/29/2008	DR/TM	135	How does the North Coast community benefit from toxics being buried underground? Who will benefit from toxics being buried underground?
Both	EM	3/29/2008	DR/TM	136	When will the remediation take place? How long after the end of the comment period will remediation begin?
Both	EM	3/29/2008	DR/TM	137	There will be an environmental impact document – is it available to the public and when?
Both	EM	3/29/2008	DR/TM	138	How can we be more explicit in requesting that the RAP be clarified? Or can we? The response to comments can generalize the community's comments/concerns, and may not fully address our questions and concerns.
Other	EM	3/29/2008	DR/TM	139	Is GP not willing to gather background samples off-site?
OU-A	EM	3/29/2008	DR/TM	140	Have archaeological/cultural artifacts along the trail area been considered in the process of choosing alternatives? Has there been an effort by Public Participation at DTSC in outreach to the Native American community? (in regards to archaeological artifacts) (to see if there is interest on their part)What is the site of the consolidation area? How deep will it go?
Other	EM	3/29/2008	DR/TM	141	Where is NOAA as a resource trustee?

OU-A	EM	3/29/2008	DR/TM	142	How was the 53ppg level of dioxin arrived at?
Both	EM	3/29/2008	DR/TM	144	Where is the clean soil coming form?
OU-A	EM	3/29/2008	DR/TM	145	Can the responsible party (RP) place a bond, hold them financially responsible?
OU-A	EM	3/29/2008	DR/TM	146	Is it a condition for the creation of the Coastal Trail that these soils be removed?
OU-A	EM	4/6/2008	JS	147	<p>Community members have requested clarification from the DTSC regarding the remediation alternative that is discussed in the Draft RAP for OUA for the excavation of contaminated dioxin wastes and offsite disposal. Based on the discussion in the document, it appears that if this option were choosen, then the dioxin contaminated soil above a specific level of contamination, would be excavated and transferred offsite to the Keller Canyon Landfill (Subtitle D) for disposal.</p> <p>Please explain why the excavated dioxin contaminated soils are considered a threat to human health and the environment (hence, they must be removed). Yet, they are not apparently considered to be hazardous for the purposes of disposal, given that the Keller Canyon Landfill is not a hazardous waste disposal landfill. What level of dioxin (in soil) is considered to be hazardous for the purposes of disposal?</p>
OU-A	PM	3/26/2008	RB	148	<p>I guess what I want to do now, since I've been attending a number of the meetings, is kind of bring to the listening people and to the DTSC some of the points that have been made all along at these meetings. So bear with me as I trip along a few things.</p> <p>I was told by Buzz that there was to be a gravel layer under the membrane. It is not mentioned in the plan. The gravel layer ostensibly is there to prevent burrowing animals, and we see nothing mentioned in the budget for that.</p>

OU-A	EM	3/29/2008	DR/TM	149	<p>Is GP willing to pvt financial assurance on the consolidation option for future maintenance?</p> <p>How is GP held financial responsible beyond the 30 years (per operation and maintenance agreement)?</p>
OU-A	EM	3/29/2008	DR/TM	150	<p>The bioremediation seems to be part put aside due to the RAO (land purchase) because of the time constraints, and it shouldn't be. It would send a great message to support this alternative. Has DTSC New Technologies Division looked at other possibilities other than WHITE ROT FUNGUS? Has NTD contacted Paul Stamets. world renowned mycologist and myco remediation scientist?</p> <p>Would DTSC consider a "pilot study", where the cap alternative wouldn't be placed so that this bioremediation alternative can be tested?</p> <p>There is a study being performed by Lawrence Livermore Berkeley Labs regarding this. It would be beneficial to get that info.</p> <p>Perhaps the mix approach (bioremediation and capping) would be better, in order to be more progressive rather than just capping over.</p> <p>Suggestion: REMOVE the soil off the trail and then follow with bioremediation on the rest of the site - including dioxin soil - this gives time to look at alternatives when the RAP comes up on the rest of the property.</p> <p>Seems that white-rot fungus (from literature available) will be effective. What are the limitations specifically?</p>
IARAP	EM	3/29/2008	DR/TM	151	<p>Would the bioremediation be performed in-place, or would the soil be relocated for bio-treatment?</p> <p>Where will this "treatment center" be located?</p> <p>How deep will the treatment "pits" be?</p>
OU-A	EM	3/29/2008	DR/TM	152	<p>Recreational standards can ultimately affect the surrounding community – therefore, residential standards should be used.</p>
Other	EM	3/29/2008	DR/TM	153	<p>Has there been studies, or are there studies being currently conducted to track if these contaminates are migrating into the ocean?</p>

OU-A	EM	3/29/2008	DR/TM	154	Is there the possibility of extending the time for the coastal trail funding?
OU-A	EM	3/29/2008	DR/TM	155	Has there been some financial analysis done, in comparing the cost of operations and maintenance (O&M) vs [all other remediation alternative costs]? Is there public access to these cost analyses?
Both	EM	3/29/2008	DR/TM	156	Is there a preferred alternative (by GP)? How deep is the contaminated soil? Because that could be a large volume of soil to transport/dispose of off-site. How many cubic yards will be transported off site?
OU-A	EM	3/29/2008	DR/TM	157	What is the soil type in the proposed cap area? Has it been characterized?
Other	EM	3/29/2008	DR/TM	158	Offsite disposal should be heavily considered, especially because of the close proximity to the ocean (and the effects of these contaminants on marine life.)
Other	EM	3/29/2008	DR/TM	159	Is there a whole – site characterization? Because the site is affect wholly, it would be foolish to suggest remediation for one parcel if the other parcels haven't been fully characterized.
Other	PM	4/11/2008	MP	160	On your first screen, it mentions Remedial Action Plan, and it didn't say the word "draft." Isn't that what we're here tonight for?

Other	PM	4/11/2008	JS	161	<p>This is not the fourth meeting. This is the second meeting on this version of the draft remedial plan. We've not had four meetings. We've had two.</p> <p>Is that correct, everybody?</p>
Other	PM	4/11/2008	DS	162	<p>The question is if part of the community inquiry is that we feel that our questions have not been answered and we want that addressed as well as listening to this, how can we respond so that one does not negate the other?</p>
Other	PM	4/11/2008	JS	163	<p>The community is unable to adequately respond to the proposal unless they get their questions answered.</p> <p>However, I just pose to you, because this is a formal meeting where you're getting comments, is there any legal requirement that the department must present remedial action overview? I don't know.</p>
Other	PM	4/11/2008	MC	164	<p>What part of these options that you've named for us are available to us online if we wanted to do it that way?</p>
Other	PM	4/11/2008	RB	165	<p>It would be nice if -- Many of the questions have been, over the course of the initial two meetings and the last meeting, already been asked. They're posted there. We're yet to get any answers.</p> <p>[If you're going to do a brief evaluation or presentation, you should also include the questions pertinent to those, to that part of the presentation and your answers relating to the community concerned.]</p>
Other	PM	4/11/2008	JS	166	<p>I can understand where you cannot respond to a comment, but what Rafael was saying is we've raised a number of questions. So I think what we would like to have is a response to the questions. We understand that the comments will come with the response to comments.</p> <p>[Why don't we take an example?]</p>
OU-A	PM	4/11/2008	MP	167	<p>The same question came up about was the place for the encapsulation totally adequately characterized. Would you be able to answer a question like that? That's purely a question.</p>

Both	PM	4/11/2008	SW	168	Does the two-week extension, which we all appreciate very much, also pertain to comments on the draft negative declaration?
Other	PM	4/11/2008	AL	169	<p>This is a huge issue for those of us that live on the coast and love our ocean and coastline.</p> <p>[So if only because there's no conclusion and this hasn't been studied in depth, it would be reason enough to extend the public comment period for a while longer I would say.]</p> <p>{But it's the same ecosystem. It's the watershed. It's connected. I mean that's ridiculous.}</p>
Other	PM	4/11/2008	TM	170	<p>Here is a few things I'd like to ask. One I want to know is how deep are the samples that were taken so far. Will you please answer that?</p> <p>I'd also like to ask that this information that NOAA, and I know they're going to review things. I've talked to Denise Klimas today, that we the public, I think we need time to be able to review those so we can then make comments on the comments presented by NOAA. Is that going to fall within the time limit, you know, the extension time for public comment?</p> <p>The other thing is that North Coast Action years ago gave the Regional Water Quality Control Board a list of responses by past Georgia-Pacific employees that talked about dumping into the ocean, trenches having solvents running down these cement pipes into ocean, these cement trenches and pipes.</p> <p>We have a lot of anecdotal information, and then once DTSC got onboard, we had you guys over to our house for tea, and we told all those stories and gave you a map accordingly.</p> <p>Then an anonymous line was set up. Ryan Miya, the other project manager prior to Ed Gillera, said he was getting a lot of calls about dumping into the ocean. I would think that could be taken into account.</p> <p>It is no secret in this community that Georgia-Pacific continually dumped into the ocean. So although it must be objective, and I understand that scientifically, there is a tremendous amount of information that has come forth from the public that I think would be a great way to begin and to continue with the investigation, and if you want, I have those files, and I'm more than happy to give them to you again.</p>
Other	PM	4/11/2008	DG	171	<p>I used to dive for sea urchins, and years ago, probably about fifteen years ago, we dove off Soldier's Point there for sea surchins, and the ones we grabbed up, we couldn't even eat they tasted so bad.</p> <p>Now, I'm not sure if that's from the water treatment plant or from other toxins or whatever, but my question is, I was confused because you said that Fish and Game collected samples of mussels for this mussel study and that they'd come to some conclusion, and it's been published on your web site or whatever, but the conclusions were still not conclusive. My question is: What are the conclusions? Were there dioxins in the mussels?</p>

					<p>[So are those safe, regarded as safe levels for human consumption in the Health and Safety Code?]</p> <p>{They are?}</p>
Other	PM	4/11/2008	DG	172	<p>It sounds like further certified testing needs to be done. I mean it sounds like an informal test that wasn't specifically designed for the site that the Fish and Game conducted.</p> <p>[So you're saying the data hasn't been analyzed?]</p>
Other	PM	4/11/2008	GH	173	<p>I'm a student at C.R. of political science, and I'm doing a grassroots' homework assignment, and I thought I'd start one for real, and so I started checking things out.</p> <p>I started checking things out, and basically the citizens of Fort Bragg, they want this mess cleaned up, bottom line.</p> <p>So I started like a little petition, and I got swamped right away. So how many people do we need to, you know, for signatures just to have G.P. clean up that site?</p> <p>How many people do we need for signatures to get, you know, the G.P. site cleaned up so we don't have a stigmatism of having a toxic waste site here in Fort Bragg?</p> <p>[I'm talking to where we're happy and it's not gonna hurt us economically and our future kids don't have to clean it up.]</p> <p>{How many signatures, though?}</p> <p>Check the things out. Most people just want it cleaned up and out of here completely, literally.</p>
Other	PM	4/11/2008	JH	174	<p>There was a cleanup going on there, and I'm glad the people understand what's going on here 'cause it's really important for the community to understand, when they say cleanup, I've got to say you can't really clean it up because the way to clean it up, it's just hitting someplace else and dumping, and that's how my son died, age of five.</p> <p>Chromium, and there's nuclear waste barium. How are you gonna remove nuclear waste, which is barium, to another location, another neighborhood, which it will leach? That's what Willits did, and in return, my son died. We were downstream, and they were dumping illegally, and dumping illegally with the state, DDC, the health department, the water board, everybody knew what was going on for years, just like the site here, but they never had a team of enforcement.</p> <p>There's a new law that came out in '92, '95. It's called Local Toxic Enforcement Agency. It's the police department that's supposed to investigate, to investigate the site besides the people here with the DDC's control people, everybody involved, to find out what's really going on.</p> <p>Once you turn the site to a corporation, some other person to do the</p>

					cleanup, there's large evidence all the time that there's never any overseers at all, and that's how my son died, and I hate to tell you, you shouldn't remove it. You should just build a gate around it, plant some stuff and put some mushrooms in it by cleaning it up, and removing it to another neighborhood.
Other	PM	4/11/2008	RB	175	<p>My personal focus has been on the underground water and things like that.</p> <p>Before I go on, I'd like to pass on what I was just informed, that a certain diver has gone -- This is an old map, 1900s. It shows highlighted in yellow -- I'm sure it's very difficult for you to see.</p> <p>Highlighted in yellow are crisscrossing creeks. This is 1900, circa 1900 more or less, and it shows us we have little, little crisscrossing in this area. This is where, this is where the mill site is, between the Noya River and Pudding Creek.</p> <p>The Noya River kind of has an exposure that enters into the area. There's a fresh water flow that flows underground into the mill site, and many of the original flows had been blocked or changed and put into pipes or whatever, but really relevant is what Thais just told me, that a diver, a diver entered under here, and there's a waterfall of water coming out of this area.</p> <p>This area is alive. This area is alive with water. It's flowing, and the idea of building I will address, because it is the tidal zone that we're talking about. The mussel study I think is a total false thing because if you look at the, if you look at the satellite photographs of these areas, you'll see a strong current going north so that the pollution is not hanging around Soldier's Bay. It's moving north, and this is the flow of the water.</p> <p>We have a major problem here, and this diver went into this cave. There's a waterfall coming out.</p> <p>The fact that they're not responsible for the tidal zone, but that poison is traversing that mill site, so that responsibility is yours, and you need to own it.</p>
Other	PM	4/11/2008	JM	176	<p>I speak as a member of what's probably the largest, certainly the most disorganized group around here, that is ex-millworkers.</p> <p>We are forgetting here that all this is under the supervision of G.P. Right? And some help from the other people.</p> <p>Well, G.P. works like this: When I started, I worked in the mill from '76 to '81, and I pulled lumber, and I worked in the powerhouse for four years, which is very close to the ocean.</p> <p>When I began working in the powerhouse, there was this old guy you would see going all over, all over the mill. He carried an oil can, and he carried a grease gun, and he put a little oil here, greased these bearings there, and he was all over the mill.</p> <p>After my first year or so, he retired. Did they replace him? No, no. I mean how much did they pay him? I don't know. Maybe he was laborer's pay, maybe a little higher than that, but no, they didn't replace him. They figured it was cheaper, and that's what they're interested in, cheaper. They did not replace him.</p>

					<p>So when something did run out of oil, a bearing burned out, anything, just whatever it was came to a halt, which caused that to come to a halt, that, that, and so on and so on, and then they put twenty people working on that: "Get that thing running now."</p> <p>This is way G.P. thinks, and like G.P. always talked about, the bottom line. Take the "n" out of that word. It's the bottom lie.</p>
Other	PM	4/11/2008	DH	177	<p>I'm a cave explorer. I'm the person that was supposedly a diver. I'm a cave explorer, and I've been exploring and diving in caves on the Mendocino coast for sixteen years. I'm a member of the National Speleological Society. We're affiliated with the National Science Foundation, and I'm a long-time cave explorer.</p> <p>On Sunday, I decided to explore one of the caves on the mill property. After mentioning the caves in a City Council meeting, and it fell upon deaf ears, caves are often a conduit for groundwater to enter the ecosystem invisibly.</p> <p>What I discovered in this cave, and I have photographic evidence 'cause I shot photos, is an extensive cave system. If you are on Todd's Point, at the end of Todd's Point and you look across, you can see some cave entrances, and they don't connect. This cave has five entrances, and there's considerable groundwater coming into it.</p> <p>I'd like these back, please.</p> <p>Now, there's more than just one cave on the property, and I don't understand why they're being ignored. They are conduits for water to enter the ecosystem invisibly.</p> <p>If you look at the mill property, it's dry except for the water that is in ponds, and this cave gets you soaking wet when you come fifteen or twenty feet into the entrance, so the water is flowing in.</p> <p>Many of the sea caves along the coast do have sea life in them. This is common knowledge for anybody that explores caves.</p> <p>One of the things I noticed about this cave was there wasn't as much sea life as in all the caves I've explored and mapped south towards Mendocino. Those are just rampant with life. It's amazing. This cave didn't have as much life.</p> <p>Granted, sea caves are dynamic environments, so so you probably don't have a lot of life, but there are little areas. There's a particular area in the photograph where there should be sea urchans and stars and bat stars, and there's nothing, and I don't understand that.</p> <p>Also at the entrance to this cave, in one of the first photographs, you can see where G.P. has filled in a ravine of former drainage. They filled it in with slag which is actually down at the waterline. I don't know if there's toxins in the slag, but it's definitely there.</p> <p>There's timbers. There's iron parts, rails coming out of it. You can see, when you get to that photograph, the algae that's coming out that has contact with the bedrock is stained orange most likely from the iron that's buried there from the bluff top, and you cannot tell that this exists. It just looks like part of the bluff top.</p> <p>Also, to the south of this cave, there's a giant litoris sinkhole which is just a big hole in the ground with an entrance to the ocean. There's metal debris in the bottom of that that you would not believe. That</p>

				<p>was probably that hole that they were talking about where they dumped stuff into.</p> <p>That is the litoris sinkhole that I was referring to, and the cave is at this point. You can see an entrance here from Todd's Point, an entrance here, and so there's these two entrances here, a smaller one here, one here, and there's one back where the algae is in this little drain.</p> <p>The other thing I want to point out, I was so excited finding this cave. We went in the evening. It was a minus tide or a low tide so it would be easier to get to.</p> <p>By the way, I don't recommend anybody going into this cave. It's quite dangerous to get there. You need to do rock climbing and such, and I've been doing this for a long time, so trust me.</p> <p>I didn't shower that evening, I was so excited. I just went to bed.</p> <p>When I got up in the morning, I went outside, and as soon as the sun hit my skin, it started burning in the area of my head where I got wet. Now, okay. This could just be a coincidence, but I had red welts, and I immediately went inside and showered.</p> <p>So I am concerned that contaminants could be entering into the ecosystems through the caves. There are caves here, and there are caves here that I have not been into, and I also know that there are caves in this area along here.</p> <p>There's not much in the way of caves along here because it's so fractured because there was apparently no drainage, and it doesn't support cave development, but certainly there's certainly caves along here.</p> <p>They all should be looked into because we don't know where the water is coming from. I mean you get showered. You need an umbrella when you stand in this thing. That's how much water there is entering into that cave.</p>
Other	PM	4/11/2008	LS	<p>178 I'd like to thank you the DTSC for this additional meeting and also the extension on the public comment period.</p> <p>We did talk at one of the earlier workshops about the maps, and we asked at the earlier workshop that the map showed the town because this is too abstract for us. I've lived here twenty-five years, and I can't understand where anything is or where the streets are, and this is going to be our town. This is all slated for redevelopment, and so it's very important that the maps show where things are, especially if you're talking about capping an area.</p> <p>Secondly, with regards to the reports from NOAA with the sediment, I understand that Denise is going to meet with the geologist on the 18th.</p> <p>Denise Klimas of NOAA is meeting with the trustees on the 18th, and then the final determination of whether more testing needs to be happening, it will be on the 25th?</p> <p>[Right.]</p> <p>{I understand. My concern also is that as the public who is supposed to comment on these, we won't have information before the public comment period runs out, and I know it's not officially part</p>

					of the site but – }
Other	PM	4/11/2008	LS	179	<p>This is a good time to give my concerns with the samples for the background metals. These seem really high to me.</p> <p>The chromium, sixty, that's still over the state standard of fifty unless it's been revised lately. I haven't checked into that, and barium, three ten, one hundred, and copper is pretty high, and lead.</p> <p>I know that this mill site must have had the green-treated wood, which is chromated copper arsenic, and chromium is really toxic.</p> <p>I don't know if you people know, but you're mostly talking about dioxins, but my son is the one who died. Forty-nine parts of chromium is what we found in his vomit six months later. Okay? So to me, fifty parts is not even safe, and sixty is not background. These are not -- I would not believe that these are true levels for background concentrations.</p>
Other	PM	4/11/2008	JS	180	<p>We live down the coast, and my husband and I decided that we would work on this project pro bono for the community. I've been involved for a couple of years.</p> <p>I have two questions. One of them is specific to the intertidal issue and clarification from Ed.</p> <p>The other one is more of a general question, but I really believe it needs to be stated, and several people in the community have mentioned this to me, and I'm gonna go ahead and state it.</p> <p>Ed, given what the gentleman showed, the diver, and the concept that these caves go far back in, could you show us where the proposed land treatment and where the proposed landfill for the dioxin waste will be on that map?</p>
Other	PM	4/11/2008	TM	181	<p>I want to comment on something you said about about anecdotal information.</p> <p>Five years ago, I had several past Georgia-Pacific employees come up to me on the street and other places and start telling me their stories, and I did not feel comfortable holding that information, and I said, "Why don't you come forward to the Regional Water Quality Control Board or the City Council?" and they said, "We can't. We're being threatened."</p> <p>We talked to someone who works in the field that you're in, and he suggested that we put an ad in paper, and we did. North Coast Action put an ad in the newspaper asking people to come forward and tell their stories.</p> <p>We collected that information, and we made a map, and the reason people are not here this evening, and excuse me if there are some, but the ones that told us those stories, is because they were threatened; their families were threatened, and they're still being threatened.</p> <p>So it's not just some anecdotal information that you need science-based facts. People cannot come forward because their lives are</p>

					<p>threatened, and again, I don't think that's a secret in this community, that the mill workers have not been able to come forward, although DTSC, to your credit, set up an anonymous line, and I know from Ryan, there were a lot of phone calls, and they were able to call in without giving their name.</p> <p>This I think must be taken into account, especially regarding the intertidal zone. So I hope that the anecdotal information doesn't just get brushed under the rug. It's anecdotal for a reason.</p>
Other	PM	4/11/2008	DS	182	<p>I think that the tidal sampling is extremely insufficient. The things posted show that we have questions.</p>
Other	PM	4/11/2008	MP	183	<p>I had lunch with Carol Stevens, the former G.P. executive vice-president of real estate, in December with a member of North Coast Action, Loie Rosenkrants, and she assured us at that time that there's a regular set of protocols. Glen Young, Fugro West, DTSC representative and others have been on the site following this protocol for years.</p> <p>Now, we, a group of citizens, geologists, Jody, a toxicologist, and others want to firsthand see what it is that we're commenting about, and so far we have been stonewalled. We really want to get onsite and get onsite soon.</p> <p>Deadlines are coming up. Decisions are going to be made, and on what basis? Inadequate community participation because of lack of knowledge, firsthand knowledge.</p>
Other	PM	4/11/2008	TM	184	<p>Thank you, Denise. It's fascinating. I didn't quite understand it, but I do know -- I'm not putting you down that I didn't quite get it. I have to look into that more. You know, I've been studying dioxins.</p> <p>You know, our community brought Lois Gibbs here, and I was introduced to her book "Dying from Dioxins." That was my first introduction to dioxins. If you really want a good read, get her book, "Dying from Dioxins." She talks about communities all over the United States and what they are going through.</p> <p>I'd like to also find out if this is true: Are dioxins mutagenic, meaning that it actually changes the DNA?</p> <p>[No, they're not?]</p> <p>{Oh, I have to check my sources 'cause that's what I read. Thank you for that clarification.</p> <p>It is an Agent Orange, correct, dioxin? I mean that's basically Agent Orange?}</p>
Other	PM	4/11/2008	TS	185	<p>Then I'd like to check something else out on my facts, and that is I believe that there are multiple health effects, as you've stated, at levels lower than what cause cancer, and some of those, from what I can remember, are infertility, impotence in men, miscarriages, diabetes, rare neuropathies, nervous system disorders, and the only way to offload -- That's just a few of them that I can remember.</p> <p>The only way to offload is through a mother nursing her baby, to give it some of the mother's dioxin. Is that correct?</p>

					[The mother passes it on, and her load is reduced by giving it to the baby through the breast milk.]
OU-A	PM	4/11/2008	TM	186	<p>Let's see. 2006, National Academy of Sciences reports there are no safe levels of dioxin. 1998, U.S. EPA comes out with a report saying there are no safe levels of dioxin. That's online. You can see that on the web site. Correct?</p> <p>No safe metals. So somehow, that's been ratcheted up.</p> <p>Now, my next question is, fifty-three parts per trillion, is that what we're looking at as far as the levels we're cleaning up?</p>
Other	PM	4/11/2008	TM	187	<p>Well, I'd like to hear that because as I said in the last public comment time before March 26th, is that culturally, this community lives off the ocean, and we live right here on the ocean. So it's not an urban environment where somebody's just going out and walking their dog for an hour after work. This is an integral part of our community, very close vicinity of course to where we all live and work and shop and so on.</p> <p>I don't want to take up too much time, but we do want a clean bill of health, and so to bring up again the full site characterization, you say that dioxin can be taken in through the skin and inhalation.</p> <p>Well, certainly if the land next to the trail has not been fully characterized, we don't even know it's there or remediated, how can DTSC insure the health, the human health and animals and so on of this community if we don't even know what is next door to the trail? I'd like that question answered.</p>
Other	PM	4/11/2008	JH	188	<p>When they start saying -- These people work for the state. They actually work for us. We pay their salaries. When they say listen to me, we're not talking about me. We're talking about a site, a mill site which is right here, this mill site.</p> <p>Once it rains, the rains get, even on a hot day like today, the heat picks it up. It's a fact. Heat picks up the chemical toxics, volatiles, V.O.C. It picks it up. Heat picks it up and brings it around. The fog also picks it up. It carries it over. It doesn't carry it into the ocean. It carries it into the population.</p> <p>Meanwhile I'm hearing no safety about kids. The kids, what's the level? How much can kids breathe in these chemicals? They're in the schools. You have them around here in the ocean. So actually, everybody is being contaminated.</p> <p>The EPA says a three-mile radius, a three-mile radius on a mill site. Let's say a mill site is toxic everywhere for three miles. The first mile you've got diabetes, cancer, miscarriages. People are sick. Second mile, they get a little less sicker. Third mile, it's still there.</p> <p>So the air, air monitoring, no body's talking about the air being monitored. Air monitoring is crucial to have on the site so you can actually find out how air, oxygen, pollution is reaching the population, and that's what I'm worrying about, kids. This is like an abusive thing on kids. So we have to protect our kids, and they're our future. That's what you've got to remember. Kids are our future.</p>

					<p>All this is brand new in our country where industrial industries have been going on through the '30s and '40s and '50s. So now the industries are going broke. They don't want to pay. They have a whole bunch of chemicals, and what's happening is the kids have got the legacy of these chemicals, just like the war. So we have to protect our kids.</p> <p>So look out. Look for the EPA. There is a three-mile border, and that's how I want to finish it.</p>
Other	PM	4/11/2008	RB	189	<p>We have also been informed that it doesn't matter what you think. I mean it might change a few things, but if the whole town was against it, our only recourse is to take them to court at great expense. They're going to do what they determine they want to do, and we, our public comment, it's valuable because we get to hear each other, but it really, I don't think is going to affect the plan at all.</p>
Other	PM	4/11/2008	BM	190	<p>I have really just a couple of issues. The first issue is a question of whether these deliberations of setting what acceptable levels or nominal levels for this site are going to be affected by precautionary principle as visa-vie the County of Mendocino, the county law.</p> <p>The second is will these, will this set of levels and this consideration, will that include modification, or will it affect the remediation onsite or offsite in particular?</p>
OU-A	PM	4/11/2008	MW	191	<p>I want to ask about the stability of the dioxin compounds, and there is a concern around synergistic effects, and could you speak to that, please?</p> <p>[What about when all of these compounds are put together in a pit?</p> <p>And if they're there for an extended period of time, do they act upon each other?]</p> <p>{Well, there are several kinds of dioxins, however. Is that correct?}</p> <p>I understand, but if all of those different kinds of dioxins get together in the same salad bowl, can they influence and act on each other and make themselves into something different?</p>
OU-A	PM	4/11/2008	SW	192	<p>Last time I expressed and submitted a comment that I believe that it is technically the best solution and ethically by far the best solution to keep the material here onsite encapsulated as shown right here.</p> <p>With that in mind, I think it might be worth a try to compare the ecological and human risk assessments of onsite sequestration with risk assessment of offsite transportation and disposal.</p> <p>In other words, the risk assessments that are being done now, both technical and human for the encapsulation and the activities onsite that lead to excavation and encapsulation, but also to somehow come up with a risk assessment that would compare with those findings of having material put on trucks, transported on anywhere from seven-hundred to a thousand loads, over roads that we're all familiar with between here and Willits and on down into and through towns in Sonoma County and the bay area, perhaps ultimately to the Petaluma Hill dump which is about four-hundred miles from here.</p> <p>So I would hope that the DTSC could arrange or somehow come up with risk assessments of offsite transportation.</p> <p>I have tried on the internet to look up truck over-turns, and all I find are lawyer advertisements for people who want to sue the truck</p>

					<p>companies. So I would hope that there's more, a better data base that you folks can find that could come up with that comparison.</p> <p>[Thank you, but I would hope that maybe through the Department of Transportation and maybe even the City of Willits might know how trucks behave because it's not just coming over the windy roads. It's making sharp turns on city streets and going on and off circular freeway ramps.]</p>
OU-A	PM	4/11/2008	JL	193	<p>Kettleman Hills and that area, according to the Mendocino County General Plan, we are in the most hazardous earthquake zone, and it's a big fault zone, so I don't think it's the best place to be putting it on the edge of something like that.</p>
Other	PM	4/11/2008	SW	194	<p>Kettleman Hills sits about I think fifteen to twenty miles east of the San Andreas fault along a strand of the San Andreas fault that's much more active than the strand we have here out in the ocean, and the Keller Canyon location near Pittsburg sits near the Martinez fault which also has a lot of activity.</p> <p>In California, there's no free lunch when it comes to being near a fault.</p>
Other	PM	4/11/2008	MB	195	<p>I'm a naturopath here in town. I spend my life detoxifying people. I've studied dioxins a lot. Dioxins and PCBs are the number one carcinogenic chemical, number one.</p> <p>There are seventy-thousand chemicals in our environment, sixty-five thousand of which have not been studied for human toxicology. It's true.</p> <p>The thing about dioxin, and I refer you to this month's Discover magazine; there's a big article on dioxin, is that it's an environmental endocrine disrupter.</p> <p>What that means is it interrupts your thyroid, your adrenals, all of your endocrine glands.</p> <p>It's a lock and key situation. You have this on every single cell in your body, just like she was talking about. The dioxins come along, I mean the thyroid hormone comes along, and it goes like this, shuu, shuu, shuu, shuu, click. It works; it hits, and every cell in your body is dependent on a teaspoonful of thyroid hormone a year.</p> <p>The thing about dioxins is they damage the receptors trying to hook on. So even if they don't get hooked on, they get to damage the receptor, and then your thyroid comes along and goes, "No, that's not it; that's not it," and goes on by.</p> <p>So thyroid is the number three most-prescribed medicine in the United States, and there's reason for that. It's the dioxins in our community.</p> <p>People who eat organic dairy and organic meat don't get the same dose of dioxins as people who eat, quote, traditional do. That's something to remember.</p> <p>I also wanted you to know that the lower the dose, the more it affects the other systems in your body. This thing of the cancer dose, yeah, it has to be high so that you're toxic enough to get cancer, but the absolute minimal dose will totally affect your entire system because</p>

					<p>your thyroid hormone affects absolutely everything in your body all of the time.</p> <p>The other thing is children are ten-thousand times more susceptible to damage. Another thing is that a child can get seventeen times more dioxins in one year of a mother's milk than is allowed in a lifetime, and that figure is from the CDC.</p> <p>The other thing is that once it's in, it can't get out. You can get it out with far infrared sauna or ionic keyation (phonetic), and eating raw fruits can help you, too, because it supplies you with the enzymes that you need to make those things happen.</p> <p>Is there anything else that I wanted to tell you? I don't think so. That's it. It's a problem because it's our stuff, and if we keep it here, we're gonna have it here, and when the wind blows, it's coming our way. Capped or not capped, it's gonna work its way up; it's gonna work its way down. It always does, and if we send it out, we're going to be giving our problems to somebody else to deal with. You have to look at your own life and decide what you want to do.</p> <p>Thanks for being here. I think it's important that we know that it's more than just cancer we're talking about here.</p>
Both	PM	4/11/2008	MC	196	<p>Oh, and where would this stuff, if we haul it offsite, where? Petaluma? My God, that's unthinkable, and yet where else?</p>
OU-A	PM	4/11/2008	JS	197	<p>I would like Ed to explain the liner. It comes in rolls, and then guys get down on like their hands and knees – Girls, too. Sorry. What do they do to these rolls of liner? What do they do to the rolls of liner?</p>
OU-A	PM	4/11/2008	JS	198	<p>I just want to point out that I think I've looked at every landfill, and you are calling this a cell, but I'm going to call it a landfill because of the plans for the future if we left the dioxin on the site, but please note in the first bullet, it says the liner material, and I don't differ with that. I believe this plastic stuff will last for three hundred to a thousand years.</p> <p>The problem is is with the installation of the liner. The seams come apart, and holes form. A lot is also dependent on what goes in the liner and keeping water out of it, but to say that the liner is going to last three hundred to a thousand years, I have some problem with that. The liner material will last, but the seams fail, and they fail in every landfill that I know of, including Kettleman Hills and those places.</p> <p>So I just think it's very important that you differentiate the liner material from the liner system.</p>

OU-A	PM	4/11/2008	TM	199	<p>Will you please, and, Ed, I guess this would be for you, fifty-three PPT, that was never answered. How was that arrived at for the trail? The level of dioxin would be cleaned up to fifty-three PPT. What is that? How was that arrived?</p>
Other	PM	4/11/2008	TM	200	<p>When you did the recreational levels and you looked at children, did you also look at children burying themselves up to their necks in the sand in the intertidal zone? Did you look at activities in the sand, including a child burying their body or of their friends burying their bodies up to their necks in the sand?</p>
Other	PM	4/11/2008	SDT	201	<p>I was glad to hear you say of your scientific integrity. I feel that all the people on the board are very honorable, but that's really not the problem here.</p> <p>The problem is that the only way to really assess the risk is to know what we already have in your bodies as Rafael said.</p> <p>The people in this community have fly ash in their gardens. They have fly ash on the playing fields that their kids fall down on, and they have been exposed over a number of years.</p> <p>So I have not a question but a proposal. I propose that we forget about the December 31st deadline and the four point two million dollars that the Coastal Conservatory will give for the coastal trail, and that if you really want to do a good job to protect the community, that you have voluntary testing for dioxin levels of everyone who resides in the community, and that's the base level that we should start with.</p>
OU-A	PM	4/11/2008	DJ	202	<p>I've been, you know, I've been -- I don't have a decision yet in my mind about the cap. There's pros; there's cons. It's a deal with the devil, but one of the things that bothers me about it is here's -- I'm going to put this piece of paper for the folks in the back. I'm going to put this piece of paper at the edge of the cap right there.</p> <p>Now, do you see these blue dots right here and right here? Those are ponds.</p> <p>Now, before I really saw this map, I was poo-pooing the idea of the groundwater because I know how hard it is to get meaningful groundwater that close to the ocean, you know, potable, useful groundwater. There are wet spots. There's wetlands. God knows that.</p> <p>Look at this. I mean the reason that the ponds are where they are on the mill site is that's where that natural water was. That's where the natural water was a hundred and fifty years ago when they started building this mill.</p> <p>I've not taken a real good look at the full study of the design study for the cap, but it just jumps out at me as a layman that we're butting right up against what's obviously a wet drainage that goes down into this.</p> <p>This formation is here because streams were coming down here once, and here was an old stream bed. Most of them have been</p>

					buried. There's the remnants of it, and there's our disposal cell, and I don't know. This seems a little close.
Both	PM	4/11/2008	LP	203	<p>We still need more time. Do any of you who are making this decision, do any of you live in this area? Are any of you going to be affected by your decision? Two weeks is not enough time to make -- I've just been here a little while, and there's more questions than are answers, and I'm hoping that you truly have heard people tonight.</p> <p>This affects our lives, and it's a corporation making a decision about people who live here, and do any of you live here who are making this decision? Are you going to be affected by your decision?</p> <p>I'm sorry that I went ahead, but I don't understand how you can make a decision and expect us to know all this in such a short amount of time. Do people have to beg?</p>
Other	PM	4/11/2008	TB	204	<p>I've been a resident of the coast and the town of forty years.</p> <p>I printed up something that this gentleman previous to me has pretty much echoed. It was supposed to be printed in the paper this week, but it didn't get in.</p> <p>I would only like to address -- First I want to thank you people for your time and patience and all this coverage here.</p> <p>I would like to address the townspeople of Fort Bragg, of which I am no longer a member; I moved a mile south out of the limits, but your City Council should have been here tonight, and you better get them on the ball because these people, not you people but the other people that aren't here, you're listening, but they're gonna roll over this. They want to do what they want to do, and we have the power or the City Council through your vote has the power to zone this place and to slow things down and to get things right, and you know what's right. You've said it tonight.</p> <p>These people are trying to help. They need to be guided by your elected officials. They need to be here.</p>
Other	PM	4/11/2008	DS	205	<p>A gentleman had to leave earlier who's a long-time diver here, and he asked me to speak for him and say that when you speak to the Natural Resource trustees and the folks from NOAA, we strongly encourage you to renew your testing, and instead of using mussels, use abalone. Abalone has a thirty-year lifespan, blah, blah.</p>
Other	PM	4/11/2008	AW	206	<p>I have a positive announcement to make, but before I do, I wanted to look at the capping from a different point of view, not so much the safety standpoint but from the statement it makes about the continuation of a control-based relationship to the environment, and that's not what this community is about. We're not trying to perpetuate the mistakes from the past. We want to step beyond them and get ready for the future.</p>

OU-A	PM	4/11/2008	MP	207	<p>One thing that seems like it's been overlooked is when the City Council, aka Fort Bragg Redevelopment Agency, voted for Polanco, to enact the Polanco Act, it gave them, as I understand it, the ability to be the lead agency in whatever goes on, the remediation, the investigation and the redevelopment on the site. If we all come to the meeting Monday and if even half of what we've said today comes up Monday night, we could be on the way to getting them to slow things down. I think our motto should be, "What's the hurry?"</p>
Other	PM	4/11/2008	AL	208	<p>I've been on the coast over thirty-five years, and for the past ten years, I have lived at North Main and Laurel, right up here.</p> <p>Twenty-four seven I lived through the burning and incineration when I couldn't breathe a lot of times, and my chest was tight.</p> <p>Where is the pressure coming from to wrap this up so quickly? Where is the timeline? Is it coming from G.P.? Is this timeline cast in concrete? Is this an administrative timeline? Those are questions.</p> <p>[But it's possible that that could be worked with?]</p> <p>{That's the problem. I feel I am and the community is being faced with a Sophie's Choice, an ecological Sophie's Choice. Containment or transporting to someplace else is flawed.</p> <p>We need more time to figure this out. There is not a community consensus about this. The community process is not in sync with the timeline that has been set up for us, and we need some creative work around that. That's what I feel right now because we're the ones -- I'm speaking for my grandchildren and their children's children.</p> <p>I have a lot of respect for what you're trying to do, but this is a problem that we have to deal with. We do have a lot of potential to do something creative with bioremediation, but there's not a quick fix.</p> <p>You know, we have extremely high rates of breast cancer here, thyroid problems. Who knows what we were breathing in? No one would give us information when they were burning that stuff.}</p>
Other	PM	4/11/2008	AL	209	<p>I want to say publicly that Georgia-Pacific was supposed to be sustaining the forestry, and you know, the mill closed down.</p> <p>Georgia-pacific could fold and go someplace else, and we're the ones, we are the ones that have been suffering through this and are bearing the brunt of this, and I really feel like we need more time so you can talk to your managers. I don't know how much and to what kind of a larger arena we have to politicize this, but there's no good solution right now, and we should not be forced into something that is really not going to work for us.</p>
Other	PM	4/11/2008	JS	210	<p>I want to address the invisible elephant in the room. That's a very good question that Andrea just raised about where's Georgial-Pacific. I've been going to these meetings for three years, and I haven't heard one single person stand up and say, "I represent the Georgia-Pacific Company, and this is what we want, and this is what we think ought to happen." So I want to provide the community with a little bit of information that I came up with.</p> <p>First of all, there seems to be some confusion in the community as to who exactly owns what is generally referred to as the G.P. mill site.</p> <p>Our local radio station suggested that the G.P. Corporation was a wholly-owned subsidiary of the Coca-Cola Corporation.</p>

				<p>That information was entirely incorrect. The Georgia-Pacific Company is not owned by the Coca-Cola Corporation. It is the wholly-owned subsidiary of Koch Industries.</p> <p>Koch who? Koch Industries was founded in 1945 by Fred C. Koch as part of the oil services industry, specializing in oil pipeline construction and maintenance and on-shore facilities servicing offshore oil rigs.</p> <p>I wonder why they got fascinated by the G.P. mill site, but that's an aside.</p> <p>Later the company diversified into engineering, financial services, corporate agriculture and ranching, chemicals, fibers and polymers, and with the 2004 twenty-one billion dollar acquisition of Georgia-Pacific Corporation forest products.</p> <p>The Koch Industries entirely owns the Georgia-Pacific Corporation. That means they are the ones who ultimately call the shots. I'm sure they agree. I'm sure it's corporate policy to let the Georgia-Pacific Company do all the negotiations except when one of them gets sticky.</p> <p>The company employs eighty-thousand people world-wide and operates in dozens of countries. Some people refer to it as Halliburton on steroids.</p> <p>Forbes Magazine refers to the Koch Industries Company as the, quote, world's largest private company with revenues of ninety billion dollars a year.</p> <p>Does that make Koch Industries the largest company in the world? No.</p> <p>The appellation "largest private company" refers to the fact that shares of the company are not publicly traded on the stock market, and for this reason, the company is not required to release certain financial information to the Securities and Exchange Commission.</p> <p>Who runs Koch Industries? It is purported that the Koch brothers themselves, the sons of the founder, own a majority of the shares of Koch Industries.</p> <p>Whatever the case, the brothers, Charles G. Koch and David M. Koch, C.E.O. and executive vice president respectively, rank as two of the wealthiest men in the world. The most recent Forbes Magazine survey of the wealthiest people in the United States have both men listed as tied for thirty-third on the list and both worth an estimated seventeen billion, not million, billion dollars.</p> <p>What is the company's philosophy? This is the last part, the part you've been waiting for.</p> <p>An organization called Media Transparency, which investigates how big corporations operate, points out that Charles G. Koch founded the conservative think tank, Cato Institute.</p> <p>The family has long, for many, many years, backed the John Birch Society. They have taken a leadership position in attempting to debunk global warming and, quote, make substantial contributions,</p>
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				<p>twelve million dollars, to like-minded organizations trying to debunk global warming.</p> <p>In touting limited government and free markets, these organizations that they have founded, that Koch Industries has founded, doubt the dangers of various chemicals and environmental pollutants as well as challenging research efforts to document hazards.</p> <p>One CSE paper -- That's another think tank they founded, argues that environmental conservation requires a, quote, common-sense approach, and therefore, government should be limited in investigating toxic problems.</p> <p>Assuming any difficult decisions regarding the G.P. mill site will eventually float up to Koch Industries board room and assuming the brothers, as majority stockholders of Koch Industries and their various wholly-owned and bought subsidiary, Georgia-Pacific.</p> <p>I have a few questions.</p> <p>Number one: Are Charles and David, our seventeen-billion-dollar men, aware of the fact that this Fort Bragg is in California and not in North Carolina, and do they know that? I ask that just to make sure we're all on the same page.</p> <p>Second question, has either brother ever visited the California Fort Bragg? And if they have or if they'd like to come, and I'd like to invite them to come, would either of them be willing to build for themselves I'm sure a very fine home, with spectacular ocean views?</p> <p>If they design it as a duplex, as many of us now know, if they design it as a duplex with one common wall, one brother living in one end, the other brother living at the other end, it qualifies to sit right on the cap, and then they can live their philosophy. Nothing in there will hurt them. Global warming isn't going to happen. Money counts more than anything, more than you people, more than this city, more than anybody living on this coast, because they don't even know if this coast is California or Fort Bragg, I will wager.</p>
OU-A	PM	4/11/2008	TM	<p>211 I have worked with a lot of the State Coastal Conservancy Commission in my career, in my profession, and I don't know what exactly the source is of funding for this particular grant.</p> <p>I also was part of the trail planning workshop, and I very much am in favor of the public trail along the bluff edge of this property and what the Coastal Conservancy and the city are trying to do, but Coastal Conservancy grants in my experience are routinely extended if that is necessary. So I think in this situation, perhaps more time is needed rather than having that deadline, which may be one that could be extended.</p> <p>It really should be discussed with the Coastal Conservancy, the City of Fort Bragg, and the Department of Toxic Substances if there is an opportunity here to extend that funding source so that this can really be dealt with in a way that the community feels good about, 'cause I think everybody needs to be feel good about this, to have it feel like, after centuries of having the whole waterfront in this town controlled by a corporation that employed many people in the town but really ultimately was more concerned with their profit than this town.</p> <p>This is an opportunity to start fresh and to really have the responsible entities for the contamination take care of the problem.</p>

					<p>So thank you very much, and I really appreciate the dedication that all of you have to doing your jobs well and with integrity and to listening to our comments this evening and throughout this process.</p> <p>I do think that more time would be a good thing, and the conservancy grant may not, that deadline may not be real.</p>
Other	PM	4/11/2008	JS	212	How will we know that there is an extension?
Other	EM	4/15/2008	JS	213	<p>Subsequent to this last Friday night's meeting, there have been a number of conversations with community members and others about the definition of the "site" as it is defined in the Order of February 2007 and the term "intertidal zone". We have reviewed the Order in its entirety and focused on those portions of the Order relative to the definition of the "site".</p> <p>Please define what is meant by the term "intertidal zone". Please define "intertidal zone" as it relates to the G/P site.</p> <p>Does the "site" as defined in the Order include the sides of the cliffs/bluffs? Beaches?</p> <p>The Order identifies a number of Mendocino County Assessor's parcel numbers that, comprise the "site" as defined in the Order. The Order also include Exhibit A which is a map prepared by G/P's consultant that defines the boundaries of the "site". Was a title search prepared on this site to ensure that the parcel numbers and correlated boundaries, match with the boundaries of the "site" as defined in the Order? Do any of the parcels listed in the Order include, within the boundaries of the parcel, an intertidal zone area?</p> <p>Could you please clarify if caves, as those described by the diver in last Friday night's meeting, are part of the intertidal zone? Are they a part of the "site" as defined in the Order</p>
Other	EM	4/2/2008	WG	214	<p>The RAP does not seem to address the intertidal zone. Is there a reason this cannot/should not be addressed by this RAP? Is there another RAP that will address these locations?</p>
Other	EM	3/27/2008	LL	215	<p>In addition GP must in cooperation with DTSC, the Costal Community and the City of Fort Bragg: Clean up all toxic school grounds. Clean up all private lands and gardens.</p>

Other	EM	3/27/2008	LL	216	In addition GP must in cooperation with DTSC, the Coastal Community and the City of Fort Bragg: Test and clean up the Tidal Zone.
Both	EM	3/29/2008	DR/TM	217	Will the soil handlers/transporters be familiar with the Fort Bragg area and roads? (for there had been previous accidents.)
Both	EM	3/29/2008	DR/TM	218	Will the transporters be HAZWOPER trained?
Both	EM	3/29/2008	DR/TM	219	Will the trucks be covered for short hauls (on-site)?
OU-A	CC	4/11/2008	LS	220	Don't move the stuff around – cap it onsite and remediate w/natural methods - Horse manure, mycoremediation, Eucalyptus trees, etc
OU-A	CC	4/11/2008	DS	221	Since the “CAP” is strongly recommended from DTSC as the best choice for the RAP, when other dioxins are discovered because of he mills activity, will other cap pods have to be developed on site? Has more of our prime ocean front acreage been reserved for the dioxin “pods?”
Other	CC	4/11/2008	DS	222	I did not have the opportunity to speak tonight because of the # of speakers. This was my outline. Review of RAP: I have had the opportunity to review the Rap documents at the Fort Bragg library. The work is making progress, but as I stated at our last meeting, I STILL consider it a draft. Pressure by Economic Forces: I realize the Coastal Commission has put enormous pressure on us to complete the cleanup progress, (4.2 million for our trail) BUT we cannot place economic pressure ahead of environmental concerns.

					<p>Disenfranchised Public who you serve: Numerous meeting where public input is given or citizen's advisory committees put in countless hours to have their work accepted placed in a file and ignored. In other words this speed and process has been in the pipeline and is nearly impossible to divert to a better outcome.</p> <p>Public input makes a difference: Are you aware that the beautiful bridge you drive across when entering Fort Bragg would have been a concrete overpass slab design if the citizens of this community had not been adamantly opposed to the cheapest and most expedient solution? (I realize this is an aesthetic factor) Now when I drive up the coast I see that there are two more bridges currently under construction which have our same graceful arches overlooking HWY One, a designated Scenic Highway at ten mile river, and a tremendously tall bridge at the highway diversion project at Confusion Hill in Humboldt County.</p>
Other	CC	4/11/2008	A1	223	No Capping No Capping!! My son whom is 15 months could walk along the path that is purposed to open if the time line allows it to open. My son and I love to walk along the shore and go down to tide pools and explore. What I have heard here today dose not protect me or my son against contamination. My comment is We absolutely need to have a proper clean up to allow our children a safe place to explore. A proper clean up at any cost!! I will not give my children to this that is the cost I will not pay.
OU-A	CC	4/11/2008	GSDS	224	In our opinion there is no other way to clean up this mess but bio-remediation after listening to comments. We are talking long term - for ever.
Other	CC	4/11/2008	DH	225	I have serious concerns about the ground water entering the sea caves, which may be an unseen conduit for toxins to enter the ecosystem. This last Sunday I explored one of those caves, and discovered an extensive cave with complex passages, and five entrances. This cave has quite a bit of water raining down from cracks in the ceiling. The cave is adjacent to an old ravine that has been filled with slag, metal debries, timber, and earth. The slag has weathered out and into the ocean environment. I mentioned the sea caves at the Fort Bragg City Council meeting but my concerns fell on deaf ears. I have extensive experience exploring and mapping caves and would be happy to return to this cave, and all the others on the property for contaminants.
Both	CC	4/11/2008	ZB	226	We need more comment time...please - this is so important to our community and health.

Both	CC	4/11/2008	SP	227	April 28th extension not sufficient. More time necessary for comment and making the public aware of situation.
OU-A	CC	4/11/2008	A2	228	Go to Youtube.com Type in Paul Stamets Buy his book How mushrooms can help save the world Make mushroom Bioremediation a model here in FB!!! PLEASE
OU-A	CC	4/11/2008	A3	229	If the contaminated soil is capped (hopefully safely for more than 30 yrs) can bioremediation still be used on the soil so hopefully it would not have to be moved when the plastic container started to leak.
OU-A	CC	4/11/2008	SDT	230	One of the criteria for selection of remedial alternative is community acceptance. At the last meeting the public questioned how much influence the public input had on the remedial action plan selection.
Other	CC	4/11/2008	DS	231	I do not want a capped dioxin storage site on the G.P. Mill site in Fort Bragg. Many properties around Fort Bragg are also contaminated by fly ash. I expect that if the mill site was established as a storage site we may be forced to use the least expensive and most convenient location (G.P. Mill site) to store even more of our dioxins as cleanup is deemed necessary for those other contaminated locations. I do not want the future of Fort Bragg compromised by the clean up that needs to take place by us, the people who are here now. Two hundred years from now, when buildings and parks are surrounded the stored dioxins, our residents will wonder what kind of shortsighted fools thought they could leave their toxic waste on the bluffs, near the sea, in the town of Fort Bragg. Please see that the dioxins and toxics are moved to an existing designated storage location.
Other	CC	4/11/2008	NDV	232	I urge your requirement that any and all hazardous materials be removed from the former Georgia Pacific site in Fort Bragg.

Other	CC	4/11/2008	NDV	234	<p>And now, Georgia Pacific on behalf of Koch Industries, wants to bury their wholly owned poisons within the city limits of Fort Bragg, cover it over, sell off the property to others and leave town. This time for good.</p> <p>When is enough enough?</p> <p>I've been in the mortgage business for over 30 years. I would suggest to my colleagues that Mendocino County and now Fort Bragg is a "hot spot". Too often these "approved mitigated resolutions" are not recorded with the County Clerk-Recorder. Future property owners have no way of searching the record to find if the property next door, or their own, has buried hazardous waste material.</p> <p>If you want to protect the public and if GP wants to protect their property value any and all hazardous waste should be removed from the property.</p> <p>The final question is: Would you loan money on a property with a buried over hazardous waste?</p> <p>But more importantly, why should it be left to rot within the City Limits of Fort Bragg.</p> <p>We are an environmentally sensitive people; we aspire towards Zero Waste; we need to protect our water table and we need to protect our fisheries environment. Why should we risk any pollutants seeping or leeching into our coastal waters.</p>
OU-A	CC	4/11/2008	ZB	235	<p>Please, please, please, BIOREMEDIATE using mushrooms. It's our only hope.</p>
Other	CC	4/11/2008	SP	236	<p>Need full site characterization before anything.</p>
OU-A	CC	4/11/2008	DS	237	<p>In light of the news at the 4/11 meeting that Paul Stammets will work on the bioremediation "pilot project" of dioxins. I urge you to consider this as our next choice</p>
OU-A	CC	4/11/2008	A1	238	<p>The clean up that I see as an alternative to capping the toxic site is to use mushrooms to cleanse the dioxin out of the soil system. Mushrooms grow here in our environment and are know to cleanse the soil</p>

OU-A	PM	4/11/2008	AW	239	<p>The good news is that we had a conference, a phone conference with the Paul Stamets today who would be very happy to talk with you, and he asked you to take the initiative and call him. He is a very busy man. I know you are, too, but he feels it's more logical for you to call him.</p> <p>He thinks that there are models for successful bioremediation, including dioxins, and he would love to be part of this project.</p>
Other	CC	4/11/2008	LS	241	<p>My concern is with the calculated background levels of metals e.g. Chromium, Barium, Copper, etc. They seem quite high for background levels, specifically the level of 60 for chromium, which is above the state standard of 50.</p>
OU-A	PM	4/11/2008	TM	242	<p>I want to say I think we should try the bioremediation and microremediation onsite. That's my vote. You'll hear more about that tonight. We have good news.</p>
OU-A	PM	4/11/2008	LS	243	<p>So I would just also urge people to keep it on the site. Don't move the stuff around.</p>
OU-A	PM	4/11/2008	LS	244	<p>A couple of other things I've heard is horse maneuver, because of their stomach acids, can break toxins down; maybe eucalyptus trees, maybe the micro remediation, but don't move the stuff around.</p>
Other	PM	4/11/2008	BM	245	<p>The third is, is this group aware of dioxin remediation techniques which are now accepted, and I would say that there are several which are accepted for onsite mitigations and remediations.</p>
Other	PM	4/11/2008	JM	246	<p>I'd like to ask a question: Where did the idea that the high tide line is halfway up the bluffs? If that was true, there wouldn't be any fish going down Noyo, but that is another question. Maybe that will be answered sometime.</p>

Other	PM	4/11/2008	MP	247	<p>Another thing, in December, I started asking the question: Why would something so counterintuitive as taking samples onsite, background samples, for a study of what's there, why is that the case? Why not offsite samples to use as background samples? The woman's comment about her son dying and the high level of chromium just brought that to mind.</p> <p>I still don't have an answer. Every time I ask DTSC representatives, they tell me, "We're still negotiating it with G.P."</p> <p>I think it's flawed, and I really want to see offsite samples being used as background samples and a much more objective scientific investigation.</p>
Both	PM	4/11/2008	JS	248	<p>Okay. Now I'm going to make a general comment, and I know it's out of sync.</p> <p>On behalf of the community, I requested a thirty-day extension for the comment period, and we were granted a twenty-day extension.</p> <p>The problem that I have is, even as a consultant, for the first time Thais had asked for a tour of the site in January. I then again asked this last week. As a consultant, and there's a geologist that works with us, too, it's very difficult to make comments if they won't give us access to the site to look at it.</p> <p>With this new information, I have to say that a two-two-week comment period is unfortunately not sufficient.</p>
OU-A	CC	4/11/2008	SDT	250	<p>We must set the bar at the highest level. I think we should keep exploring the bioremediation alternative to degrade toxins to their lowest levels That is the only acceptable alternative</p>
OU-A	PM	4/11/2008	DS	251	<p>In regards to capping, all of us have a very great concern. Mitch spoke very well about our suspicions.</p> <p>Ed, I trust you, but I think that this is between the value of the material and what can really happen in a dump site. You might want to reconsider how you speak to us because I think that it makes your speaking have less -- We're less likely to trust your sincerity because the number of things that can go wrong and what we all know about all the variables of that site, the idea that anything is really going to be well stored in that site, I think we have very great suspicions of.</p> <p>We also have very great concerns that once G.P. caps it, no matter what happens, they're not going to go back to it. They're going to be done, and that's our concern, one of our concerns around the capping.</p>
OU-A	PM	4/11/2008	DS	253	<p>I also wanted to give a heretical suggestion which is that rather than consider that you can't consider microremediation because there's been no pilot studies, I suggest that because we are in the radical situation that we are, that that dioxin has been sitting as long as it's been sitting there, that we could be the pilot study.</p>

Other	PM	4/11/2008	DS	254	I just want to be one more voice, having heard many, many testimonies from people with access to the site over the last twenty-five years, that full-site characterization has not happened, and a fuller-site characterization I understand is time consuming and is expensive, is really necessary for you to do the job that you so sincerely want to do.
OU-A	PM	4/11/2008	TM	255	Also, I personally believe that the Remedial Action Plan is lacking. All of the things about dioxin that we know that it causes to humans and all life should be listed in the Remedial Action Plan, and that is missing as well as the fifty-three parts per trillion, and I think the public has the right to know, and they have the right to know through having the document in our hands.
Other	PM	4/11/2008	DS	258	<p>I want to thank you all for coming once again and for truly listening.</p> <p>I would propose that the fact that we can't get through the first item in this time, even though I understand it's a big exception that you made this two-week extension, that the two-week extension is insufficient, especially given the information that has been presented tonight.</p> <p>I understand you're all very over-worked. I can't imagine keeping your schedule, but there are way too many questions.</p> <p>You have had way too much integrity up to this point to really use this methodology, and I just implore you. We're an exceptional group of people. It's an exceptional site. We need more public comment time.</p> <p>I really encourage you, once you've gained the information that more time would grant us, to really consider changing the enforcement order to change the parameters of what it is that you are investigating.</p>
Other	PM	4/11/2008	DS	259	<p>I also just want to make a note relative to the comments about chromium, and this is going back to the anecdotal information: All those who have been on the ground, John who spoke earlier who, by the way, happens to be blind, so it's nice to give him some cues, know that there was an incredible importation of materials to that site to be burned, to be stewed, to be buried. It went on for years and years.</p> <p>So to say that because they didn't generate chromium-based materials on the site, that they were not there, I think is pretty inaccurate.</p>
Other	PM	4/11/2008	MC	260	<p>I'm impressed with how civil and patient you are, and you say that you feel maybe a little bit insulted by somebody's remarks, but I want to address that.</p> <p>It was twenty years ago last month when the Federal Government, Department of the Interior sent its Minerals Management Service here to ram down our throats offshore lease sales so that we could have oil development here, and that culminated in the largest mob of people gathered in Fort Bragg in the history of the planet.</p> <p>The people went home from the Minerals Management Service, and for a while, nothing more was heard of that.</p> <p>Fast forward a few years, a decade and a half or so, and a bunch of</p>

				<p>extremely dedicated and self-sacrificing people here battled endlessly and tirelessly to hammer out some timber harvest rules for Mendocino County.</p> <p>Industry people, G.P., logging companies, environmentalists all worked hard to together, and they created what was probably one of the most progressive and fool-proof timber harvest ideas that could have been created.</p> <p>The state government, the California Board of Forestry, dismissed those with a casual wave of their bloody hands. One man considered nearly a saint who had worked hard on this, worked himself to the point of exhaustion one night, drove into a tree and died. I will never ever get over what the Board of Forestry did so casually.</p> <p>So this place has a history of confronting government, and if we seem to be suspicious, I've told you a couple of reasons why. It's certainly not because there's anything in your demeanor that makes me suspicious. You all look to me like you're all very well-intended and well-informed people, but you need to know that's the background, and everybody here knows that Georgia-Pacific has vastly deeper pockets than Fort Bragg, California does. If it comes to a legal contest, they can afford far more high-powered representation. They can ruin and break this city, so it's you we have to depend upon.</p> <p>In the midst of a Republican administration in the State of California and all of us who are not children and not naive know that government is occasionally influenced by the party that happens to be in power. So these are things that influence our bad manners if we do occasionally display bad manners. It's because in a way, we're almost helpless except for what courage we collectively show and what persistence.</p> <p>You know, enough for speech making. Now I have a couple of personal things.</p>
OU-A	PM	4/11/2008	MC	261 <p>On the other hand, if we leave it here and encapsulate it, one of these documents that I picked up from the table said that that is secure for like thirty years. Thirty years, then what happens? Can you repair the leaks? Will technology have advanced to the point where you can do something better? Thirty years. Hey, I wish that I were young enough that I could say that thirty years seems like a long time to me, but I'm not. Thirty years seems like that (snaps fingers). So I would run that one right out of town, right out of hand.</p>
Other	PM	4/11/2008	MC	262 <p>Could you go back just one slide? There we go. Dioxins, more than four hundred forms of them, and come forward one more slide and another still. Okay. Well, the heck with it. I remember what it said.</p> <p>Anyway, it was the question of TCDD versus OCDD.</p> <p>Yes. And you dropped this sort of casual -- You said we know so much more about this kind 'cause it's so much worse. We know less about the other many kinds because they're not to deadly, but this is an important datum right here that you passed over rather quickly, and I hope that we'll get some more, and not tonight; there's not gonna be time, but what you said was that this may well be a thousand times less hazardous than this, and this is the one that prevails.</p> <p>Well, that's an important thing for us to know, and is that thousand a number you picked out of the air just by way of illustration, or is that,</p>

					<p>you know, a fairly acceptable scientific guess, and how much of this kind, the bad kind, remains? How much of this has been found there? That's another question that maybe tonight you can't answer, but I certainly hope these two things will be quantified as a lot of this stuff that we need to know.</p>
Other	PM	4/11/2008	MC	263	<p>I'll hand this microphone over, but one more thing I want to point out was that the man who explored the cave, it was right here.</p> <p>Right about there, all right. I've been living here a long time and visiting here a long, long time before that, and the intense industrial activity on this site was not here.</p> <p>You know, there's a runway for G.P.'s aircraft, and this I assume is the entrance to the bay, that is Noyo Bay.</p> <p>So if he found, if the water falling on this man made him break out the next day and if he observed that there was much less marine life in there, then I will submit to you that these places where the activity around that mill site for decades and decades and decades is much more intense, then all the caves that he did not explore around here are likely to show those signs that he saw vastly more emphatically than what he saw.</p>
OU-A	PM	4/11/2008	MC	264	<p>So what we have is a dilemma, folks. That's when both choices are awful, and I have to agree that the time that we have been given to study this to make our decision is not adequate.</p> <p>Fort Bragg may be, when all this is said and done, one of the most desirable places on the whole western coast of the United States, counting all the states from here to Mexico and Canada, and never has it been confronted with a more important decision or a more important issue than this one. So we don't have the time, people. We have to have the time.</p>
OU-A	PM	4/11/2008	RB	265	<p>None of these things have been researched to any extent. The fact that we have so much pavement and the this idea of paving over or capping over the possibility eventually of nine acres close to Highway 1, close to Fort Bragg, where is the fresh water going to re-enter into the earth?</p> <p>You know, it's also, the reason that they chose the containment area was because it was above the water table, but if you look all around you, that area flows down on all sides into the town, into the area where Chestnut and Maple seem to be lowest. There is a flow. I don't think it matters. It's like putting a toxic waste up on a mountain or a hill and expecting those below it are not going to receive the effects of that. I think we need to really study the hydrology of this before we just gallop through it.</p>
Other	CC	4/11/2008	NDV	266	<p>As a 45 year resident of the coast, a former Mendocino County Supervisor and mortgage lender I'm here to talk about money.</p> <p>This issue before you is simple: Should GP be required to protect the environment and the community at additional expense or should the government approve cost-cutting measures allowing them to save money, by transferring the risk on to others.</p> <p>For too long Mendocino County has been the colony of profit for oriented interests to misuse and abuse our resource base. Now, in this instance, the former ownership, now operating as a private equity company, wishes to further despoil our environment by turning</p>

				<p>a part of their ownership into a hazardous waste site for future owners of the property.</p> <p>Isn't the responsibility of government to protect the citizenry? But from the local to the federal levels of government we have not had responsible review or protection from spills or dumping, permitted or not.</p> <p>We now place our trust in you.</p> <p>In Mendocino, in the 1980's, the US Air Force abandoned their radar station on the top of Eureka Hill leaving so much hazardous waste it cannot be used for anything else. The County itself permitted leechate breakout from the Caspar landfill and had to buy adjacent property on Parriare Way after polluting the potable water source. Louisiana Pacific and Georgia Pacific have left mountains of bark and who knows what else in their bark dumps, and GP has dumped thousands of yards of fly ash, with North Coast Regional Water Quality Control Board permission, on the McQuire ranch. Remco Hydraulics has polluted the watertable underlying the City of Willits, and Laytonville County dumpsite so polluted the water under the neighboring Native American reservation and on the ranch next door that people got sick and cattle died. And LP's operation on Gibney Lane, just south of Fort Bragg, so polluted the water table that neighbors are now supplied with potable water at company expense, all with approval of the Regional Water Quality Control Board and County.</p> <p>Dr. Carol Wolman, MD, now running for Congress, moved her office from SE Fort Bragg because she was down wind from the stacks. The paint peeled off her building. Fort Bragg residents had their cars covered with ash fall out for years.</p> <p>And who here can or will tell me what they were burning. Wet redwood barely burns. Our rivers are littered with sunken logs. How do you get that to burn? Why have I been able to take photos of the plume from the stacks which are nearly black? How extensive is the pollution? What was brought on site to keep the fires burning?</p>
Other	PM	4/11/2008	JH	<p>267 I want to say something: On your list, it says sixty parts per billion of chromium six. My kid died twenty-nine parts per billion.</p> <p>When they say heavy metals, what are heavy metals? Heavy metals come from industrial waste. That's what heavy metal is.</p>
Other	PM	4/11/2008	DJ	<p>268 I live in Fort Bragg. I was gone for a few years, and it gave me a really interesting perspective when I returned.</p> <p>I think that an accurate and a reasonable determination of a meaningful background level is the key to a well thought out remediation program at this site. More importantly, it's the key to gaining the trust of this community.</p> <p>By background, I don't mean the mill site. I mean there has to be an actual background. I think that were I in charge of this remediation project, I would jump on that like a cowboy on a horse because I think one of the things that we as a community are unaware of is how ubiquitous dioxin is in our community, not just in the downtown area but all around This is an area where people burn wood, and we have since 1850 when we came to this town. We've been burning wood for cooking, heating. That's our fuel source here, and it's</p>

					<p>illogical not to suspect that we're going to have high levels of dioxins throughout this community and in all the adjoining communities: Westport, Mendocino Albion, all up and down the coast.</p> <p>That raises the issue of what is a meaningful cleanup level at this site because without background, you can't make a meaningful cleanup.</p> <p>The thing that bothers me -- Point number one. Point number two is at the very beginning of this process, we were assured by the Fort Bragg City Council, and I asked in a meeting. This was there. It was a late night: What's gonna be our cleanup level? And we were told from the very start of this project that it was going to be residential level, and I hear, I continually hear now migration away from that earlier promise.</p>
OU-A	PM	4/11/2008	RB	269	<p>The monitoring, we talked about air monitoring, I haven't really followed that well, but in order to monitor the containment area, they budgeted \$8,000 a year. This is their budget for it. Maybe they can do it for less. I don't know. Let's do it on the cheap, you know; save a little money.</p>
Other	PM	4/11/2008	RB	270	<p>I would also say that dioxin bioaccumulates. The higher on the food chain you are, the more it's going to concentrate in your fatty tissue, and it is transferable, as she said, from mothers' milk, and so it's also the fish that we eat and the gift that we give to this marine life that live off that fish. So we're actually threatening not only ourselves, but we're threatening all life.</p> <p>There's also a synergistic effect that happens. I'm not a scientist, but I've read that there's a synergy that happens with some of the other toxins in regard to dioxin mixing with them. So we don't really know.</p> <p>My most relevant point is that Fort Bragg has been dosed continuously from the cogeneration electrical plant that we're burning wood from the Richmond dump that was treated wood, the distribution of fly ash in different parts of this community. Where are we holding dioxin in your body? I don't really want to go over that threshold dose, and it is something that the higher the dose, as she pointed out, the more we're going to be affected. Well, we're already up there, and I think we don't really need anymore.</p>
OU-A	PM	3/26/2008	RB	271	<p>Another point, most membranes eventually leak. What do we do then? There's a proximity to the Water Quality Treatment Plant, to downtown Fort Bragg, and most importantly the ocean.</p> <p>Will fisherman and seaweed harvesters be compensated for their losses? What effect on tourism will the stigma of a dioxin dump in the middle of Fort Bragg have? Fort Bragg is a destination community for tourism. What about all the other communities as far as Anderson Valley that depend on tourists who pass through coming to Fort Bragg? This is affecting many economies.</p> <p>And lastly because, you know, I'm certainly running out of time, rising oceans, rising ocean levels, more severe weather, cliff erosions, seismic irregularities, I think we all remember it; well, we don't remember it, but we've seen the photographs of the before and after events of the earthquake of '06 here. Is that containment membrane going to be able to withstand an earthquake, and will it contaminate marine life?</p> <p>I personally, I stand with the fish. Fish don't stand, but I stand with</p>

					<p>them.</p> <p>I think for the convenience and education of all the people for the next meeting, that all of the questions, both submitted verbally and in writing, should be shown to the public so that they can better understand the complexities of the problem and be able to comment on the problem intelligently. Thank you for your work.</p> <p>Yes. We've had a number of meetings. These are not new questions proposed to this group, and I think they have really meant well and done excellent work in many ways, but they knew what our concerns were. These comments that we're making have already been heard by them in many cases, and yet the plan continues. The juggernaut keeps moving.</p> <p>I doubt very much whether our comments will change very much other than the thickness of the lining, but what will change is us standing in their way when it comes to the happening. I believe this community has the, has what it takes to prevent this from happening.</p>
OU-A	PM	3/26/2008	RB	272	<p>Another point is coastal hydrology, salt water intrusion and the fresh water groundwater. They mentioned that we're going to have a one-point-three-acre containment site, but they're setting aside nine acres because they also have to deal with not only the toxins on the trail but the mitigation efforts on the rest of it.</p> <p>Aside from nine acres that could possibly be capped over, we have highway one. We have all the cement and what have you in the rest of the town. What way is fresh water going to reenter the aquifer, and if not, will this cause a salt water intrusion into the interior? I think it will, and I think it needs to be studied, and we really haven't had any references to that very much. The geologist is not here at the meeting that would otherwise be able to possibly address this.</p> <p>Another point: Although one-point-three acres will be set aside for the contamination for additional trail toxins, nine acres are being set aside at a location for more dioxins. These dioxins are not just dioxins which are hydrophobic and do not flow and are not soluble. They are mixed with other things on the site, other chemicals that does improve or does enhance that ability of the chemical to intrude into the groundwater. That needs to be talked about, considered and explained to us.</p>
Other	PM	3/26/2008	RB	273	<p>Another point: Since contaminated soil will be excavated resulting in sun exposure in order to move it onto the containment area, they have to dig it up from one, put it in a truck to take however number of feet they're going to take it, and put it in this pit. Why not move it offsite? That's a proposal to be thought about.</p>
Other	PM	3/26/2008	RB	274	<p>Considering the population has already been dosed with dioxin, is it possible that increased dioxin exposure by a proximity to the dioxin cap and containment, is this going to put us at a threshold of having greater and greater diseases? I think so. What are the existing cancer clusters? Basically are they going to continue to research that?</p>

Other	EM	3/29/2008	DR/TM	275	How extensive was the geological study performed? Were the mile long caves that go from the ocean east taken into account?
Other	PM	3/26/2008	CA	276	The school district inherited a problem with dioxins from fly ash that was put under the soccer field as a soil amendment. It's been tested by DTSC, and low levels were found at one site that was tested. However, a parent of any of the children that would play on that field would no doubt prefer that the level remaining there was zero.
Both	EM	3/29/2008	DR/TM	277	So what is the procedure of moving soils – once contaminated soil is excavated, where do you get the clean soil? Is there redistribution of soils on-site?
Both	EM	3/29/2008	DR/TM	278	There may be a risk associated with hauling off-site, considering the possibility of trucking accidents. Is there truck hauling protocol (safety measures)?
OU-A	CC	4/11/2008	DS	279	BTW are the Toxic waste sites now an approved use in the scenic corridor of California State Hwy One?
Other	CC	4/11/2008	DS	280	What is my point? Why are we asking you to continue. Explain it this way: Last weekend our family was on the beach at Patrick's Point State Park in Humboldt County. Our family was one of numerous groups spending their Saturday sitting and sifting through the beautiful agate stones within the tidal zone. It is contemplative quite and enjoyable time for our family. Yes and burying our toes and releasing dust laden particles as we sifted. Doing it for all the people and wildlife which come to our coast now and in the future – That is why we need your help.
Other	CC	4/11/2008	SDT	281	We as a community would like to work collaboratively with the Dept to find a solution we can embrace wholeheartedly. We as a community cannot accept the term "allowable contaminant levels." Those levels are subject to change and have changed upward to allow Today, on the radio, the closure of this years' salmon season was announced - both the commercial and sportfishing seasons. This has

					<p>a disastrous cumulative affect on our community.</p> <p>This town has seen the closure of two lumber mills. This also has disastrous economic significance for the people living here.</p> <p>Both these industries are over seen by state agencies that are supposed to promote a balance of conflicting interests. They have obviously failed in their mandate. This scenario does not inspire public confidence in government agencies ability to protect the interest of the public.</p> <p>We are left to our only remaining source of income - the tourist industry. This is significant because it means that residents have done a good job of protecting the pristine quality of this area.</p> <p>People come to this area because they believe it is a healthy place to live and recreate. I think I speak for many in this community when I say it is an unacceptable option to invite people to live work and recreate in an area known to be contaminated.</p>
Other	PM	4/11/2008	MP	282	<p>We're letting four point two million dollars, we're saying that's more important than a hundred years from now, fifty years from now, forty-five years from now, the health of our community. It's not.</p> <p>And suppose we don't want a coastal trail if it's going to be a poisonous trail? We don't know all the effects these substances can have on children and people in general. Their immune systems are compromised, especially after years and years of living here and being exposed to them.</p> <p>I had my thyroid removed after a year of working downtown when I first moved here. It was pretty immediate. Maybe I had a build-up and couldn't take it anymore. I think it was burning other people's waste in the incinerator.</p> <p>Please, I urge you to urge everybody you know to come Monday. If we don't, we'll have to file a lawsuit if things don't go the way we want them to. We prevail upon on our elected representatives, the Fort Bragg Redevelopment Agency, and we ask them, beg them, whatever, petition them, to turn down either of the two most popular, the capping and the trucking so it's in somebody else's backyard, those alternatives. Those are unacceptable.</p> <p>I think in the best of all worlds, we wait a year. We wait five years until science catches up, and bioremediation is a viable thing in Europe. That's the way they're going. You know, we're way behind, and there is information out there.</p> <p>Again, let's make it our motto, "What's the hurry?" We will pay in the end if we hurry.</p>
Other	PM	3/26/2008	TM	283	<p>It does not take into account the adjust parcels that are contaminated. We have not had a full-site characterization on those parcels. We know we live on a windy coast. We know dioxins can be breathed through dust particles. Why are we rushing ahead?</p> <p>We don't need to rush ahead and get a trail. We have a lot of trails to get us access to the coast here. We don't have to rush. I think our community would rather have a clean bill of health and know we're safe than to have a trail open and be strong armed by a corporation and the City of Fort Bragg to have a trail. I don't think we need that. We need to be healthy.</p> <p>I work as a health practioner in the local hospital, and I am seeing</p>

					<p>mill-site workers that have rare cancers, neuropathies, and unexplained immune deficiencies.</p> <p>When the powerhouse was running on that mill site, it was spewing fly ash all over the town of Fort Bragg. Oak Street used to be referred by the local citizens as "Cancer Alley." Miscarriages, families with leukemia, children dying of rare cancers, we don't need to continue to pay that price, and you, as a state agency entrusted by the citizens of California, need to help us with that and protect us.</p> <p>And please don't rush this. Listen to the citizens. Slow down. The citizens aren't the ones out there saying we need the trail. Who is saying that? Georgia-Pacific and the City of Fort Bragg. It is not the citizens, and you need to know that.</p> <p>My eight-year-old couldn't make it tonight. She's been coming to meetings like this since she was one, but she made me promise that I would ask this question: Why are you going to be removing soil from a trail area where you don't even know if the rest of the mill site is safe? Won't playing on the beaches hurt children like me? And my mom told me that there are no safe levels of dioxins, not only because the National Academy of Sciences but actually the U.S. EPS came out with their own reports saying that there appears to be no safe level of exposure to dioxins.</p> <p>So there. I did that for my daughter...</p>
OU-A	EM	3/29/2008	DR/TM	284	<p>It is possible to create another alternative that is a combo of these alternatives? Where is that alternative in the RAP?</p> <p>Please elaborate on "land use restrictions"?</p>
OU-A	EM	3/29/2008	DR/TM	285	<p>Since an RAO includes reference to the purchasing of the lands and a time crunch related to it, documentation of this situation should be included in the references.</p>
OU-A	EM	3/29/2008	DR/TM	286	<p>Is cadmium a problem on the GP site?</p>
OU-A	EM	3/29/2008	DR/TM	287	<p>Are these transportation measures taken to facilitate this project?</p>

OU-A	EM	3/29/2008	DR/TM	288	Where do the different classes of waste get hauled off to? How (according to where it gets hauled off to) will the material be handled during disposal?
OU-A	EM	3/29/2008	DR/TM	289	Does community disapproval/disagreement factor into the chosen alternative?
OU-A	EM	3/29/2008	DR/TM	290	How deep does the excavation go? Is (5 feet) the excavation depth chosen because of water leaching/mobilization of dioxin?
OU-A	EM	3/29/2008	DR/TM	291	How far will the capping be above groundwater does it have to be?
OU-A	EM	3/29/2008	DR/TM	292	GP should provide a 30-year cost estimate.
Other	PM	3/26/2008	PW	293	<p>A holistic approach needs to be undertaken to characterize the whole site both in terms of the toxic waste onsite as well as future planned uses so that properties can be delegated to those areas for which is appropriate.</p> <p>I want to maybe put a little bit of a different perspective on what Skip was talking about. I appreciate the difficulty of being a public servant trying to meld together all the different opinions and, you know, the mandates of law and even the pressures of the lobbyists, but I think in the spirit of what Carrie had to say, you do have a responsibility not only to the people in this room and the people of this community and to all the other people in California, not only in terms of looking out for them but in terms of, you know, the waste derived from this project and where they might go, but you also have a responsibility to set some kind of a tenor for the future, for the future of California.</p> <p>I do want to remind you that every voice in this room is equal to one Georgia-Pacific voice. That corporation has no more power than any one voice in this room, and what we need to do here and I think your charge should be to establish for California no more toxic pollution by corporations. They can't move in to communities like Georgia-</p>

					<p>Pacific did, take the resources off the land, leave behind a legacy of unemployment, alcoholism, drug abuse, and then leave even worse a toxic legacy on this land and walk away. Whether or not the City Council agrees, they can't be allowed to walk away and not pay the price.</p> <p>Yes, environmental laws have changed since they set up operations here, but that's too damn bad. We all play by those rules. They need to be held accountable for polluting this land as an example to be set for future corporation violations in this State, that we're not going to tolerate toxic abuse of communities</p>
OU-A	PM	4/11/2008	MW	294	<p>And also, recreation, recreational standards, I'm very concerned about what is this. Does this mean a one-time visit and for how long, and does it take into consideration children and animals, et cetera?</p>
OU-A	PM	4/11/2008	DJ	295	<p>It was going to be residential level, and I'll tell you why I think that's very important. Point number one, this site is going to change for years and years. We've been here since 1850. We've been here about a hundred and fifty, hundred and sixty years, and this town's gone through a lot of iterations. This town's gonna go through a lot more iterations in the next hundred and fifty-eight, two hundred and fifty-eight years. We're going to be here until the sea levels rise, you know, and force us off, which I don't anticipate happening very soon.</p> <p>[Well, I think they were manmade because there was water there to make them, you know. They didn't have large water pumps back in the day of Mr. Johnson. They went the easy way. They put ponds where there was water to create ponds. That was my point.]</p> <p>This site, which I've been in part of the planning, and we've got ideas, and somebody's gonna come along in another generation or two, and today's business district, yesterday's housing district became today's business district which becomes tomorrow's housing district all over again.</p> <p>Point number two, one of the things that I learned when I came back to this town is just how dirty this town is. This is a filthy town.</p> <p>I lived on North Franklin, and I was appalled at how much dust would accumulate on my refrigerator overnight. Where was the dust coming from? The prevailing northwesterly winds were inundating my house with fine dust particles.</p> <p>Point number one: Residential level is the only appropriate level of cleanup for this site.</p>
OU-A	PM	4/11/2008	DJ	296	<p>Now, if we set one level for recreational use and that recreational use is upstream and that recreational use anticipates the active use of those fragile soils, the kicking up of dust, and if for instance dioxins travel on dust particles, you cannot assume two levels of cleanup. You can't assume a lower level of cleanup upwind, recreational, from a high level of cleanup downwind, residential. It won't work. They're incompatible. You have to have a single cleanup level on this site.</p>

OU-A	PM	4/11/2008	RB	297	The other point is this concept of recreational standards, that here you have a dioxin cap and containment area right in the middle of town. Cypress Street is more or less where it's going to exit, and you know, it just doesn't compute, you know. There's just too many corners being cut, and I don't think we're getting the answers to many of the questions, or if we're getting them, we're getting them after the fact when the public comment period will be pretty much over with.
IARAP	EM	3/29/2008	DR/TM	299	What are the affects of nitrogen and phosphorus (nutrients for bioremediation) on bio-receptors? Are they leaching to the ocean? Please explain the structure/procedural workings of the "land farm" for the proposal bioremediation. What is the volume of soil to be treated? Where is the clean" soil going to be placed? The PAH contaminated soil is NOT on the trail?
IARAP	EM	3/29/2008	DR/TM	300	What are the dust monitoring procedures to be taken? Please place the monitoring stations in the appropriate places, so as to get the most relevant readings. Please provide a contact for air/dust issues. Please keep concern individuals (esp. those in close proximity) posted on developments, especially with regard to air/dust.
IARAP	EM	3/29/2008	DR/TM	301	What is the volume of soil to be treated?
OU-A	EM	3/30/2008	MP	302	For instance, the location designated for the sequestering and capping of the contaminated materials has not itself been investigated. The contaminants in the areas adjacent to the trail and parkland are also unknown. Common sense tells one that cleaning up one area without knowledge of toxins in surrounding areas is ridiculous. I don't think the trail should open until the entire site is characterized and remediated. How can on going remediation occur while the community is using the trail without serious health risks?
OU-A	PM	3/26/2008	DL	303	It's guaranteed that the containment will fail. With the lifetime of the contaminants, which is basically permanent, we might as well just not worry about containing it because it's only a temporary solution. So why even bother creating the pit and putting a liner on it and capping it? It's going to fail within thirty years or somewhere in that time frame. We might as well just skip that process and just dump it and move on. So I think it's important that we look at if it has to be moved, it should be moved offsite where it's not in a populated area in the middle of downtown and all the other economic impact. If you're gonna look at the economic impact, let's look at what would the value of that land be if it was contaminant free versus either one-point-three or nine acres, whatever it's going to end up being. It should be worth a lot more. So from an economic standpoint, moving it offsite, putting it someplace away from the populated area where, as bioremediation

					<p>becomes better well-known and we finish more research, have it remediated there where it's not in the middle of a populated city area.</p> <p>I think the concept of putting a small portion from the trail in that area is just trying to open up the doors so they can dump more and more in the remaining of the area as the rest of the site gets cleaned up. So I believe that the contaminants do not have anyplace in residential and the business areas of Fort Bragg.</p>
OU-A	PM	3/26/2008	RB	304	<p>What other remedy is lost to the city in the light of a lost use of nine acres of cap and containment which will have restrictive use supposedly? We're told that no single family dwelling will be allowed to be built on these sites, but multiple family dwellings will be able to be built on this site. Maybe somebody who's in real estate could address that.</p>
OU-A	EM	3/29/2008	DR/TM	305	<p>How far away is the capping area from the main street? Has it been characterized?</p>
OU-A	EM	3/29/2008	DR/TM	306	<p>What type of materials are being consolidated on the OU-A? Are they toxic? Explanation of TTLC vs. toxic to human health.</p>
OU-A	EM	3/29/2008	DR/TM	307	<p>What is the role of the Coastal Commission for creating the capping area on-site?</p>
OU-A	EM	3/29/2008	DR/TM	308	<p>Consolidation option – describes top and bottom containment and protection from infiltration, but what about infiltration from the side?</p> <p>What is the distance between the groundwater and the bottom of the consolidation area?</p>
OU-A	EM	3/29/2008	DR/TM	309	<p>Because of the longevity of dioxins, has there been studies that the liner used will maintain its integrity, considering infiltration and global warming?</p>

OU-A	EM	3/29/2008	DR/TM	310	<p>What is the ability of dioxin to migrate, given the possibility that the liner can break? Although dioxin does not migrate quickly with dioxin, it still migrates at a slow risk with water.</p> <p>What are the possible consequences if the liner breaks (with respect to dioxins)? What is the risk to human health and the environment if the liner breaks considering the high levels of dioxin being capped?</p>
OU-A	EM	3/29/2008	DR/TM	311	<p>This land will be a very central part of Fort Bragg. Would this be an appropriate alternative, given the potential for using the land for residential, etc? This is setting precedence for future action concerning GP lands.</p>
OU-A	EM	3/29/2008	DR/TM	312	<p>This cap alternative would affect Fort Bragg's desire to welcome the public, with the effects of future natural disaster and its possible effects of the cap.</p>
Other	EM	3/29/2008	DR/TM	313	<p>Discussion of the land to be used as a transfer station (i.e. trash sorting for future off-haul) has been stricken down, but it seems the consolidation option is like making a permanent dump - a permanent land fill in the heart of a populated residential area.</p> <p>Capping seems short-sighted; it will bring up issues in the future especially as Fort Bragg expands toward the ocean - then the contaminated soils landfill will be directly in the heart of town.</p> <p>Is the capping the preferred alternative (of GP)? It certainly appears to be so.</p> <p>Dioxin already present in the community, and we would benefit from more of it? There is already a toxic load in the community - has this been considered?</p> <p>Would this be considered a hazardous waste disposal (considering the dioxin concentration and TTL)?</p>
OU-A	EM	3/29/2008	DR/TM	314	<p>How do these land use /deed restrictions get carried over time? Most likely down the line, someone will not check the restricted use placed on this property. If GP goes bankrupt, who then takes over the monitoring of the capped area?</p>
OU-A	CC	4/11/2008	NDV	315	<p>In 1906 much of Fort Bragg was destroyed by the earth quake that leveled much of San Francisco. We live on an unstable escarpment of the Pacific. Can the proposed burial of this hazardous waste guarantee that it can survive a Richter Scale Force 6 or 7 quake? Can you guarantee that in no way will any of these known hazardous poisons not enter our potable water supply or our ocean?</p> <p>No, of course you can't. And no longer should Mendocino County and its residents be the pawns and serfs of company interests from somewhere else who want to take the profits and leave us with a ravaged, raped and despoiled landscape.</p>

					This is Mendocino County, not Vietnam.
OU-A	PM	3/26/2008	BOB	316	<p>What happens a hundred years from now when new studies show that the level of risk is much lower than what it is right now? Is Georgia-Pacific going to go back in there and take that soil out? Are you even looking at these effects? What is going to happen? What's the long-term change of perception of toxicity?</p> <p>I'm just sort of going in there, but my biggest question to you as a panel, as people putting together a study as far as recommendations to the state, I really want to see an answer in your comments of how we plan not for thirty years. This thirty years is nothing when we're talking about the poisons that we're dealing with and with climate change. That's a blip of time, and we're dealing with the most toxic human, well, the second most toxic human-created poison in your environment, and we're putting it in the middle of the population of a city on the coast next to a major river. It's a little bit coo-coo for me. I don't think it's really looked at, and I'm sorry about being degrading about that. What I'm saying is it's a little bit presumptuous as being a human being that we can make a decision like that. I think we need a lot more humility.</p>
OU-A	PM	3/26/2008	WG	317	<p>Will that happen? Who will be doing the work? Who will pay for it? It's got to be G.P. They made the profit off the mistakes. Now they have to clean up their poo-poo, and I don't hear a guarantee that capping will let that happen, and if we can't guarantee that, it's not an acceptable plan.</p>
OU-A	PM	3/26/2008	LS	318	<p>The one that really gets me, though, is the life span of the liner. At the last meeting, we learned that the liner for a capped site would be good for up to thirty years. In thirty years' time when that liner is beginning to disintegrate, my son will be my age, and I wonder: Will he find himself having to go to meetings like this, talking into a microphone to people like you, and what will he be saying, that we have an acre of very toxic landfill in the middle of downtown Fort Bragg and it's leaking and we need to get rid of it; only now it's a really big problem because all that redevelopment we planned for happened, and now this extremely toxic material is surrounded on three or four sides with residences and businesses, and there's a motel on top of it, Love Canal Revisited Motel, sitting right there.</p> <p>Okay. Where were we? We were back at that "Love Canal Revisited Motel." We were on capping.</p> <p>If we do this, we are leaving behind us a much bigger problem. A lot of people have said that tonight, and I'm very happy. Is this the vision for our future? I hope not. Capping is not a cleanup. It's a disaster we're leaving for our kids. It's a time bomb with a slow fuse and every potential to be just as deadly.</p> <p>I know some folks are concerned about the carbon footprint we will create if we wind up trucking contaminated soil out of here, and I am very glad to hear this concern being raised as part of this discussion.</p>

					<p>Having spent the past three years working with a group concerned with climate change, speaking personally, I feel if ever the use of fossil fuels were justified, it is in a case like this. There are other ways we can lower our carbon footprint as a community, but once that soil is in that hole in the ground, we don't have much wiggle room.</p> <p>Dioxin is one of the most toxic substances ever known and should not be sequestered in the middle of a growing town. If it needs to be removed, of course my next question is: Are there options for biodiesel?</p>
Other	EM	4/1/2008	JS	319	<p>It remains unclear to community members what the final decision is for what is considered to be the background level for dioxin at the site. Every time the community inquires about the status of the resolution of this issue between DTSC and G/P, we have been advised that you are still in negotiations. What is the current status as of April 1, 2008. If it has been resolved, what has been determined to be the background for dioxin? If not resolved, how is the DTSC going to proceed on this matter?</p>
Other	EM	4/1/2008	JS	327	<p>It is not clear from what is available to review, just how extensive the characterization efforts have been relative to the cliff sides or the intertidal zone along the length of the proposed Coastal Trail. It is also my understanding from our discussion that the Coastal Trail would not be contiguous, but rather there would be two separate components, each leading up to but not including the Mill Ponds. Therefore, this would result in a Coast Trail that would abruptly come to an end --- In other words, if you started on the Northern most end and walked in a southerly direction -- or started at the most southerly end and walked in a northern direction --- in either case, you would come to a point where you could not continue walking on the Coastal Trail proper, because you would come to the Mill Ponds and would have to either turn around and go back from where you started or attempt to go around the barriers to reach the other portion of the Trail so one could continue the walk. Therefore, until such time that the Mill Pond Area was fully characterized and remediated, the Coastal Trail would not be a complete contiguous walking trail.</p> <p>Assuming that the Coastal Trail is opened and active, during the characterization and remediation site, it remains unclear to TAG as to how you would prevent access from the Coastal Trail to the G/P site as a whole, unless the inward portion of the Trail was entirely fenced and rigorously maintained. Further analysis raises the question as to how the DTSC sees that one would be prevented from leaving the Trail and accessing the bluff, cliff sides, and beach unless you also fenced the side of the Trail that also faced the sea. Otherwise, there could be access to areas by the public that have not been characterized and therefore could pose a risk to human health and the environment.</p> <p>This description of the Trail with or without adequate fencing brings into question the risk assessment using the "Recreational User" scenario. Children and young adults will not stay on a path. They will play for hours on the bluffs, sides of the cliffs, and on the beach, burying themselves up to their neck in sand. Community members believe that the "Recreational User" scenario that estimates approximately 2 hours of time on the trail and does not adequately reflect the reality of what will actually occur.</p>

OU-A	EM	4/1/2008	JS	328	<p>The community requests clarification from the DTSC as to exactly how the risk assessment prepared for the Draft RAP accounts for the vulnerability of children, given the above ATSDR statement.</p> <p>Source: US Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry (ATSDR), Division of Health Assessment and Consultation, "Health Consultation, Fish in Rice Creek at the Georgia-Pacific Site, Palatka, Putnam County, Florida", October 5, 2004.</p>
Both	EM	4/20/2008	SW	329	<p>The coverage of seismicity and its ramifications is very weak. Along with the San Andreas Fault (SAF) and the Mendocino Triple Junction (MTJ), the presence of the Maacamas Fault should be noted. Expected maximum Modified Mercalli intensities and ground accelerations at the coastal trail portions of the millsite from earthquakes on the Maacamas, as well as from quakes on the San Andreas and Triple Junction/Cascadia faults should be estimated, taking into consideration millsite bluff orientations and properties of millsite artificial fill, coastal terrace deposits and fractured Coastal Belt bedrock.</p> <p>The threat of tsunamis originating from distant earthquakes, as well as from more local events on the SAF and associated with the MTJ should be recognized, as should tsunamis from turbidity flows, (either earthquake-triggered or non seismic) on the Mendocino Escarpment and in submarine canyons closer to the millsite. The effects of tsunamis on the site, especially on bluffs of the coastal trail portion should be recognized and estimated, as should runup distances for various tsunami scenarios, taking into the consideration the site's topography.</p>
Both	EM	4/20/2008	SW	330	<p>Given the recent observations by Mr. Hoyle of a substantial flow of groundwater debouching into the shallow intertidal zone in a sea cave under the southern portion of parcel 10, a detailed characterization of groundwater flowpaths in that area should be made. The presence of a sea cave outlet raises questions that include: Are there discrete conduits for groundwater in the fractured bedrock? If so, what is the nature of their orientation and extent?; What is the role of the terrace deposit / bedrock contact in the movement of groundwater?</p> <p>Irrespective of the concentrations of possible contaminants in that water, it is imperative that the source(s), pathways and outlets of groundwater beneath, through and from the millsite be delineated. A hydrogeological program integrating surface-based geophysical surveys leading to the siting, drilling and monitoring of observation wells to determine flow rates, flow directions, and contaminant concentrations of waters in those flow paths now appears necessary to properly characterize the groundwater setting.</p> <p>Properly addressed, these concerns have the potential of elevating these sections' conclusions from, "Less Than Significant" to "Potentially Significant" impacts</p>
OU-A	EM	3/29/2008	DR/TM	331	<p>Sequestration – does it require a "double" exposure due to uplifting and depositing, or opposed to off hauling with a "single" exposure?</p>

Both	EM	4/22/2008	MP	332	<p>I cannot imagine why you wouldn't extend the Public Comment period.</p> <p>There are still some 40 community concerns left unaddressed.</p>
OU-A	EM	4/22/2008	MP	333	<p>The Draft RAP is an incomplete document and therefore impossible for the public to comment upon intelligently. For instance, there is a totally inadequate evaluation of bioremediation as a remediation option, omitting current literature and research on the subject. This is unacceptable.</p>
OU-A	EM	4/22/2008	MP	334	<p>The spot where the encapsulation is to take place has not be fully investigated, which could lead to a toxic nightmare if the soil dug out is as contaminated as the soil to be put in.</p>
OU-A	EM	4/22/2008	MP	335	<p>Linda Ruffing stated on April 14 at the City Council meeting that the Conservancy funds could more than likely be extended one year...that's 20 months away. GP's whole argument for the rush was the pending funding. Now that that's not really an issue, why not slow down and seriously involve the public in a meaningful way...maybe to work with DTSC to come up with a plan for a total site characterization and remediation options other than digging, burying, and trucking. There is time to do this right. Please slow down.</p>
OU-A	EM	4/23/2008	JL	336	<p>The City of Fort Bragg, Georgia-Pacific and DTSC appear to be going ahead with plans to store dioxin on the Georgia Pacific Mill Site. Storing hazardous waste on the mill site near a potential city parkland area, on a marine terrace, in the coastal zone, is setting a morally questionable if not legally liable precedent for land usage in the city and in the county.</p> <p>The Mendocino County General Plan indicates that Fort Bragg is located in the Geotechnical Hazard Zone One, the San Andreas Fault zone [all following quotes are from the General Plan] This zone is subject to all four types of seismic hazard: ground shaking, surface faulting, ground failure and seismically induced water waves. All of California is subject to earthquakes but not all of California has a Zone 1 hazard rating.</p> <p>Coastal terrace geology consists of weakly consolidated sediments of the Franciscan complex. Franciscan formations are highly fractured and there are often faults present. "These structurally weak features, combined with high rainfall, prolonged storms, and rugged terrain, account for the widespread instability and erodibility of the Franciscan assemblage". Is a dioxin storage pit safe in such an environment?</p> <p>The Noyo River was severely damaged from a tsunami after the Alaskan earthquake in 1964. The Georgia-Pacific headlands, located just north of the Noyo River are continually exposed to wave erosion let alone catastrophic events like a tsunami. The presence of caves at this site and the pattern of bluff erosion suggest that, eventually,</p>

					<p>the current bluffs will erode into small near shore islands (sea stacks). And, ocean levels are rising. Is a dioxin pit safe in such an environment?</p> <p>City officials say, "Let the city take care of its own waste" (even if it is GP's waste). But dioxin storage in the most seismically hazardous zone, in rare coastal grassland habitat, is not an option.</p>
OU-A	EM	4/23/2008	JL	337	Bioremediation is possibly a viable alternative but experimental trials for dioxin need to be carried out in a less geologically vulnerable landscape.
Both	EM	4/23/2008	JL	338	Before any decisions are made, we need a comprehensive Environmental Impact Report for the mill site.
Other	EM	4/23/2008	JL	339	The DTSC reports for the mill site reveal numerous instances of arsenic, dioxin, & other chemical contamination.
OU-A	EM	4/23/2008	JL	340	The suggested storage site for the dioxin waste is the Kettleman Hills Waste Facility in Kings County, CA. Kettleman Hills is designed to handle hazardous waste, it is four miles from the nearest city and it is located in geological formations that are far more resistant to erosion than coastal terrace headlands. Just get the dioxin away from the ocean and into a geologically stable area. The dangers of storing dioxins on the headlands with possible pollution of coastal soils and contamination of nearshore sediments and eventual contamination of nearshore life far outweigh any possible danger from removing waste to a designated hazardous waste facility.
Other	EM	4/23/2008	JL	341	I urge Fort Bragg City Officials, Georgia-Pacific, DTSC and the Coastal Commission to follow the law and its regulatory framework for dealing with this situation. Fort Bragg does not want to leave future generations a Love Canal legacy.
Other	PM	4/22/2008	WC	342	Why hasn't there been a total site characterization?

OU-A	PM	4/11/2008	WC	343	Why has testing been completed to a depth of 1½ to 2 feet in the northern portion as opposed to a depth of 10 feet in the southern portion?
OU-A	PM	4/11/2008	WC	344	Clarification is needed regarding the specifics about the explosives shed. Any other areas where explosives were stored? What specific explosives were used/stored?
OU-A	PM	4/11/2008	WC	345	Has the area designated for the encapsulation been thoroughly characterized?
Other	PM	4/11/2008	WC	346	Has the GP site in Fort Bragg ever accepted hazardous wastes/substances from another party for the purposes of storage, disposal, treatment, or incineration?
Other	PM	4/11/2008	WC	347	Prior to 1995, did GP undertake any remediation activities at the site that required the manifesting of wastes offsite for the purposes of disposal, treatment? Are there any records of how GP disposed of any hazardous substances/substances during the history of the site?
Other	PM	4/11/2008	WC	348	DTSC needs to disclose the location of any historical or current piping, dry wells, cisterns, septic tanks, and leach lines.
OU-A	PM	4/11/2008	WC	349	Is the current archaeological survey sufficient to meet federal requirements? Will the survey be made public? When?

Other	PM	4/11/2008	WC	350	Why no adequate investigation of the intertidal zone or ocean bottom?
OU-A	PM	4/11/2008	WC	351	Why doesn't the Draft RAP include a discussion and analysis of the various treatment and bioremediation options reflected in current literature?
OU-A	PM	4/11/2008	WC	352	If site were to be cleaned up to Industrial Level, how much soil would be removed as opposed to clean up to Recreational Level?
OU-A	PM	4/11/2008	WC	353	How and when was the 53pg/g value arrived at for dioxin? What is considered to be the background level for dioxin at the site?
Other	PM	4/11/2008	WC	354	Why have no background samples been taken off site?
OU-A	PM	4/11/2008	WC	355	What is the longevity of the liner for the encapsulation cell? Variables affecting liner longevity: chemical properties/materials in cell, water intrusion into cell, quality of workmanship of the installer, burrowing rodents, seismic activity.
OU-A	PM	4/11/2008	WC	356	What are the hydrological effects of other contaminants on dioxins?

OU-A	PM	4/11/2008	WC	357	How will fresh groundwater recharge over a 9 – 11 acre impermeable barrier?
Other	PM	4/11/2008	WC	358	Why haven't all the documents relating to the remedial investigation, draft RAP, and draft interim RAP been made available in Spanish?
Other	PM	4/11/2008	WC	359	Need for smaller, interactive community meetings and the larger venue meetings.
Other	PM	4/11/2008	WC	360	Public comments should not be limited to draft RAP's.
OU-A	PM	4/11/2008	WC	361	What has DTSC done in the area of Native American outreach to ascertain their concerns? Has DTSC done outreach to federal oversight agencies to insure tribal interests are protected?
Other	PM	4/11/2008	WC	362	Envirostor website is not up to date and needs revision.
Other	PM	4/11/2008	WC	363	An on site inspection by community members has been requested to DTSC.

Both	PM	4/11/2008	WC	364	DTSC granted a two week extension of the draft RAP and draft Interim RAP public comment period requested by the community.
Both	PM	4/11/2008	WC	365	Who is the Responsible Party (RP)? GP or Koch?
OU-A	PM	4/11/2008	WC	366	Will a bond of sufficient size be posted to cover remedial investigation, remediation, long term monitoring, clean up when the encapsulation cell is breached, etc.? Who will determine the amount? What is entailed in the long term monitoring and maintenance of the encapsulated cell?
OU-A	PM	4/11/2008	WC	367	Why is only \$8,000/year budgeted for the monitoring? Who is responsible for cost over runs?
Other	PM	4/11/2008	WC	368	How will having a dioxin dump in the center of Fort Bragg affect the tourist trade, future tax revenues, property values?
Other	PM	4/11/2008	WC	369	The city has nothing in writing from GP relative to the transfer of the Coastal Trail land to the city (letter of agreement). Why??? There is no supporting document relative of the transfer of land from GP to the city in the draft RAP.
OU-A	PM	4/11/2008	WC	370	There is no documentation from the Coastal Conservancy regarding the apparent funding availability deadline from CC to the city of FB associated with the Parkland area. Why???

OU-A	PM	4/11/2008	WC	371	What happens to the remediation and long term monitoring is GP (Koch) goes belly up?
Both	PM	4/11/2008	WC	372	Who are the "Resource Trustees" on the project? What process has DTSC implemented for input from "Resource Trustees" for this project? Why isn't NOAA (National Oceanic and Atmospheric Administration) at the table? Who is the DTSC contact person regarding the "Resource Trustee" issue?
OU-A	PM	4/11/2008	WC	376	Aside from cancer, what are the other adverse health effects of dioxins...especially on pregnant women, fetuses, people with compromised immune systems, and children?
Other	PM	4/11/2008	WC	377	Why is there still no proper signage around the mill site perimeter warning that there are hazardous wastes/substances within?
Both	PM	4/11/2008	WC	378	Why are there no public health evaluations for each of the remediation alternatives in the RAP?
Other	PM	4/11/2008	WC	379	How have the cumulative impacts of exposure to dioxins been taken into account in DTSC's determination of what is an "acceptable risk" for the community?
OU-A	EM	4/24/2008	AL	380	The pervasive presence of dioxins and numerous other chemicals and petro-chemicals accumulated during the over 120 years of industrial impacts on the site years, and our past and potential future exposure to them is very troubling and of grave concern to myself, a citizen of Fort Bragg, and the citizens of our coastal communities who regularly come to Fort Bragg as a commercial center.

Both	EM	4/24/2008	AL	381	I disagree with the adequacy of the Mitigated Negative Declaration being proposed by DTSC for these RAPs. I believe that they do not meet the requirements of CEQA and strongly urge the DTSC as agents of the California Environmental Protection Agency to request a complete Environmental Impact Review of the whole 415 acre area. The conclusions of the Negative Declaration are based on incomplete, fragmented assessments of this site.
Other	EM	4/24/2008	AL	382	The lack of a complete Site Characterization, with a comprehensive historical and ecological data base results in an incomplete picture of the area, which makes it impossible to truly assess the cumulative effects of the industrial use of the area, and the impact of the planned development, and the health and safety issues affecting the local community, and the health and wellbeing of all residents and the bio-communities affected by the projects. CEQA demands that cumulative effects and the apprehension and concern of the local community be considered.
Other	EM	4/24/2008	AL	383	Lack of acknowledgement of the ecological limits of the Project Site plans boundaries that result in ignoring factors and vectors off site that affect the site, and the local community, which is part of the ecosystem.
Other	EM	4/24/2008	AL	384	No easily readable overlay map that gives an un-fragmented picture of the toxicity of the whole site, including all historic data.
Other	EM	4/24/2008	AL	385	Incomplete and fragmented data, including lack of anecdotal from the local community, of the toxic dumping and burying including, and predating GP's ownership incomplete. More research and compiling of data are needed.
Other	EM	4/24/2008	AL	386	Lack of in-depth operating history of GP and previous ownerships. Ref. 4-16-08 and 4-18-08 Emails to DTSC E. Gillera et all from Jody Sparks re 1) the production of plywood veneer products and the chemicals associated with plywood production on the GP site, 2.) new info of dumping of Penta, near the former Planing Mill and in the OUA area. 3.) In mail from J. Sparks and the GP Study Group "have recently provided DTSC with documentation regarding a large trove of historical information available at the Bancroft Library in Berkeley regarding Union Lumber Company, a GP predecessor. The evidence at this point is clear that the evidence which GP provided DTSC as part of their remediation process is substantially incomplete, and more research is needed. "North Coast Action also has cited numerous anecdotal information to the Fort Bragg City Council.4.) re email from J. Sparks to E. Gillera et al: parcel formerly owned by GP used for disposal by Union Lumber and contains area of burned ash, and needs further analyzing. The issue is raised of other possible parcels contiguous with GP present boundaries that should be included in the definition of the site.

Other	EM	4/24/2008	AL	387	Lack of sufficient documentation and analysis of the waste GP burned, whose toxic plume was breathed by the coastal community. What was burned, and when? What were the detrimental immediate and cumulative effects on the local community (including myself) of this burning and dispersal of this toxic waste into our air and soil? GP must be made accountable for this outrage to public health and safety.
Other	EM	4/24/2008	AL	388	<p>Insufficient acknowledgement, mapping and analysis of historic waterways, many of which are underground. This map is available, and evens a cursory walk of the neighborhoods a few blocks east of the site and/or conversations with residents indicate where those presently underground waterways are.</p> <p>Lack of consideration, monitoring, assessment and analysis of the above mentioned waterways percolating underground and carrying toxics vectors offsite into the ocean ecosystem. (ref. The testimony at DTSC Hearing in Ft. Bragg on 4/11/08 of Derek Hoyle's observation of runoff into caves in the sea cliffs of the south Unit).</p>
OU-A	EM	4/24/2008	AL	389	Lack of "Wind" as constant site element in the proposed GP Project Plan, and lack of DTSC to include it (again, lack of a comprehensive EIR!). It is considered as a factor , "airborne dust emissions" in the GP plan in the proposed mitigation by moving of toxic soil, as monitored by Mendocino County Air Quality Control Board, the agency who failed miserably in protecting local citizens from exposure to years of toxic smoke from GP's on-site burning of toxic waste.
OU-A	EM	4/24/2008	AL	390	<p>The troubling and ill-advised siting of the "consolidation Cap" (a de facto Land Fill) proposed to contain dioxin contaminated soil is inappropriate for a number of reasons:</p> <p>The site is vulnerable to inevitable moving and shifting due to earth quake events and tsunami caused by earthquakes that make it impossible to insure that will remain sealed or impervious to water flow for any foreseeable time. The statement by DTSC in their handout at the Ft. Bragg public meeting on 4-11-08 that "capping eliminates any exposure pathways" and that "capping prevents any water infiltration into the cell" is disingenuous and misleading considering the high incidence of geologic activity. (ref. Harold Wollenberg's submitted comments re the issue of weak coverage of sesimicity.)</p> <p>The hydrogeology of the groundwater is not accurately measured and assessed for high water events when such a proposed cap cracks and infiltration happens during highly probable earth shifting. Again, the lack of an in depth site characterization and EIR results in simplistic, fragmented conclusions. (Ref. Comments submitted by Susan Miller and Harold Wollenberg re lack of sufficient hydro geological monitoring program.)</p>
OU-A	EM	4/24/2008	AL	391	The proposed "in perpetuity" monitoring of the proposed containment site by GP is unsatisfactory and disingenuous in the context of GP's history on the North Coast, and the fluid global economy of today. GP abandoned their Mill after failing to sustain production of the local forests in their stewardship. Who monitors if/when GP's owners decide to sell it, or dissolve it. It is the community who bears the brunt of all the deleterious impacts of post-industrial fall out, and it is to the local community concerns that DTSC and the Fort Bragg city council should be giving priority consideration.

OU-A	EM	4/24/2008	AL	392	The potential for cracking of the sealed edges of the proposed plastic containment material is highly probable, if not certain. Where is the information of such failures at other sites. The projected life of the proposed container is "300 to 1000years"? Can anyone seriously accept that given the above flaws in the site plan?
OU-A	EM	4/24/2008	AL	393	The inadequacies of the "grid" soil sampling done by ARCADIS. How can one be assured that there is no soil contamination in the areas other than the "grid" spots? Why the arbitrary depths chosen?? Doesn't dioxin percolate down into the soil?? How can DTSC assure the public that the mitigation's proposed will remove ALL of the toxic soil?
Other	EM	4/24/2008	AL	394	<p>The lack of acknowledgement and assessment of the bioaccumulation of toxins in the local "receptors", the local residents. The historic "human exposure pathways" are ignored both by GP and DTSC:</p> <p>Dioxin Herbicides were extensively sprayed in the coastal watersheds to the north, east and south of Fort Bragg in the 70's and 80's until Mendocino County banned them. They are still being manually applied. Due to ever present wind dispersal many local residents whose homes bordered Corporate forest lands were exposed and carry dioxin residues in their tissue.</p> <p>GP mill workers have been exposed for years to both the chemicals documented by GP and those undocumented (see above).</p> <p>The community of Fort Bragg, and possible those to the further north and south were exposed to the recent burning of toxic waste (will DTSC please demand from GP exactly what they were burning) which, especially if it contained dioxins, probably caused disruption of our immune and endocrine systems, and cancer. We need some tracking of this exposure.</p> <p>There is anecdotal information of "cancer clusters" in the coastal community, a a high incidence of breast cancer, according to doctors at the Coast Clinic, and of thyroid problems in women here. We need to study this not just ignore it.</p> <p>If we who live here have already been subjected to toxics, dioxin in particular, then our already high bioaccumulation demands that the "acceptable", "normal" levels being modeled by DTSC are not appropriate to this situation and to the community, both from Fort Bragg and the larger coastal area who would be walking the proposed trail, or exposed to soil disturbance via wind, or vectors which continue to flow into the ocean, unmonitored.</p>
Both	EM	4/24/2008	AL	395	Again, CEQA requires a complete Environmental Impact Review including a comprehensive site characterization including all issues and questions being raised above and others by a very concerned and involved public.

Other	EM	4/28/2008	MP	396	An act of bad faith: GP brought in truckloads of Noyo Harbor dredgings to prep for a RAP that is not yet approved by DTSC and before the Public Comment period ended.
Other	EM	4/28/2008	MP	397	GP's refusal of a DTSC request: GP has refused to allow a small group of citizens access to the site.
OU-A	EM	4/28/2008	MP	398	GP's failure to fence the entire perimeter of the site: Site access from the Glass Beach area is unrestricted.
Other	EM	4/28/2008	MP	399	GP's failure to post proper signage: Signage meeting DTSC's "Legible at 25'" does not exist.
Other	EM	4/28/2008	MP	400	GP's segmentation of the project: This is solely for the purpose of financial expediency.
Both	EM	4/28/2008	MP	401	Mitigated Negative Declaration (MND): Failure to research and characterize the southern portion's sea cave and "blowhole". Little or no analysis of cumulative health impacts.
Both	EM	4/28/2008	MP	402	Need for an Environmental Impact Report: This arises from the intense community interest and the significant issues raised.

Both	EM	4/28/2008	CD	403	Noyo Harbor dredgings contained 58 ppm chromium when tested between May 18 and May 21, 1982. Harbor dredgings are powdery in consistency and tend to blow around in the wind.
Other	EM	4/28/2008	CD	404	<p>Noyo Harbor dredgings were put into the millpond to build a pad for the cooling towers from 5-28-1980 on. The cooling towers went online on September 8, 1982, not in the '70's as stated in the mill history of the document.</p> <p>My notes from the 1980's indicate that 700 pounds of copper sulfate were put into the millpond to kill pondweeds. This was a regular procedure.</p>
Other	EM	4/28/2008	CD	405	In the time frame I was able to peruse the detailed mapping of test sites all over the mill, it appeared as though in many areas the majority of the test sites were never analyzed or were, less often, analyzed for only one contaminant type. From my experience I believe it would be prudent to analyze for a broader range of contaminants in more samples. It was common practice for people to pile, drop, temporarily store, hide, or dump a variety of solids and liquids from the mill operations, probably ranging from solvents through wood waste and soil, on the log deck or any convenient, out-of-the-way place. I have reason to believe that various unwanted chemicals solutions and materials including, but not limited to fly ash, were over the years improperly disposed of on the log deck. It was common over the years for sawdust that was used to absorb spills of various stuff (such as hydraulic oil) to be dumped in places it should not be. Some chemicals used at the mill included mineral spirits, Stoddard's solvent, trichloroethane, perchloroethane, carbon tetrachloride, hydraulic fluid, bunker oil, nursery fungicides, Tordon, Daconil2787, Dyquot, 24D, 245T, and glyphosate. These are some of the chemicals that should be tested for, though one might not normally expect to find them on a log deck. Phenoxy herbicides used in the woods were stored at the mill site. The California Western Railroad had drainage pipes that went onto the mill property.
Other	EM	4/28/2008	CD	406	In April 1983, the North Coast Regional Water Quality Control Board cyanide test results indicated that the mill had used pentachlorophenol in October 1982, and they also found cyanide and formaldehyde in the outfall from the millpond. In the early 1980's a move was made to begin to curtail some of these activities.
Both	EM	4/28/2008	CD	407	<p>There is a strip of lush native vegetation all along the edge of the bluff that has for the most part not been disturbed since 1885. Jubata grass (pampas grass), which in the 1980's was limited to several very small sections of the mill property, has now exploded its populations on site. Jubata grass is an extremely large clumping non-native species that takes advantage of recent soil disturbances to dramatically crowd out native species. Jubata grass will jump into any disturbed areas—as will be created when contaminated soils are removed.</p> <p>Additionally, building a berm at the bluff's edge with harbor dredgings during work on the trail area (as is required by the RAP for the OU-A and the Interim Action Area) will smother the existing lush native vegetation with salty, itself-contaminated, blowy material and invite a pampas grass invasion. What provisions will be made to</p>

					insure pampas grass is eradicated? What provisions will be made to see that pampas grass does not spread onto the area?
OU-A	EM	4/28/2008	CD	408	Harbor dredgings should not be used to cover the dioxin contaminated soil storage site. They are blowy, salty, and contaminated themselves. The savings of \$10/yd ³ does not make sense. The plan is to top the harbor dredgings with only 4-6 inches of clean soil. That is not enough soil for native plants to take root adequately.
Other	EM	4/28/2008	CD	409	In the summer of 1980 I observed fly ash blowing all over Highway One and beyond from the west, particularly around Cypress Street. Apparently some sections of the log deck were without logs at that time. There were a lot of air pollutions complaints from citizens of Fort Bragg. 246 Main Street is where air pollution was being monitored.
Other	EM	4/28/2008	CD	410	Fly ash from the scrubbers was buried in the bark dump, along with the redwood bark for which the dump was permitted. In January 1980, the bark dump was already built up to 3-7 feet higher than the surrounding area. In April 1980, I observed and was informed that trenches 10-20 feet deep were being dug at the bark dump, not 3 feet deep which was permitted. Note: the ground water table is at 8 feet. Fort Bragg gets its water from the Noyo River.
Other	EM	4/28/2008	CD	411	My 2-22-80 field notes indicate that there were 6 inches of rain in 4 days—called 100-yr floods in Petaluma and San Francisco. During heavy rains it was common for polluted water to run off into the Noyo and into the ocean.
Other	EM	4/28/2008	CD	412	From February 24 through April 6 and possibly beyond, 1982, at the mill the alum pond was overflowing, the truck road was becoming permanently undermined, the bark dump was overflowing leachate into a tributary of the Noyo River, and there was runoff from the log deck directly to the ocean on the south side, just outside Noyo Harbor. At a coffee klatch with 15 longtime local workers, I heard from more than several of them that "This (overflow leaking into the Noyo and the ocean) happens all the time."
Both	EM	4/28/2008	SC	413	The scope of the CEQA document is inadequate. The Mitigated Negative Declaration is insufficient to address a project of this size and history. New information has continued to come to light since the publishing of the RAP and the MND.

Both	EM	4/28/2008	SC	414	<p>In addition to the many reasons for conducting an EIR on the entire property, some of which include:</p> <p style="padding-left: 40px;">Segmentation of the project,</p> <p style="padding-left: 40px;">Absence of a site characterization sufficient to include analysis of soils presently occupying the Consolidation Cell,</p> <p style="padding-left: 40px;">Absence of clarity concerning a date for sunset of Coastal Conservancy funding for purchase of Parkland and Coastal Trail,</p> <p style="padding-left: 40px;">Absence of sufficient grounds for allowing the acquisition of a Coastal Trail to take precedence over the health and wellbeing of not only local citizenry but potentially hundreds of thousands of future visitors,</p> <p style="padding-left: 40px;">Incomplete appraisal of the geology and hydrogeology of the entire site and especially in the area of and contiguous to the Consolidation Cell,</p> <p>public controversy itself is sufficient to warrant the full EIR to “demonstrate to an apprehensive citizenry that the agency has in fact analyzed and considered the ecological implications of its actions.” Id.; San Joaquin Raptor/ Wildlife Rescue Center v. County of Stanislaus (1996) Furthermore, “an EIR is required if a “fair argument” can be made to support a conclusion adverse or indirect environmental effects may occur as a result of approval of a project or any of its parts”. Architectural Heritage Assn. v. County of Monterey (2004).</p> <p>Finally, it is improper to rely on a Categorical Exemption in the face of a fair argument. “If the court perceives there was substantial evidence that the project might have an adverse impact, but the agency failed to secure preparation of an EIR, the agency action must be set aside because the agency abused its discretion by failing to follow the law.” Dunn-Edwards Corporation v Bay Area Air Quality Management District (1992).</p>
Both	EM	4/28/2008	SC	415	<p>Please abandon the Mitigated Negative Declaration. Please conduct a full EIR. Please enable a full site characterization. Please consider cumulative impacts historical and geographical. Please consider socio-economic impacts. Please consider the impacts of decades of effluent on the ocean.</p>
OU-A	EM	4/20/2008	LS	416	<p>I have been following this issue with interest, as it has implications of state-wide importance. The timely clean-up of the coastal area is of vital importance to the city of Fort Bragg, and the city needs to be free of encumbrances such as continued monitoring or building restrictions related to toxicity. The community has soundly rejected the suggestion that the dioxin contaminated soils be buried and capped on site, and seems to prefer bioremediation. This is a time consuming and experimental approach, however, and would necessitate moving the material to consolidate it, which is one of the objections people raise to transporting it. It is important for the community to realize that transport is to an approved waste site, where sequestering or, possibly treatment, can be monitored; material is not being trucked to another community! I believe, considering the scientific and practical issues, that removing the soil and transporting it to a state-approved site is the best solution. Thank you for continued impartiality in your oversight of this matter.</p>

OU-A	EM	4/28/2008	ZZ	417	After attending some of the meetings concerning the old GP mill site contamination in Ft. Bragg, I have the following comments. First, let me thank you and all the staff at DTSC for the time you have spent and will spend on this vital issue to not only us, the residents, but also to those who visit our special area. My recommendation to you is to slow the process down and not rush to a judgment that will be regretted later. The process needs time for various methods of bioremediation to be tried first without moving any soil; soil movement, whether to an on-site location to be capped, or to an off-site repository will inevitably result in further contamination of the site and nearby neighborhoods. If this bioremediation process fails, then other measures can be used. This remediation process may have other positive aspects to our area: creating jobs, furthering the knowledge of potential remediation processes which could be used elsewhere, and furthering the public's perception of our area as a clean, enjoyable place to visit. So, let's give nature a chance to show us how effective she can be in healing herself.
OU-A	EM	4/28/2008	CF	418	I have reviewed the draft Remedial Action Plan for the Georgia-Pacific Mill Site in Fort Bragg. I am in favor of the bio-remediation alternative and oppose both the transport/disposal off-site and on-site capping options. I want the overall toxic load on the land, whether at the GP site or at a central California toxic landfill, to be reduced. Myco-remediation offers us this possibility. We have an important opportunity with this site to be a leader and a model in developing more sustainable, long-term and environmentally sensitive methods for dealing with the hazardous waste we humans have created.
Both	EM	4/27/2008	TAG	419	The very structure of the MND is peculiar. The Project Description defines two separate projects to be analyzed by the MND. Neither project description is adequately comprehensive, and the projects are not related except that both are located on a large common ownership and both involve toxics. This tenuous relationship does not rescue the MND from its inadequacies for both projects.
Both	EM	4/27/2008	TAG	420	One of the most obvious deficiencies in the MND results from the segmentation of the project(s) so that a less rigorous environmental analysis can be performed. The project(s) as described is (are) fundamentally precursor site preparation work for the intended ultimate use of the site. While the details of those uses have not been finalized, those uses are in no way speculative. Since at least 2002, the City of fort Bragg and Georgia Pacific have been studying land use for the GP site, and have mentioned in public possible housing and related uses as well as the recreational uses noted in the MND. Page 6 of the MND notes that, "...conversion to public parkland...would be subject to a separate analysis under CEQA." The real project at issue here is the ultimate land use, including the coastal trail but also the other uses which are currently being planned, and not just the cleanup analyzed here which will allow those uses to proceed. At the very least, the CEQA document must define the actual project, not just a convenient portion of it.

OU-A	EM	4/27/2008	TAG	421	The rush-to-judgement evident in consideration of the MND is somewhat explained on page 2 paragraph 3 of the MND, wherein it is noted that the OU-A RAP was developed to “expedite remediation.” TAG is aware that there is a purported deadline for delivery of funds from the Coastal Conservancy for the City to use to purchase some of the site. This appears to have motivated use of unfortunate shortcuts in the normal process so that the deadline (which seems to be something of a moving target) can be met. While acquisition of land for purposes of a coastal trail is an admirable goal, TAG is aware of nothing in CEQA statutes, guidelines, or case law which permits segmentation of a project for purposes of financial expediency. Were such allowances in place, every developer in California would claim financial pressures. The fact that the Coastal Conservancy and the City of Fort Bragg are interested parties in this situation does not change the requirements to properly comply with CEQA.
OU-A	EM	4/27/2008	TAG	422	<p>In the Hazards and Hazardous Materials section, the statement is made that, “Soils/fill material containing dioxins/furans are not present...at concentrations...that would cause these soils/fill materials to be deemed a federal or California hazardous waste...” While this statement is true, it is presented disingenuously, given the DTSC charge to protect public health and the environment and the oft-quoted comment from the National Academy of Sciences as well as DTSC staff that there is no safe level of dioxin exposure. Yet taken at face value, the statement seems to imply that soils on the site present no human health risk.</p> <p>TAG is aware that not all dioxins and furans exhibit the human toxicity that 2,3,7,8 TCDD does. However, testing has shown the presence of 2,3,7,8 TCDD at the site. If the goal is to protect public health and the environment, anything that increases the risk of exposure of the public to dioxins is unacceptable. This renders the discussion of how dioxin contaminated soils are to be handled on-site as well as the risk-of-upset analysis totally inadequate. Dioxins are extremely dangerous substances, and any analysis of how they are handled must be carefully constructed. The boilerplate requirements in this section, including in the risk-of-upset subsection, do not address accidents involving dioxin contaminated soil. Dioxins are among many toxins that are dangerous to humans at levels of exposure below those which result in soils being declared hazardous wastes. It is not hard to imagine exposure scenarios for workers, the public, or emergency personnel to be exposed to unsafe levels of dioxins in the event of even relatively minor accidents. Even assuming the dioxins are not to be removed from the site, there is danger to workers, emergency personnel, and any members of the public who may be exposed to dioxin-contaminated soil or dust in the event of an upset situation.</p>
Both	EM	4/27/2008	TAG	423	Further, it is likely that the Fort Bragg community has been exposed to dioxins from the Georgia Pacific site over a long period of time, and there is no discussion in the MND of cumulative impacts due to further exposure from remediation activities, nor indeed, from normal fugitive dust generation due from the frequent sea breezes blowing over the entire Georgia Pacific site. A far more thorough investigation is required.

OU-A	EM	4/27/2008	TAG	424	This issue is important for other areas of analysis. For example, the Air Quality section deals with potential dust emission primarily as if the dust were ordinary PM10. It is not. Dioxins and furans as a class are considered to adsorb strongly to soil. This means that soil from the site, even if not legally hazardous waste, is obviously a major threat to public health and the environment for purposes of contact. While the propensity of dioxin to adsorb to soil and therefore not easily migrate in the ground can be an advantage, it also means that dioxin contaminated soil that becomes dust, fugitive or otherwise, is a threat to anyone exposed to the dust, on-site or downwind. Dust suppression measures during remediation activities cannot possibly prevent all dust generation, and of course those measures do not address dust generated by areas of the site not part of the cleanup project. Failure to address this issue in terms of both immediate and cumulative threat to public health and the environment is completely unacceptable and renders the MND inadequate.
Both	EM	4/27/2008	TAG	425	The Hydrology and Water Quality section notes on page 46 that, "Water for dust suppression and decontamination will be obtained from onsite sources (ponds). There appears to be no provision to assure that water from these sources will not simply add to the contamination issue. Surface water from a site known to be contaminated is quite likely to suffer contamination issues as well. Failure to properly analyze this potential exacerbation of contamination on the site is a major inadequacy of the MND.
Other	EM	4/27/2008	TAG	426	A further water quality issue is the sea cave problem. Site related documents describe a "blowhole" on the southern portion of the site. There are historical aerial photographs and maps in the public record (known to DTSC staff) indicating roads and rail lines extending to the vicinity of the blowhole from at least 1957 to as recently as 1973. Related text and testimony from past workers indicates that the blowhole was used as a dump area for a variety of known and unknown substances, including pentachlorophenol. Proper characterization of the site requires that such issues be carefully researched and their implications properly analyzed for health and environmental impacts. The MND cannot be considered adequate until such research is conducted and the entire site is properly characterized.
OU-A	EM	4/27/2008	TAG	427	The site is inadequately characterized. TAG is aware of far more historical information than is noted in the citations of the MND. For example, the acre-plus on-site cell where dioxin-contaminated soil is to be consolidated has not been characterized. This obviously increases the risk that soil now present at this uncharacterized site will have to be removed, which obviously will require removing the (previously consolidated) overburden (DTSC staff have acknowledged this possibility.) The dioxin cell issue is merely representative of the lack of thorough characterization of the overall project site. Absent such characterization, proper environmental analysis is not possible, and the MND is flatly inadequate.
Other	EM	4/27/2008	TAG	428	There is a substantial quantity of new information being revealed on an ongoing basis. Community members reveal new issues at every meeting, (in fact, they reveal new information almost daily) and historical research is turning up new documents. For example, at the April 11, 2008 meeting conducted by DTSC, a professional diver offered testimony regarding sea caves extending from the base of the bluffs inland under the site. In his testimony, he indicated that there was water infiltrating into the caves from above, that there appeared to be slag-like material in the caves, and he noted that he was surprised at the evident lack of any marine life and vegetation. Community members have offered testimony regarding materials used, burned, and dumped on site. The MND does not reflect this

					information, and is inadequate as a result.
Both	EM	4/27/2008	TAG	429	The project has been segmented, and the MND is not the appropriate document for the large-scale development project that is actually being proposed.
Both	EM	4/27/2008	TAG	430	The MND contains little or no analysis of cumulative impacts. In fact, in the Mandatory Findings section of the MND, the “does not have” box for cumulative impacts is checked. This is simply false, and we can not imagine that anyone actually believes it, especially with regard to dioxins on the site. In and of itself, this conclusion renders the document incorrect and inadequate.
Both	EM	4/27/2008	TAG	431	In conclusion, TAG requests that this MND be withdrawn and a new Initial Study prepared. To make the document viable, the project must be described in its entirety as CEQA requires rather than the current segmented approach, the entire site must be properly characterized, much more thorough background research must be conducted, all the new information must be considered, and cumulative impacts must be properly evaluated in the Environmental Document. Given these issues, as well as the intense and ongoing interest of the Fort Bragg community in this project which clearly supports a Fair Argument claim, we believe that the project requires preparation of an Environmental Impact Report.
OU-A	EM	4/27/2008	LH	432	Regarding the Draft Remedial Action Plan for containment and capping of G-P's toxic waste, please consider seismic activity, the tendency for nondegradable, persistent poisons to leach into groundwater, the sensitivity of the surrounding ecosystem, the danger of contaminating the local food chain, and the great unlikelihood that the containment will be monitored and maintained by Georgia-Pacific, which no longer exists except as a subsidiary of the huge Koch Industries, and find a more realistic solution, such as bioremediation. This relatively inexpensive method would employ locals, spare our crumbling roads the wear and tear of trucking toxic waste, be more ethical than inflicting "our" contaminants on distant communities, and reinforce our community's reputation for creative, constructive resourcefulness.
Other	EM	4/27/2008	LH	433	I also urge you to slow down the process of approval until the intertidal zone around the mill site has been thoroughly tested, and other inquiries can be made as issues arise.

Other	EM	4/26/2008	MR	434	I met you at a meeting at St. Michael's in Ft. Bragg a couple of months ago. It was supposed to be a meeting that the public could put some input about their concerns about the toxic mess left behind by GP. I was completely taken back by the attitude of some of the people that are suppose to protect the interests of the community.
Other	EM	4/26/2008	MR	435	My biggest concern is my grandchildren. They have lived in Fort Bragg for 14 years. They love the beach, they love glass beach. What health risks are in their future because of GP and their lack of interest in taking care of the their responsibilities?
Other	EM	4/26/2008	MR	436	Where does the EPA stand on this? It is my belief the the EPA stands for the Environmental Protection Agency. Where is the protection? What are your responsibilities at DYSC? Are you being told to hurry up and close this file?
Both	EM	4/26/2008	MR	437	I think it is really clear that the community needs a lot more time to absorb this information. I think another year is not asking too much.
OU-A	EM	4/28/2008	ADC	438	We have studied the pertinent material presented for public comment, and have formed the opinion that the best and wisest course of action for dealing with dioxin tainted soil on the Fort Bragg millsite is removal and offsite remediation at an appropriate facility, NOT at the millsite in the center of town. The Kellerman facilities, for example, have expertise and experience in dealing with toxic soil treatment; GP and the Fort Bragg city council do not.
OU-A	EM	4/28/2008	ADC	439	Bioremediation, though exciting in concept, is not proven effective against dioxins, and would be too experimental at this time.
OU-A	EM	4/28/2008	ADC	440	We are totally opposed to the 'cap and bury' scenario promoted by GP. Eventual leakage would be disastrous, and we are unconvinced by GP's assertions that containers would last 300-1000 years. Hazards posed by possible earthquakes on this site, an eroding marine terrace, were not adequately addressed.

Other	EM	4/28/2008	ADC	441	We found that much of the work done by Arcadis seems slanted to minimize the dangers of GP's toxic legacy, and believe it would be appropriate for the city council to hire an independent research group to review their 'facts' and analysis of the situation. As Kimi Klein stated, "...if any chemical causes cancer, there is no safe level." We feel that there is currently an effort, on the part of GP and the city council, to rush through this process, and would like to say that no grant or deadline is worth risking the future of our town.
Other	EM	4/28/2008	ADC	442	The city manager has stated that it's our responsibility to keep the toxic soil here in Fort Bragg. We don't think it's selfish or irresponsible to ask the corporation that created and profited from the problem, by burning 'industrial wood' trucked here from other municipalities, to remove the mess they left behind.
Both	EM	4/24/2008	HB	443	<p>I do not want you to go ahead with your plans at this time. I believe that the speed and inaccuracy with which you and your team are foisting a plan upon our community is a disservice to us. There are way too many matters that have not been dealt with satisfactorily. You have to take into consideration many aspects of usage that you seem to be brushing aside.</p> <p>We have not investigated thoroughly other means to rid the site of toxic wastes, new technologies that could offer significantly reduced dangers for people who live here and will use the path often as well as dogs, the environment, everything.</p> <p>Stop rushing and pushing us. Do what the public wants and let's get this clean-up done RIGHT.</p> <p>We cannot let money be the factor here; to do so would be a grave mistake.</p>
Other	EM	4/28/2008	BG	444	<p>We would all like to move along on the development of the Mill Site and the Coastal Trail, but we cannot in our haste create a health crisis for the public. We need to learn from past experience, the toxic state of our world, and all the illness that has resulted, that quick fixes often lead to serious consequences for public health. Cancer is epidemic, Mendocino County has a high cancer rate, and dioxin is a known carcinogen. Given this, capping the dioxin and then preceeding to develop the site is irresponsible, as was the initial contamination by G.P. G.P. created this hazard and they need to clean it up in a thorough manner to insure that no further damage will ensue to human health and the environment.</p> <p>There was a period of time when people were falsely told that dioxins were not dangerous. They were sprayed in the forests all over this area as a defoliant (as they were used in Vietnam.) People objected, but those objections were ignored and ridiculed. I went to meetings in the 1970's in Ft Bragg where representatives of logging companies told the audience that 2-4-D was as safe as table salt. One loses faith in companies that will tell the public any lie in order to make a profit. Mill workers, loggers and all others in this area have already been exposed to dioxin. The Mill Site will be used by children and pregnant women who are especially sensitive to carcinogens such as dioxin. It is irresponsible to take further chances with our health by merely capping the dioxin. The solution that G.P. is suggesting does not guarantee the public safety. There are too many chances of things going wrong in future years. In situations as dangerous as this one more precaution has to be applied.</p>

					I suggest that we slow down the process to avoid dangerous errors.
OU-A	EM	4/28/2008	BG	445	Cost cannot always be the bottom line and we cannot forget to count the resulting health care costs into the equation. I suggest we try bioremediation to see if that will work. If it does not, perhaps the only solution would be to remove the soil to a toxic waste site.
Other	PM	4/28/2008	BG	446	G.P. has created a serious health hazard to our community and they need to take responsibility and properly correct it. It is clear that they should have known of this hazard for many years and they chose to ignore it, exposing many people to dioxins at dangerous levels. They have profited from this mill for a long time and now is the time to spend a little of that profit to correct the problem in such a way that it will not return years down the line.
Both	EM	4/26/2008	BR	447	I know one thing. Rushing a solution to our toxic waste problem for the sake of a coastal trail is very foolish and does not support what is right for our families or what is right for the land. One thing we have all we need of - Time.
Other	EM	4/26/2008	BR	448	<p>Front Page of the NYT Saddled With Legacy of Dioxin, Town Considers an Odd Ally: The Mushroom - New York Times</p> <p>http://www.nytimes.com/2008/04/27/us/27bragg.html?scp=1&sq=Mill+Site&st=nyt</p> <p><http://www.nytimes.com/2008/04/27/us/27bragg.html?scp=1&sq=Mill+Site&st=nyt></p> <p>More from Europe:</p> <p>http://link.abpi.net/l.php?20080410A2</p> <p>And then some more from the home front:</p> <p>http://www.nhne.org/news/NewsArticlesArchive/tabid/400/articleType/ArticleView/articleId/4236/Default.aspx</p> <p>http://www.pubmedcentral.nih.gov/articlerender.fcgi?&pubmedid=16391021</p> <p>http://www.sciencedaily.com/releases/2007/02/070208074723.htm</p>

Both	EM	4/28/2008	SM	450	This project will have a significant impact on the environment which the listed mitigation measures will not be able to mitigate. The primary significant impact to the environment is that the 415 acre site has not been adequately or fully characterized. Lack of knowledge about the extent and constituents of the toxic waste saturating the site will lead to incomplete and improper mitigations and cleanup. All the toxic wastes applied to the whole site and areas off the site such as the marine environment and the northern end of Glass Beach have not been identified nor have all these areas been systematically tested. For this reason alone, an adequate Environmental Impact Report (EIR) is necessary and required by the California Environmental Quality Act. The high level of public participation and concern also requires an EIR.
OU-A	EM	4/28/2008	SM	451	The siting of a toxic waste landfill to contain some of the dioxin contaminated soils on the site is another reason for an EIR. There is no mitigation for creating a toxic landfill on an inappropriate site. An EIR study would be required to test for and disclose accurate highest anticipated groundwater and soil and bedrock characteristics. An EIR would be needed to discuss the cumulative effects of a toxic landfill located in wintertime high groundwater and in an active earthquake zone.
OU-A	EM	4/28/2008	SM	452	Specifically, there is only one reference to high groundwater levels in the Arcadis interim action RAP and feasibility study. There is only one measurement of groundwater levels taken March 5, 2007 and not near the specified landfill site. The one measurement has no relation to true highest anticipated groundwater levels as this requires monitoring over an entire wet weather season and measurements after every storm which drops 1 inch of rain in forty eight hours. A separation of five feet of adequate soil between sewage effluent and highest groundwater could not be the same for separation of toxic laden materials and the true highest groundwater. Certainly toxics disposal would be held to a higher standard.
Other	EM	4/28/2008	SM	453	Georgia Pacific Corporation is to be held responsible for caretaking the site and Mendocino County Air Quality Management will be monitoring the cleanup. Air Quality Management allowed GP to burn, unfettered, materials containing toxics for years. GP burned weekdays, and especially on weekends and holidays, and created much colored smoke which spread out over the town and turned the atmosphere yellow/gray. GP tried to hide the fact that the site was toxic up until 2006, when they were forced to allow sampling.
Other	EM	4/28/2008	SM	454	Georgia Pacific Corporation is to be held responsible for caretaking the site and Mendocino County Air Quality Management will be monitoring the cleanup. Air Quality Management allowed GP to burn, unfettered, materials containing toxics for years. GP burned weekdays, and especially on weekends and holidays, and created much colored smoke which spread out over the town and turned the atmosphere yellow/gray. GP tried to hide the fact that the site was toxic up until 2006, when they were forced to allow sampling.
Other	EM	4/28/2008	JS	455	I have been a coastal resident for over 34 years, living within 4 miles of the mill site in Fort Bragg. I always knew that it was a dirty operation from the thick layers of greasy soot that accumulated on the houses and buildings in Ft. Bragg. How dirty I only suspected. As the 120 years of operation come to an end and the structures are dismantled, the facts emerge about the presence of dioxins and other chemicals and petro-chemicals accumulated on the site. I have no illusion that my family has not already been exposed for some 30 years to substances which accrue in the body over time, with negative health outcomes.

Both	EM	4/28/2008	JS	456	The Mitigated Negative Declaration proposed by DTSC for these RAPS does not appear to me to meet the requirements of CEQA. I strongly urge the DTSC to fulfill their mandate from the California Environmental Protection Agency by requesting a complete Environmental Impact Review of the whole 415 acre area. Incomplete, fragmented assessments of this site have lead to the conclusions of the Negative Declaration.
Both	EM	4/28/2008	JS	457	What are the cumulative effects of industrial use of the area? How do these impact the planned development and the health and safety issues for the local community and its visitors CEQA demands that cumulative effects and the apprehension and concern of the local community, indeed of the whole ecosystem, be considered.
Other	EM	4/28/2008	JS	458	Many of the community have addressed point by point the inadequacies of the review thus far. I wish to address a couple of specific issues. There is insufficient documentation and analysis of the waste burned by GP. The entire coastal community breathed the air affected by this toxic plume. It was a standing joke for years that none of the trees planted along Main St. could survive. Recently GP burned more toxic waste further exposing the community of Fort Bragg, and its environs north and south. Will DTSC demand an account from GP of what substances they were burning? What are the cumulative effects of our exposure then and since through the soil toxic load?
Other	EM	4/28/2008	JS	459	I live on a year round coastal creek. I know from experience the ability of seasonal high waters to erode and undercut, and that water moves substances as solutes along courses of which property owners have little daily awareness. Just comparing the area covered by the mill site with such complex coastal water systems as the one which runs through the Coast Botanical Gardens (one tenth of the same area) indicates there is insufficient understanding of the hydrology of the whole former mill site, and apparently no consideration at all of the cumulative effects along and offshore.
OU-A	EM	4/28/2008	JS	460	While it is obviously necessary to address large-scale earth movements such as earthquakes there is a full range of weather movements to consider in the proposal to consolidate and cap the dioxin-contaminated soil. Cyclical fluctuations in precipitation and greater incidences of high wind and water as the climate change process accelerates, suggest that complacency is dangerous. The need for the already water [remainder of comment missing].
Other	EM	4/28/2008	JS	461	Given GP's historical exploitation of coastal resources and their disingenuous campaign to don a green mantle, their proposal that they shall monitor developments is merely lip service in a campaign to realize the last profit available to them through the sale of the asset. We might ask who shall pay for their profit taking?
Other	EM	4/28/2008	JL	462	The whole process needs to be addressed, not glossed over or manipulated through the carrot and stick tactics of short vision.

OU-A	EM	4/28/2008	JS	463	Now or no coastal trail There will be a coastal trail because the citizens of this community have already paid a high price for it They are tired of being denied access to the shore. But the health issue of exposure as one walks, cycles, swims, dives must be addressed or the human toll will be even higher.
Both	EM	4/28/2008	JS	464	A complete environmental impact report of the whole site should be done. A better understanding of the waterways and lay of the soil is necessary before the soil is disturbed for removal to a location either on or off site which is capable of being appropriately sealed.
OU-A	EM	4/28/2008	JS	465	While this [EIR] is being undertaken test plots for bio-remediation should be working.
OU-A	EM	4/28/2008	GR	466	I have a few comments following tonight's Fort Bragg City council meeting. I am a big supporter of bioremediation. I feel the Draft RAP does not take this option seriously. I do not think the RAP for OU-A is the answer. 1. Permanent capping is a bad idea. 2. Hauling it all away is a bad idea. The RAP should declare a serious intention to study bioremediation. DTSC's support in this effort will help the community and GP raise the funding to make this a model test site. As council members and community members have said this will be an opportunity for Fort Bragg to lead the way in developing new ways to remediate toxins. If tests prove effective ALL the material from the trail should be cleaned. I'll say it again. Permanent capping is not a good idea. There is no away.
Other	EM	4/28/2008	MD	467	Is there scientific documentation to support the following claims, as reported in our local paper? These claims should either be documented or not used in making decisions.
Other	EM	4/28/2008	MD	468	"Background" levels of dioxin, taken from the mill site, represent "background" levels in the local environment, in areas not exposed to mill operations.

Other	EM	4/28/2008	MD	469	Contamination levels of dioxin found at the Fort Bragg Mill site have also been documented in other similar mill sites from routine operations.
Other	EM	4/28/2008	MD	470	The source of chlorine to form dioxins during combustion is sodium chloride from ocean spray.
OU-A	EM	4/28/2008	MD	471	The proposed liner would last 300 to 1000 years. Of course, this is only meaningful if the integrity of the liner lasts; cracks and tears would invalidate this claim even if fragments of the liner did not disintegrate.
Other	EM	4/28/2008	MD	472	<p>Local papers say the extent of dioxin and other toxins on this site have been characterized. However, it seems that the following paths for toxins are just now being tested. To complete site characterization, these possible paths of contamination are essential:</p> <ol style="list-style-type: none"> 1) Migration of toxins through groundwater into the tidal zone and ocean. 2) Bioaccumulation of toxins in affected marine life, especially fixed filter feeders. Differences in tidal and offshore marine life populations in "background" areas compared to affected areas.
Other	EM	4/28/2008	MD	473	From newspaper reports, it seems that alleged "hot spots" based on anonymous reports have not been tested. These should be tested, with testing verified by DTSC or another agency. Anonymous reports of illegal dumping should be taken seriously. In my 3 years experience working for an enforcement division of the Water Quality Control Board, never once did we receive a complaint which was unwarranted, though without a doubt some illegal discharges were not reported.
Other	EM	4/28/2008	MD	474	<p>Local news reports also infer that all testing has been performed by land owners and their contractors, and that some of the data is confidential.</p> <p>The public has a right to know all report results because these are now part of an environmental hazard our community bears. Further, the land owners are obligated to provide full access to the site to DTSC and other government oversight agencies to verify sample results and compliance.</p> <p>Government agencies are responsible to the citizens of Fort Bragg to exercise their agency's right and responsibility to verify the extent of contamination. Finally, we are told that the mill site owner retains the right to approve all consultants, researchers, and remediation work for this site, unless private citizens take it on as their own personal project. Since the land owners are ultimately responsible for cleanup, they and not private citizens should seek out remediation researchers and bear the cost, rather than leaving this up to private</p>

					citizens.
Other	EM	4/28/2008	MD	475	Initially, isolate contaminated soils using liners, caps, french drains to divert ground water flow, and surface drainage to divert surface flow.
Other	EM	4/28/2008	MD	476	Seasonally monitor landfilled soils, surrounding soils, surface and groundwater, and representative marine life for any changes in dioxin concentrations, whether due to leakage to the air or water, in situ breakdown, bioaccumulation, or unknown mechanisms. At a minimum, stationary shellfish and plant life on the downstream bluffs should be tested for toxin bioaccumulation.
OU-A	EM	4/28/2008	MD	477	Set aside funding to support research on dioxin remediation, preferably on site to create local jobs, and/or offsite with reputable research facilities, especially local universities. Research funding should be directed by a team of stakeholders including local politicians, not solely at the discretion of the responsible parties.
OU-A	EM	4/28/2008	MD	478	Set aside funding to pay for transport of contaminated soils to Kettleman Hills hazardous waste disposal facility, in case remediation is unsuccessful and the liner/cap fails, allowing dioxins to migrate out of the landfill in concentrations which pose a health threat to wildlife and/or humans. It is preferable not to handle or transport contaminated soils more than necessary, but Fort Bragg's higher rainfall and groundwater make it harder to keep dioxins out of the water table.
OU-A	EM	4/28/2008	MD	479	Set aside funding for monitoring, research, and possible future remediation or transport now in case the responsible parties declare bankruptcy in the future. If remediation options are exhausted and transport of contaminated soils is not warranted after some time period, for example, perhaps 30 years, roll that money over into either: 1) more dioxin remediation research; or 2) economic aid to the City of Fort Bragg to help compensate for loss of use of prime land for so many years.
Other	EM	4/28/2008	MD	480	Allow access to site and land use except for permanent facilities after contaminated soil is isolated by liner and cap; e.g. Coastal Trail, open recreational space, and temporary research trailers. Post areas with warnings where exposure to unsafe levels of contaminants from the mill site is possible, e.g. in open areas exposed to contaminated dust, surface streams which are exposed to contaminated soils or water, or tidal areas where bioaccumulation of toxins is found in marine life.

Other	EM	4/28/2008	MD	481	Test anonymously reported "hot spots."
OU-A	EM	4/28/2008	DL	482	<p>I do not want dioxin stored on the former mill site in downtown Fort Bragg. It is a bad plan and we will regret it, if not in our generation, future generations.</p> <p>If there is research into bioremediation of dioxin, will GP be responsible for remediation of the dioxin once it has been moved to the proposed capped site?</p> <p>GP must own land close by, but not in a downtown area, that could be used as in interim storage area for the contaminated soil while bioremediation is researched. Once it is been found to work, then the contaminated soil could be remediated. If the bioremediation does not work, then the contaminated soil could be moved to a long term landfill area and not stored in down town Fort Bragg. Does GP own land near Fort Bragg that could be used for this purpose?</p> <p>Can we treat the on site capped area as a Interim solution that would still need to be cleaned up?</p> <p>If onsite storage in a capped area is allowed, will that end GP's requirement for remediation once the contaminated soil is moved?</p>
IARAP	EM	4/28/2008	DL	483	<p>I am glad there will be soil farming to clean up this area.</p> <p>We have 28 employees and up to 40 students at one time and our parking lot in right next door to the GP site, 301 North Main Street in the Company Store. Our concern is for the safety of our employees, students and the rest of the town.</p> <p>Will we know when and where they will be digging up the soil?</p>
IARAP	EM	4/28/2008	DL	484	<p>Under what conditions (i.e. high winds etc) will the cleanup be halted for the day? How will this decision be made and by who?</p> <p>For example there are high winds and the work is continuing?</p>
IARAP	EM	4/28/2008	DL	485	<p>What steps will be taken to keep local business informed of daily cleanup operations and conditions? Will there be a hotline or daily website updates?</p> <p>Who do we contact to get immediate action if there is a problem?</p>
Both	EM	4/28/2008	LB	486	<p>I would like to start my comments by saying that devising an action plan for one portion only of the overall project does not appear to meet the requirements for CEQA and I would like to urge DTSC to take a comprehensive approach and request that an Environmental Impact Report of the entire area be completed before recommending or pursuing action plans.</p>

OU-A	EM	4/28/2008	LB	487	Commenting on the RAP as currently proposed, I urge DTSC to select Removal / Offsite Disposal for both the areas containing lead, and the areas containing dioxin. I do not find the alternative of consolidation and capping acceptable for this location. I do not find the proposal for bio-remediation to be realistic or scientifically feasible for this location, based on DTSC reports, and find the proposal to contain and cap until bioremediation can be done in the future an unrealistic approach that will prove costly to the City of Fort Bragg. There are many documented locations nearby. Where fly ash from the GP site was dumped, that could be used for bioremediation research on a private basis if there is interest in doing so. (see Water Quality records on the McGuire ranch)
OU-A	EM	4/28/2008	LB	488	I strongly object to the consolidation and capping alternative for the following reasons: 1) The GP Mill site is in a prominent location in the middle of Ft. Bragg. I am concerned that leaving toxic materials onsite will have a negative effect on property values and tourism, and to offset such concerns the City of Ft Bragg will underemphasize the toxicity and the concerns of the public. 2) I have concerns that this will be a precedent for treatment on the remainder of the site.
OU-A	EM	4/28/2008	LB	489	3) I have no confidence that Koch Industries in the interim, or the City of Fort Bragg in the long run will monitor the site stringently if the toxic materials are capped on-site. I have only to look at past NCWQCB records to see that oversight has been lacking. I am concerned that the buried waste could someday create a situation similar to the current situation with Watson Park in San Jose.
OU-A	EM	4/28/2008	LB	490	4) I would like to see GP/Koch bear the financial responsibility for completely cleaning up this site prior to sale of the property. I do not want to see the City of Ft. Bragg taking on financial responsibility for the future of this material, which it will once GP/Koch has fulfilled DTSC recommendations under the Polanco Act, to my understanding.
OU-A	EM	4/28/2008	LB	491	5) The idea that we would cap a toxic material with the anticipation of future uncapping to do dioxin bioremediation at this site seems unrealistic, and irresponsible. If the temperature in Ft Bragg is not high enough to get good breakdown, as stated in reports, and the breakdown goes from less toxic to more toxic as the compound loses chlorine molecules, it seems we would end up with a resultant partially decomposed material with higher toxicity than what is currently present. How could this be interpreted as a goal to work towards?
OU-A	EM	4/28/2008	LB	492	DTSC is stating that bioremediation will not be further evaluated. GP in its's letter dated April 14, 2008 says that they will implement or fund such a project. The question therefore is who will pay for the research and how can this location for research be justified? Therefore, proposing the consolidation and capping with the carrot of "bioremediation research" in the future is unacceptable alternative in my opinion, and strikes me as "greenwashing" the option in order to justify it or make it more palatable to the public.

OU-A	EM	4/28/2008	LB	493	A facility that is intended expressly for the containment of hazardous waste is preferable and would have monitoring and safety procedures in place to safely contain this dioxin laced material (or it should, if it is a licensed facility). I do not buy the argument given that it is being NIMBY to want the material properly contained in a facility designed for such and already in use for such.
Other	EM	4/28/2008	LB	494	The argument that the coastal trail funding will be lost if we don't move forward is a fear tactic and insufficient reason to rush this aspect of the process. I find it difficult to believe that the Coastal Conservancy would let itself be used as a reason or excuse to bury toxic waste onsite, and believe that they would be more than supportive of extending this funding opportunity until a proper clean up is completed. In fact, it would be reasonable to expect that they hold off providing funding until these materials are completely removed to the satisfaction of the community. Who will want to walk in an area without confidence that it is healthy to do so? If the Coast trail is lost here (which is highly doubtful), it would be a small price to pay for public health and confidence.
OU-A	EM	4/28/2008	LB	495	I can imagine that GP/Koch is favoring the consolidation and capping over removal since it is almost 1/2 the cost. However, there is a long legacy of toxic material left at these type of sites and the City of Ft. Bragg is remiss in their duties if they do not insist on the most complete cleanup of this site for the citizens of the Coast. Once DTSC and GP/Koch are gone, how will the City get money to deal with these things. With the budget cuts and the dismal financial outlook for the State of California, I doubt that they will find money to deal with future problems. The prudent and cautious approach is to get rid of the toxic materials from the site so that the use of this site by the public will be healthful and future development will be untainted by toxics on-site. The time to do this is while all parties are at the table and while GP/Koch is legally accountable.
Other	EM	4/28/2008	MMA	496	Regarding the former Georgia-Pacific Mill site, we are writing to ask that you do everything in your power to see that public health is protected in the long run. We are very concerned that there may be a rush to develop the site before a thorough investigation of toxic substances has been conducted and before effective clean-up has taken place. If the site is developed prematurely, the health of our environment--our ocean, our children--will be compromised. This is a risk we cannot afford to take.
OU-A	EM	4/28/2008	MMA	497	We are requesting that the DTSC explore bio-remediation/micro-remediation techniques on site. We have an incredible opportunity here to explore these promising techniques and apply them if they are effective--and indications right now are that they are effective. Please give these techniques a chance! In the future, others may point to our community as a successful model of what is possible for a community working with the DTSC to accomplish.
Other	EM	4/28/2008	MMA	498	Again, too much is at stake to rush this process. We and future generations will have to live with the results long after decisions have been made and clean-up is done. Please listen to the concerns of the local community.

RESPONSIVENESS SUMMARY
REMEDIAL ACTION PLAN
FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY

ATTACHMENT B

Transcripts from March 26 & April 11, 2008 Community Meetings

1 Department of Toxic Substances Control

2 Public Meeting

3 ---o0o---

4 In re the matter of:

5

6 THE GEORGIA-PACIFIC MILL SITE
7 Remedial Action Plans
8 Coastal Trail and Parkland (OU-A)
9 and Interim Action Areas.

9 _____/

10

11 Wednesday, March 26th, 2008

12

13 Meeting location:
14 REDWOOD ELEMENTARY SCHOOL
15 325 South Lincoln Avenue
16 Fort Bragg, California

17 PROJECT TEAM:

18 Marcus Simpson, Public Participation Specialist
19 Ed Gillera, Project Manager
20 Susan Wilcox, Associate Environmental Planner
21 Denise Tsuji, Supervising Scientist
22 Kimi Klein, Human Health Toxicologist
23 Buzz Chernoff, Ecological Toxicologist

24

25 Reported by: Stephanie Anne Fox, CSR #4640

26

27 COASTAL REPORTING SERVICES
28 131-A STONY CIRCLE, SUITE 500
29 SANTA ROSA, CALIFORNIA 95401
30 (707) 573-9766

31

1 AUDIENCE MEMBERS MAKING ORAL COMMENTS:
(In order of appearance)

- 2
3 David Russell
4 Sandra Patterson
5 Skip Wollenberg
6 Donna Schuler
7 Lenora Shepard
8 Jonathan Shepard
9 Charles Acker
10 Peter Warner
11 Barbara Moller
12 Baile Oakes Bannon
13 Thais Mazur
14 Warren F. Wade
15 Maggie Watson
16 Sheila Tracy
17 Rafael Borrás
18 Dan Ladermann
19 Antonio Wuetke
20 Jody Sparks
21 Vida Borcich
22 Toni Orann
23 Jim Tarbell
24 Susan Nutter
25 Carrie Durkee
Richard Paz
Mark Perkins

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17
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1 (Whereupon, the public meeting commenced at
2 7:09 p.m.)

3 MR. SIMPSON: Good evening, folks. We'd like
4 to get started at this time. So if you could, grab a
5 seat. I know we have a packed house, so hopefully
6 there's a few seats left.

7 I'm like to say thank you to everyone for
8 coming out to tonight's meeting for the draft Remedial
9 Action Plan for Operable Unit A as well as the draft
10 Remedial Action Plan for the Interim Actions Areas at
11 Georgia-Pacific.

12 I want to say thank you to you all for inviting
13 us out and having us here again. It's definitely good
14 to be here.

15 A brief piece of information, if you hear the
16 Remedial Action Plan referred to tonight as RAP, that is
17 how we refer to this. It's a shorter way to say it. So
18 when you hear that acronym, that's what it means,
19 Remedial Action Plan.

20 Tonight we're going to be providing you with
21 some information about both of the draft RAPs and
22 as well as give you all an opportunity to submit your
23 comments on the project.

24 My name is Marcus Simpson. I'm a Public
25 Participation Specialist for the California Department

1 of Toxic Substances Control, and I've been actually
2 affiliated with the project for about a couple of months
3 now, so just to let you know a little bit of the history
4 on how I started with the project.

5 Tonight I'll be facilitating the meeting, and
6 I just want to let you know, if you haven't had the
7 chance to do so, we do have a sign-in sheet in the back
8 of the room. We like to keep an accurate record of who
9 attended the meeting.

10 One note about the sign-in sheet, at the bottom
11 of the sign-in sheet, the boxes that are devoted to your
12 information, you'll see a box that says "e-mail alerts"
13 and for those of you that don't know, our entire stored
14 database is actually set up to where we can give
15 automated e-mails. One second. We're having
16 difficulties here. Let's turn it off. Sorry about
17 that. We're actually set up to where, when new
18 documents are uploaded to the DTSC EnviroStore Database,
19 we can send out automated e-mails letting you, giving
20 you the alert that a new document has been added to the
21 database.

22 So what we would need you to do, if you're not
23 already on that automated e-mail, if you could check
24 that box and then clearly write your e-mail address,
25 that will give us everything that we need to add into

1 that list so that you get the most up-to-date
2 information about the projects.

3 Also, one other note about the handouts on the
4 table, we have fact sheets, three of the most recent
5 fact sheets I believe. We also have this figure to
6 replace the second figure in the Interim Action Area
7 fact sheet. You'll notice that there's a duplicate, but
8 the fact sheets that we have here tonight are the
9 correct ones, but just in the event that people receive
10 the mail fact sheet that had duplicate figures, we have
11 brought an insert to replace that. Okay? So that's
12 just to let everyone know. If you have any questions
13 about that, please let us know.

14 Also, we have comment cards. So we've received
15 several comment cards already, so I'm sure that everyone
16 is aware of what the comment cards look like. If you
17 have a comment card, if you could take a look at it, I'd
18 like to point out to your attention the two boxes at the
19 bottom of the comment card, those two boxes. If you
20 check the one on the left, you are stating that you
21 would like to be called up to make a verbal comment at
22 the microphone to my left, and if you check the one on
23 the right, that basically states that you would like to
24 submit a written comment and would not like to verbalize
25 your comment tonight.

1 At any point, you can let me know throughout
2 the meeting tonight if you would prefer us to read the
3 comment for you so that you don't have to come to the
4 microphone, or if you prefer not to for whatever reason,
5 we definitely can do that as well. That's not a
6 problem.

7 So with all that said, I'd like to introduce
8 the project team. Once again, my name is Marcus
9 Simpson, and we have Denise Tsuji passing out comment
10 cards right there on the right of the room. She is the
11 supervising scientist for the project.

12 I also have Ed Gillera. He's the project
13 manager for the project, and I have Mr. Buzz Chernoff,
14 DTSC staff toxicologist, and Ms. Susan Wilcox; she's the
15 associate environmental planner and the CEQA staff for
16 the project, and right here at the computer set-up, I
17 have Ms. Kimi Klein, also a staff toxicologist with
18 DTSC.

19 So that's the project team definitely working
20 very hard to make sure that the project moves along
21 smoothly and to address all the issues that might arise
22 with the cleanup.

23 So just to inform those of you who might not
24 already know, we are actually in the midst of the public
25 comment period for the draft RAPs, for the Coastal area

1 and Parkland area draft RAP as well as the Interim
2 Action draft RAP. Okay?

3 That public hearing begin on March 13th, and
4 it's going to end on April 14th. So if there are
5 additional comments or issues that arise beyond tonight,
6 everybody has until April 14th to submit their comments.
7 Okay?

8 If you have an agenda, I'd like to review some
9 of the items before we get started with the presentation
10 that are on the agenda. So if you could take a look at
11 that, I would definitely appreciate it.

12 So as you can see, tonight following the
13 introduction, we will have a presentation that Ed is
14 going to conduct, and the presentation is going to give
15 some information about the draft RAPs, for both draft
16 RAPS, the Interim Action Areas as well as the Coastal
17 Trail and the Parkland areas. Okay.

18 And following Ed's presentation, Susan is going
19 to give a presentation about CEQA's related issues on
20 the project. Okay? And then we're going to transition
21 into the public comment portion of tonight's meeting.

22 Now, we realize that the public comment portion
23 is the portion of the meeting that quite frequently
24 everyone has a real concern about or frequently that's
25 the most popular portion. So what we're going to try to

1 do is speed through or at least be as quick as we can
2 with the presentation because we do realize that
3 everyone has things to do. So we'd like to get the
4 presentation conducted and then begin the public comment
5 portion of the meeting as soon as we possibly can.

6 So with all that said, I would like to invite
7 Ed up for his presentation on the draft RAPS, and before
8 he gets started -- Sorry, Ed. I would like to ask that
9 if you have comments or issues or concerns, if you could
10 please wait until the end of the presentation to bring
11 those up, we would definitely appreciate that. Okay?
12 Thank you.

13 Ed?

14 MR. GILLERA: Thank you, Marcus. Welcome,
15 everybody.

16 Next slide, please. I'm going to begin
17 tonight's presentation with a brief explanation of
18 DTSC's process.

19 Some of you may know a Site Investigation
20 Remediation Order was issued by the department in
21 February of 2007. In that order, Georgia-Pacific
22 Corporation was named as the responsible party to
23 conduct site characterization and cleanup activities.

24 A familiar name you may have seen or heard is
25 Arcadis BBL. They have been hired on by Georgia-Pacific

1 as their consultant. Next slide.

2 Earlier this year, we completed the remedial
3 investigation for the Coastal Trail and Parkland area,
4 and that was completed in February of '08.

5 We have are now in the middle of our Remedial
6 Action Plan or RAP phase of the project. This RAP was
7 prepared pursuant to the site order. A RAP is DTSC's
8 remedy selection document. It contains a summary of the
9 remedial investigation and also a summary of the human
10 health and ecological risk assessments.

11 It also presents an evaluation of the proposed
12 cleanup alternatives for what we normally term as a
13 feasibility study, and lastly, the draft RAP presents
14 the recommended cleanup alternative. Next slide.

15 Another component of our process for the
16 project is the Polanco Act. This act assists
17 redevelopment agencies in cleaning up Brownfield
18 properties within their jurisdiction. Under this act,
19 DTSC serves as the environmental oversight agency for
20 the City of Fort Bragg Redevelopment Agency.

21 In January of 2007, the City of Fort Bragg
22 Redevelopment Agency adopted a resolution authorizing
23 the use of the Polanco Act for this particular project.
24 Next slide.

25 So here's our Site Mitigation Process diagram.

1 You can see our involvement began sometime in 2006. In
2 2007, we issued the order. Earlier this year we
3 completed the Remedial Investigation and Risk
4 Assessment, and now we are in the draft RAP phase of the
5 project.

6 Also associated with this phase is a CEQA
7 document which Susan will be talking about later on.

8 I hope everybody here tonight has received fact
9 sheets briefly explaining the draft RAP to be presented
10 tonight and also announcing the public meeting that
11 you're here for today.

12 I'd also like to mention that in response to
13 requests from the community, we added another public
14 meeting which will be held on April 11th in this same
15 school, same time. So I hope to see you then as well.
16 Next slide.

17 So this is a general site map of the
18 Georgia-Pacific property. What I will be talking about
19 today will focus on Operable Unit A which is the area
20 that hugs the coastline here, and I will be also talking
21 about the Interim Action Area which is mostly located in
22 this portion of the site. Next slide.

23 So for the Coastal Trail and Parkland, some of
24 its historical uses were, in the northern area, lumber
25 storage. It was used as a public and private dump that

1 was for household and miscellaneous waste.

2 An explosives storage area was also located in
3 that area, and that bunker historically stored dynamite
4 which was used for log jams offsite and also a metal
5 scrap yard.

6 In the southern area, it was mostly used for
7 log storage. Clinker and ash stockpiles are also
8 located in that area. Clinker is basically metal waste
9 that collects in the bottom of boilers, which were then
10 stockpiled in the southern area.

11 There was a historical airstrip located in this
12 area as well, as well as a fill and disposal area. Next
13 slide.

14 The remedial investigation completed earlier
15 this year identified primary contaminants of concern.
16 These are contaminants that exceeded screening levels
17 such as the California Human Health Screening Level,
18 U.S. EPA Preliminary Remediation Goals and site-specific
19 risk-based screening levels.

20 Based on that screening criteria, the following
21 contaminants were identified as the contaminants of
22 concern. They're lead, polychlorinated biphenyls
23 (otherwise known as PCBs) and dioxins and furans. Next
24 slide.

25 The remedial investigation also looks at

1 groundwater area. The most current groundwater sampling
2 event took place the second quarter of 2007, and in that
3 sampling event, arsenic was detected. However, it was
4 detected below the California drinking water standards,
5 maximum contaminant level of ten micrograms per liter.

6 No other contaminants were detected during that
7 sampling event above the respective screening level.

8 Next slide.

9 Based on the remedial investigation findings,
10 several areas were identified as areas that need to be
11 addressed, cleaned up. There are or there is the lead
12 area in OU-A North located in the vicinity of Glass
13 Beach two, a PCB-impacted area in OU-A North near the
14 historical scrap yard, and also dioxin- and
15 furan-impacted areas both in OU-A North near Glass Beach
16 and in OA-A South located in the parcel ten fill area.

17 Next slide.

18 The next set of slides is just a visual
19 representation of where those areas to be remediated
20 are. In the Remedial Action Plan, those areas are
21 termed as presumptive remedy areas or PRAs.

22 So this area up here is the lead-impacted area,
23 and this area just south of it is the dioxins-impacted
24 area. Next slide.

25 This area outlined in the pink box is the PCB

1 presumptive remedy area. Next slide.

2 And in the southern areas outlined by the pink
3 and blue boxes are the dioxin PRAs. Next slide, please.

4 So to address contamination in those PRAs,
5 cleanup goals were developed. These goals were risk
6 based. They ensure that the remedial measures to be
7 conducted are protective of both human health and
8 ecological receptors. It assumes a recreational-use
9 scenario, and for the ecological evaluation, the most
10 sensitive receptors were selected. Next slide.

11 So here are the following cleanup goals for
12 those PRAs. For lead, it's eighty milligrams per
13 kilogram. For PCB, it's one milligram per kilogram, and
14 for dioxin and furan, it's fifty-three picograms per
15 gram.

16 What that means is any soil with contaminant
17 concentrations above these cleanup goals will be
18 excavated and removed from Operable Unit A. Next slide.

19 The following are the proposed cleanup
20 alternatives. The first one is no action, and that is a
21 regulatory requirement. We use that as a point of
22 comparison for the other alternatives.

23 The next one is land use restriction and
24 controls or what we often call deed restriction. This
25 alternative involves restriction of use of the property

1 to nonsensitive uses. Sensitive uses would be single
2 family homes, hospitals, day care centers and schools.

3 The next alternative proposed is removal and
4 offsite disposal. This involves excavation of
5 contaminated soil transported and deposited offsite at a
6 permanent landfill.

7 The next alternative is consolidation and
8 capping. This involves excavation of contaminated soil,
9 that soil being transferred to a predetermined area
10 onsite for incapsulation. That capped area will be
11 covered with an engineered cover.

12 And lastly, bioremediation. What this
13 alternative typically involves is use of natural
14 organisms to aid in the degradation of contamination.

15 Each of these proposal alternatives were
16 evaluated against nine criteria, and those criteria are
17 listed to your right, my left. Next slide.

18 And based on the evaluation of those different
19 proposed alternatives, these recommended cleanup
20 alternatives were identified. For the lead-impacted
21 area and PCB-impacted area in Operable Unit A North,
22 removal and offsite disposal is recommended.

23 For the dioxin- and furan-impacted areas in OU-A
24 North and OU-A South, consolidation and capping is
25 recommended. Next slide.

1 Land use restrictions will also be implemented
2 for areas of Operable Unit A where dioxin and furan
3 concentrations have been found to be above residential
4 land use levels.

5 Land use restrictions and controls will also be
6 implemented for the cap/consolidation area, and this
7 area was selected in coordination with other regulatory
8 agencies such as the Coastal Commission, City of Fort
9 Bragg and Coastal Conservancy.

10 That concludes my brief presentation about
11 Operable Unit A RAP, and I'm now going to talk about the
12 Interim Action RAP.

13 The Interim Action focuses mainly in areas of
14 parcel three here and areas of parcel five just south of
15 there. Next slide.

16 I'd just like to emphasize that they are
17 interim interactions, and they're not meant to be
18 complete cleanup. They're only limited to portions of
19 parcel five and parcel three. It only addresses
20 petroleum-contaminated soils, and we are proposing to do
21 this to reduce the PAH contamination to the groundwater.

22 I'd also like to mention that the remainder of
23 the area in both parcel five and parcel three will be
24 addressed in future remediation activities. Next slide.

25 So the historical uses for these areas in the

1 parcel three mobile equipment shop area was used for
2 fuel dispensing, equipment repair, storage and washing,
3 and the parcel three machine shop area, it was the
4 location for a former machine shop, and it was also used
5 for storage of mechanical equipment, machinery, tools,
6 and various other chemicals. Next slide.

7 The parcel three compressor house area was this
8 historical location for two large compressors.
9 Oil-related compounds and other materials were also
10 stored in this area. Next slide.

11 For the parcel five mobile equipment shop area,
12 it was used for fuel storage and dispensing, vehicle
13 maintenance, chemical and paint storage. A truck wash
14 pit was also located in this area as well as a tire
15 shop. Next slide.

16 The Interim Action also proposed to address
17 soil that was excavated in 2007. That soil was
18 contaminated by a former fuel oil pipeline located in
19 that area, and that soil is currently being stored
20 onsite in the former truckloading shed in parcel four.

21 Previous investigations in these Interim
22 Action Areas identified contaminants of concern. These
23 contaminants similarly exceeded screening levels such as
24 CHHSLs, PRGs or site-specific risk-based screening
25 levels.

1 The following have been identified as the
2 contaminants of concern: Total petroleum hydrocarbon
3 compounds such as diesel, gasoline and motor oil, metals
4 and PCBs. Next slide.

5 So rather than me trying to explain in words
6 where these areas are at, I'd rather show you visually.
7 These areas outlined in the blue boxes are the proposed
8 areas for the Interim Action. Next slide, please.

9 Remediation goals that were developed for this
10 RAP were the TPH-related compounds. The remediation
11 goals were also risk-based. They're based on a risk
12 evaluation using the child residential receptor, which
13 is the most protective. I'd also like to phrase that:
14 No ecological remediation goals were identified because
15 no habitat was identified in this area for metals and
16 PCBs. CHHSLs are used as the remediation goals. Next
17 slide.

18 These are the remediation goals for TPH. As
19 you can see, they're grouped into three categories.
20 There's TPH related to gasoline, TPH related to diesel,
21 and TPH related to motor oil.

22 You may also notice the numbers increase as you
23 go down. These are the wider and shorter hydrocarbons.
24 The motor oil is fairly heavy, and the difference in
25 numbers correspond to the difference in each of the

1 groups, toxicity and mobility. So soil with contaminant
2 concentrations above the corresponding remediation goals
3 will be removed from the area. Next slide, please.

4 For groundwater, the same grouping for gasoline
5 TPH and motor oil. Groundwater in this area is subject
6 to continued monitoring, and further characterization
7 and remediation will also be required. Next slide,
8 please.

9 The following are the proposed remedial
10 alternatives for the Interim Action Areas: No action,
11 land use restriction and controls, removal and offsite
12 disposal, removal and land treatment (bioremediation).
13 This involves the addition of soil amendment to enhance
14 degradation of the petroleum hydrocarbon.

15 The next is a combination of the previous two,
16 which was removal, offsite disposal and land treatment
17 and finally, in-situ treatment for the groundwater in
18 areas where groundwater will be encountered,
19 bioremediation is proposed using two methods, one being
20 biosludging which introduces oxygen to the groundwater
21 aiding microbes to help degrade the contamination, and
22 it also proposes that oxygen-reducing materials will be
23 used to aid in the bioremediation.

24 Each of these alternatives were evaluated
25 against the same nine criteria I mentioned earlier, and

1 based on that evaluation, the following remedial
2 alternatives were selected: For parcel three, it's
3 proposed that contaminated soil be excavated and
4 removed. Soil contaminated with metals and PCBs will be
5 transported offsite for disposal, while TPH-impacted
6 soils will be transferred to the land treatment area for
7 bioremediation.

8 In-situ treatment for groundwater is proposed
9 for excavations where groundwater is also encountered.

10 For parcel five, removal and land treatment for
11 soil is proposed, and in situations where groundwater
12 will be encountered, in-situ treatment will also be
13 implemented.

14 For the fuel oil pipeline soil, transferring
15 that soil from its current location in the truck shed,
16 that soil will be transferred to the land treatment area
17 for bioremediation. Next slide.

18 And at this point, I would like to turn it over
19 to Susan to talk about CEQA.

20 MS. WILCOX: As Ed mentioned, DTSC has
21 completed an initial study that evaluates the potential
22 environmental effects of implementing the QU-A and IA
23 RAPs according to the California Environmental Quality
24 Act or CEQA. This is my copy. It's not a very big
25 document, and we have posted it on EnviroStor, and it's

1 also available in the library at City Hall, printed
2 copies.

3 We filed the CEQA document with the State
4 Clearinghouse on March 13th to begin a public and
5 interagency review period that coincides with the public
6 review for the draft RAPs.

7 This document, at this point, we're already
8 beginning to make edits for the final CEQA document that
9 reflects input that we have already been receiving from
10 the community. So I want to thank you again for your
11 partnership in the developing of a good CEQA analysis.

12 The initial study describes the existing
13 conditions in the project area using a comprehensive
14 list of sixteen topics. These topics include elements
15 of the natural environment such as air and water quality
16 and aspects of the human environment such as
17 transportation, housing and utilities.

18 The discussion of each topic starts out with a
19 bulleted list of "Project Activities Likely to Create an
20 Impact." These identify the elements of the proposed
21 project that would be likely to affect sensitive or
22 significant resources if such resources were present.
23 The presence or absence of sensitive resources and
24 analysis of potential project effects upon them is then
25 described in a checklist format in each of the sixteen

1 subsections.

2 So this initial study through this process
3 includes measures to avoid, minimize or mitigate
4 significant harmful impacts related to aesthetics, air
5 quality, biological resources, cultural resources,
6 geology and soils, hazards and hazardous materials,
7 hydrology and water quality, and transportation and
8 traffic.

9 Where feasible, measures to avoid or reduce
10 potential adverse effects to a less-than-significant
11 level have already been incorporated into the project
12 design. For some of the impact categories, DTSC and
13 other regulatory agencies have identified potential
14 impacts that would be significant unless specific
15 corrective measures are taken. We call those mitigation
16 measures. For this reason, DTSC has prepared a draft
17 Mitigated Negative Declaration on the basis of the
18 findings of this initial study.

19 We want to acknowledge that in the fact sheet
20 that some of you, many of you probably have seen, the
21 CEQA document is described as a negative declaration,
22 and in fact, it is a mitigated negative declaration
23 because we have included these mitigation measures in
24 the document.

25 A mitigation, monitoring and reporting plan

1 will be prepared at the close of the public and
2 interagency review period for this draft CEQA document.
3 The plan will refer to avoidance, minimization, and
4 mitigation measures collectively as mitigation. So it
5 doesn't necessarily mean that we expect specific harm to
6 specific resources. We may have already been able to
7 avoid them through project design, but those measures of
8 avoidance will also be included in the mitigation plan.
9 So we're disclosing what has to be done to reduce these
10 effects.

11 In addition to describing the project's
12 physical environment, the initial study references some
13 of the laws and regulations in addition to CEQA that
14 factor into our impact analysis and add constraints and
15 conditions to the DTSC's approval of the proposed
16 project.

17 For example, project-related activities must
18 comply with the special conditions of an amended coastal
19 development permit issued to Georgia-Pacific by the
20 California Coastal Commission. The coastal permit
21 outlines the measures to be used for projects adjacent
22 to wetlands, the protection of marine and coastal
23 biological resources, avoidance and minimization of
24 exposure to geological instability, and the protection
25 of archaeological resources among other conditions.

1 The State Water Resources Control Board
2 requires development and implementation of a storm water
3 pollution prevention plan to comply with the terms of
4 the general permit for storm water discharges associated
5 with construction activity. The control measures
6 specified in the storm water plan are incorporated into
7 the initial study sections that discuss geology and
8 soils, hydrology and water quality, and that's it.

9 A permit from the Regional Water Quality
10 Control Board will be required for the addition of
11 nutrients, microorganisms, and oxygen-releasing
12 materials into the soil or groundwater as proposed in
13 the bioremediation activities.

14 Permits from the Mendocino County Air Quality
15 Control Management District will specify measures to
16 minimize fugitive dust emissions and any air quality
17 impacts from the proposed groundwater remediation
18 activities.

19 And lastly, the proposed excavation, backfill,
20 and recontouring activities will require a grading
21 permit from the City prior to commencement to work.

22 As you read through the draft initial study,
23 please keep in mind that this CEQA document is limited
24 to a discussion of the draft RAPs for OU-A and the
25 Interim Action that Ed just described to you.

1 As many of you know, the City of Fort Bragg
2 plans to purchase OU-A following successful completion
3 of the proposed remediation activities, for conversion
4 to public parkland and a segment of the California
5 Coastal Trail. Any such land use modification would be
6 subject to a separate analysis under CEQA.

7 Future uses of the remainder of the site will
8 be determined through a specific planning process
9 currently being undertaken by the City and
10 Georgia-Pacific in consultation with regulatory agencies
11 having jurisdiction over this area.

12 And now I believe Marcus is ready to open the
13 part of the meeting that belongs to you. Thanks.

14 MR. SIMPSON: Thank you, Susan.

15 Before we do the public comment portion, we are
16 going to have a brief five-minute break, and I think
17 that would be good to let everybody collect their
18 thoughts as well as formulate their comments so you have
19 an opportunity to write those down, think about how you
20 want to comment, and please feel free to come and get
21 your comment card during the break to me or to another
22 team member. We have Denise over here to my left.
23 Okay?

24 And with that said, we'll institute the break,
25 and we will reconvene in five minutes after everybody

1 has had a chance to write their comments. Thank you.

2 (Whereupon, a recess was held at 7:43 p.m.)

3 (Whereupon, the proceedings reconvened at 8:02
4 p.m.)

5 MR. SIMPSON: All right, ladies and gentlemen.
6 We're going to get started now. Hopefully you've all
7 had a chance to fill out your comment cards. If you
8 haven't had a chance to fill out your comment cards, we
9 still do have some blanks left. We have Denise over
10 here to my right, and she has blank comment cards. So
11 if you need a comment card, please raise your hand, and
12 we'll make sure that you get one. Could we have one
13 right here, please? Does anyone else need a comment
14 card?

15 Well, as we mentioned, we'd like to get started
16 with the public comment portion of tonight's meeting,
17 but I do have one thing to bring to everyone's attention
18 which I forgot to bring to everyone's attention before,
19 and that is that on the rear sides of the agenda that
20 you have, if you flip that over, you'll see DTSC
21 contacts. These are the project staff that I've
22 introduced tonight. So we have Ed, Kimi and basically
23 all the introductions that I made tonight. Okay?

24 So if in the future you need those contact
25 numbers, please hold on to the agenda, and that's a good

1 source for that information.

2 So like I mentioned, we'd like to get started
3 now with the public comment portion of the meeting.
4 Before we actually get started, I'd like to go over a
5 couple of guidelines, and the guidelines are meant and
6 designed to keep everything organized with regard to the
7 public comment portion as well as keep everything fair
8 and equitable time-wise for everyone here tonight.

9 First I'd like to ask that if you have a
10 comment to submit, that you come up to the front. We do
11 have a microphone here. Several of you have already
12 indicated on your comment cards that you do not want to
13 make an oral comment. The comment cards that I have in
14 my hand are individuals that would like to come to the
15 microphone and actually make a verbal comment.

16 So basically, I'm going to call people up from
17 the cards, and we'd like to ask that you come up to the
18 microphone, and if you could speak slowly, if you could
19 speak loud and clear as well as spell your name, your
20 first and last name, we would definitely appreciate
21 that, and the reason for that is, if you have not
22 noticed, we have a court reporter here tonight. One of
23 the legal requirements for draft RAP meetings is to have
24 an actual transcript of the meeting. So the more clear
25 that you speak and the slower that you speak, the easier

1 it is for us to have an accurate transcript of the
2 meeting.

3 Actually, for those of you who are not aware,
4 the department produces what we call a Response to
5 Comments, and the Response to Comments is made an
6 official part of the project administrative record. So
7 the court transcripts are very important for us to
8 develop the Response to Comments. So we'd like those to
9 be accurate as well. Okay?

10 We have several people here tonight, and many
11 of whom would like to make a comment. So what we're
12 going to ask, and if you could indulge us on this, we
13 would definitely appreciate that, we have a three-minute
14 limit on comments this evening. Okay?

15 I should mention that if your time begins to
16 run over three minutes, that I will politely, very
17 politely, I would ask you to begin to wrap it up so that
18 we can move on to the next person, but please remember
19 that April 11th, we have a repeat meeting here, same
20 time, same place. Okay? And as well, the public
21 comment period doesn't end until April 14th.

22 So in the event that everyone doesn't have an
23 opportunity to submit all of the comments that they
24 would like to submit, there are further opportunities to
25 do so. Okay?

1 So every comment that's submitted here tonight
2 will become an official part of the record, of the
3 transcript, and we will use that to develop the Response
4 to Comments. So all the commits submitted tonight will
5 be replied to in the Response to Comments. All right?

6 So our main concern here is to have everybody
7 who would like to have an opportunity to submit a
8 comment, that we are able to do so, which is the reason
9 for the guidelines.

10 I should mention information repositories as
11 well. The draft RAP documents are available in the
12 information repositories. For those of you who are not
13 aware of where the information repositories are, it is
14 listed on the fact sheets, and if you have any questions
15 about how to access that information, access the
16 documents, the draft RAP documents that Ed was referring
17 to or the CEQA documents that Susan was referring to,
18 please ask us, and we'll make sure that you know. It's
19 also available online as well on EnviroStor, and that
20 web site is also listed on the fact sheets that were
21 mailed out and that are at the back of the room.

22 So tonight we have the room until ten p.m., so
23 we have approximately two hours to work with to make
24 sure that all the people who would like to make comments
25 have a chance to do so.

1 When the clock hits nine forty-five, I will
2 give a brief time check because I don't want to catch
3 anyone off guard and let them know that, "Hey, time's
4 up." So at nine forty-five, I'm going to give a brief
5 time check, and then once again at about two minutes to
6 ten, I will let everybody know that it's time for us to
7 start wrapping up and to get out of here. They do have
8 school tomorrow. I'm sure that the kids would prefer
9 that we stay here all night and all morning, too, but
10 they do have children to teach.

11 So with that said, I think that pretty much
12 covers all the bases.

13 If for any reason our court reporter needs us
14 to take a break for an equipment change or anything,
15 she's going to let me know, and likewise, if there's the
16 issue of someone submits a comment, something isn't
17 clear to her, she hasn't heard anything, she also might
18 briefly interrupt and let me know that we need to either
19 speak up, speak clearly or spell our name or something
20 of that nature. We do want to make sure that the
21 transcript is correct.

22 So we are ready to get started here, and our
23 first comment comes from Mr. David Russell. Please come
24 up.

25 MR. RUSSELL: My name's David Russell,

1 D-a-v-i-d, R-u double s-e double l..

2 My comments tonight are in a couple areas. The
3 first area I'd like to comment on is, my understanding
4 of the Remedial Action Plan is that the zone or the
5 definition of the area that is covered by it stops at
6 the high tide mark down below the bluffs, and because
7 this Remedial Action Plan covers a coastal zone where we
8 know people will be recreating -- That's the whole
9 point. It seems to me crazy that we are not seriously
10 investigating the intertidal zone between the high and
11 low tide watermarks and even out into the ocean because
12 we know people will be wading, fishing, gathering
13 abalone, surfing and so on as soon as that trail is
14 open, as soon as they have access. So that's my first
15 comment.

16 My second comment is that it seems to me that
17 when we look at the figure for dioxins that DTSC has
18 presented tonight, fifty-three pecograms per gram, I
19 would really like more information on how that cleanup
20 level was established. It is my understanding that
21 residential background levels in the State of California
22 and even city levels that are considered sort of the
23 going rate are much lower than that, more like five
24 pecograms per gram for non-city-type areas and maybe
25 more for a city but certainly not fifty-three. So why

1 are we accepting a standard of fifty-three pecograms per
2 gram if there's that or less, I mean that or more will
3 clean it up, but if it's fifty-two pecograms per gram,
4 we're gonna let it stay? I don't understand where that
5 standard's coming from.

6 And the third thing I'd like to comment on is
7 the whole idea of capping and sequestering this material
8 within an area which will become the City of Fort Bragg.
9 The City of Fort Bragg's streets are going to be
10 extended into what's now the hillside. The City of Fort
11 Bragg is bound to be growing west, not east, when this
12 project is completed, and is it really good public
13 policy to be sequestering soil which we know has some or
14 is hazardous in an area that we're going to be living
15 right around.

16 I know there's a lot of concerns about the
17 problems with hauling it offsite, and there's a lot of
18 people who are interested in other options like
19 sequestering it for a while until we can figure out some
20 bioremediation that might work, but my concern is that
21 if we cap it now, it's gonna stay there for a long time,
22 probably forever until somebody digs it up a hundred
23 years from now to put a shopping center there, and they
24 don't even remember. Where is the historic memory or
25 the institutional memory to make sure that fifty or a

1 hundred years from now that this cap soil is still
2 capped? Will G.P. be still around to maintain the cap,
3 to monitor what's going on and so on?

4 So my concern is that capping within a city is
5 not a good cleanup method, and it just doesn't make
6 sense for a residential area.

7 Thank you.

8 MR. SIMPSON: Thank you, David.

9 Our next commentor is Sandra Patterson.

10 AUDIENCE MEMBER: If time is a concern, maybe
11 if the next person could come up.

12 AUDIENCE MEMBER: Call the next person.

13 AUDIENCE MEMBER: Since time is a concern,
14 maybe you could call the next person, and they could be
15 right here and ready.

16 MR. SIMPSON: Not a problem. Skip Wollenberg,
17 you're on deck, Skip Wollenberg, Mr. Skip Wollenberg.

18 MR. WALLEMBERG: Right here.

19 MS. PATTERSON: My name is Sandra Patterson,
20 S-a n-d-r-a, P-a-t-t-e-r-s-o-n. Is that good?

21 MR. SIMPSON: Yes. Thank you.

22 MS. PATTERSON: I realize tonight the only
23 topic under discussion here is the Coastal Trail and
24 making the decision before the end of the year to begin
25 work on it, but I say no. Let's not be hurried into a

1 hasty action to develop even a trail through this G.P.
2 mill site.

3 For starters, the whole site has yet to be
4 characterized, meaning thoroughly examined for exactly
5 what remains there after a century of industry. By many
6 accounts, there are many toxic areas throughout the
7 four-hundred-plus ocean front acreage. I personally
8 don't think a trail should be allowed through the area
9 until the whole area is made safe for use.

10 My personal favorite vision is to totally
11 remediate it all onsite by use of mushrooms. Let's try
12 it. It's not something that can be rushed and finished
13 by the time this grant runs out. It's too soon to
14 develop any part of this area.

15 How we proceed with this needs a lot of
16 thought, discussion and care. I have lived in this
17 area for twenty-five years. I have long witnessed the
18 plume for the mill site spreading a gray pall over Fort
19 Bragg. I was glad when it finally stopped. I'm aware
20 many people lost jobs at that time, and I'm sorry for
21 that. I hope they're all okay. I have heard there are
22 many with problems.

23 Thank you.

24 MR. SIMPSON: Thank you, Sandra.

25 Next is Mr. Skip Wollenberg. If you could just

1 briefly spell your name for her, and while I'm speaking,
2 next up we have Donna Schuler.

3 MR. WOLLENBERG: W-o-l-l-e-n-b-e-r-g. I have a
4 two-part comment. One has to do with onsite
5 sequestration of the dioxin-laden soil.

6 As with all waste disposal consideration,
7 transportation is the weakest link in the chain of
8 activity, and the mill site is no exception.

9 Information from local truckers indicates that
10 twenty cubic-yard-capacity truck rigs would average
11 about six-and-a-half miles per gallon for the
12 approximately four-hundred-mile round trip from Fort
13 Bragg to Keeler Canyon in Pittsburg. This works out to
14 about forty-three-thousand gallons or about
15 three-hundred-thousand pounds of diesel for those
16 seven-hundred round trips.

17 This was a substantial but avoidable input of
18 carbon into the atmosphere, and the probability of at
19 least one of those seven-hundred trucks tipping over on
20 Highway 20 is a tangible probability, and the South Fork
21 of the Noyo River, James Creek and North Fork of Big
22 River are very sensitive habitats for coho and
23 steelhead.

24 So given these concerns, I believe that onsite
25 sequestration in a properly engineered repository at the

1 appropriate location is the best method to deal with the
2 dioxin-laden soil, and to accomplish this, the Remedial
3 Action Plan needs to be sharpened.

4 I was going to say, in my written comments, I
5 said, "Please refer to figure four D of the Remedial
6 Action Plan." Specifications for the six-foot-deep,
7 one-and-a-half-acre pit to accommodate the initial
8 thirteen-thousand cubic yards should include, one, and
9 there's the cross-section over here, but it's been
10 improved, that accommodates one of the recommendations,
11 that the sidewalls, as well as the bottom of the pit, be
12 covered with liner. That was not evident in the
13 Remedial Action Plan document.

14 Also, to prevent infiltration by burrowing
15 animals, an exterior zone of angular rock, at least
16 one-foot thick, should be emplaced on the bottom and the
17 sides before the installation of liner.

18 These types of considerations should be carried
19 forward in the plans for future onsite sequestration.

20 Another question along these lines I would also
21 appreciate being addressed in the revised RAP is: Would
22 a multi-layered or a thick single-layered liner of
23 thickness well in excess of the forty mill, which is
24 sort of like the liner people put on their ponds in
25 their backyards, be even -- Would thicker liner better

1 assure and improve longevity of the integrity of the
2 so-called pit?

3 MR. SIMPSON: Skip, I hate to interrupt you,
4 but we do have to move on to the next person.

5 MR. WOLLENBERG: Okay.

6 MR. SIMPSON: We have moved past the
7 three-minute mark.

8 MR. WOLLENBERG: Sorry about that.

9 MR. SIMPSON: I just want to emphasize for you
10 as well as everyone else that, if time permits, after
11 everyone has had a chance to comment, if you could save
12 your spot, you definitely could come back up once again
13 and address us.

14 MR. WOLLENBERG: Okay.

15 AUDIENCE MEMBER: There aren't going to be
16 answers?

17 MR. SIMPSON: No. We will have answers if
18 there are questions. If there are comments that you are
19 submitting, we will assess the comments, review the
20 comments, and then reply to it in the Response to
21 Comments, but for those of you that have questions,
22 clear questions tonight that would like some type of
23 dialogue on, the project team is definitely willing to
24 address those questions if possible. Thank you.

25 MS. SCHULER: My name is Donna Schuler. It's

1 D-o-n-n-a, S-c-h-u-l-e-r, and I'm glad that we finally
2 come tonight to slow down I think, and I'm hearing that
3 from more than a few people here, that when the site was
4 first described, it was described as no more polluted
5 than a gas station, and I'm in no hurry to see the mill
6 cleaned up so that I can walk on a park. I love walking
7 all over around the coast here. I've lived on Whipple
8 Street, just right up Oak Street here, for thirteen
9 years downwind, and I heard the mill every day, every
10 night, whistles, and I'm very excited about the mill
11 site being redeveloped. I am eager to see it cleaned
12 up.

13 I don't want to be shortsighted and cap
14 something that somebody else will have to deal with in
15 fifty, a hundred years or whenever it is. I want it
16 done right. I want it done slowly.

17 I understand all the options. I've read the
18 draft interim, and I like the word "draft" because I
19 think it's gonna get drafted for a long time, and I
20 really don't want to rush this process.

21 That's about all I have to say, and I would
22 give some of my time to somebody else if they use their
23 three minutes.

24 MR. SIMPSON: Thank you, Donna. Thank you.

25 It looks like the microphone wants to work now.

1 So we have Ms. Lenora Shepard next.

2 AUDIENCE MEMBER: And who's after that?

3 MR. SIMPSON: Next we have Jonathan Shepard.

4 MS. SHEPARD: My name is Lenora Shepard. I'm
5 representing Parents for a Healthy Community.

6 MR. SIMPSON: And, Lenora, how do you spell
7 your last name?

8 MS. SHEPARD: L-e-n-o-r-a, S-h-e-p-a-r-d.

9 MR. SIMPSON: Thank you.

10 MS. SHEPARD: And I'll try to speak fast to get
11 in my three minutes and slow enough for some follow-up.

12 I understand from the draft RAP that there were
13 some challenges regarding bioremediation. The potential
14 benefits are so great on so many different levels, it
15 really deserves future exploration.

16 Paul Stamets, P-a-u-l, S-t-a-m-e-t-s, lists
17 five mushrooms which are effective for dioxin. Did you
18 look at all five? If it's too cold, what about a
19 greenhouse? What about some creative solutions to some
20 of the problems with that? I mean I understand time
21 constraints prohibit bioremediation on the trial area.
22 I would like to see the draft RAP include the option to
23 remove materials from the trail area for storage
24 elsewhere onsite for bioremediation and field testing.

25 If our community were among the first to

1 develop these new technologies, if we were able, for
2 example, to build a bioremediation training and
3 demonstration center on the mill site, it would help
4 pave the way to a brighter economic future for our
5 coast.

6 The fishing is gone. The logging is gone. The
7 tourists still make it up here, but with the state of
8 the economy and higher gas prices, they come up with
9 less and less expendable income when they get here.

10 Environmental pollution is our second biggest
11 problem in the world after climate change. People would
12 come to learn these techniques, and our local economy
13 could be given a real boost. We could help other people
14 in our county.

15 We have Masonite over the hill. They have big
16 problems. There are mill sites all the way up northern
17 California. This site is just the beginning.
18 Bioremediation would also give us a chance to deal with
19 a larger community-wide toxics problem.

20 As most everyone knows, G.P. sold or gave away
21 truckloads of fly ash to citizens on the coast.
22 Apparently, none of it was ever tested for contaminants
23 before it left the mill site. We have ball fields built
24 on fly ash. Our local compost, Ablert's Best, was made
25 with fly ash, which means there is fly ash in just about

1 every garden here from Westport to Elk.

2 I have friends on Navarro Ridge who have a
3 beautiful garden. They grow most of their own food, all
4 organic, except for the truckloads of fly ash they mixed
5 into their soil back twenty years ago when fly ash was
6 called a soil amendment.

7 I have a friend in Casper who, several years
8 ago, ordered a load of topsoil for her garden and wound
9 up with a load of fly ash instead. The pile is still
10 sitting in her front yard. Who is going to clean that
11 up? How are we going to clean that up? Bioremediation
12 gives us a chance.

13 We would like to see the new technologies
14 division of the DTSC up here working on this.
15 Superintendent from Mendocino County Stone has offered
16 the Mendocino soccer field as a test site. Paul Stamets
17 has made himself available. We have community support.

18 If bioremediation on the trail area is not
19 possible and if we can't move the contaminated soil for
20 bioremediation elsewhere on the site, then soil removal
21 is the only other option we can really consider for the
22 long-term health and safety of our community. There is
23 a long list of reasons why capping on this site is not
24 an acceptable solution. We may not remember where we
25 buried it or what we buried. The site will require

1 constant monitoring and will be in close proximity to
2 sensitive habitat and lots of people.

3 The one that really gets me, though, is the
4 life span of the liner. At the last meeting, we learned
5 that the liner for a capped site would be good for up to
6 thirty years. In thirty years' time when that liner is
7 beginning to disintegrate, my son will be my age, and I
8 wonder: Will he find himself having to go to meetings
9 like this, talking into a microphone to people like you,
10 and what will he be saying, that we have an acre of very
11 toxic landfill in the middle of downtown Fort Bragg and
12 it's leaking and we need to get rid of it; only now it's
13 a really big problem because all that redevelopment we
14 planned for happened, and now this extremely toxic
15 material is surrounded on three or four sides with
16 residences and businesses, and there's a motel on top of
17 it, Love Canal Revisited Motel, sitting right there.

18 MR. SIMPSON: Lenora, I hate to interrupt you,
19 but we are pretty much well over the three-minute mark.
20 Is it possible you can hold your spot and maybe finish
21 later?

22 MS. SHEPARD: I've got it right there.

23 MR. SIMPSON: A couple more lines?

24 MS. SHEPARD: I'll come back.

25 MR. SIMPSON: Okay. Thank you.

1 Next we have Jonathan Shepard, and then we have
2 Charles Acker following him.

3 MR. SHEPARD: My name is Jonathan Shepard,
4 J-o-n-a-t-h-a-n, S-h-e-p-a-r-d.

5 In my view, the timing of the construction of
6 the trail and the invitation to citizens to visit the
7 mill site on the 4th of July a couple of years ago and
8 the suggestion of a lined pit for toxic material do not
9 impress me as either wise or well thought out.

10 Referring to the latter, potential toxics
11 heading for this pit include heavy metals, including
12 lead, polycyclic aromatic hydrocarbons (PAHs they call
13 them), dioxins, furans, polychlorinated biphenyls
14 (PCBs), petroleum hydrocarbons and volatile organic
15 compounds, among other things, will be in that pit.
16 What evidence do we have regarding these and any other
17 toxic materials heading for the pit regarding toxicity
18 over time?

19 Since we know the shelf life of the pit liner
20 is thirty years, how many of these materials would be
21 rendered inert before the liner failed, and how many
22 would remain harmful after the liner failed? What
23 assurances do we have regarding the accuracy of these
24 timetables, and what happens if the information is
25 incorrect and we are left with a hot toxic pile and a

1 disintegrated liner? Who would be responsible for that
2 cleanup?

3 Finally, does it not strike anyone besides
4 myself that these questions alone, regardless of the
5 answers, suggest that this proposal sounds like a very
6 bad idea, likely to come back and haunt us years and
7 decades down the line?

8 Two, I have some concerns about the intertidal
9 zone. Who is in charge of the cleanup for this critical
10 area? What about the caves? We understand that it was
11 the practice of the G.P. company back in the day to dump
12 truckloads of material off the bluffs, and all kinds of
13 material went into the ocean. Rumor has it that the
14 City of Fort Bragg also participated in the dumping.
15 This whole aspect of the cleanup seems to have fallen
16 through the cracks, and yet it may prove to be the most
17 critical aspect of the project.

18 Third point, last point, are the offsite
19 contaminated areas in Fort Bragg and environs going to
20 be included in the plans, contaminated areas such as the
21 Mendocino soccer field and numerous ball fields in the
22 Fort Bragg area? I would suggest the fly ash under
23 these fields and playgrounds came from only one source,
24 the smokestacks of the Georgia Pacific mill. It follows
25 that the corporation should also be held responsible for

1 the cleanup of these offsite contaminated areas.

2 I wish to thank the several officials and
3 toxicologists of the DTSC for their patience and
4 professionalism in their relationship with me these
5 several years I have been involved in this immensely
6 challenging cleanup project.

7 Thank you.

8 MR. SIMPSON: Thank you for your comments, and
9 did you want to submit these as well?

10 MR. SHEPARD: Yes.

11 MR. SIMPSON: Thank you.

12 Now we have Mr. Charles Acker, and following
13 Charles, we have Peter Warner.

14 MR. ACKER: I'm Charles Acker, C-h-a-r-l-e-s,
15 A-c-k-e-r.

16 I'm the president of the Board of Trustees of
17 the Mendocino Unified School District. I also manage
18 two small water districts on the south coast at Elk and
19 Irish Beach, and I've been doing this water work for
20 over thirty years and learned the main object is to keep
21 contamination out. So I encourage that the proposal to
22 dispose of soils onsite be reconsidered. These water
23 resources are more precious than ever and will continue
24 to be so.

25 The school district inherited a problem with

1 dioxins from fly ash that was put under the soccer field
2 as a soil amendment. It's been tested by DTSC, and low
3 levels were found at one site that was tested. However,
4 a parent of any of the children that would play on that
5 field would no doubt prefer that the level remaining
6 there was zero.

7 We have met Paul Stamets and have listened to a
8 proposal about bioremediation on that site, and our
9 board and our superintendent all are in accord with the
10 idea of doing a bioremediation project with Paul Stamets
11 guiding us in the process. We believe that this would
12 be a relatively low-cost solution to a problem that is
13 not only local but is widespread as has been explained
14 from earlier comments.

15 The school district could be a test ground.
16 You can see in a fairly limited project what the success
17 might be, and if it proves successful, which I believe
18 it would, it would be a win-win solution for all
19 concerned. Just the publicity of such an ingenious
20 approach to actually a very widespread problem would be
21 very positive for the community and for really
22 worldwide, and it would be great publicity for
23 Mendocino, Fort Bragg, Georgia-pacific and all the
24 others involved.

25 AUDIENCE MEMBER: And for the DTSC.

1 MR. ACKER: Yes, and for the DTSC as well, and
2 it would be a chance for us to be on the cutting edge.

3 Thank you.

4 MR. SIMPSON: Thank you, Charles.

5 And next we have Mr. Peter Warner.

6 MR. WARNER: My name is Peter Warner,
7 P-e-t-e-r, W-a-r-n-e-r.

8 I want to start with a couple of observations.
9 I'm fairly new to this issue, but I have about fifteen
10 years of public service, a lot of it spent preparing
11 CEQA documents for public agencies, and I'd like to
12 start off by saying the availability of funding should
13 never preclude the necessity for sound planning, and
14 having said that, economic imperatives must not trump
15 ecological reality.

16 So I have some questions about the CEQA process
17 in particular. I don't expect the panel to address
18 these right now, but I'm first of all curious about how
19 the decision to prepare a mitigated negative declaration
20 as opposed to a full E.I.R. was arrived at, and I ask
21 you this question because it's clear to me that there is
22 great potential, I would say probably absolute
23 probability that the surrounding area will undergo
24 numerous other remedial measures, site development
25 through the state parks. Already there's plans for a

1 trail project down at an adjacent parcel. The opening
2 of the Pudding Creek Trestle is bringing more people out
3 to the coastal area of Fort Bragg.

4 I have yet to see in the environmental
5 document, and I have given it a brief review, any
6 address of the potential for cumulative impact as a
7 result of this project.

8 So that's my first question, is why is a full
9 E.I.R. not called for in this particular case, either
10 the extensiveness of the project, the likelihood that
11 there will be further projects related to site
12 remediation as well as the full site development.

13 A holistic istic approach needs to be
14 undertaken to characterize the whole site both in terms
15 of the toxic waste onsite as well as future planned uses
16 so that properties can be delegated to those areas for
17 which is appropriate.

18 And in closing, I wanted to bring up a couple
19 of things. Under Mandatory Findings of Significance on
20 page sixty-seven of the draft Mitigating Negative
21 Declaration, one of which has already been addressed by
22 a couple of speakers, the finding that this does not
23 have the potential to significantly degrade the
24 environment, I've seen nothing in this document to
25 justify any of these findings. The marine environment

1 is certainly one of those issues that has not been
2 addressed in terms of toxicity. There's no
3 justification, for instance, for anyone who's out there
4 working on revegetation. How are those people going to
5 be protected from their possible exposure to the
6 contamination from some of these burial sites.

7 The impacts are individually limited but
8 cumulatively considerable. That was considered to be
9 not an impact, and again, I did not see any address of
10 cumulative impact in this document, and again, this does
11 not have environmental effects that will cause
12 substantial adverse effects on human beings either
13 directly or indirectly, and I contend that there's
14 absolutely nothing in this document that demonstrates
15 that that's a sure thing.

16 Thank you.

17 MR. SIMPSON: Thank you, Peter.

18 Next Ms. Barbara J. Moller has asked that I
19 read her comment, and I'm gonna do my best here, and
20 hopefully, I can pick up all the words.

21 Barbara is B-a-r-b-a-r-a; Moller, M-o-l-l-e-r,
22 and Barbara says, "I am concerned about the soil
23 contamination on a windy day. Dust, lots of dirt blows
24 over across the highway, and who knows how far, but the
25 soil is contaminated, and so is the dust. There needs

1 to be an observance of respiratory and blood-borne
2 cancer rates in this area," and it continues on the
3 back.

4 "The dust blows as far across the highway to
5 hit residential areas. This needs to be addressed.
6 Thank you. A suggestion area is not good for human
7 habitation. So develop wind and solar energy onsite.
8 Use this instead of..." I apologize; I can't read that
9 particular word.

10 Is Barbara here today? I don't want to
11 misinterpret.

12 MS. MOLLER: Use the site for solar and wind
13 development for energy production instead of using the
14 ocean so we can -- We have to protect our --

15 MR. SIMPSON: Did you get that?

16 THE REPORTER: No.

17 MR. SIMPSON: Barbara?

18 MS. MOLLER: Yeah?

19 MR. SIMPSON: I'm sorry, Barbara. I want the
20 record to be as accurate as possible. Just read the
21 last portion there.

22 MS. MOLLER: A suggestion, the area is not good
23 for human habitation. So develop wind and solar energy
24 onsite. Use this instead of wave energy, and save the
25 ocean. Take the initiative, please.

1 MR. SIMPSON: Thank you, Barbara.

2 And next we have Baile Oakes Bannon,
3 Mr. Bannon, and then following we have Thais Mazur.

4 MR. BANNON: My name is Baile, B-a-i-l-e,
5 Oakes, O-a-k-e-s, Bannon, B-a-n-n-o-n.

6 I believe that global warming is not or climate
7 change is not the biggest issue that we face. The
8 biggest issue that we face is toxicity in our
9 environment. We have had climate change for
10 millenniums, for millions of years. The toxicity of the
11 outside climate and environment is over the last hundred
12 years, and this is a big, big impact.

13 Georgia-Pacific has taken billions of dollars
14 out of our forests. Whatever we do, even if we go the
15 full extent, total bioremediation, greenhouses and
16 everything else on the site, it's still going to be a
17 fraction of what was earned off this property and off
18 the lives of people in Fort Bragg.

19 I would like to know -- I have more questions
20 here than comments. I want to know where
21 Georgia-Pacific's responsibility starts and stops
22 because putting a big trash bag this large on this site
23 is not a solution. It's a way to get off cheap and
24 leaves future generations to a lot of toxicity.

25 In all humility, the human species has not

1 shown itself to be a specie that can really hold on to
2 large concepts and be responsible a large period of time
3 on the planet.

4 One half dioxin has no half life. It does not
5 break down. So what happens a hundred years from now,
6 five hundred years from now, a thousand years from now,
7 fifteen hundred years from now? I want answers in these
8 reports about how Georgia-Pacific is going to be
9 responsible for their poo-poo. You know, they're
10 leaving stuff all over this place, and so here's
11 questions that I have for you: In your risk management
12 report, did you take into effect climatic change? Did
13 you take into effect the defenses for the scientific
14 community around the world that sea levels are going to
15 rise, possibly twenty feet in a hundred, two hundred,
16 three hundred years? It's a possibility that this site
17 could be under water three hundred years from now. Have
18 you taken that into effect?

19 Can human beings really plan and not just deal
20 with some big person with a lot of money and influence
21 in Sacramento right now? I'd like to see answers to how
22 much money is Georgia-Pacific paying lobbyists in Fort
23 Bragg to go to your bosses and wine and dine them and
24 talk to them about the future economy. How much money
25 are they spending on Arnold Schwarzenegger's office? I

1 want to know how can citizens have impact on that level
2 at levels of government.

3 I think you're all doing great work, but I see
4 it as kind of a shell game upfront with the big stuff
5 that's happening in Sacramento. I'd like the answers to
6 these questions and these comments. Let's see.

7 MR. SIMPSON: Mr. Bannon?

8 MR. BANNON: Yes, sir.

9 MR. SIMPSON: About one more minute. Okay?

10 MR. BANNON: Okay. The other thing is in all
11 humility, we don't understand a lot of what the impact
12 of these toxins are doing in your population in
13 long-term. Right now you have certain thresholds of
14 what you're taking out of here because of certain health
15 risks to the human population.

16 What happens a hundred years from now when new
17 studies show that the level of risk is much lower than
18 what it is right now? Is Georgia-Pacific going to go
19 back in there and take that soil out? Are you even
20 looking at these effects? What is going to happen?
21 What's the long-term change of perception of toxicity?

22 I'm just sort of going in there, but my biggest
23 question to you as a panel, as people putting together a
24 study as far as recommendations to the state, I really
25 want to see an answer in your comments of how we plan

1 not for thirty years. This thirty years is nothing when
2 we're talking about the poisons that we're dealing with
3 and with climate change. That's a blip of time, and
4 we're dealing with the most toxic human, well, the
5 second most toxic human-created poison in your
6 environment, and we're putting it in the middle of the
7 population of a city on the coast next to a major river.
8 It's a little bit coo-coo for me. I don't think it's
9 really looked at, and I'm sorry about being degrading
10 about that. What I'm saying is it's a little bit
11 presumptuous as being a human being that we can make a
12 decision like that. I think we need a lot more
13 humility.

14 I totally agree with all the comments here. We
15 have to slow this process way down and keep people off
16 that and remediate not only the whole site but also look
17 at that ocean.

18 Thank you very much.

19 MR. SIMPSON: Thank you, Mr. Bannon.

20 I have, before Thais -- I'm sorry to interrupt
21 you, but for those of you who are reading your comments
22 tonight, we have a request from the court reporter. We
23 want to make sure we have everything accurate. If you
24 could hand the comments that you're reading from
25 following reading them to Denise, then we can facilitate

1 her getting those and making sure that those comments
2 are accurately reflected in the transcript.

3 Sorry about that, Thais.

4 AUDIENCE MEMBER: On deck?

5 MR. SIMPSON: And on deck, we have -- Thank
6 you. We have Warren F. Wade.

7 MS. MAZUR: My name is Thais, T-h-a-i-s, Mazur,
8 M-a-z-u-r. Thank you.

9 Why are we rushing ahead? That's my big
10 question for tonight. I want to say to all of you
11 sitting at that table representing a state agency,
12 entrusted by the citizens of the State of California, to
13 protect our health and the health of our environment and
14 don't get caught up in this rush to get the trail area
15 cleaned up by adopting an incomplete investigation and
16 Remedial Action Plan.

17 It does not take into account the adjust
18 parcels that are contaminated. We have not had a
19 full-site characterization on those parcels. We know we
20 live on a windy coast. We know dioxins can be breathed
21 through dust particles. Why are we rushing ahead?

22 Here is a question: What is the human health
23 risk of people walking on a costal trail next to a major
24 cleanup of contaminated soil? I've seen nothing in the
25 DRAC about that. What is the human risk to that? When

1 we know that there is arsenic, dioxins, PCBs and
2 hydrocarbons and heavy metal, what is the risk? What is
3 the human health risk? We need a full-site
4 investigation.

5 We don't need to rush ahead and get a trail.
6 We have a lot of trails to get us access to the coast
7 here. We don't have to rush. I think our community
8 would rather have a clean bill of health and know we're
9 safe than to have a trail open and be strong armed by a
10 corporation and the City of Fort Bragg to have a trail.
11 I don't think we need that. We need to be healthy.

12 I work as a health practitioner in the local
13 hospital, and I am seeing mill-site workers that have
14 rare cancers, neuropathies, and unexplained immune
15 deficiencies.

16 When the powerhouse was running on that mill
17 site, it was spewing fly ash all over the town of Fort
18 Bragg. Oak Street used to be referred by the local
19 citizens as "Cancer Alley." Miscarriages, families with
20 leukemia, children dying of rare cancers, we don't need
21 to continue to pay that price, and you, as a state
22 agency entrusted by the citizens of California, need to
23 help us with that and protect us.

24 Where is NOAA? Why aren't they at the table?
25 Where is the test for the intertidal zone? Where is

1 that? DTSC has been focusing on the land site of the
2 investigation and remediation for the trail. However,
3 North Coast Action, along with numerous phone calls from
4 mill-site workers, told you and the Regional Quality
5 Control Board for years that there was dumping on the
6 beaches of contaminated refuse. There was trenches that
7 ran from the powerhouse and the machine where people
8 were dumping solvents, including PCBs, and they would go
9 through the trenches and go on to the beaches. Where is
10 the intertidal report?

11 You can't have a trail in a town where
12 sociologically and culturally we live off the coast. We
13 eat off the coast. We surf. We kayak. We play. We
14 swim. Where is the report for oceans? What about the
15 ocean's sediment?

16 That report that came out March 3rd, 2008, I
17 read through that. I don't think there can be a
18 sweeping statement by Georgia-Pacific that the oceans
19 are safe. There has to be further investigation, and
20 this should be included in the trail because the trail
21 is allowing access to the beaches.

22 Now, that's for the locals. What about the
23 millions of tourists that come here to enjoy Fort Bragg
24 and get out there on the beaches? Is this fair? What
25 is the human health risk of going out into an intertidal

1 zone with an infant who's eating sand, people who are
2 eating abalone, surfing? What is the human health risk
3 for that? Do we have that information? How can we
4 possibly be okaying a Remedial Action Plan for a trail
5 if we don't know what the human health risk is at the
6 beaches? We need to know that. We need that
7 information, and I think NOAA should have a seat at the
8 table. It's very important.

9 MR. SIMPSON: Thais?

10 MS. MAZUR: Yes?

11 MR. SIMPSON: Take about thirty more seconds,
12 and then you need to begin to wrap it up.

13 MS. MAZUR: I will.

14 MR. SIMPSON: Thank you.

15 MS. MAZUR: As far as the cultural and
16 sociological aspects of this community, what is being
17 measured? We are not an urban environment. We don't
18 just walk our dogs out there after work. We live here
19 on the coast. Have you looked at that, how much time,
20 not just two hours a day, for a recreational setting of
21 what the levels should be of contaminants? We spend a
22 lot more time there. Have you looked at the cultural
23 and sociological aspects of this community regarding the
24 time spent on the coast?

25 And as far as capping, I think it's a horrible

1 idea that you're putting it Cyprus Street and Highway 1.
2 The community needs to know that it's nine acres
3 designated capping, one point three just for a thousand
4 truckloads of contaminated soil in a liner that may last
5 thirty years. It might, and the City of Fort Bragg
6 voted in a precautionary principle. Is a precautionary
7 principle being used here? Are we looking at that? And
8 the only redevelopment that's going to happen is going
9 to be in the center of town. People have already said
10 that.

11 When that liner gives out, what is the human
12 health risk? Has that been looked at? I'd like to know
13 that. I'd like to see that in the next Remedial Action
14 Report.

15 And please don't rush this. Listen to the
16 citizens. Slow down. The citizens aren't the ones out
17 there saying we need the trail. Who is saying that?
18 Georgia-Pacific and the City of Fort Bragg. It is not
19 the citizens, and you need to know that.

20 Thank you.

21 MR. SIMPSON: Thank you.

22 Next is Mr. Warren F. Wade, and following
23 Mr. Wade, we have Mr. Wade Gray.

24 MR. WADE: My name is Warren Wade, W-a-r-r-e-n,
25 W-a-d-e.

1 I am representing the Mendocino Coast Audubon
2 Society, and I basically am going to repeat, and not
3 dwell on, several of the concerns that have already been
4 voiced.

5 In particular, the intertidal zone has not been
6 sampled well, and more than that, the sediment on the
7 bottom of the ocean, the near ocean, has not been
8 sampled at all.

9 It's not only a question of people going into
10 the water, but in the case of a strong storm, heavy
11 waves, we have the water breaking up over the coastal
12 trail. We have foam and spray in every heavy storm.
13 The coast may look high, but they're covered with water
14 after a storm.

15 So we need to know what's in the ocean and
16 what's in the intertidal zone and how it's going to
17 affect the cleanup, the Coastal Trail and the rest of
18 this site.

19 My second point is that I would like to repeat
20 Peter Warner's point, which we should not be dependent
21 on the economics of this cleanup. We should instead be
22 asking: How can the cleanup best be done for the
23 longest period of time so that we are all healthy in the
24 future?

25 Thank you.

1 MR. SIMPSON: Thank you, Warren, and Mr. Wade
2 Gray.

3 MR. GRAY: Hi. My name is Wade Gray, M.D.,
4 W-a-d-e, G-r-a-y, M-D.

5 So a company made and sold lumber, and they
6 made a lot of money doing that. Mistakes were made,
7 largely because I think people didn't know: What
8 happens if you burn this? What happens if you burn
9 that? A bunch of guys threw stuff into the fire and saw
10 what happened, and then mistakes got spread around our
11 community, the soccer field, people's gardens, et
12 cetera.

13 So now we have a problem, and we know there is
14 progress to be made in bioremediation. You're talking
15 to a town where Paul Stamets showed us miracles, what
16 mushrooms have done in some situations. Our hopes are
17 up. We're looking at this and saying, "Wow, who can do
18 this?" Are our high school kids gonna do a science
19 project and solve this problem? Maybe. I think that
20 this will be the solution. Bioremediation is the
21 long-term permanent solution.

22 So the key question: If we cap the dioxins,
23 who's responsible for the permanent solution? And while
24 it's sitting there for maybe thirty years when the liner
25 runs out or hopefully a lot shorter because we've

1 figured out what to do and are pulling it back out and
2 getting rid of it completely, we need to have someone
3 doing that work.

4 Will that happen? Who will be doing the work?
5 Who will pay for it? It's got to be G.P. They made the
6 profit off the mistakes. Now they have to clean up
7 their poo-poo, and I don't hear a guarantee that capping
8 will let that happen, and if we can't guarantee that,
9 it's not an acceptable plan.

10 So my big questions are: Why the hurry, and
11 how do we make sure the permanent solution happens?

12 Since nobody else has done it, I just have to.
13 All these great posters, but I think the key posters are
14 the ones that are higher: Be Kind, Be Safe, Be
15 Responsible.

16 MR. SIMPSON: Thank you, Wade, and next up we
17 have Maggie Watson.

18 MS. WATSON: I think I put down that mine was
19 gonna be a written.

20 MR. SIMPSON: Oh, yes, you did. I do apologize
21 for that. Would you like me to read it for you?

22 MS. WATSON: No, no.

23 MR. SIMPSON: All right, all right. And then
24 next on deck we have Sheila Tracy.

25 MS. WATSON: My name is Maggie Watson,

1 M-a-g-g-i-e, W-a-t-s-o-n.

2 My son was, is one of the kids that played on
3 that soccer field in Mendocino. You know, when I look
4 at my 15-year-old, and I have no idea what his future
5 holds; I was one of the kids that, in my day when the
6 DDT trucks would go up and down the roads, we would run
7 behind them in the fog thinking it was a wonderful
8 summer thing to do to get rid of the mosquitoes. What
9 will my future be like?

10 We have an opportunity here. We have been
11 given a gift. The offering of bioremediation to alter
12 the way our community has been impacted is something
13 that I think we should not turn our backs to. It can be
14 an educational experience for our children and for the
15 rest of the planet. It can be an opportunity for a
16 cleaner and healthier environment, and it can give the
17 people of our community a way to do hands-on work that
18 will impact the future of our lives and especially our
19 children. This is what we have to do.

20 Thank you.

21 MR. SIMPSON: Thank you, Maggie. Next up we
22 have Sheila Tracy.

23 MS. TRACY: My name is Sheila Tracy,
24 S-h-e-i-l-a, T-r-a-c-y.

25 The Remedial Action Plan states using

1 child-sensitive allowances for residential use.
2 However, for recreational use by omission I assume that
3 they're using adult tolerance levels for acceptable
4 levels of contamination.

5 To me, there are no acceptable levels of
6 contamination, and we really need to have the same
7 levels that we have for children for ourselves.

8 I want to know how we can justify using adult
9 tolerance levels for a recreational trail when this
10 trail presumably is going to be used by families with
11 young children whose immune systems are undeveloped and
12 leaving them at even greater risk for toxic
13 contamination.

14 Also, the exposure for recreational use is
15 proposed to be one hour for recreational use. Most
16 people spend whole days recreating and hiking over
17 trails.

18 My second point is that Mr. Gillera stated at
19 the last public meeting that the -- He said that
20 proposals for bioremediation had not been thoroughly
21 explored, and yet when he gave his proposal, there was
22 just a very superficial mention of bioremediation.

23 So I would like to know: What action has been
24 pursued in the last two weeks, and what action does the
25 department intend to pursue?

1 Thank you.

2 MR. SIMPSON: Thank you, Sheila.

3 And next up with we have Rafael Borrás.

4 Rafael, you wanted your card.

5 MR. BORRAS: Oh, I did.

6 My name is Rafael Borrás, and that's
7 R-a-f-a-e-l, B-o-r-r-a-s. I am a retired licensed
8 acupuncturist.

9 I guess what I want to do now, since I've been
10 attending a number of the meetings, is kind of bring to
11 the listening people and to the DTSC some of the points
12 that have been made all along at these meetings. So
13 bear with me as I trip along a few things.

14 I was told by Buzz that there was to be a
15 gravel layer under the membrane. It is not mentioned in
16 the plan. The gravel layer ostensibly is there to
17 prevent burrowing animals, and we see nothing mentioned
18 in the budget for that.

19 Another point is, why is only \$8000 a year
20 being allocated for monitoring of this site? This is in
21 the budget. Only \$8000 a year is being allocated for
22 the monitoring of this toxic. That means drilling wells
23 and doing many, many things to test. This doesn't sound
24 like a sufficient amount to me.

25 Another point, most membranes eventually leak.

1 What do we do then? There's a proximity to the Water
2 Quality Treatment Plant, to downtown Fort Bragg, and
3 most importantly the ocean.

4 Will fisherman and seaweed harvesters be
5 compensated for their losses? What effect on tourism
6 will the stigma of a dioxin dump in the middle of Fort
7 Bragg have? Fort Bragg is a destination community for
8 tourism. What about all the other communities as far as
9 Anderson Valley that depend on tourists who pass through
10 coming to Fort Bragg? This is affecting many economies.

11 Another point is coastal hydrology, salt water
12 intrusion and the fresh water groundwater. They
13 mentioned that we're going to have a one-point-three-
14 acre containment site, but they're setting aside nine
15 acres because they also have to deal with not only the
16 toxins on the trail but the mitigation efforts on the
17 rest of it.

18 Aside from nine acres that could possibly be
19 capped over, we have highway 1. We have all the cement
20 and what have you in the rest of the town. What way is
21 fresh water going to reenter the aquifer, and if not,
22 will this cause a salt water intrusion into the
23 interior? I think it will, and I think it needs to be
24 studied, and we really haven't had any references to
25 that very much. The geologist is not here at the

1 meeting that would otherwise be able to possibly address
2 this.

3 Considering the population has already been
4 dosed with dioxin, is it possible that increased dioxin
5 exposure by a proximity to the dioxin cap and
6 containment, is this going to put us at a threshold of
7 having greater and greater diseases? I think so. What
8 are the existing cancer clusters? Basically are they
9 going to continue to research that?

10 Another point: Since contaminated soil will be
11 excavated resulting in sun exposure in order to move it
12 onto the containment area, they have to dig it up from
13 one, put it in a truck to take however number of feet
14 they're going to take it, and put it in this pit. Why
15 not move it offsite? That's a proposal to be thought
16 about.

17 There are other things. I feel that microbes,
18 which is mushrooms, bioremediation has not adequately
19 been searched and may offer a solution.

20 Another point: Although one-point-three acres
21 will be set aside for the contamination for additional
22 trail toxins, nine acres are being set aside at a
23 location for more dioxins. These dioxins are not just
24 dioxins which are hydrophobic and do not flow and are
25 not soluble. They are mixed with other things on the

1 site, other chemicals that does improve or does enhance
2 that ability of the chemical to intrude into the
3 groundwater. That needs to be talked about, considered
4 and explained to us.

5 What other remedy is lost to the city in the
6 light of a lost use of nine acres of cap and containment
7 which will have restrictive use supposedly? We're told
8 that no single family dwelling will be allowed to be
9 built on these sites, but multiple family dwellings will
10 be able to be built on this site. Maybe somebody who's
11 in real estate could address that.

12 And lastly because, you know, I'm certainly
13 running out of time, rising oceans, rising ocean levels,
14 more severe weather, cliff erosions, seismic
15 irregularities, I think we all remember it; well, we
16 don't remember it, but we've seen the photographs of the
17 before and after events of the earthquake of '06 here.
18 Is that containment membrane going to be able to
19 withstand an earthquake, and will it contaminate marine
20 life?

21 I personally, I stand with the fish. Fish
22 don't stand, but I stand with them.

23 MR. SIMPSON: Thank you, Rafael. If we have
24 any questions, we will give you a call or contact you at
25 some point or give you the card.

1 MR. BORRAS: Well, I'll take that card back and
2 write it out legibly.

3 MR. SIMPSON: Okay, okay. Thank you.

4 Next up we have Mr. Dan Ladermann, and
5 following Dan, we have Mr. Antonio Wuetke.

6 MR. LADERMANN: Hello. My name is Dan
7 Ladermann, D-a-n, L-a-d-e-r-m-a-n-n.

8 I'd first like to say that I agree that the
9 bioremediation should be our first choice, and if it's
10 possible, it's the best way to go, but if it's not, the
11 contaminants must be moved offsite.

12 It's guaranteed that the containment will fail.
13 With the lifetime of the contaminants, which is
14 basically permanent, we might as well just not worry
15 about containing it because it's only a temporary
16 solution. So why even bother creating the pit and
17 putting a liner on it and capping it? It's going to
18 fail within thirty years or somewhere in that time
19 frame. We might as well just skip that process and just
20 dump it and move on. So I think it's important that we
21 look at if it has to be moved, it should be moved
22 offsite where it's not in a populated area in the middle
23 of downtown and all the other economic impact.

24 If you're gonna look at the economic impact,
25 let's look at what would the value of that land be if it

1 was contaminant free versus either one-point-three or
2 nine acres, whatever it's going to end up being. It
3 should be worth a lot more.

4 So from an economic standpoint, moving it
5 offsite, putting it someplace away from the populated
6 area where, as bioremediation becomes better well-known
7 and we finish more research, have it remediated there
8 where it's not in the middle of a populated city area.

9 I think the concept of putting a small portion
10 from the trail in that area is just trying to open up
11 the doors so they can dump more and more in the
12 remaining of the area as the rest of the site gets
13 cleaned up. So I believe that the contaminants do not
14 have anyplace in residential and the business areas of
15 Fort Bragg.

16 Thank you.

17 MR. SIMPSON: Thank you, Dan.

18 And Mr. Antonio Wuetke.

19 MR. WUETKE: Wuetke is spelled W-u-e-t-k-e.

20 So I just wanted to point out that capping is a
21 time-proven technique. G.P. used to practice it.
22 They'd bury a hole and put the stuff in there and pour
23 concrete over it, and at least put a mill bailing on top
24 of it, but that's just out of curiosity. Closed doors
25 don't keep it hidden. There's no sense in capping a

1 site with concrete in the middle of downtown Fort Bragg.

2 So far we haven't really heard any constructive
3 visions for bioremediation, and I wanted to announce
4 that we have good news. Paul Stamets, the
5 internationally known mushroom expert, had taken samples
6 from the G.P. site of his visit in January I think it
7 was, samples of pampas grass, and had inoculated them in
8 a climate similar to ours to see if his five mushroom
9 types that are known to tie up toxins, particularly
10 dioxin, would work using pampas grass as the organic
11 matter, and he sent us e-mail yesterday saying, and I'm
12 paraphrasing, "I was excited to see it growing so well.
13 If the pampas grass uptakes the contamination and the
14 fungi break it down, then you have a pathway to follow
15 for cleaning up your site. We go over the processes in
16 our seminars. We will see you then." That is myself
17 and another member of the community going to his
18 workshop in April to get the details on how to implement
19 the bioremediation model.

20 I guess that's good enough. Thank you.

21 MR. SIMPSON: Thank you, Antonio.

22 At this time, what I would like to do is I'd
23 like to issue an apology to those individuals who came
24 and provided comments and were not able to finish them.
25 In the interest of time management, that's what we

1 decided to do. We do have time left over. What I'd to
2 do is, if they're willing, those individuals who came to
3 the microphone previously just to make comments, I set
4 your cards to the side. So I'd like to recall you back
5 to the microphone to complete your comment if you
6 wouldn't mind.

7 And first up we have Lenora Shepard.

8 MS. SHEPARD: Okay. Where were we? We were
9 back at that "Love Canal Revisited Motel." We were on
10 capping.

11 If we do this, we are leaving behind us a much
12 bigger problem. A lot of people have said that tonight,
13 and I'm very happy. Is this the vision for our future?
14 I hope not. Capping is not a cleanup. It's a disaster
15 we're leaving for our kids. It's a time bomb with a
16 slow fuse and every potential to be just as deadly.

17 I know some folks are concerned about the
18 carbon footprint we will create if we wind up trucking
19 contaminated soil out of here, and I am very glad to
20 hear this concern being raised as part of this
21 discussion.

22 Having spent the past three years working with
23 a group concerned with climate change, speaking
24 personally, I feel if ever the use of fossil fuels were
25 justified, it is in a case like this. There are other

1 ways we can lower our carbon footprint as a community,
2 but once that soil is in that hole in the ground, we
3 don't have much wiggle room.

4 Dioxin is one of the most toxic substances ever
5 known and should not be sequestered in the middle of a
6 growing town. If it needs to be removed, of course my
7 next question is: Are there options for biodiesel?

8 One last thing, with regards to the intertidal
9 zone on the Coastal Trail area, I know there was at
10 least one trench leading out of the bluffs where G.P.
11 would dump PCBs and other toxics because there was a
12 trench that got filled in the day before the EPA was
13 supposed to arrive and investigate the PCB spill from
14 the broken capacitor back in I think it was 1987.

15 Now I understand there are actually close to
16 thirty such trenches, plus a concrete pad or unloading
17 dock which you can back a truck up to and heave your
18 toxic waste off the edge. I also would like to know if
19 this area has been tested.

20 We're getting exposed to our four-point-six-
21 parts-per-trillion residential level when I take the
22 kids to play soccer, and we're getting another potential
23 recreational twenty parts per trillion when we start
24 hiking the trail. We're still waiting to get the
25 results back on this field out here I understand. We

1 don't know what our parts per trillion hit is now on
2 this field.

3 If we go and play with the sea anemones there
4 at low tide, I'd like to know what level of toxicity
5 we're running into there and what level we're planning
6 to clean it up to.

7 I would just like to finish with the fact that
8 according to the National Academy of Science, there is
9 no safety level for dioxins.

10 MR. SIMPSON: Thank you, Lenora. Lenora, were
11 you planning on submitting those comments tonight?

12 MS. SHEPARD: Not right now.

13 MR. SIMPSON: One point that Ed asked me to
14 mention, which I had failed to mention earlier, is
15 several of you tonight did submit comments or cards
16 indicating that you wanted to submit a written comment
17 and not submit to oral comment publicly. I just want to
18 reassure you all that those comments will be reviewed.
19 Those comments will be replied to in the Response to
20 Comments.

21 So for those of you that submitted a comment,
22 please don't think that just because you don't submit it
23 verbally into the official meeting transcript, that it
24 will not be replied to. It most definitely will be
25 responded to in the Response to Comments. Okay?

1 Next up who did not get to finish his initial
2 comment is Mr. Wollenberg.

3 MR. WOLLENBERG: My last part of that initial
4 comment was a question I would really appreciate being
5 addressed in the revised RAP: Would a multi-layered or
6 single-layered liner of thickness well in excess of the
7 forty mill liner, which is presently under
8 consideration, even better assure improved longevity of
9 the integrity of the pit? Would the pit's effective
10 life be lengthened in proportion to the thickness of the
11 liner? And I think that's a technical question that
12 perhaps could be responded to.

13 I also have some observations on the intertidal
14 zone. Irrespective of jurisdiction, ownership and
15 agency responsibility, the intertidal zones must be
16 protected for the long-term and remediated if found
17 contaminated. There are places on the mill-site bluffs
18 I am sure where groundwater that has moved under the
19 mill site is daylighting, coming up under the surface,
20 and the interface between the overlying terrace
21 sediments and the underlying bedrock is a principal
22 pathway for such a migration. From examination of
23 nearby coastal bluffs offsite, groundwater does emanate
24 from this interface and flows down ponds and beaches.

25 For this reason, ecological risk assessments

1 for rational scenarios should be of high priority. From
2 Dr. Chernoff's comments at the remedial investigations
3 meeting in February, I expect that he might agree with
4 these concerns. A risk adjustment comparable to the one
5 he did for the upland biota would be appropriate for the
6 beaches.

7 NOAA and California Fish and Game Mussel-Watch
8 program avoided or ignored Fort Bragg even though there
9 is a sewer treatment outfall and millpond outlet pipe
10 disgorging into the shallow marine environment directly
11 offshore the mill site. Therefore, there are no data
12 upon which to establish a baseline for comparison of
13 preexisting and post-remediation intertidal and shallow
14 marine conditions.

15 You can't rely on the mussels sold at Berkeley
16 Bowl and compare those to the mill-site mussels. That's
17 not a fair or even an adequate valid assessment for
18 intertidal conditions, nor can we just accept the
19 assumption that the energy of the waves disperses
20 contaminants for adequate dilutions. There need to be
21 scientifically credible studies of intertidal biota that
22 lead to credible risk assessments.

23 Stopping the investigations at the top of the
24 bluffs leaves out an important ecological consideration,
25 and this should be rectified.

1 MR. SIMPSON: Thank you, Skip. Are you going
2 to submit those tonight as well?

3 MR. WOLLENBERG: Sure, we might as well.

4 MR. SIMPSON: And I have one more card, and I'm
5 not sure if Thais had more to say. Please come to the
6 microphone.

7 MS. MAZUR: Say my name again?

8 MR. SIMPSON: Yes, please.

9 MS. MAZUR: Thais Mazur, T-h-a-i-s, M-a-z-u-r.
10 My eight-year-old couldn't make it tonight.

11 She's been coming to meetings like this since she was
12 one, but she made me promise that I would ask this
13 question: Why are you going to be removing soil from a
14 trail area where you don't even know if the rest of the
15 mill site is safe? Won't playing on the beaches hurt
16 children like me? And my mom told me that there are no
17 safe levels of dioxins, not only because the National
18 Academy of Sciences but actually the U.S. EPA came out
19 with their own reports saying that there appears to be
20 no safe level of exposure to dioxins.

21 So there. I did that for my daughter, but now
22 I want to let you know that as part of public
23 participation, I have a comment, and that is that we
24 have a huge Spanish-speaking population here in the City
25 of Fort Bragg. They're very interested in this. Where

1 is the information in Spanish? It makes up one third of
2 the size of the City of Fort Bragg, and that really
3 should be addressed.

4 Thank you.

5 MR. SIMPSON: Thank you.

6 Next we have Mr. Baile Oakes Bannon returning
7 to the microphone.

8 MR. BANNON: Do you need my name again?

9 MR. SIMPSON: Yes, please.

10 MR. BANNON: It's B-a-i-l-e, Oakes, O-a-k-e-s,
11 and then B-a-n-n-o-n.

12 I just have one question that I didn't make
13 real clear that I'd like to see answered in your
14 Response to Comments. There's a bigger picture
15 happening in Sacramento, and it's called lobbying, and
16 lots of times, no matter what the wonderful plan you
17 come up with in the community, it's overseen by big
18 business, big government. I'd like to know specifically
19 who are the people, names, e-mail addresses, phone
20 numbers, who are going to make this decision on this
21 plan. I think it's total democracy to allow the
22 citizens to lobby these people, not just the people in
23 big government and big business that have the money to
24 do so. So please allow us to know who's really making
25 these decisions.

1 Thank you.

2 MR. SIMPSON: Thank you, Baile. Did you have
3 anything to submit tonight?

4 MR. BANNON: I have that on there.

5 MR. SIMPSON: All right. And it's nine thirty.
6 We do have the room still for about another half an
7 hour. So at this time, what I'd like to do, 'cause I
8 think we have addressed all of the written comments that
9 individuals have submitted who wanted to make a verbal
10 comment tonight, but I would like to open the floor up.
11 If anyone has additional comments that they were not
12 able to fill out a card for and they would like to
13 submit those, I would invite you at this time to do
14 that.

15 Rafael, please come back to the microphone if
16 you wouldn't mind. Thank you.

17 MR. BORRAS: My name is Rafael, R-a-f-a-e-l,
18 Borras, B-o-r-r-a-s, and I think for the convenience and
19 education of all the people for the next meeting, that
20 all of the questions, both submitted verbally and in
21 writing, should be shown to the public so that they can
22 better understand the complexities of the problem and be
23 able to comment on the problem intelligently.

24 Thank you for your work.

25 MR. SIMPSON: Thank you, Rafael, and just to

1 address that, the project team will definitely review
2 that comment and make a determination for the next
3 meeting. That's not the first time you've brought that
4 up, and I know that's an issue, a recurring issue that
5 you had a concern about.

6 So once again, Jody, please. Would you like to
7 use the microphone? Thank you, Jody.

8 MS. SPARKS: Jody Sparks, Jody, J-o-d-y,
9 Sparks, S-p-a-r-k-s.

10 This is a question that I'd actually like for
11 you to answer at this evening's meeting because I think
12 it's important for the community to clearly understand
13 the process that they are involved in. Georgia-Pacific
14 prepared the draft Remedial Action Plan that we are
15 commenting on this evening. On the 11th, you are going
16 to have another similar meeting, but the community needs
17 to understand what the process is regarding the
18 document.

19 I believe that there are those that believe
20 that the document is going to be changed and come out
21 again for public comment, and in fact, that isn't what
22 usually happens. So I think it's important, very
23 important. Everyone is making their comments, but I
24 think the department needs to clarify. You're going to
25 do a Response to Comments, but what does that mean as

1 far as the document?

2 Georgia-Pacific has prepared a document, has
3 laid out certain alternatives that they chose to look
4 at. You have approved the document in that it meets the
5 basic needs of the department. Georgia-Pacific has
6 chosen what alternatives they want to use.

7 This community comes here, and they are telling
8 you what they like, what they don't like. What do you
9 do with that information, not just a Response to
10 Comments? How does it change what is happening? Does
11 it change what is happening?

12 MR. SIMPSON: Thank you, Jody, and I can
13 respond to that to some degree, and I may need the
14 support of the project team here.

15 The process for the draft RAP document is that,
16 of course as everyone knows, the department reviews that
17 document, and following the public comment period, the
18 public has the opportunity for typically thirty days to
19 review that document, provide comments, provide
20 questions, and following the end of the public comment
21 period, as we have said numerous times, and I don't want
22 to sound like a broken record, but we do issue a
23 Response to Comments.

24 So after the department reviews all of the
25 public comments, if the draft RAP document is revised,

1 and I couldn't say as of this point in time whether or
2 not that draft RAP document will be revised, but if the
3 draft RAP document is revised, then once again, it goes
4 back out for public comment for another thirty-day
5 period.

6 So all of the community's comments are
7 gathered, they're reviewed, they're considered, and then
8 a decision is made, should the document be revised or
9 should the document not be revised based upon the
10 public's input and the public's questions.

11 Now, as of tonight, I would be remiss to state
12 that the document will be revised or make any types of
13 forecasts or promises on that, but that is the process.
14 If the document is revised, based upon the community's
15 concerns and comments, then once again it goes back out
16 for another public comment period. Okay?

17 AUDIENCE MEMBER: Why wouldn't it be revised?

18 AUDIENCE MEMBER: What's the point of having
19 the meeting?

20 AUDIENCE MEMBER: Yeah.

21 AUDIENCE MEMBER: Who decides?

22 MR. SIMPSON: Just a second. We do have the
23 transcript that we're trying to maintain. So what we'd
24 like to do is make sure we get your opinion.

25 Can you repeat that question again you're

1 asking?

2 MS. SPARKS: Jody Sparks. So what I was trying
3 to get to is after the community, after the community
4 comments, you prepare the Response to Comments, then you
5 will weigh that, and you will make a decision. If you
6 make the decision, as an example, of going along with
7 the recommendation that is in the document, is it
8 challengeable by the public, or do they just accept
9 that? I just kind of want you to go through the whole
10 thing.

11 MR. SIMPSON: I understand. I understand your
12 question. Basically, and correct me if I'm wrong, but
13 your question is if after public comment, all the
14 comments and the concerns of the community are heard and
15 the document is not revised, is that a challengeable
16 process, and to be quite frank with you, I have not seen
17 that happen, and I would have to research that a little
18 bit and provide you with an answer on that. I think
19 that's an issue that we can respond to.

20 Denise, do you want to take that one?

21 MS. TSUJI: Yes, I will. The way the statutes
22 are set up, once the department makes a decision that's
23 kind of the decision, very, very rare has anybody
24 actually taken -- You would have to file a lawsuit to
25 the department. I mean that's the only way to do it.

1 AUDIENCE MEMBER: Then why are we here?

2 AUDIENCE MEMBER: What's the point of being
3 here?

4 MS. TSUJI: We do listen to what you said
5 tonight. Let me finish; let me finish. We weigh it
6 out. We have heard you very loud and clear. You guys
7 don't like the idea.

8 AUDIENCE MEMBER: We don't like the idea that
9 it got contaminated in the first place.

10 MR. SIMPSON: What I would like to do is we do
11 want to hear everything that everyone has to say, but
12 just given the fact that we have the court reporter
13 here, please, if we could all identify ourselves and our
14 questions, there will be no issue with us listening and
15 accepting the comments that you have, but we definitely
16 want to be able to attribute it to the proper person.

17 So if you have a question, please just raise
18 your hand. What I can do is I can call on you. You can
19 audibly state your name and then state your question.

20 Yes, ma'am?

21 MS. BORCICH: My name is Vida Borcich, V-i-d-a,
22 B-o-r-c-i-c-h.

23 I feel insulted by this. I feel like it's some
24 sort of placating the natives or something. Like why
25 are we here if all we're doing is, you know, telling

1 each other that we're concerned about this? And what's
2 going to happen when you guys take this back is just
3 going to get, you know, like answer the people and keep
4 going with your idea that nobody wants.

5 MR. SIMPSON: Vida, correct?

6 MS. BORCICH: Yes.

7 MR. SIMPSON: Well, a very important point that
8 I want to point out for everyone here tonight, I don't
9 want anyone to get the idea that the plan will or will
10 not be revised. There is no guarantee that the plan
11 will not be revised or will be revised. The comments
12 will be considered and heard. So please, don't leave
13 here tonight with the feeling that your concerns and
14 your issues are listened to but not considered. That is
15 not the case. The comments that the community brings to
16 the table are heard and are listened to.

17 The only thing is we cannot make a
18 determination tonight on whether the document will be
19 revised, and we would really be irresponsible to state
20 that that will be the case.

21 MS. BORCICH: Right. She just said we'd have
22 to bring a lawsuit to really change it.

23 MR. SIMPSON: Denise, do you want to clarify?

24 MS. TSUJI: Let me see if I could go through
25 it. It's complicated. It's a bureaucracy. I can't

1 undo that part of my life for you guys. We come out and
2 receive public comments like we're doing tonight. We'll
3 be back here on April 11th to do the same thing.

4 Based on all those comments, we take a look at
5 it, and I'm just using this as an example. There was a
6 number of comments made about re-evaluating the
7 thickness of the liner. We go back to our technical
8 team. We take a look at it. We look at the
9 engineering. We may need to then say, "What other kinds
10 of thicker liner material is available? Is it
11 appropriate to use for this particular scenario?" If it
12 does improve it, we do value that, and we will consider
13 perhaps changing the design of the use of the liner from
14 forty mill to something thicker.

15 That is what we call nonsubstantive change to
16 the RAP, and what we do there is amend the RAP, make the
17 requirements go from forty to sixty let's say and go
18 ahead and approve the RAP.

19 However, if there's a substantive change where
20 we are saying we need to go back and re-evaluate
21 something and look other alternatives, look at different
22 designs, then the Remedial Action Plan is advised based
23 on the research that we do, the homework we do, the
24 engineering, and we will -- The document then goes
25 through the entire process. We have to re-evaluate CEQA

1 to see if the changes to the document have changed our
2 CEQA decision as well as then come back out for another
3 thirty-day comment period.

4 MR. SIMPSON: Thank you. We had a question.
5 I'm sorry, Rafael. We had a question. Did you have a
6 question? I saw your hand up earlier.

7 MS. ORANN: Yes.

8 MR. SIMPSON: If you could just say your name
9 for the court reporter.

10 MS. ORANN: Toni Orann, T-o-n-i, O-r-a-n-n. I
11 just wanted to comment that I've seen, I've looked at
12 the paper with all your names and e-mail addresses and
13 whatnot, and I noticed that you're all somewhere out of
14 this area. You all live somewhere away. So the only
15 thing I want to say is we all live here, and that you
16 have to take into account that we live here. We live on
17 the earth on this soil. We work. We play. We eat. We
18 do all of our lives here, and so it's a very important
19 issue for us, as well as you, but I think in some
20 respects, that we have a different kind of attachment,
21 and it impacts our lives in such an incredible way that
22 we need to just really pay attention, all of us,
23 including yourselves please, to the fact to what we're
24 really asking you, I feel from having listened to all
25 these comments, is more time to research what the really

1 wise decision would be in terms of what impacts our
2 lives for the next thousands of years, not just thirty
3 years but hundreds and hundreds and hundreds of years,
4 how every decision you make for us, for our community,
5 how that is going to impact all of our children,
6 grandchildren, great-grandchildren,
7 great-great-grandchildren forever, and that we can't
8 just take this lightly and say, "Oh, well, we'll maybe
9 increase the thickness of the wall of the cap." That's
10 not going to do it. So it improves it for another
11 hundred years. That's not good enough.

12 You need to look at what the long-term
13 prospects are of not just containing but cleaning this
14 entire area, which is not just about cleaning or
15 encapsulating the dioxins and all the other toxins that
16 are on the site itself but wherever else. It's in my
17 garden for God sake. It's on the school grounds where
18 my daughter goes to school. You need to look at all
19 that and not take it so lightly.

20 Excuse me. I'm sorry. I'm getting very
21 emotional, but I feel like it can't just be taken,
22 "Well, okay, we'll look at this, and maybe we'll change
23 that." How, after this evening's hour-and-a-half worth
24 of comments you could say, "Well, maybe we'll change
25 something here, or maybe we won't"? It has to change.

1 You cannot possibly go ahead with this plan the way
2 it is now.

3 MR. SIMPSON: And Ed is going to reply.

4 MR. GILLERA: I'm not replying to your comment.
5 I just feel that there needs to be a major clarification
6 here.

7 The life span of the liner is not actually
8 thirty years. The liner proposed for the Remedial
9 Action Plan actually has a life span of anywhere from
10 three-hundred to a thousand or more years. That
11 thirty-year figure may have been misunderstood during
12 our last public meeting, and I just wanted to explain
13 that at some point.

14 MR. SIMPSON: Thank you.

15 And, Mr. Wollenberg, you're next, really fast.

16 I do want to say we have fifteen minutes left.
17 We're gong to try to get through all the hands that went
18 up if we can, and if we can't, I would also like to
19 mention that on April 11th, we will be having a repeat
20 meeting.

21 So, Rafael, you had one more question?

22 MR. BORRAS: Yes. We've had a number of
23 meetings. These are not new questions proposed to this
24 group, and I think they have really meant well and done
25 excellent work in many ways, but they knew what our

1 concerns were. These comments that we're making have
2 already been heard by them in many cases, and yet the
3 plan continues. The juggernaut keeps moving.

4 I doubt very much whether our comments will
5 change very much other than the thickness of the lining,
6 but what will change is us standing in their way when it
7 comes to the happening. I believe this community has
8 the, has what it takes to prevent this from happening.

9 That's my comment.

10 MR. SIMPSON: Thank you, Rafael.

11 Mr. Wollenberg and the gentleman in the back, I
12 see your hand.

13 MR. WOLLENBERG: You people represent not only
14 we in Fort Bragg but you represent the people of the
15 State of California, and you're charged with protecting
16 from the standpoint of toxicity the population of State.

17 In that respect, you have to take into
18 consideration the pathway, the truckloads of what is
19 considered a toxic waste given the thresholds of
20 contamination that have been mandated. Those truckloads
21 passing through, right through the middle of communities
22 such as Willits and Ukiah, Boyes Hot Springs, Cordelia,
23 and/or Richmond to reach the Keeler Canyon Dump and then
24 the people of Pittsburg who are going to take that
25 material under their wing for the rest of its nominal

1 life, and with respect to the material that goes twice
2 that far to Kettleman Hills, you have communities along
3 Interstate Five that have concerns and the people of
4 Kettleman Hills and the people who live down the
5 hydrologic gradient from the Kettleman Hills site. I
6 hope you take that, those considerations also in
7 response to our local concerns.

8 Thank you.

9 MR. SIMPSON: Thank you, Mr. Wollenberg.

10 Ma'am, I see you right following this gentleman
11 in the black sweater right here.

12 MR. TARBELL: My name is Jim Tarbell, J-i-m,
13 T-a-r-b-e-l-l.

14 My understanding is that the City Council of
15 Fort Bragg sitting as the Board of the Redevelopment
16 Agency also votes on the Remedial Action Plan. What
17 happens if you accept it but they do not, if they vote
18 against it, if they don't pass it?

19 MR. SIMPSON: Denise, did you want to try to
20 address that tonight?

21 MS. TSUJI: That's a hard question to answer,
22 but I'm going to try and simply it.

23 I am not a lawyer. There are two different
24 statutes that I have to deal with. Basically if the
25 City Redevelopment Agency does not want the draft RAP as

1 written as we're looking at it today to be implemented,
2 we will not approve it. So it's a parallel, and kind of
3 both decisions have to come at the same time. So if I
4 approve or the department approves and the City
5 Redevelopment Agency does not adopt, it doesn't go
6 forward, vise versa also. We are working with, you
7 know, coordinating with the City, letting them know
8 what's going on at our end, and they're letting us know
9 what goes on at their end, and you know, we recognize
10 that the City has their process, and it's somewhat
11 complicated, but that's the simplest answer I can give
12 you. I don't know if it's satisfactory but --

13 MR. SIMPSON: And I see your hand there right
14 after this woman here.

15 MS. NUTTER: Susan Nutter, N-u-t-t-e-r.

16 Will you review the comments heard tonight by
17 April 11th, and when you come back here, give us a
18 definitive answer whether or not you're going to revise
19 the plan, and if so, what areas you're going to revise,
20 if you could at least give us a preliminary response
21 that you will stand by?

22 MR. SIMPSON: That's an excellent question,
23 Ms. Nutter, and the quickest and shortest answer would
24 be unfortunately not. We would do so following the end
25 of the official public comment period, which is April

1 14th. So after April 14th and reviewing the comments,
2 the Response to Comments document will address each
3 comment.

4 However, we are open to dialogue at the April
5 11th meeting. Just as we're having dialogue now, we'd
6 be willing to do so then as well.

7 MS. NUTTER: You can't give a preliminary
8 response of what your position is at that point in time,
9 by April 11th?

10 MR. SIMPSON: And I'm going to look to my
11 project team to correct me if I'm mistaken, but we would
12 not be able to give a preliminary response by April
13 11th.

14 Is that correct?

15 MS. TSUJI: That is correct.

16 MR. SIMPSON: Ma'am, you were next.

17 MS. DURKEE: My name is Carrie Durkee,
18 C-a-r-r-i-e, Durkee, D-u-r-k-e-e.

19 I've had a career in a bureaucracy for
20 twenty-one years, and I'm finished with it, but I have a
21 lot of experience in the kind of mind-set that comes
22 with being in a bureaucracy.

23 People in this community and myself, we're
24 looking for a longer-term vision and opportunity to take
25 and really actually do something creative towards a

1 better life on the planet.

2 I beg you, think outside the bureaucracy. Take
3 a chance. Stand up for life.

4 Thank you.

5 MR. SIMPSON: That gentleman has had his hand
6 up, and then I see you in the back as well.

7 MR. PAZ: Richard Paz, R-i-c-h-a-r-d, P-a-z.

8 I've got a couple questions. Is there anybody
9 from the City present tonight? Yes? From Fort Bragg
10 representing us?

11 (Display of hands.)

12 MR. PAZ: Great. Okay. Short of an amendment,
13 can we reject this plan?

14 MR. SIMPSON: You can comment on the plan.

15 MR. PAZ: We can't reject it?

16 MR. SIMPSON: You can reject it by stating that
17 you reject the plan, that you do not agree with the plan
18 in your comment.

19 MR. PAZ: So as a community, we can only
20 make -- You're only going to amend something? We can't
21 have it rejected? We can't go, "You know this plan,
22 we've looked at it; we've seen it, and we don't like it;
23 it's not for our community"?

24 MR. SIMPSON: If your question is can you make
25 that statement, yes, you definitely can; you definitely

1 can.

2 As far as the plan actually being officially
3 rejected, no. Like Denise said earlier, there's a legal
4 process for a plan not being implemented if it is not
5 accepted by the community.

6 MR. PAZ: So we're stuck? That's what it
7 sounds like.

8 MS. TSUJI: The plan may not, taking your
9 question to answer it, I can't reject it outright. I
10 can, I can -- Our rejection would be not to -- The best
11 way to put it is the department would not approve it,
12 which would be equivalent in common terms to rejecting.

13 What would have to happen is we go back and
14 start -- It would come out as a revised document, but
15 the whole document in and of itself per se as a document
16 that we don't -- There is no rejection on our part. We
17 can only go back and amend it. It may physically come
18 back out as a whole new document, I mean from title page
19 to end page, a whole new different document, but it
20 would, from a process term, it would come back out as a
21 revised document, and that's how it would be termed.

22 MR. SIMPSON: Thank you, Denise.

23 MR. WARNER: My name's Peter Warner, P-e-t-e-r,
24 W-a-r-n-e-r.

25 I want to maybe put a little bit of a different

1 perspective on what Skip was talking about. I
2 appreciate the difficulty of being a public servant
3 trying to meld together all the different opinions and,
4 you know, the mandates of law and even the pressures of
5 the lobbyists, but I think in the spirit of what Carrie
6 had to say, you do have a responsibility not only to the
7 people in this room and the people of this community and
8 to all the other people in California, not only in terms
9 of looking out for them but in terms of, you know, the
10 waste derived from this project and where they might go,
11 but you also have a responsibility to set some kind of a
12 tenor for the future, for the future of California.

13 I do want to remind you that every voice in
14 this room is equal to one Georgia-Pacific voice. That
15 corporation has no more power than any one voice in this
16 room, and what we need to do here and I think your
17 charge should be to establish for California no more
18 toxic pollution by corporations. They can't move in to
19 communities like Georgia-Pacific did, take the resources
20 off the land, leave behind a legacy of unemployment,
21 alcoholism, drug abuse, and then leave even worse a
22 toxic legacy on this land and walk away. Whether or not
23 the City Council agrees, they can't be allowed to walk
24 away and not pay the price.

25 Yes, environmental laws have changed since they

1 set up operations here, but that's too damn bad. We all
2 play by those rules. They need to be held accountable
3 for polluting this land as an example to be set for
4 future corporation violations in this State, that we're
5 not going to tolerate toxic abuse of communities.

6 Thank you.

7 MR. SIMPSON: Our court reporter has to change
8 the tape.

9 I would like to note the time is nine
10 fifty-five, and after she changes her tape, I think what
11 I would like to do is allow two more comments, and it
12 seems we have one up and running and then the woman in
13 the back following that, and then following those
14 comments, I will have to adjourn the meeting, and to
15 those of you who have additional comments to make, I
16 want to apologize that we have run out of time. We knew
17 that we would have many comments this evening, and I do
18 want to stress again that we do have another meeting on
19 April 11th as well. So for those of you who have
20 additional comments to make, please plan to do so at
21 that meeting following these two comments.

22 Please come to the microphone.

23 MR. PERKINS: I don't have a comment, but I do
24 have a question.

25 MR. SIMPSON: If you could just please state

1 your name and spell your name and then once again ask
2 your question, we'll definitely address that?

3 MR. PERKINS: Why not use a barge?

4 MR. SIMPSON: What's your name, sir?

5 MR. PERKINS: Why not use the harbor for a
6 barge?

7 MR. SIMPSON: His name is Mark Perkins. His
8 question is why not use the harbor for a barge.

9 MR. PERKINS: To haul away the waste.

10 MR. SIMPSON: To haul away the waste.

11 MS. TRACY: Sheila Tracy. I spoke before.

12 My question is if the community was
13 overwhelmingly in opposition to the plan, say ninety
14 percent, maybe ninety-five percent, would that be enough
15 to compel the department to revise the draft plan?

16 I additionally want to say this community has
17 often been beset by bureaucracy, and time and time
18 again, we do not except decisions by people who don't
19 live here affecting the people who do live here. So
20 expect resistance.

21 Thank you.

22 MR. SIMPSON: Thank you, Sheila.

23 At this time, I am going to adjourn the
24 meeting.

25 There is one point I'd like to make. We have

1 heard very, very adamant arguments and heated concerns
2 and some serious concerns and comments tonight. I do
3 want to let everyone know that part of our criteria that
4 we use to evaluate a Remedial Action Plan is community
5 acceptance. That's one of the criteria that you can see
6 on this poster board over here, and definitely the
7 concerns and issues that you raise have clearly
8 indicated to us that the community has definite issues
9 and does not accept certain portions of the plan.

10 The comments will be considered. They will be
11 reviewed and seriously poured over. So I want you guys
12 to all know that that will take place. We're going to
13 take those comments, review those comments quite
14 seriously.

15 We will be issuing once again the Response to
16 Comments, and once again, the public comment period
17 closes on the 14th, the 14th of April I should say. So
18 anyone who has additional comments, please, please feel
19 free to write your comments. You can e-mail your
20 comments.

21 Our contact information once again is on the
22 rear of the agenda that you picked up tonight. It's
23 also on the fact sheets that we send out.

24 So we have another meeting coming on the 11th
25 of April in the same place, at the same time. So

1 there's more opportunities for you to get your concerns
2 and your comments in. Okay?

3 I want to thank everyone for coming tonight,
4 and for those of you who had more to say but didn't get
5 the opportunity due to time, I do apologize. We will be
6 hearing your comments through the close of the comment
7 period, though.

8 Thank you, and please drive safe.

9 - - -

10 (Whereupon, today's proceedings concluded at
11 10:02 p.m.)

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REPORTER'S CERTIFICATE

I, Stephanie Anne Fox, a duly certified shorthand reporter of the State of California, do hereby certify: That the foregoing pages, numbered 1 through 99, inclusive, constitute a full, true, and correct transcript of the notes taken by me in the foregoing proceedings in the within-entitled matters.

Dated: March 31, 2008

Stephanie Anne Fox, CSR #4640

1 Department of Toxic Substances Control

2 Public Meeting

3 ---o0o---

4 In re the matter of:

5

6 THE GEORGIA-PACIFIC MILL SITE
7 Remedial Action Plans
8 Coastal Trail and Parkland (OU-A)
9 and Interim Action Areas.

9 _____/

10

11 Friday, April 11th, 2008

12

13 Meeting location:
14 REDWOOD ELEMENTARY SCHOOL
15 325 South Lincoln Avenue
16 Fort Bragg, California

17 PROJECT TEAM:

18

19 Joyce Whiten, Public Participation Specialist
20 Ed Gillera, Project Manager
21 Susan Wilcox, Associate Environmental Planner
22 Denise Tsuji, Supervising Scientist
23 Kimi Klein, Human Health Toxicologist
24 Buzz Chernoff, Ecological Toxicologist
25 Michelle Dalrymple, Geologist

26

27 Reported by: Stephanie Anne Fox, CSR #4640

28

29

30 COASTAL REPORTING SERVICES
31 131-A STONY CIRCLE, SUITE 500
32 SANTA ROSA, CALIFORNIA 95401
33 (707) 573-9766

34

1 AUDIENCE MEMBERS MAKING ORAL COMMENTS:
(in order of first comment made)

2

- 3 Glen Young
Donna Schuler
4 Margaret Paul
Jody Sparks
5 Debra Scott
Louisa Morris
6 Mitch Clogg
Rafael Borrás
7 Skip Wollenberg
Andrea Luna
8 Thais Mazur
David Gurney
9 Glenn Hamanaka
John Hernandez
10 John Malony
Derek Hoyle
11 Lenora Shepard
Leslie Scales
12 Bernie McDonald
Mary Walsh
13 Julia Larke
Marilou Brewer
14 Shiela Dawn Tracy
David Jensen
15 Lorraine Paul
Tom Burnet
16 Antonio Wuetke
Jonathan Shepard
17 Theresa Morris

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1 (Whereupon, the public meeting commenced at
2 7:16 p.m.)

3 MS. WHITEN: Okay. Good evening, everyone. My
4 name is Joyce Whiten. I'm a Public Communication
5 Supervisor with the State of California, Department of
6 Toxic Substances Control.

7 Some of you are looking at me like I'm from
8 Mars, but last week or last on the 26th, Marcus Simpson,
9 who's my staff person, did the facilitation, but I'm not
10 new. I've been involved with the project since Linda
11 Jansen came up and did interviews. So I'm very much
12 familiar with what's going on here.

13 On behalf of the Department, I'd like to thank
14 you all for coming to the meeting and also thank you for
15 inviting us into your community.

16 Let's see. What I'd like to do first of all is
17 to ask the team to introduce themselves. I'm sure some
18 of you are familiar with them, but we see some new faces
19 out there. So we want to make sure everyone knows who's
20 who and what their role is in case they need to ask some
21 questions later on.

22 MR. GILLERA: Good evening, everybody. I'm Ed
23 Gillera. I'm project manager.

24 MR. CHERNOFF: Thank you for having such a
25 beautiful day for us to enjoy up here. I'm Buzz

1 Chernoff. I'm the eco toxicologist on the project.

2 MS. KLEIN: I'm Kimi Klein. I'm the
3 toxicologist for human health issues.

4 MS. WILCOX: I'm Susan Wilcox. I'm an
5 environmental planner and have worked on CEQA documents.

6 MS. DALRYMPLE: I'm Michelle Dalrymple, and I'm
7 the project geologist.

8 MS. TSUJI: I'm Denise Tsuji, and I guess I'm
9 like the team mom. I'm Ed's supervisor.

10 MS. WHITEN: And a more familiar face, Mr. Glen
11 Young, has a statement.

12 MR. YOUNG: Hi, everybody. Some of you may
13 have noticed that City Council isn't here tonight. It's
14 unfortunate, but tonight corresponds to the annual
15 Employees' Appreciation Dinner for the City of Fort
16 Bragg. So they asked me to attend as their eyes and
17 ears today, and they apologized that they couldn't be
18 here.

19 They've also asked for MCTV to record the
20 events tonight so the City Council can review it later
21 at their convenience.

22 They've also asked me to remind folks that
23 there will be a Redevelopment Agency meeting on Monday
24 night at town hall, seven o'clock. You're all invited,
25 and I'll see you there.

1 Back to you.

2 MS. WHITEN: Okay. And we will be doing the
3 comment cards this evening, the same as we did on the
4 March 26th meeting, and Denise Tsuji will be picking
5 those up.

6 I was also asked to announce again, because the
7 last time I guess there was some feedback you couldn't
8 understand or hear me, that the poster boards that are
9 standing up alongside the wall are community generated.
10 That is, it's people from the community who decided that
11 they wanted to do these poster boards, and I think
12 there's a listing of information regarding the site
13 investigation, the draft RAP, as well as community
14 concerns. They want you to know that that's from your
15 community members.

16 The materials that are lying flat are from
17 DTSC. You there should be able find the agenda for the
18 evening, the power point handout as well as the index
19 cards that we're using for comment cards this evening.

20 Also, Stephanie, who is our court reporter,
21 wants you to be sure that when you come up, you state
22 your name and affiliation, if you have one, very clearly
23 so that she can get an accurate recording of everything
24 that's gone on at the meeting.

25 She also would like to ask if you have written

1 comments, if you could give those to her, then she could
2 take a look at them. I think she said last time she
3 kept them. So you know, that decision will be yours,
4 but that's what she's asking.

5 Did I get everything down that everyone's asked
6 me to do so far?

7 MS. SCHULER: I have a question. I'm Donna
8 Schuler, and usually we have a comment card we fill out
9 and hand in.

10 MS. WHITEN: Right.

11 MS. SCHULER: I didn't see that.

12 MS. WHITEN: We'll get that to you, Donna.

13 Denise?

14 MS. TSUJI: They're not the comment cards we
15 had last time. They're just little white pieces of
16 paper like scratch paper.

17 MS. WHITEN: They serve the same purpose,
18 though. They still do the same.

19 Margaret?

20 MS. MARGARET PAUL: Margart Paul.

21 MS. WHITEN: Margaret Paul, P-a-u-l.

22 MS. PAUL: Mill Site Study Group.

23 On your first screen, it mentions Remedial
24 Action Plan, and it didn't say the word "draft." Isn't
25 that what we're here tonight for?

1 MS. WHITEN: It is a draft, yes.

2 MS. MARGARET PAUL: So there's a word missing.

3 MS. WHITEN: Yes, it is a draft.

4 Let's see. We are here tonight to discuss with
5 you further the proposed alternatives for remediating
6 the Georgia-Pacific site and also to formally announce
7 the end of the public comment period, which now has been
8 extended to April 28th, 2008. So the comment period has
9 been extended.

10 For those of you who are here for the first
11 time, this is the fourth meeting that the Department of
12 Toxic Substances Control has had with your community
13 regarding the remedial action plan alternatives which
14 are being considered.

15 As a result, we've received quite a bit of
16 feedback from your community.

17 MS. SPARKS: Jody Sparks, Toxic Assessment
18 Group.

19 This is not the fourth meeting. This is the
20 second meeting on this version of the draft remedial
21 plan. We've not had four meetings. We've had two.

22 Is that correct, everybody?

23 AUDIENCE MEMBER: Yes.

24 AUDIENCE MEMBER: Yes, that's correct.

25 MS. WHITEN: Well, I know what we've had.

1 Well, Ed has been up here four times to discuss with the
2 community the draft RAP. How about that? Maybe that's
3 a little bit more accurate.

4 MR. GILLERA: Probably about a month and a half
5 ago, I came up here and had two small group meetings
6 where we had a round table discussion of the proposed
7 remedial alternatives for the draft RAP.

8 MS. SPARKS: But the one that was out at that
9 point in time in December.

10 MR. GILLERA: That's correct.

11 MS. SPARKS: Not this one.

12 MR. GILLERA: That's correct. Thank you.

13 MS. WHITEN: If you look at your agenda, we've
14 outlined the topics that we've heard as areas of
15 concern. There are five of them. These are five of
16 them. We need to go back, the slide. Thank you.

17 Those are the five of them:
18 intertidal/offshore studies, risk evaluation, site-wide
19 characterization, bioremediation, and consolidated/cap
20 safety.

21 So what we decided to do for this evening was
22 to ask you right off the top, the community, what it is
23 that you all would prefer to do.

24 Would you prefer to hear the remedial action
25 plan presentations that have been given at the other

1 meetings? Everybody who'd like to do --

2 Well, let me give you the options. The other
3 option is to have the meeting just be one of
4 clarification. We do have presentations that we hope
5 are going to clarify some of these issues for you, but
6 we'd like to know if you want to just deal with these
7 issues and turn the meeting into a Q and A after these
8 presentations.

9 So the way that we're going to find that out is
10 can I see a show of hands from those who are interested
11 or need to hear the remedial action plan presentations
12 that were done at the other meeting?

13 MS. SCOTT: Could I ask a question first?

14 MS. WHITEN: Yes.

15 MS. SCOTT: Debra Scott. The question is if
16 part of the community inquiry is that we feel that our
17 questions have not been answered and we want that
18 addressed as well as listening to this, how can we
19 respond so that one does not negate the other?

20 MS. WHITEN: What we're hoping to do here is to
21 go through these clarifications and then have time left
22 over so that we can still discuss the other issues that
23 you'd like to discuss.

24 After each segment here, we'll have, if you
25 choose this alternative, after each segment here, we'll

1 have questions and answers for about fifteen minutes,
2 fifteen to twenty minutes. You know, it's kind of up to
3 you all.

4 So which one?

5 MS. TSUJI: I want to do some clarification.
6 The staff has prepared on March 22nd -- Let me back up.

7 On March 26th, we were up here, and we did a
8 presentation regarding the draft RAP. We are prepared
9 to do that presentation again in addition to covering
10 some specific information that we feel we have not
11 communicated quite as clearly as maybe we could.

12 What we heard from the last meeting on the 26th
13 were these major bullet items that the majority of the
14 comments covered.

15 So we're prepared to do both: present our
16 slides and information to clarify those issues, and then
17 follow that up by the repeat presentation from the March
18 meeting, March 26th meeting.

19 MS. MORRIS: I'm Louisa Morris. I'm just
20 curious as to how long is that presentation.

21 MS. TSUJI: And that's just it. Our concern
22 was our presentations probably in total will be an hour,
23 which means that takes away time from you all to give us
24 your comments, and that's really why we're here, is to
25 hear from you what your concerns, what your opinions,

1 your views are, versus you guys hearing us all the time.

2 So we really want to leave it to the community
3 to help us manage this meeting.

4 Jody?

5 MS. SPARKS: Jody Sparks, Toxic Assessment
6 Group.

7 The community is unable to adequately respond
8 to the proposal unless they get their questions
9 answered.

10 However, I just pose to you, because this is a
11 formal meeting where you're getting comments, is there
12 any legal requirement that the department must present
13 remedial action overview? I don't know.

14 MS. TSUJI: We don't have to do the overview,
15 but we feel it's important to cover some clarifying
16 information as it relates to the RAP itself.

17 MR. CLOGG: My name is Mitch Clogg. What part
18 of these options that you've named for us are available
19 to us online if we wanted to do it that way?

20 MS. TSUJI: We can post both presentations
21 online.

22 MR. BORRAS: My name is Rafael Borrás. It
23 would be nice if -- Many of the questions have been,
24 over the course of the initial two meetings and the last
25 meeting, already been asked. They're posted there.

1 We're yet to get any answers.

2 If you're going to do a brief evaluation or
3 presentation, you should also include the questions
4 pertinent to those, to that part of the presentation and
5 your answers relating to the community concerned.

6 MS. TSUJI: Because we are in a comment period,
7 comments that relate to the actual decision making, we
8 cannot do until all the comments are received and the
9 department has an opportunity to evaluate those
10 comments, which may impact our final decision.

11 Right now the RAP has a proposed alternative
12 that is recommended, but it is through this process by
13 hearing from you and going back and evaluating the
14 evaluations that we did prior to or during the
15 development of the RAP as well as your comments, which
16 decision is the most appropriate for the department to
17 elect, to approve.

18 MS. SPARKS: Jody Sparks. I can understand
19 where you cannot respond to a comment, but what Rafael
20 was saying is we've raised a number of questions. So I
21 think what we would like to have is a response to the
22 questions. We understand that the comments will come
23 with the response to comments.

24 MS. TSUJI: I will work with you and signal to
25 to the staff when I believe it is an appropriate

1 question to answer, but if it does directly relate to
2 our decision making, I ask you respectfully to
3 understand that, as a part of the decision-making
4 process, the team can't answer some questions. So with
5 that understanding --

6 MS. SPARKS: Why don't we take an example?

7 MS. TSUJI: Oh, it's kind of like don't pick
8 the cap; pick something else. I can't answer that kind
9 of question because it's based on your comments that the
10 department evaluates in conjunction with the engineering
11 and the science that went behind developing the draft
12 RAP.

13 MS. MARGARET PAUL: Margaret Paul. I have a
14 question. The same question came up about was the place
15 for the encapsulation totally adequately characterized.
16 Would you be able to answer a question like that?
17 That's purely a question.

18 MR. GILLERA: Yes.

19 MS. TSUJI: Yes.

20 Last question like this.

21 MR. WOLLENBERG: Skip Wollenberg. Does the
22 two-week extension, which we all appreciate very much,
23 also pertain to comments on the draft negative
24 declaration?

25 MS. KLEIN: Yes.

1 MS. TSUJI: Yes. The two-week extension covers
2 both the draft RAP and CEQA document out for public
3 review and comment.

4 With that, I'm going to turn it back over to
5 Joyce to kind of take a pole as to how you all want to
6 continue the meeting.

7 MS. WHITEN: Well, as Denise said, we can do
8 both. So the question is: Can I see the hands of the
9 folks that would like to go for the clarification on
10 issues dealing with previous meetings?

11 (Audience members raise hands.)

12 AUDIENCE MEMBER: Let's go. Let's do it.

13 MS. WHITEN: I think that's a majority. So
14 we're going to start with the intertidal/offshore
15 studies, with Ed or Buzz?

16 MR. GILLERA: We had originally structured this
17 meeting during our practice sessions, and it sort of
18 evolved to based on your vote tonight.

19 So I'm here just to introduce Buzz to talk
20 about the intertidal and offshore studies.

21 MR. CHERNOFF: I was enjoying the lovely
22 afternoon walking along the bluffs of the site, so I
23 missed the pre-meeting that told me that I was supposed
24 to just step right up. So here we are.

25 The list of concerns that you have put on the

1 table or the board from my perspective, this is the
2 first time I've seen them.

3 Luckily, many of the things that you put on the
4 board are what we perceived after the last meeting were
5 the issues, and so in our little presentations here,
6 we're going to be addressing many of the concerns that
7 you've listed on your board, and if we've missed them at
8 the end, be sure and bring them back up.

9 One of concerns that has been raised at the
10 last RAP meeting and an informational meeting before
11 that and an informational meeting before that was: Why
12 aren't you looking at the ocean? Why are you leaving
13 the ocean out?

14 The very academic answer is the ocean is not
15 part of the site. The site ends at the high-tide level,
16 which is somewhere halfway up the bluff, and therefore,
17 it is not the ocean, and the beach below the ocean is
18 not part of the site.

19 As has been pointed out rightly by many people,
20 just because the site ends there doesn't mean that the
21 bird that's flying over goes, "Oh, there's the site; oh,
22 no, I'm off the site," nor does the mammal that is
23 coming in and out, and so you really need to take into
24 consideration the ocean and the near-shore environment
25 as well as the site.

1 Since it is not part of the site, it's not part
2 of the official site, a different group of people are
3 involved in studies involving the ocean. Those include
4 the NOAA, the National Oceanic and Atmospheric
5 Administration; Department of Fish and Game, Department
6 of Toxic Substances Control, U.S. Fish and Wildlife
7 Service, and the U.S. EPA as well as DTSC.

8 We are already known as Natural Resources
9 trustees, and the Natural Resources trustees'
10 responsibilities are to make sure -- Let me get this
11 right.

12 MS. SCOTT: Buzz, while you're looking, could I
13 just ask, whoever's the school staff person, could the
14 refrigeration unit be turned off 'cause it's going to
15 make terrible recordings?

16 Thank you. Debra Scott.

17 MR. CHERNOFF: Thank you. The Natural
18 Resources trustees are those folks who are responsible
19 for the protection of the natural resources at the site,
20 and they include the folks I just mentioned.

21 There have been two studies to date that have
22 been conducted on the offsite portion of the ocean or
23 the near-shore.

24 The first of those studies was a mussel study
25 in which three samples were collected off of Soldier Bay

1 by the California Department of Fish and Game. They
2 were analyzed for dioxins and PCBs and metals.

3 The results of this study were posted on the
4 EnviroStor web site and are available to you, although I
5 see on your comments that people are having difficulty
6 with the EnviroStor web site.

7 AUDIENCE MEMBER: Yes.

8 MR. CHERNOFF: So that is one study that was
9 conducted, was the mussel study.

10 A second study that was conducted, this one was
11 conducted by the contractors, Arcadis and DBL, and it's
12 also posted on the EnviroStor web site, and that
13 involved the collection of seven intertidal locations,
14 and an intertidal location is defined as being between
15 the low- and the high-tide levels and three subtidal
16 locations which are below the screen mean water level,
17 or actually a few feet into the water in Soldier Bay,
18 and then metal, two metal samples from rocks at Glass
19 Beach One and Two.

20 The intertidal samples and the subtidal samples
21 were for sediment.

22 The sediment samples were analyzed for total
23 petroleum hydrocarbons, TPH; semi-volatile organic
24 compounds or SVOCs; polychlorinated biphenyl congeners,
25 PCBs; metals, dioxins and furans, grain size and total

1 organic content. The metal samples were only analyzed
2 for leachable metals.

3 So we have two studies that have been done on
4 the near-shore environment.

5 AUDIENCE MEMBER: When?

6 MR. CHERNOFF: Well, I think that the mussel
7 study was done -- Can somebody help me? In 2006, the
8 2005, 2006 range, and the sediment, Denise, do you know?

9 MS. TSUJI: I need to grow. If my memory
10 serves me correctly, the mussel samples were collected
11 by Fish and Game during their annual mussel-watch
12 sampling, and that was approximately April of '06, and
13 the offshore was done approximately October of '06.

14 AUDIENCE MEMBER: No.

15 MS. TSUJI: '07? Oh, wow. Time goes by so
16 fast.

17 MR. CHERNOFF: Is that right?

18 MR. GILLERA: The report came out March of this
19 year for the offshore tidal.

20 MR. CHERNOFF: Do you know when the sampling
21 was done?

22 MS. DeSHIELDS: Last summer.

23 MR. CHERNOFF: Last summer, okay. Does that
24 answer the question from that person?

25 Again, both of these studies can be accessed on

1 the EnviroStor Database.

2 MS. LUNA: So what was the conclusion?

3 MR. CHERNOFF: Could you tell me your name,
4 please?

5 MS. LUNA: My name is Andrea Luna.

6 MR. CHERNOFF: Let me continue 'cause I'm going
7 to answer that. Okay?

8 What's going to happen is in the next couple of
9 weeks, next few weeks, the Natural Resources trustees
10 are getting together to review the studies as a group,
11 both studies, and based upon that review, will decide
12 whether or not the sampling that has been conducted is
13 sufficient or whether further action is needed.

14 So to answer your question, no conclusions have
15 been drawn at time time. The trustees are getting
16 together, and that will be done in the next few weeks.

17 The second -- Can I just finish, please? Can I
18 finish, please?

19 AUDIENCE MEMBER: Yes.

20 MR. CHERNOFF: The second action that's going
21 to be taken is that the trustees are going to get
22 together with the Department of Toxic Substances Control
23 geologist and go over the water pathways from onsite out
24 into the ocean, and that's going to be evaluated, and
25 based on that review, the trustees are going to come out

1 with a report in the first part of May with their
2 conclusions on the studies and any recommendations that
3 may be needed.

4 MS. LUNA: My name is Andrea Luna. This is a
5 huge issue for those of us that live on the coast and
6 love our ocean and coastline.

7 So if only because there's no conclusion and
8 this hasn't been studied in depth, it would be reason
9 enough to extend the public comment period for a while
10 longer I would say.

11 MR. CHERNOFF: I believe that the public
12 comment period has been extended.

13 Please remember that this is not part of the
14 site. This is not --

15 MS. LUNA: But it's the same ecosystem. It's
16 the watershed. It's connected. I mean that's
17 ridiculous.

18 MR. CHERNOFF: As ridiculous as it may sound,
19 from the perspective of the DTSC, the site ends at the
20 high water tidal. I'm sorry about that. I don't know
21 how that decision was made, but that's the decision that
22 has been made, and so that's what we, when we evaluate
23 the coastal trail, it ends halfway up the bluff at the
24 high water mark.

25 If additional sampling, if it's determined that

1 additional sampling is needed and the recommendation of
2 the trustees is for further action, to the best of my
3 knowledge, further action will be conducted.

4 Is that correct?

5 MS. TSUJI: As you all may be aware, that this
6 cleanup that the department is supervising is as a
7 result of we what we would refer to as an enforcement
8 order directing Georgia-Pacific to do the site cleanup.

9 The definition as to the site is defined in the
10 order document describes the site going down to the mean
11 high tide.

12 Typically how the department approaches
13 cleanup, we follow the contamination. So we start out
14 at the site, and we just keep on finding until the
15 samples that the release is no longer there.

16 The information where we stop with mean high
17 tide, it has demonstrated it has ended there, but we
18 recognize mean high tide is kind of like up in the air,
19 and where you're all concerned with is down at the
20 actual where the water is and the sediments.

21 If this investigation and our evaluation
22 determines that the release, the impact from the site
23 has impacted the sediments in the water, we will
24 continue doing more investigation and determining what
25 appropriate action takes place.

1 I recognize from a common-sense standpoint that
2 makes absolutely no sense, but that is just the
3 regulatory and legal framework that I have to work in
4 right now.

5 If we find the contamination has moved, we
6 amend the order to include the new areas that we
7 discover, but I just can't decide that this area is
8 contaminated without some objective proof to the
9 sampling.

10 Can I ask, if you want to ask questions, if you
11 can come up, get up and line up on the side to make it
12 manageable for us?

13 Thank you.

14 MS. MAZUR: My name is Thais Mazur. Do you
15 want me to spell that for you?

16 THE REPORTER: I've got it from before. Thank
17 you.

18 MS. MAZUR: You've got it?

19 THE REPORTER: Yes.

20 MS. MAZUR: Are you the same person from
21 before?

22 THE REPORTER: Yes.

23 MS. MAZUR: Good.

24 THE REPORTER: Thank you.

25 MS. MAZUR: I don't have to spell it again in

1 public.

2 Here is a few things I'd like to ask. One I
3 want to know is how deep are the samples that were taken
4 so far. Will you please answer that?

5 I'd also like to ask that this information that
6 NOAA, and I know they're going to review things. I've
7 talked to Denise Klimas today, that we the public, I
8 think we need time to be able to review those so we can
9 then make comments on the comments presented by NOAA.
10 Is that going to fall within the time limit, you know,
11 the extension time for public comment?

12 The other thing is that North Coast Action
13 years ago gave the Regional Water Quality Control Board
14 a list of responses by past Georgia-Pacific employees
15 that talked about dumping into the ocean, trenches
16 having solvents running down these cement pipes into
17 ocean, these cement trenches and pipes.

18 We have a lot of anecdotal information, and
19 then once DTSC got onboard, we had you guys over to our
20 house for tea, and we told all those stories and gave
21 you a map accordingly.

22 Then an anonymous line was set up. Ryan Miya,
23 the other project manager prior to Ed Gillera, said he
24 was getting a lot of calls about dumping into the ocean.
25 I would think that could be taken into account.

1 It is no secret in this community that
2 Georgia-Pacific continually dumped into the ocean. So
3 although it must be objective, and I understand that
4 scientifically, there is a tremendous amount of
5 information that has come forth from the public that I
6 think would be a great way to begin and to continue with
7 the investigation, and if you want, I have those files,
8 and I'm more than happy to give them to you again.

9 Thank you.

10 MR. GILLERA: Thank you, Thais. I can answer
11 your first two questions. The sediment samples were
12 collected from zero to six inches below sediment
13 surface, and where possible, results were collected from
14 six inches up to thirty feet below sediment surface.

15 To your second question, we don't offer the
16 sediment report for public comment. That report is
17 available on EnviroStor, and if those who look at that
18 feel that there are deficiencies to that report, you
19 could certainly contact me, and I could look at your
20 comment and somehow see if that can be incorporated in
21 what I submit.

22 MS. WHITEN: Next, please.

23 MR. CHERNOFF: I think, Thais, we've answered
24 two of your questions, but there was more, and one of
25 them was the meeting and map and the history of that

1 meeting.

2 I was not a party to your tea unfortunately.
3 That was before I was on the project, so I don't know.

4 I've heard about the trenches. I've asked if
5 anybody had maps, and I was told there weren't any maps,
6 so I need to -- Could I hand this to you? Who was at
7 that meeting?

8 MS. TSUJI: (indicating).

9 MR. CHERNOFF: Okay, Denise.

10 MS. TSUJI: We do have the maps. They are in
11 our offices. They're in what we commonly call our G.P.
12 annex since we've taken over the whole cubicle with our
13 binders and everything, so they are there. So we will,
14 as part of the Resources Agency, we'll include all that,
15 and that was part of what the intent was in sitting down
16 with the Resources Agency, was to really take a look at
17 what over time is known about the area of interest.

18 MR. GURNEY: My name is David Gurney, and I
19 used to dive for sea urchins, and years ago, probably
20 about fifteen years ago, we dove off Soldier's Point
21 there for sea surchins, and the ones we grabbed up, we
22 couldn't even eat they tasted so bad.

23 Now, I'm not sure if that's from the water
24 treatment plant or from other toxins or whatever, but my
25 question is, I was confused because you said that Fish

1 and Game collected samples of mussels for this mussel
2 study and that they'd come to some conclusion, and it's
3 been published on your web site or whatever, but the
4 conclusions were still not conclusive. My question is:
5 What are the conclusions? Were there dioxins in the
6 mussels?

7 MR. CHERNOFF: As I recall, there was not the
8 TCDD, which is the form that has the high toxicity.

9 MR. GURNEY: So are those safe, regarded as
10 safe levels for human consumption in the Health and
11 Safety Code?

12 MR. CHERNOFF: Yes.

13 MR. GURNEY: They are?

14 MR. CHERNOFF: Yes. The way that the study was
15 reported is it just simply gives the sample methodology,
16 and it gives the data. There's no, it's not a report in
17 terms of having a discussion and a commentary and all
18 that, and that's one of the things that Natural
19 Resources trustees want to do, is to take that data and
20 put it into some sort of form that's understandable and
21 then try and see if there's any correlation between
22 what's found in the mussel samples with what's found in
23 the sediment.

24 MR. GURNEY: It sounds like further certified
25 testing needs to be done. I mean it sounds like an

1 informal test that wasn't specifically designed for the
2 site that the Fish and Game conducted.

3 MR. CHERNOFF: I was not -- I hate to say this:
4 I wasn't involved in this at all. This was before I
5 came on the project.

6 My understanding was that Fish and Game had
7 some people up here who were doing work on the mussel
8 watch a little south of here, and they made the comment,
9 "While you're here, could you," but as well as Fish and
10 Game is capable of collecting mussels, it was done under
11 appropriate conditions I assume, and I do know that the
12 lab testing or the laboratory research was done by the
13 DTSC chem lab, and so I trust that as well.

14 MR. GURNEY: So you're saying the data hasn't
15 been analyzed?

16 MR. CHERNOFF: That's correct, yeah.

17 MR. GURNEY: Okay.

18 MR. CHERNOFF: It's the raw data from the web
19 site.

20 MR. GURNEY: Thank you.

21 MR. HAMANAKA: My name is Glenn Hamanaka. I'm
22 a student. H-a-m-a-n-a-k-a, Glenn with two n's.

23 I'm a student at C.R. of political science, and
24 I'm doing a grassroots' homework assignment, and I
25 thought I'd start one for real, and so I started

1 checking things out.

2 AUDIENCE MEMBER: Speak into the microphone.

3 AUDIENCE MEMBER: Yes, please.

4 MR. HAMANAKA: Okay. I started checking things
5 out, and basically the citizens of Fort Bragg, they want
6 this mess cleaned up, bottom line.

7 So I started like a little petition, and I got
8 swamped right away. So how many people do we need to,
9 you know, for signatures just to have G.P. clean up that
10 site?

11 AUDIENCE MEMBER: In the mic, please.

12 MR. HAMANAKA: How many people do we need for
13 signatures to get, you know, the G.P. site cleaned up so
14 we don't have a stigmatism of having a toxic waste site
15 here in Fort Bragg?

16 MS. TSUJI: The enforcement order that we had
17 issued mandates Georgia-Pacific to clean up the site.
18 So they're under legal obligation to report to the
19 department to get the site cleaned up.

20 MR. HAMANAKA: I'm talking to where we're happy
21 and it's not gonna hurt us economically and our future
22 kids don't have to clean it up.

23 MS. TSUJI: That is what the process is we're
24 in within the department. You know, we go out there and
25 take our samples, investigate, find out where it's

1 contaminated, and work to develop a cleanup plan such as
2 this RAP we're talking about, the two RAPs.

3 MR. HAMANAKA: How many signatures, though?

4 MS. TSUJI: It's not a signature issue. It is
5 through the form we're having tonight, the one that we
6 have tonight, and we receive your comments, and we
7 need to -- That's why we need to hear from you. This is
8 not, it's not like a recall election kind of thing.

9 You're welcome, if you want to submit your
10 petition as a collection of comments as to the generic
11 statement you have people sign toward, we'll gradually
12 receive that as your comment and consider the number of
13 signatures that you received in our thought process.

14 MR. HAMANAKA: Check the things out. Most
15 people just want it cleaned up and out of here
16 completely, literally.

17 So that's all I wanted to say.

18 MS. TSUJI: That is part of our decision
19 making, so I can't comment other than to thank you for
20 coming up here and sharing the signatures with us.

21 MR. GILLERA: Before we move on, I was told I
22 misspoke, and I just wanted to make it clear to you
23 folks and the court reporter that the sediment samples
24 were taken from six inches to three feet. I was told I
25 said thirty.

1 MR. CHERNOFF: Three feet in the subtidal zone?

2 MR. GILLERA: Yes, three feet in the subtidal
3 zone.

4 That's all.

5 MS. WHITEN: Thank you.

6 Next up?

7 MR. HERNANDEZ: My name is John Hernandez, and
8 the state knows my name pretty well, John Hernandez,
9 Leslie Scales, and the little boy who died in '97,
10 Mendocino County in Willits.

11 There was a cleanup going on there, and I'm
12 glad the people understand what's going on here 'cause
13 it's really important for the community to understand,
14 when they say cleanup, I've got to say you can't really
15 clean it up because the way to clean it up, it's just
16 hitting someplace else and dumping, and that's how my
17 son died, age of five.

18 I want to say something: On your list, it says
19 sixty parts per billion of chromium six. My kid died
20 twenty-nine parts per billion.

21 When they say heavy metals, what are heavy
22 metals? Heavy metals come from industrial waste.
23 That's what heavy metal is.

24 Chromium, and there's nuclear waste barium.
25 How are you gonna remove nuclear waste, which is barium,

1 to another location, another neighborhood, which it will
2 leach? That's what Willits did, and in return, my son
3 died. We were downstream, and they were dumping
4 illegally, and dumping illegally with the state, DDC,
5 the health department, the water board, everybody knew
6 what was going on for years, just like the site here,
7 but they never had a team of enforcement.

8 There's a new law that came out in '92, '95.
9 It's called Local Toxic Enforcement Agency. It's the
10 police department that's supposed to investigate, to
11 investigate the site besides the people here with the
12 DDC's control people, everybody involved, to find out
13 what's really going on.

14 Once you turn the site to a corporation, some
15 other person to do the cleanup, there's large evidence
16 all the time that there's never any overseers at all,
17 and that's how my son died, and I hate to tell you, you
18 shouldn't remove it. You should just build a gate
19 around it, plant some stuff and put some mushrooms in it
20 by cleaning it up, and removing it to another
21 neighborhood.

22 That's all I have to say.

23 MS. WHITEN: I just want to remind you that
24 we're dealing with intertidal/offshores studies. We're
25 still on that, but we've got four more to go.

1 MR. BORRAS: My name is Rafael Borrás,
2 B-o-r-r-a-s, and I'm part of the Mill Site Study Group.
3 My personal focus has been on the underground water and
4 things like that.

5 Before I go on, I'd like to pass on what I was
6 just informed, that a certain diver has gone -- This is
7 an old map, 1900s. It shows highlighted in yellow --
8 I'm sure it's very difficult for you to see.

9 AUDIENCE MEMBER: I can hold it up for you.

10 MR. BORRAS: Thank you. Highlighted in yellow
11 are crisscrossing creeks. This is 1900, circa 1900 more
12 or less, and it shows us we have little, little
13 crisscrossing in this area. This is where, this is
14 where the mill site is, between the Noya River and
15 Pudding Creek.

16 The Noya River kind of has an exposure that
17 enters into the area. There's a fresh water flow that
18 flows underground into the mill site, and many of the
19 original flows had been blocked or changed and put into
20 pipes or whatever, but really relevant is what Thais
21 just told me, that a diver, a diver entered under here,
22 and there's a waterfall of water coming out of this
23 area.

24 This area is alive. This area is alive with
25 water. It's flowing, and the idea of building I will

1 address, because it is the tidal zone that we're talking
2 about. The mussel study I think is a total false thing
3 because if you look at the, if you look at the satellite
4 photographs of these areas, you'll see a strong current
5 going north so that the pollution is not hanging around
6 Soldier's Bay. It's moving north, and this is the flow
7 of the water.

8 We have a major problem here, and this diver
9 went into this cave. There's a waterfall coming out.
10 None of these things have been researched to any extent.

11 The fact that we have so much pavement and the
12 this idea of paving over or capping over the possibility
13 eventually of nine acres close to Highway 1, close to
14 Fort Bragg, where is the fresh water going to re-enter
15 into the earth?

16 You know, it's also, the reason that they chose
17 the containment area was because it was above the water
18 table, but if you look all around you, that area flows
19 down on all sides into the town, into the area where
20 Chestnut and Maple seem to be lowest. There is a flow.
21 I don't think it matters. It's like putting a toxic
22 waste up on a mountain or a hill and expecting those
23 below it are not going to receive the effects of that.
24 I think we need to really study the hydrology of this
25 before we just gallop through it.

1 The fact that they're not responsible for the
2 tidal zone, but that poison is traversing that mill
3 site, so that responsibility is yours, and you need to
4 own it.

5 MR. CHERNOFF: Thank you, Rafael. Would it be
6 possible to get that map?

7 MR. BORRAS: It's in the Noyo book. I will
8 give you a smaller copy, or do you want this large copy?

9 MR. CHERNOFF: I drive a really small car.
10 Thank you.

11 AUDIENCE MEMBER: They want the big one, right?

12 MR. CHERNOFF: Rafael?

13 MR. BORRAS: Yes?

14 MR. CHERNOFF: Thank you for those comments.
15 My concern is that while anecdotal reports are
16 interesting, documentation of a report gets action. So
17 if someone has gone and has seen waterfalls under the
18 water or has other observations and they can document
19 that even by coming forward, then I think that the
20 department would then be able to go ahead if there was
21 sufficient evidence and have that further investigated,
22 but you just can't do it on anecdotal evidence. It
23 doesn't work.

24 So if you can provide -- I mean the map is
25 wonderful, and if you can provide the diving information

1 that you said, then I think that that's something --

2 MS. SPARKS: They'll be coming forward in just
3 a moment.

4 MR. CHERNOFF: Great. Thank you very much.
5 Did I answer that?

6 MR. BORRAS: No. You didn't really address the
7 crisscrossing creeks through the mill site and the fact
8 that it's on a --

9 MR. CHERNOFF: Excuse me, Rafael. Rafael, that
10 is specifically the reason that we're having the meeting
11 with the Natural trustees, Natural Resources trustees or
12 having the meeting with the Department of the Toxic
13 Substances Control's geologist who is responsible for
14 doing the hydrology to that site. That's exactly why
15 that meeting is listed on the slide as being done, so we
16 can go over that, those findings.

17 Now, the fact that you presented us with
18 another bit of evidence here, and here she is. She's
19 looking at it already. That will be taken into
20 consideration, and thank you very much.

21 MR. MALONEY: Hello, hello. My name is as John
22 Maloney. I speak as a member of what's probably the
23 largest, certainly the most disorganized group around
24 here, that is ex-millworkers.

25 I'd like to ask a question: Where did the idea

1 that the high tide line is halfway up the bluffs? If
2 that was true, there wouldn't be any fish going down
3 Noyo, but that is another question. Maybe that will be
4 answered sometime.

5 We are forgetting here that all this is under
6 the supervision of G.P. Right? And some help from the
7 other people.

8 Well, G.P. works like this: When I started, I
9 worked in the mill from '76 to '81, and I pulled lumber,
10 and I worked in the powerhouse for four years, which is
11 very close to the ocean.

12 When I began working in the powerhouse, there
13 was this old guy you would see going all over, all over
14 the mill. He carried an oil can, and he carried a
15 grease gun, and he put a little oil here, greased these
16 bearings there, and he was all over the mill.

17 After my first year or so, he retired. Did
18 they replace him? No, no. I mean how much did they pay
19 him? I don't know. Maybe he was laborer's pay, maybe a
20 little higher than that, but no, they didn't replace
21 him. They figured it was cheaper, and that's what
22 they're interested in, cheaper. They did not replace
23 him.

24 So when something did run out of oil, a bearing
25 burned out, anything, just whatever it was came to a

1 halt, which caused that to come to a halt, that, that,
2 and so on and so on, and then they put twenty people
3 working on that: "Get that thing running now."

4 This is way G.P. thinks, and like G.P. always
5 talked about, the bottom line. Take the "n" out of that
6 word. It's the bottom lie.

7 MS. WHITEN: Thank you.

8 MR. HOYLE: Hi. My name is Derek Hoyle, and
9 I'm a cave explorer. I'm the person that was supposedly
10 a diver. I'm a cave explorer, and I've been exploring
11 and diving in caves on the Mendocino coast for sixteen
12 years. I'm a member of the National Speleological
13 Society. We're affiliated with the National Science
14 Foundation, and I'm a long-time cave explorer.

15 On Sunday, I decided to explore one of the
16 caves on the mill property. After mentioning the caves
17 in a City Council meeting, and it fell upon deaf ears,
18 caves are often a conduit for groundwater to enter the
19 ecosystem invisibly.

20 What I discovered in this cave, and I have
21 photographic evidence 'cause I shot photos, is an
22 extensive cave system. If you are on Todd's Point, at
23 the end of Todd's Point and you look across, you can see
24 some cave entrances, and they don't connect. This cave
25 has five entrances, and there's considerable groundwater

1 coming into it.

2 I'd like these back, please.

3 Now, there's more than just one cave on the
4 property, and I don't understand why they're being
5 ignored. They are conduits for water to enter the
6 ecosystem invisibly.

7 If you look at the mill property, it's dry
8 except for the water that is in ponds, and this cave
9 gets you soaking wet when you come fifteen or twenty
10 feet into the entrance, so the water is flowing in.

11 Many of the sea caves along the coast do have
12 sea life in them. This is common knowledge for anybody
13 that explores caves.

14 One of the things I noticed about this cave was
15 there wasn't as much sea life as in all the caves I've
16 explored and mapped south towards Mendocino. Those are
17 just rampant with life. It's amazing. This cave didn't
18 have as much life.

19 Granted, sea caves are dynamic environments, so
20 so you probably don't have a lot of life, but there are
21 little areas. There's a particular area in the
22 photograph where there should be sea urchans and stars
23 and bat stars, and there's nothing, and I don't
24 understand that.

25 Also at the entrance to this cave, in one of

1 the first photographs, you can see where G.P. has filled
2 in a ravine of former drainage. They filled it in with
3 slag which is actually down at the waterline. I don't
4 know if there's toxins in the slag, but it's definitely
5 there.

6 There's timbers. There's iron parts, rails
7 coming out of it. You can see, when you get to that
8 photograph, the algae that's coming out that has contact
9 with the bedrock is stained orange most likely from the
10 iron that's buried there from the bluff top, and you
11 cannot tell that this exists. It just looks like part
12 of the bluff top.

13 Also, to the south of this cave, there's a
14 giant litoris sinkhole which is just a big hole in the
15 ground with an entrance to the ocean. There's metal
16 debris in the bottom of that that you would not believe.
17 That was probably that hole that they were talking about
18 where they dumped stuff into.

19 MR. BORRAS: Could you point it out on a map?

20 MR. HOYLE: Absolutely.

21 MR. BORRAS: Where the caves are.

22 MR. HOYLE: That is the litoris sinkhole that I
23 was referring to, and the cave is at this point. You
24 can see an entrance here from Todd's Point, an entrance
25 here, and so there's these two entrances here, a smaller

1 one here, one here, and there's one back where the algae
2 is in this little drain.

3 AUDIENCE MEMBER: Can someone hold that map up
4 so we can all see it?

5 MR. HOYLE: Yes. I'm a little nervous. I
6 haven't talked in front of a crowd for a long time.

7 The other thing I want to point out, I was so
8 excited finding this cave. We went in the evening. It
9 was a minus tide or a low tide so it would be easier to
10 get to.

11 By the way, I don't recommend anybody going
12 into this cave. It's quite dangerous to get there. You
13 need to do rock climbing and such, and I've been doing
14 this for a long time, so trust me.

15 I didn't shower that evening, I was so excited.
16 I just went to bed.

17 When I got up in the morning, I went outside,
18 and as soon as the sun hit my skin, it started burning
19 in the area of my head where I got wet. Now, okay.
20 This could just be a coincidence, but I had red welts,
21 and I immediately went inside and showered.

22 So I am concerned that contaminants could be
23 entering into the ecosystems through the caves. There
24 are caves here, and there are caves here that I have not
25 been into, and I also know that there are caves in this

1 area along here.

2 There's not much in the way of caves along here
3 because it's so fractured because there was apparently
4 no drainage, and it doesn't support cave development,
5 but certainly there's certainly caves along here.

6 They all should be looked into because we don't
7 know where the water is coming from. I mean you get
8 showered. You need an umbrella when you stand in this
9 thing. That's how much water there is entering into
10 that cave.

11 MS. SPARKS: Excuse me.

12 MR. HOYLE: Yes?

13 MS. SPARKS: Could you show the department
14 geologist where the other caves are that you have not
15 explored?

16 MR. HOYLE: And I'd love to explore them by the
17 way.

18 This is where the litoris sinkhole is. This is
19 where it was photographed. You can see caves in this
20 area along here, and I believe in this case, you can see
21 a surge channel where the roof has collapsed in the
22 cave, and there's probably a room in this area here
23 that's intercepted the passing, and there's also caves
24 -- I don't know the exact location, but along this area
25 there's caves also.

1 Thank you.

2 MS. DALRYMPLE: Would you show me the location
3 of the cave where you started coming in?

4 MR. HOYLE: (indicating).

5 MS. DALRYMPLE: Is that the only one?

6 MR. HOYLE: That's the only cave I've been to.
7 I'll go back and take water samples, whatever you need.

8 MS. DALRYMPLE: Okay. Thank you.

9 MR. CHERNOFF: Derek, Derek.

10 MR. HOYLE: Yes?

11 MR. CHERNOFF: Thank you very much for bringing
12 that information, and thank you for bringing in
13 photographs to document because I think that having that
14 information, I will certainly be taking that to the
15 meetings with the Natural Resource trustees, and I think
16 that will generate great interest. So thank you very
17 much. I appreciate it.

18 MR. HOYLE: You're welcome.

19 MS. SHEPARD: Lenora Shepard, Parents for
20 Healthy Communities.

21 I'd like to thank you the DTSC for this
22 additional meeting and also the extension on the public
23 comment period.

24 We did talk at one of the earlier workshops
25 about the maps, and we asked at the earlier workshop

1 that the map showed the town because this is too
2 abstract for us. I've lived here twenty-five years, and
3 I can't understand where anything is or where the
4 streets are, and this is going to be our town. This is
5 all slated for redevelopment, and so it's very
6 important that the maps show where things are,
7 especially if you're talking about capping an area.

8 Secondly, with regards to the reports from NOAA
9 with the sediment, I understand that Denise is going to
10 meet with the geologist on the 18th.

11 MR. GILLERA: It's Denise Klimas.

12 MS. SHEPARD: Yes, I know.

13 MR. GILLERA: Not Denise Tsuji.

14 MS. SHEPARD: Yes. Denise Klimas of NOAA is
15 meeting with the trustees on the 18th, and then the
16 final determination of whether more testing needs to be
17 happening, it will be on the 25th?

18 MR. CHERNOFF: No. I hesitate to give the
19 exact dates, Lenora, because we haven't gotten
20 confirmation from everybody at this time that there is
21 going to be -- There will be a meeting. The first
22 meeting will be between the Natural Resource trustees
23 and Denise Klimas who has been referred to by a few
24 people tonight, and she is the representative from NOAA.

25 There are also representatives from -- As I

1 mentioned earlier, the Department of Fish and Game has
2 representatives. Fish and Wildlife Service and the U.S.
3 EPA had representatives, who happens to be the same
4 person, the Fish and Wildlife Service and the EPA.

5 Those people are going to be getting together
6 to discuss the sampling study and the mussel data.

7 Then a few days later, they're scheduled to
8 meet with DTSC, and Michelle will be one of the people
9 in the DTSC who will be there to discuss the water flow.

10 After that meeting, we'll then be charged with
11 going back and writing a report within a couple of weeks
12 and having that submitted to DTSC, in the form of Ed, in
13 the first part of May.

14 MS. SHEPARD: Right.

15 MR. CHERNOFF: So that's the process that's in
16 place right now.

17 MS. SHEPARD: I understand. My concern also is
18 that as the public who is supposed to comment on these,
19 we won't have information before the public comment
20 period runs out, and I know it's not officially part of
21 the site but --

22 MR. CHERNOFF: That's correct. Well, when is
23 the public comment period -- Hold on. Maybe Denise can
24 answer that.

25 MS. TSUJI: The comment period for the RAPs has

1 been extended to April 28th.

2 The DTSC process, out of the lack of any other
3 terminology, is that the cleanup document is presented
4 to the public for comment. In the regulatory structure,
5 there is no actual other comment interaction with the
6 community.

7 However, what the department has done, and it's
8 very unusual that we've done it, and for this site in
9 particular, because of the interest, we have posted all
10 documents as we receive it.

11 Typically, we do not post a draft document the
12 first day it arrives to the department until we've
13 reviewed, commented and are ready to approve the
14 document. So you guys are real lucky in the context
15 that we hear you loud and clear, and we're posting those
16 draft documents even before we start reviewing it.

17 So there's nothing precluding any of you to
18 contact Ed, myself or any of the team members here if
19 you see a document posted and you want to ask questions
20 or you want to share your insight to what's being
21 presented in the draft report, in the draft anything,
22 because believe me, these guys are on the phone all the
23 time, and they're talking to each other, and we
24 appreciate you guys, you know, sharing.

25 You know, we want to come up here more often,

1 but each of these folks have probably thirty to forty
2 projects that they're responsible for, and I am very,
3 very luckily that this team is dedicating their time,
4 and a lot of times they take stuff home to get me, you
5 know, when I'm, "I need it yesterday; get it to me now,"
6 and they just pull through.

7 So they're resources, and I wish I could just
8 get more people from the program to work on it, but this
9 is all that they'll give me, and this is pretty
10 luxurious for me to have who have I here.

11 MR. GILLERA: Lenora, I just wanted to ask if
12 you think that what Thais is standing next to and this
13 one also is sufficient to post for your request?

14 MS. SHEPARD: Well, no, because it's hard to
15 see everything.

16 MS. SCOTT: Could you stand by the microphone?

17 MR. GILLERA: No, no, I mean to be included in
18 the document.

19 MS. SHEPARD: That would be helpful, yes, yes,
20 and the streets.

21 MR. GILLERA: Okay.

22 MS. SCALES: Hi. My name is Leslie Scales.
23 This is a good time to give my concerns with the samples
24 for the background metals. These seem really high to
25 me.

1 The chromium, sixty, that's still over the
2 state standard of fifty unless it's been revised lately.
3 I haven't checked into that, and barium, three ten, one
4 hundred, and copper is pretty high, and lead.

5 I know that this mill site must have had the
6 green-treated wood, which is chromated copper arsenic,
7 and chromium is really toxic.

8 I don't know if you people know, but you're
9 mostly talking about dioxins, but my son is the one who
10 died. Forty-nine parts of chromium is what we found in
11 his vomit six months later. Okay? So to me, fifty
12 parts is not even safe, and sixty is not background.
13 These are not -- I would not believe that these are true
14 levels for background concentrations.

15 So I would just also urge people to keep it on
16 the site. Don't move the stuff around.

17 A couple of other things I've heard is horse
18 maneuver, because of their stomach acids, can break
19 toxins down; maybe eucalyptus trees, maybe the micro
20 remediation, but don't move the stuff around.

21 Thank you.

22 MS. WHITEN: Thank you.

23 MS. KLEIN: Hi. I'm Kimi Klein, and I'm a
24 human health toxicologist.

25 I just want to clarify one point, and that is

1 at this mill, they only milled redwood. There was
2 never was -- Well, there was a very brief period of time
3 where there were preservatives used, but for the major
4 length of time that this mill ran, there were no
5 preservatives, wood preservatives used, and there's no
6 evidence that chromated material was utilized as wood
7 preservative.

8 MR. HERNANDEZ: It's on your list right here.
9 Would you like to see this list?

10 MS. KLEIN: Yes, there is some chromium six
11 that has been detected on the site, but we suspect that
12 it's actually from the fungicide used to keep the smoke
13 stack clear.

14 MR. HERNANDEZ: It states right here. I hate
15 to break it up, but it states right here. It states
16 that there is sixty parts right there, Fort Bragg, no
17 place else. So there is a little --

18 MS. KLEIN: There is chromium present in our
19 soils. This chromium that's on this list is total
20 chromium.

21 The toxic form of chromium that was mentioned
22 by the commentor is hexavalent chromium. That is to
23 say, it's a different form of chromium, and it is very
24 toxic, but the chromium that we have found here is total
25 chromium, most of it, in trivalent form.

1 As I said, we did find some chromium in the
2 hexavalent form, but it's very, very low levels.

3 MR. HERNANDEZ: Okay, ma'am. There's a --

4 MS. WHITEN: Sir, could I ask you to wait so
5 that you can talk with Kimi afterwards so that we can
6 kind of move on?

7 Right now, this is just a reminder, that we're
8 only here until ten, and we have four more sections that
9 we need to get through 'cause we're sure you all want to
10 comment on the others. We're right now still on the
11 intertidal and offshore. So if you all can keep that in
12 mind that we're only here until ten, we'd appreciate it.

13 MS. SPARKS: My name is Jody Sparks, and I'm
14 the president of the Toxics Assistentment Group. That's an
15 consulting firm.

16 We live down the coast, and my husband and I
17 decided that we would work on this project pro bono for
18 the community. I've been involved for a couple of
19 years.

20 I have two questions. One of them is specific
21 to the intertidal issue and clarification from Ed.

22 The other one is more of a general question,
23 but I really believe it needs to be stated, and several
24 people in the community have mentioned this to me, and
25 I'm gonna go ahead and state it.

1 Ed, given what the gentleman showed, the diver,
2 and the concept that these caves go far back in, could
3 you show us where the proposed land treatment and where
4 the proposed landfill for the dioxin waste will be on
5 that map?

6 MR. GILLERA: Sure. The land treatment area
7 has been in this general area.

8 MS. SPARKS: Okay.

9 MR. GILLERA: And the proposed cap location is
10 this area right here. There's a blue box, but the lines
11 are very faint, and you probably don't see it from where
12 you're sitting, but if you could come up later on in the
13 presentation, you could clearly see it here on this
14 format.

15 MS. SPARKS: And the cave?

16 MR. GILLERA: The cave, from what I heard, the
17 cave, the sinkhole was in this area, and from Todd's
18 Point, you could see a couple of cave entrances, but I
19 was not aware of the network of caves that this
20 gentleman pointed out.

21 MS. SPARKS: Okay. Now I'm going to make a
22 general comment, and I know it's out of sync.

23 On behalf of the community, I requested a
24 thirty-day extension for the comment period, and we were
25 granted a twenty-day extension.

1 The problem that I have is, even as a
2 consultant, for the first time Thais had asked for a
3 tour of the site in January. I then again asked this
4 last week. As a consultant, and there's a geologist
5 that works with us, too, it's very difficult to make
6 comments if they won't give us access to the site to
7 look at it.

8 With this new information, I have to say that a
9 two-two-week comment period is unfortunately not
10 sufficient. MR. GILLERA: We are working with
11 Georgia-Pacific on getting the folks who have requested
12 to come onsite. There is a safety issue considering the
13 site, and there's certain training that needs to be
14 considered before we could let certain people on. It's
15 just a safety issue at this point, but we are talking to
16 them to see if we can get you on the site as soon as
17 possible.

18 MS. WHITEN: Thais?

19 MS. MAZUR: Thais Mazur.

20 I want to comment on something you said about
21 about anecdotal information.

22 Five years ago, I had several past
23 Georgia-Pacific employees come up to me on the street
24 and other places and start telling me their stories, and
25 I did not feel comfortable holding that information, and

1 I said, "Why don't you come forward to the Regional
2 Water Quality Control Board or the City Council?" and
3 they said, "We can't. We're being threatened."

4 We talked to someone who works in the field
5 that you're in, and he suggested that we put an ad in
6 paper, and we did. North Coast Action put an ad in the
7 newspaper asking people to come forward and tell their
8 stories.

9 We collected that information, and we made a
10 map, and the reason people are not here this evening,
11 and excuse me if there are some, but the ones that told
12 us those stories, is because they were threatened; their
13 families were threatened, and they're still being
14 threatened.

15 So it's not just some anecdotal information that
16 you need science-based facts. People cannot come
17 forward because their lives are threatened, and again, I
18 don't think that's a secret in this community, that the
19 mill workers have not been able to come forward,
20 although DTSC, to your credit, set up an anonymous line,
21 and I know from Ryan, there were a lot of phone calls,
22 and they were able to call in without giving their name.

23 This I think must be taken into account,
24 especially regarding the intertidal zone. So I hope
25 that the anecdotal information doesn't just get brushed

1 under the rug. It's anecdotal for a reason.

2 Thank you.

3 MR. CHERNOFF: Thank you, Thais.

4 First, we've been talking intertidal kind of
5 for the last little while, and there are three other
6 topics or four other topics to cover, and I am wondering
7 if you would be willing at this point to move from the
8 near-shore studies to the next item which is, I think,
9 risk assessment.

10 AUDIENCE MEMBER: No.

11 AUDIENCE MEMBER: We're not willing to.

12 MR. CHERNOFF: You're not willing to, okay.

13 MS. SCOTT: Debra Scott.

14 I want to thank you all for coming once again
15 and for truly listening.

16 I would propose that the fact that we can't get
17 through the first item in this time, even though I
18 understand it's a big exception that you made this
19 two-week extension, that the two-week extension is
20 insufficient, especially given the information that has
21 been presented tonight.

22 I think that the tidal sampling is extremely
23 insufficient. The things posted show that we have
24 questions.

25 I understand you're all very over-worked. I

1 can't imagine keeping your schedule, but there are way
2 too many questions.

3 You have had way too much integrity up to this
4 point to really use this methodology, and I just implore
5 you. We're an exceptional group of people. It's an
6 exceptional site. We need more public comment time.

7 I really encourage you, once you've gained the
8 information that more time would grant us, to really
9 consider changing the enforcement order to change the
10 parameters of what it is that you are investigating.

11 I also just want to make a note relative to the
12 comments about chromium, and this is going back to the
13 anecdotal information: All those who have been on the
14 ground, John who spoke earlier who, by the way, happens
15 to be blind, so it's nice to give him some cues, know
16 that there was an incredible importation of materials to
17 that site to be burned, to be strewed, to be buried. It
18 went on for years and years.

19 So to say that because they didn't generate
20 chromium-based materials on the site, that they were not
21 there, I think is pretty inaccurate.

22 And I thank you.

23 MS. MARGARET PAUL: Margaret Paul, Mill Site
24 Study Group member.

25 I had lunch with Carol Stevens, the former G.P.

1 executive vice-president of real estate, in December
2 with a member of North Coast Action, Loie Rosenkrants,
3 and she assured us at that time that there's a regular
4 set of protocols. Glen Young, Fugro West, DTSC
5 representative and others have been on the site
6 following this protocol for years.

7 Now, we, a group of citizens, geologists, Jody,
8 a toxicologist, and others want to firsthand see what
9 it is that we're commenting about, and so far we have
10 been stonewalled. We really want to get onsite and get
11 onsite soon.

12 Deadlines are coming up. Decisions are going
13 to be made, and on what basis? Inadequate community
14 participation because of lack of knowledge, firsthand
15 knowledge.

16 Another thing, in December, I started asking
17 the question: Why would something so counterintuitive
18 as taking samples onsite, background samples, for a
19 study of what's there, why is that the case? Why not
20 offsite samples to use as background samples? The
21 woman's comment about her son dying and the high level
22 of chromium just brought that to mind.

23 I still don't have an answer. Every time I ask
24 DTSC representatives, they tell me, "We're still
25 negotiating it with G.P."

1 I think it's flawed, and I really want to see
2 offsite samples being used as background samples and a
3 much more objective scientific investigation.

4 Thank you.

5 MS. WHITEN: Thank you all for the comments on
6 the intertidal zone, and we definitely, and I'm sure you
7 do, thank Stephanie, the court reporter, who is getting
8 this all down so that we can use it.

9 We want to now move on to risk evaluation. If
10 we can complete that by nine o'clock, then we can go on
11 to the site-wide characterization, bioremediation, and
12 at least get your comments on that before ten.

13 So right now we need to go to the risk
14 evaluation.

15 Kimi?

16 MS. KLEIN: First of all, before I start, if
17 you haven't seen it, I did bring two sets of fact
18 sheets, one from the World Health Organization and one
19 that's a list of questions and answers about dioxins
20 that was compiled by the U.S. department of everybody.
21 So I encourage you to get these handouts.

22 I found these handouts very interesting and
23 very informative, and much of what I'm going to say, you
24 will also find in these handouts. Okay?

25 Now, the first slide, those of you who have

1 been to our previous meetings will have seen this slide
2 because this slide actually represents the elements of
3 risk assessment, and I want to go through that just
4 briefly with you before I get into talking about
5 dioxins.

6 I guess I'm not supposed to look at this. This
7 first part of risk assessment is called park assessment,
8 and for the purpose of tonight's meeting, this
9 represents the coastal trail and the parkland.

10 The second part of risk assessment is this
11 exposure assessment portion, and in this portion, we
12 look at the amounts of the -- We look at the
13 environmental media; that is air, water, soil, for the
14 purposes of our investigation, and then we determine how
15 much there is in those media and how they might move
16 through the air or through the water or otherwise, how
17 they might be dispersed and how they might be degraded.

18 Finally, we look at how humans might be exposed
19 to those chemicals that we found in air, water and soil.

20 Now, you can sort of pick out degradation with
21 respect to dioxins because, as we will discuss further,
22 they do not degrade easily in the environment.

23 The third part of risk assessment is toxicity
24 assessment, and here you can see in this simple graph,
25 that is the risk on this axis and the dose on this. So

1 the higher the dose, the greater the risk. I think
2 that's pretty obvious.

3 So with respect to toxicity assessment, there's
4 for us two important just general health effects. What
5 we're most interested in is how much exposure to
6 specific chemicals might cause cancer, might cause the
7 risks, what might cause your risk to get cancer from
8 exposure to that chemical to increase.

9 The other primary health effects that we're
10 interested in are all of the other health effects that
11 are not cancer, but as a general rule, this applies,
12 that the more or the higher the dose, the greater the
13 hazard or the greater the risk.

14 Then we take the toxicity assessment, that is
15 the knowledge that we have about a chemical, how much of
16 that chemical is present in the environment, and we put
17 it together, and we try to characterize what the risk is
18 from the chemical that we have found in the site.

19 So going to the next slide, there are a lot of
20 chemicals at this site, but really the chemicals that
21 give the greatest concern to us are the dioxins.

22 For dioxins themselves, there are more than two
23 hundred forms of dioxins, but there are other kinds of
24 chemicals in the environment which are very similar to
25 dioxins, and that is specifically furans and some

1 polychlorinated biphenyls or PCBs.

2 What we're most interested in is the dioxins
3 and furans, and if you look at all of the forms of
4 dioxins or dioxin-like chemicals, there are more than
5 four-hundred forms that we could find in the
6 environment.

7 Then the question is: Well, how are they
8 formed? For the most part, they are formed by
9 combustion: forest fires, burning waste in your
10 backyard, burning wood in your fireplace.

11 Then once they're formed, what happens to them?
12 Well, this is really the unfortunate part because they
13 do not dissolve in water. They do not evaporate in air.
14 They're not easily degraded in the environment, but what
15 they do is they attach to soil particles, and through
16 dust, they migrate through the air on these particles,
17 or they can migrate through the water as sediment. So
18 basically, that's the story of how dioxins live in the
19 environment.

20 So the next slide, which doesn't show up very
21 well, and I apologize for that, but this is the basic
22 structure of a dioxin.

23 The little green dots here are carbon atoms.
24 These are oxygen atoms, the red ones, and the yellow
25 ones are chlorine. So this is what the structure is of

1 PCDD, and that is the most toxic form of dioxin.

2 However, the reason why we have so many
3 different forms of dioxin is because in this particular
4 slide, you see that there are four chlorine, but there
5 could be five chlorine, six, seven, eight. So there
6 could be a chlorine at this position, this position,
7 this position here, here, here, here, here and here, and
8 it's that combination that causes so many different
9 forms.

10 So I'm spending a little bit of time on this
11 because we're going to talk a little bit more about how
12 dioxins cause their havoc in the human body and to kind
13 of keep in mind what a dioxin molecule looks like.

14 Now, as a point of information, although that
15 is the most -- Let's go back for just a minute. This is
16 the most toxic dioxin that we know of.

17 Most of the dioxins that we have found at G.P.
18 and most of the dioxin which we find, in fact, in the
19 environment have not four chlorines but eight chlorines.
20 In other words, this molecule is just blissling with
21 chlorine here, here, here, here, here, here, here, here.

22 So there's this chlorine all over the outside
23 of this molecule, and it's that form of dioxin, or OCDD,
24 which is what we have, that we find most frequently at
25 the Georgia-Pacific Mill and, in fact, in the

1 environment.

2 Now, how are humans exposed to dioxins?

3 Unfortunately or fortunately, depending on how you look
4 at it, all of us have some dioxins in our body. That's
5 a fact of life.

6 And how does it get there? Well, most of it
7 gets here because most of our, more than ninety percent,
8 the U.S. EPA estimates ninety-five percent of our
9 exposure to dioxins is through the ingestion of food
10 products and through meat and dairy products, so lamb,
11 beef, chicken.

12 Actually, in the World Health Organization fact
13 sheet, there's a couple of very interesting dioxin
14 contamination instances that the World Health
15 Organization has actually investigated as to how dioxins
16 got into our food supply; usually through animal feed,
17 commercial animal feed, and that is mostly how we have
18 gotten dioxins into our bodies.

19 Now, other than this ingestion of food
20 products, there is some exposure through skin and some
21 through inhalation, but it's extremely small, and a
22 slightly larger exposure through the accidental
23 ingestion of soil that might be contaminated with
24 dioxins.

25 Now, this slide is deliberately short. I

1 talked I believe to you that actually, dioxin is
2 responsible or thought to be responsible for a very
3 large array of health effects.

4 First of all, there's evidence, very good
5 evidence that cancer is caused by exposure to dioxin in
6 laboratory animals. There is some evidence that
7 exposure to dioxin causes cancer in humans as well.
8 There's a whole variety of noncancer effects. I just
9 put up as a consequence of chronic exposure -- I'm not
10 talking acute, one-time-only exposure, but as a
11 consequence of chronic exposure to dioxins, there have
12 been cases of immune depression and developmental
13 changes.

14 Again, if you would look at the World Health
15 Organization's fact sheet, it lists some of the more
16 important health effects.

17 I don't know how many of you remember Victor
18 Yushchenko. He was president of the Ukraine, and he was
19 poisoned with very high levels of dioxin, and he
20 developed core acne, which is a well-known consequence
21 of high exposure to dioxins.

22 I wanted to kind of talk to you a little bit
23 about how dioxin wrecks its havoc in the body because I
24 told you before that I wanted you to kind of remember
25 what the structure of dioxin was.

1 Well, it turns out that most -- Well,
2 scientists believe that what happens when dioxin gets
3 inside your body, and if it can make it through your
4 natural defense mechanism -- In other words, the skin is
5 one of your defense mechanisms. The gastrointestinal
6 tract is one of your defense mechanisms, but if it can
7 get past that and if it can attach to a cell, any
8 cell --

9 All cells have a particular protein receptor.
10 It's called the A.H. receptor, and once it gets into --
11 The key is that dioxin has to have a certain structure.
12 If you can imagine, it has to fit just exactly on to
13 this protein receptor, but once it attaches to that
14 protein receptor and it enters the cells, then there are
15 a whole array of health effects that can result, but it
16 depends on what kind of cell it actually enters, but the
17 reason why we see such a wide range of effects is
18 because all cells have this receptor.

19 So just by chance, if a dioxin happens to get
20 past in your defense mechanism and it happens to hook on
21 to this particular receptor, then it can cause havoc.

22 However, it's only the TCDD that we know that
23 fits that receptor so well. In other words, the OCDD or
24 the one that has the eight chlorine brissling all
25 around, it has a much harder time hooking on to that

1 receptor. It kind of wants to hook on, but those
2 chlorines kind of keep it from hooking on.

3 So although we consider it toxic, it is
4 probably, I don't know, a thousand times less toxic we
5 think than the TCDD or the dioxin that has the four
6 chlorines.

7 I don't want to belabor that. I think I've
8 sort of gone through this.

9 AUDIENCE MEMBER: Could you just clarify? You
10 showed six chlorines, and you just said four.

11 MS. KLEIN: Well, no. It is four. Let's go
12 back to that.

13 It's one, two, three, four. This was the key
14 to show what color and what shape was being represented
15 in the structure as carbon chlorine or oxygen.

16 AUDIENCE MEMBER: Okay.

17 MS. KLEIN: It's just the TCDD means -- The "T"
18 means tetra for those who are fluent in Greek, meaning
19 four.

20 OCDD means octa, eight, and it's the octa form
21 that we find most frequently.

22 So going back to what is the toxicity of
23 dioxins, I think previous commentators have said that TCDD
24 is extremely toxic, and yes, it is extremely toxic,
25 considered extremely toxic.

1 That's why the levels that we are measuring and
2 that we are concerned about are measured in parts per
3 trillion, whereas all of the other chemicals and all of
4 the other compounds that we study and we establish safe
5 levels for are in the parts per million. That is to
6 say, for example, milligrams per kilogram for dioxins,
7 we're interested in nanograms per grams, but however you
8 say it, we're interested in very, very, very low
9 amounts, if you can imagine four parts per trillion, and
10 that's because it is very toxic, and we are concerned
11 over that it is toxic. So in other words, not very much
12 of the chemical can cause problems.

13 Someone else had mentioned that there is no
14 safe level of dioxin. In fact, that is our policy at
15 the U.S. EPA. Any chemical which we have identified as
16 a carcinogen, in fact, that is to say, it is our policy
17 to say for any chemical that causes cancer, that even a
18 very, very low, a very small amount of chemical carries
19 with it the risk of getting cancer.

20 So, you know, I think that's all I want to say
21 about that slide.

22 AUDIENCE MEMBER: What was the bottom one?

23 MS. KLEIN: Oh, excuse me. I'm sorry. The
24 third one was our dioxin equivalent, toxic equivalent.
25 You will see in the reports and probably in all of the

1 reports that come forward, that we are trying to report
2 dioxin concentrations in terms of dioxin TEQ, and what
3 TEQs are is a way of relating all those two hundred
4 forms, or at least the forms that we can measure, back
5 to TCDD.

6 That is to say, we have studied TCDD pretty
7 well, and we kind of know how toxic it is. We don't
8 know very much about OCDD or PCDD or, you know, all
9 these other forms, but if we find them, we want to
10 express the concentration of dioxin in terms of the most
11 toxic form.

12 So I said before that OCDD is less toxic than
13 TCDD, and in fact, the PDQ for OCDD is point zero zero
14 zero three.

15 So what we do is if we see OCDD at a certain
16 concentration, we multiply by this toxic equivalent, and
17 we get what we consider to be for us what OCDD is in
18 TCDD equivalent.

19 We know that it's much less toxic, but we don't
20 want to toss it away just because it's less toxic. So
21 we provide it; we try to give it, and we try to adjust
22 the concentration by this toxic equivalent.

23 MS. SCOTT: And the number for TCDD, please?

24 MS. KLEIN: TCDD is your comparative, so it's
25 one. It's the comparative, and in other words, all the

1 other dioxins would be something less. The TEQ would be
2 something less than one because if you want to, you want
3 to relate everything back to TCDD.

4 MS. SCOTT: You mean one part per trillion?

5 MS. KLEIN: No, no, just as the --

6 AUDIENCE MEMBER: It's a study group.

7 MS. KLEIN: Just as the comparative. It's just
8 a fraction. What I'm trying to see is the TEQ is like
9 the fraction of the toxicity expressed by that form of
10 dioxin, which is not TCDD.

11 MS. TSUJI: I'm going to try to give you the
12 end version of all this complicated stuff.

13 TEQ, and if I mess up, please rescue, is like a
14 measurement standard. One is what we assign to the most
15 toxic, the TCDD.

16 It is the scientific belief that all other
17 forms of dioxin do not measure up to that one, but we do
18 assign a number less than one, like she used the point
19 eight example, so it's not quite a one. It's a point
20 eight. It's eighty percent less toxic than the most
21 toxic one.

22 So it's just a measurement. It's just that we
23 had to come up with some sort of way to compare the
24 different toxicity levels.

25 Does that help?

1 AUDIENCE MEMBER: Yes.

2 MS. KLEIN: It's supposed to be more, in
3 reviewing some of our documents, you'll see in the data
4 tables, you'll see maybe a list of all of the dioxins
5 that were found in a particular sample, and opposite
6 that, each of those forms of dioxins that we found,
7 they'll be a value in concentration.

8 Then at the bottom of the list, there will be
9 something probably in the bold that will say dioxin
10 TEQs, and what that is is all of those values corrected
11 to TCDD so that you get an idea of how or what we think
12 in that particular sample the dioxin levels are all
13 converted back to TCDD, which is the most toxic form.

14 This is so that we can account for all of the
15 dioxins we measure, and this is our current policy.
16 It's the policy that was actually developed by the World
17 Health Organization.

18 There was something else I wanted to say about
19 it. There are a couple more slides. If you have
20 questions -- Oh, my gosh.

21 MS. TSUJI: Well, why don't we open it up to
22 questions?

23 MS. KLEIN: Okay.

24 MS. MAZUR: Thank you, Denise. It's
25 facinating. I didn't quite understand it, but I do

1 know -- I'm not putting you down that I didn't quite get
2 it. I have to look into that more. You know, I've been
3 studying dioxins.

4 You know, our community brought Lois Gibbs
5 here, and I was introduced to her book "Dying from
6 Dioxins." That was my first introduction to dioxins.
7 If you really want a good read, get her book, "Dying
8 from Dioxins." She talks about communities all over the
9 United States and what they are going through.

10 I'd like to also find out if this is true: Are
11 dioxins mutagenic, meaning that it actually changes the
12 DNA?

13 MS. KLEIN: No.

14 MS. MAZUR: No, they're not?

15 MS. KLEIN: No, it's not. It's an interesting
16 thing, but that doesn't make it any less toxic. It's
17 just not mutagenic. It creates its effects through this
18 other mechanism.

19 MS. MAZUR: Oh, I have to check my sources
20 'cause that's what I read. Thank you for that
21 clarification.

22 It is an Agent Orange, correct, dioxin? I mean
23 that's basically Agent Orange?

24 MR. CHERNOFF: No, it's a contaminant of Agent
25 Orange.

1 MS. KLEIN: It's a contaminant of Agent Orange.

2 MS. MAZUR: It's a contaminant of Agent Orange.

3 Then I'd like to check something else out on my
4 facts, and that is I believe that there are multiple
5 health effects, as you've stated, at levels lower than
6 what cause cancer, and some of those, from what I can
7 remember, are infertility, impotence in men,
8 miscarriages, diabetes, rare neuropathies, nervous
9 system disorders, and the only way to offload -- That's
10 just a few of them that I can remember.

11 The only way to offload is through a mother
12 nursing her baby, to give it some of the mother's
13 dioxin. Is that correct?

14 MS. KLEIN: You're right.

15 AUDIENCE MEMBER: What happens to the baby?

16 MS. KLEIN: You're right.

17 AUDIENCE MEMBER: The mother passes it on to
18 the baby.

19 MS. MAZUR: The mother passes it on, and her
20 load is reduced by giving it to the baby through the
21 breast milk.

22 MS. KLEIN: I don't have a really good memory,
23 so let me just say that you're right about the listing
24 of health effects. As I said, there are a wide range of
25 effects, and it is true that once you have dioxins in

1 your body, and as I say, we all have them in our body,
2 it takes about fifteen to thirty years to get rid of
3 those dioxins if you are never going to be exposed to
4 anymore dioxins, but I tell you that you are going to be
5 exposed. It's just because dioxins are everywhere in
6 the world. They are found in the Arctic, the Antarctic.

7 So we all have dioxins in our body, and it
8 takes a long time for us to get rid of them. It's
9 somewhere between fifteen and thirty years.

10 It is true that breast milk is a means for a
11 mother who has a dioxin load to transfer dioxin to their
12 baby.

13 I deliberately do not say this in my formal
14 presentation because all of the studies that I read have
15 said that the amount of dioxins that you might pass to
16 your children in breast milk are far outweighed by the
17 benefits of nursing; I mean the risk benefit, there is
18 absolutely no comparison. It is true that we mothers
19 who would nurse our children would pass on some dioxins,
20 but that the benefit of nursing is so much greater.

21 MS. MAZUR: Let's see. 2006, National Academy
22 of Sciences reports there are no safe levels of dioxin.
23 1998, U.S. EPA comes out with a report saying there are
24 no safe levels of dioxin. That's online. You can see
25 that on the web site. Correct?

1 MS. KLEIN: Is what I just said?

2 MS. MAZUR: No safe metals. So somehow, that's
3 been ratcheted up.

4 Now, my next question is, fifty-three parts per
5 trillion, is that what we're looking at as far as the
6 levels we're cleaning up?

7 MS. KLEIN: That was on one of my next slides,
8 but I don't know. We could go to that slide, but if you
9 want me to answer it now, I shall.

10 MS. MAZUR: I would. Thank you.

11 MS. KLEIN: The way that the fifty-three parts
12 per trillion has come up several times here, and it is
13 true that in the documents that you have been reviewing,
14 we have identified fifty-three parts per trillion as the
15 level that we could safely leave behind on the trail in
16 the coastal area with no elevated risk if you assume
17 that the trail and parkland is being used for
18 recreational purposes.

19 As you remember in one of my first slides, I
20 told you that the greater the dose, the greater the
21 risk, and the dose depends on a couple of things. One,
22 it depends on the amount that is actually in the
23 environment, and the second thing that it depends on is
24 how much you're going to get from the environment, and
25 how much you're going to get from the environment

1 depends on how much time you spend in that environment.

2 When we did our recreational land-use scenario,
3 we made certain assumptions about how much time we would
4 spend on the land, and I could go through that if you
5 wish.

6 MS. MAZUR: Well, I'd like to hear that because
7 as I said in the last public comment time before March
8 26th, is that culturally, this community lives off the
9 ocean, and we live right here on the ocean. So it's not
10 an urban environment where somebody's just going out and
11 walking their dog for an hour after work. This is an
12 integral part of our community, very close vicinity of
13 course to where we all live and work and shop and so on.

14 I don't want to take up too much time, but we
15 do want a clean bill of health, and so to bring up again
16 the full site characterization, you say that dioxin can
17 be taken in through the skin and inhalation.

18 Well, certainly if the land next to the trail
19 has not been fully characterized, we don't even know
20 it's there or remediated, how can DTSC insure the
21 health, the human health and animals and so on of this
22 community if we don't even know what is next door to the
23 trail? I'd like that question answered.

24 Also, I personally believe that the Remedial
25 Action Plan is lacking. All of the things about dioxin

1 that we know that it causes to humans and all life
2 should be listed in the Remedial Action Plan, and that
3 is missing as well as the fifty-three parts per
4 trillion, and I think the public has the right to know,
5 and they have the right to know through having the
6 document in our hands.

7 Thank you.

8 MR. HERNANDEZ: I'm Joe Hernandez again, and
9 when they start saying -- These people work for the
10 state. They actually work for us. We pay their
11 salaries. When they say listen to me, we're not talking
12 about me. We're talking about a site, a mill site which
13 is right here, this mill site.

14 Once it rains, the rains get, even on a hot day
15 like today, the heat picks it up. It's a fact. Heat
16 picks up the chemical toxics, volatiles, V.O.C. It
17 picks it up. Heat picks it up and brings it around.
18 The fog also picks it up. It carries it over. It
19 doesn't carry it into the ocean. It carries it into the
20 population.

21 Meanwhile I'm hearing no safety about kids.
22 The kids, what's the level? How much can kids breathe
23 in these chemicals? They're in the schools. You have
24 them around here in the ocean. So actually, everybody
25 is being contaminated.

1 The EPA says a three-mile radius, a three-mile
2 radius on a mill site. Let's say a mill site is toxic
3 everywhere for three miles. The first mile you've got
4 diabetes, cancer, miscarriages. People are sick.
5 Second mile, they get a little less sicker. Third mile,
6 it's still there.

7 So the air, air monitoring, no body's talking
8 about the air being monitored. Air monitoring is
9 crucial to have on the site so you can actually find out
10 how air, oxygen, pollution is reaching the population,
11 and that's what I'm worrying about, kids. This is like
12 an abusive thing on kids. So we have to protect our
13 kids, and they're our future. That's what you've got to
14 remember. Kids are our future.

15 All this is brand new in our country where
16 industrial industries have been going on through the
17 '30s and '40s and '50s. So now the industries are going
18 broke. They don't want to pay. They have a whole bunch
19 of chemicals, and what's happening is the kids have got
20 the legacy of these chemicals, just like the war. So we
21 have to protect our kids.

22 So look out. Look for the EPA. There is a
23 three-mile border, and that's how I want to finish it.

24 MR. BORRAS: My name is Rafael Borrás.

25 MR. GILLERA: Just a quick clarification:

1 there is air monitoring that's being conducted, and
2 there will be air monitoring being conducted during
3 remediation.

4 The air monitoring stations are indicated in a
5 couple of those maps that are up there, and I'll be
6 happy to point that out to you when I get the chance.

7 MS. KLEIN: And just for a brief clarification,
8 I did say in one of my slides that dioxin does not
9 evaporate. It does not evaporate.

10 The way it travels, the way it has reached
11 every corner of the globe is through being attached to
12 particles, mostly soil particles, and then it's carried
13 usually in the high atmosphere.

14 Those are things you can't really blame any
15 particular person. Dioxins are formed by so many
16 different means: The car exhausts, your burning in the
17 backyard. It's just pervasive. That's all over.

18 MR. BORRAS: My name is Rafael Borrás, and just
19 a number of really quick things.

20 The monitoring, we talked about air monitoring,
21 I haven't really followed that well, but in order to
22 monitor the containment area, they budgeted \$8,000 a
23 year. This is their budget for it. Maybe they can do
24 it for less. I don't know. Let's do it on the cheap,
25 you know; save a little money.

1 I would also say that dioxin bioaccumulates.
2 The higher on the food chain you are, the more it's
3 going to concentrate in your fatty tissue, and it is
4 transferable, as she said, from mothers' milk, and so
5 it's also the fish that we eat and the gift that we give
6 to this marine life that live off that fish. So we're
7 actually threatening not only ourselves, but we're
8 threatening all life.

9 There's also a synergistic effect that happens.
10 I'm not a scientist, but I've read that there's a
11 synergy that happens with some of the other toxins in
12 regard to dioxin mixing with them. So we don't really
13 know.

14 My most relevant point is that Fort Bragg has
15 been dosed continuously from the cogeneration electrical
16 plant that we're burning wood from the Richmond dump
17 that was treated wood, the distribution of fly ash in
18 different parts of this community. Where are we holding
19 dioxin in your body? I don't really want to go over
20 that threshold dose, and it is something that the higher
21 the dose, as she pointed out, the more we're going to be
22 affected. Well, we're already up there, and I think we
23 don't really need anymore.

24 The other point is this concept of recreational
25 standards, that here you have a dioxin cap and

1 containment area right in the middle of town. Cypress
2 Street is more or less where it's going to exit, and you
3 know, it just doesn't compute, you know. There's just
4 too many corners being cut, and I don't think we're
5 getting the answers to many of the questions, or if
6 we're getting them, we're getting them after the fact
7 when the public comment period will be pretty much over
8 with.

9 We have also been informed that it doesn't
10 matter what you think. I mean it might change a few
11 things, but if the whole town was against it, our only
12 recourse is to take them to court at great expense.
13 They're going to do what they determine they want to do,
14 and we, our public comment, it's valuable because we get
15 to hear each other, but it really, I don't think is
16 going to affect the plan at all.

17 MS. KLEIN: I just want to say one thing to
18 that, and that is that I'm here because, I'm here
19 because I'm trying to do the very best job that I know
20 how to do. I guess I feel a little bit insulted. It
21 doesn't appear that that's the case, but I think that
22 DTSC has and this team is one of the best bunch of
23 people I've ever worked with.

24 As a scientist, I believe in integrity and
25 honesty, and I think that we are here to hear your

1 concerns, and we have really worked hard to try to list
2 the concerns that we heard last time and try to
3 formulate clarification where we can.

4 I'm speaking really for myself, you know. So I
5 just want to say I am trying my damnest.

6 MR. McDONALD: Bernie McDonald, member of the
7 Sierra Club, National Toxics Committee.

8 I have really just a couple of issues. The
9 first issue is a question of whether these deliberations
10 of setting what acceptable levels or nominal levels for
11 this site are going to be affected by precautionary
12 principle as visa-vie the County of Mendocino, the
13 county law.

14 The second is will these, will this set of
15 levels and this consideration, will that include
16 modification, or will it affect the remediation onsite
17 or offsite in particular?

18 The third is, is this group aware of dioxin
19 remediation techniques which are now accepted, and I
20 would say that there are several which are accepted for
21 onsite mitigations and remediations.

22 Thank you.

23 MS. KLEIN: I'll just make one comment. I will
24 comment on the, first that we at EPA work off the
25 precautionary principle in the sense that for every

1 exposure assumption for example that we use, we use the
2 most conservative estimates of exposure.

3 For the toxicity, measurement of toxicity, we
4 use usually a very conservative estimate of the toxicity
5 based on the laboratory studies and sometimes
6 epidemiological studies. That is actually the basis a
7 lot of the assumptions we make in risk assumption is
8 based on a precautionary principle.

9 With regards to your third point of dioxin
10 remediation techniques, actually Ed has a presentation
11 about the remediation techniques. There has been so
12 much interest in bioremediation, and that was one of the
13 things that we wanted to discuss this evening.

14 MS. WALSH: My name is Mary Walsh, W-a-l-s-h.

15 I want to ask about the stability of the dioxin
16 compounds, and there is a concern around synergistic
17 effects, and could you speak to that, please?

18 And also, recreation, recreational standards,
19 I'm very concerned about what is this. Does this mean a
20 one-time visit and for how long, and does it take into
21 consideration children and animals, et cetera?

22 Thanks.

23 MS. KLEIN: I did say in my presentation that
24 dioxins are persistent. They don't degrade very well in
25 the environment. In terms of stability, they are

1 exceedingly stable, and that's really why they're a big
2 problem. They are very, very stable, very resistant to
3 degradation.

4 In terms of synergism, I don't know, but I'm
5 not aware of any synergism between dioxins, for example
6 dioxin exposure and smoking or dioxin exposure and
7 something like that.

8 MS. WALSH: What about when all of these
9 compounds are put together in a pit?

10 MS. KLEIN: You mean like a salad bowl.

11 MS. WALSH: And if they're there for an
12 extended period of time, do they act upon each other?

13 MS. KLEIN: There have not been any studies of
14 that that I know of. I think I know what you're
15 thinking of, if there are multiple chemicals in the same
16 place that you could be exposed to simultaneously, and
17 would there be synergism because you're being exposed to
18 multiple chemicals at one time?

19 MR. GILLERA: I think I have an answer for your
20 question. Let me know if I don't.

21 Based on sampling data that's been collected,
22 the soil proposed to be consolidated in that pit only
23 contains dioxins and no other chemicals of concern.

24 MS. WALSH: Well, there are several kinds of
25 dioxins, however. Is that correct?

1 MS. KLEIN: Yes.

2 MR. GILLERA: Yes.

3 MS. KLEIN: There are many kinds of dioxins,
4 and the way that we try to determine, as I said before,
5 we try to relate all of those forms of dioxins to the
6 TCDD, which is the most toxic form of dioxin, and that's
7 how we try to address that.

8 MS. WALSH: I understand, but if all of those
9 different kinds of dioxins get together in the same
10 salad bowl, can they influence and act on each other
11 and make themselves into something different?

12 MS. KLEIN: To my knowledge, there's never been
13 any evidence that that would happen.

14 MS. SCOTT: Have there been any studies? Are
15 there any studies?

16 MS. KLEIN: I cannot think of any studies of
17 that type because normally in laboratory studies, they
18 study one form or the other, so I'm not aware of any.

19 MR. CHERNOFF: The persistence of the dioxin in
20 the environment, the fact that when you get this whole
21 seep-out over a period of time, would suggest that they
22 are not interacting with each other and doing strange
23 things to one another.

24 MS. KLEIN: One of her questions was whether in
25 the recreational exposure, did we consider children, and

1 we did consider children in the recreational use of this
2 land. We considered kids from the age of zero to six
3 years old. We made an assumption with respect to their
4 weight, and we assumed that they ate accidentally more
5 dirt than would humans, and we assumed that they
6 breathed for their body weight more than other humans.
7 We assumed that they spent -- I believe someone else
8 said that -- We did assume that they spend an hour a day
9 on the site, and someone else said that it's quite
10 possible that people, that the community would spend
11 more time, but I believe that really in our assessment
12 of exposure, we did assume that the child goes there
13 every year of its six-year childhood, zero to six, and
14 for twenty-four years afterwards. So we've assumed that
15 the individual goes to the site for thirty years and
16 spends up to two hundred days a year on that site.

17 So we felt that that was reasonably protective
18 of the child perhaps spending a couple of days there for
19 longer periods of time, that that's taken care of by the
20 number of days and the number of years.

21 If anybody has any questions about that, I'll
22 be happy to talk to them later.

23 MR. WOLLENBERG: My name is Skip Wollenberg.
24 You have it from last time.

25 Last time I expressed and submitted a comment

1 that I believe that it is technically the best solution
2 and ethically by far the best solution to keep the
3 material here onsite encapsulated as shown right here.

4 With that in mind, I think it might be worth a
5 try to compare the ecological and human risk assessments
6 of onsite sequestration with risk assessment of offsite
7 transportation and disposal.

8 In other words, the risk assessments that are
9 being done now, both technical and human for the
10 encapsulation and the activities onsite that lead to
11 excavation and encapsulation, but also to somehow come
12 up with a risk assessment that would compare with those
13 findings of having material put on trucks, transported
14 on anywhere from seven-hundred to a thousand loads, over
15 roads that we're all familiar with between here and
16 Willits and on down into and through towns in Sonoma
17 County and the bay area, perhaps ultimately to the
18 Petaluma Hill dump which is about four-hundred miles
19 from here.

20 So I would hope that the DTSC could arrange or
21 somehow come up with risk assessments of offsite
22 transportation.

23 I have tried on the internet to look up truck
24 over-turns, and all I find are lawyer advertisements for
25 people who want to sue the truck companies. So I would

1 hope that there's more, a better data base that you
2 folks can find that could come up with that comparison.

3 MS. KLEIN: You know, I did the same search
4 online, and I did find one site, one internet site that
5 gave a listing that came from the Department of
6 Transportation that gave a listing of truck accidents
7 per million miles driven for haul trucks from about
8 twenty chemical companies, and actually, the rate was
9 something like -- The highest rate was point nine.

10 MR. CHERNOFF: Ninety-three I believe.

11 MS. KLEIN: Point nine three per million miles
12 driven. So if you take a thousand truck loads and you
13 multiply it by four-hundred miles, you get somewhere, I
14 don't know, four-hundred-thousand miles. So maybe, you
15 know, the risk of an accident would be rather small.

16 However, the thing that we don't know about in
17 those statistics is 128 and 20. I mean those are windy
18 little roads, and I think a lot of these haul trucks go
19 down interstates and along a much larger highway. So
20 we're not sure how to tease that kind of information out
21 of the D.O.T.

22 I just bring this up because we have been
23 working on it. It's not that we've been, you know, not
24 concerned.

25 MR. WOLLENBERG: Thank you, but I would hope

1 that maybe through the Department of Transportation and
2 maybe even the City of Willits might know how trucks
3 behave because it's not just coming over the windy
4 roads. It's making sharp turns on city streets and
5 going on and off circular freeway ramps.

6 JULIA LARKE: Julia Larke.
7 Kettleman Hills and that area, according to the
8 Mendocino County General Plan, we are in the most
9 hazardous earthquake zone, and it's a big fault zone, so
10 I don't think it's the best place to be putting it on
11 the edge of something like that.

12 MR. WOLLENBERG: Kettleman Hills sits about I
13 think fifteen to twenty miles east of the San Andreas
14 fault along a strand of the San Andreas fault that's
15 much more active than the strand we have here out in the
16 ocean, and the Keller Canyon location near Pittsburg
17 sits near the Martinez fault which also has a lot of
18 activity.

19 In California, there's no free lunch when it
20 comes to being near a fault.

21 MS. WHITEN: Due to the lateness of the hour,
22 which is nine twenty-three, we do have to be out by ten;
23 we don't think we're going to have time to go through
24 the other presentations.

25 So from here on out, we'll just take questions

1 on everything from like the site-wide characterizatn,
2 bioremediation and cap consolidation. Okay?

3 Denise is going to walk around with some paper
4 if you have some questions.

5 MS. TSUJI: If you have written ones and you
6 just want to submit written ones, 'cause I know it's
7 getting late and we'd all like to go home and get some
8 rest, you can give me your written questions, and then
9 we will incorporate it into our Response to Comments.

10 MS. BREWER: Thank you.

11 My name is Dr. Marilou Brewer, like a person
12 who brews green tea.

13 I'm a naturopath here in town. I spend my life
14 detoxifying people. I've studied dioxins a lot.
15 Dioxins and PCBs are the number one carcinogenic
16 chemical, number one.

17 There are seventy-thousand chemicals in our
18 environment, sixty-five thousand of which have not been
19 studied for human toxicology. It's true.

20 The thing about dioxin, and I refer you to this
21 month's Discover magazine; there's a big article on
22 dioxin, is that it's an environmental endocrine
23 disrupter.

24 What that means is it interrupts your thyroid,
25 your adrenals, all of your endocrine glands.

1 It's a lock and key situation. You have this
2 on every single cell in your body, just like she was
3 talking about. The dioxins come along, I mean the
4 thyroid hormone comes along, and it goes like this,
5 shuu, shuu, shuu, shuu, click. It works; it hits, and
6 every cell in your body is dependent on a teaspoonful of
7 thyroid hormone a year.

8 The thing about dioxins is they damage the
9 receptors trying to hook on. So even if they don't get
10 hooked on, they get to damage the receptor, and then
11 your thyroid comes along and goes, "No, that's not it;
12 that's not it," and goes on by.

13 So thyroid is the number three most-prescribed
14 medicine in the United States, and there's reason for
15 that. It's the dioxins in our community.

16 People who eat organic dairy and organic meat
17 don't get the same dose of dioxins as people who eat,
18 quote, traditional do. That's something to remember.

19 I also wanted you to know that the lower the
20 dose, the more it affects the other systems in your
21 body. This thing of the cancer dose, yeah, it has to be
22 high so that you're toxic enough to get cancer, but the
23 absolute minimal dose will totally affect your entire
24 system because your thyroid hormone affects absolutely
25 everything in your body all of the time.

1 The other thing is children are ten-thousand
2 times more susceptible to damage. Another thing is that
3 a child can get seventeen times more dioxins in one year
4 of a mother's milk than is allowed in a lifetime, and
5 that figure is from the CDC.

6 The other thing is that once it's in, it can't
7 get out. You can get it out with far infrared sauna or
8 ionic keyation (phonetic), and eating raw fruits can
9 help you, too, because it supplies you with the enzymes
10 that you need to make those things happen.

11 Is there anything else that I wanted to tell
12 you? I don't think so. That's it. It's a problem
13 because it's our stuff, and if we keep it here, we're
14 gonna have it here, and when the wind blows, it's coming
15 our way. Capped or not capped, it's gonna work its way
16 up; it's gonna work its way down. It always does, and
17 if we send it out, we're going to be giving our problems
18 to somebody else to deal with. You have to look at your
19 own life and decide what you want to do.

20 Thanks for being here. I think it's important
21 that we know that it's more than just cancer we're
22 talking about here.

23 MR. CLOGG: My name is Mitch Clogg, C-l-o-g-g.

24 I'm impressed with how civil and patient you
25 are, and you say that you feel maybe a little bit

1 insulted by somebody's remarks, but I want to address
2 that.

3 It was twenty years ago last month when the
4 Federal Government, Department of the Interior sent its
5 Minerals Management Service here to ram down our throats
6 offshore lease sales so that we could have oil
7 development here, and that culminated in the largest mob
8 of people gathered in Fort Bragg in the history of the
9 planet.

10 The people went home from the Minerals
11 Management Service, and for a while, nothing more was
12 heard of that.

13 Fast forward a few years, a decade and a half
14 or so, and a bunch of extremely dedicated and
15 self-sacrificing people here battled endlessly and
16 tirelessly to hammer out some timber harvest rules for
17 Mendocino County.

18 Industry people, G.P., logging companies,
19 environmentalists all worked hard to together, and they
20 created what was probably one of the most progressive
21 and fool-proof timber harvest ideas that could have been
22 created.

23 The state government, the California Board of
24 Forestry, dismissed those with a casual wave of their
25 bloody hands. One man considered nearly a saint who had

1 worked hard on this, worked himself to the point of
2 exhaustion one night, drove into a tree and died. I
3 will never ever get over what the Board of Forestry did
4 so casually.

5 So this place has a history of confronting
6 government, and if we seem to be suspicious, I've told
7 you a couple of reasons why. It's certainly not because
8 there's anything in your demeanor that makes me
9 suspicious. You all look to me like you're all very
10 well-intended and well-informed people, but you need
11 to know that's the background, and everybody here knows
12 that Georgia-Pacific has vastly deeper pockets than Fort
13 Bragg, California does. If it comes to a legal contest,
14 they can afford far more high-powered representation.
15 They can ruin and break this city, so it's you we have
16 to depend upon.

17 In the midst of a Republican administration in
18 the State of California and all of us who are not
19 children and not naive know that government is
20 occasionally influenced by the party that happens to be
21 in power. So these are things that influence our bad
22 manners if we do occasionally display bad manners. It's
23 because in a way, we're almost helpless except for what
24 courage we collectively show and what persistence.

25 You know, enough for speech making. Now I have

1 a couple of personal things.

2 Could you go back just one slide? There we go.
3 Dioxins, more than four hundred forms of them, and come
4 forward one more slide and another still. Okay. Well,
5 the heck with it. I remember what it said.

6 Anyway, it was the question of TCDD versus
7 OCDD.

8 AUDIENCE MEMBER: Right there.

9 MR. CLOGG: Yes. And you dropped this sort of
10 casual -- You said we know so much more about this kind
11 'cause it's so much worse. We know less about the other
12 many kinds because they're not too deadly, but this is an
13 important datum right here that you passed over rather
14 quickly, and I hope that we'll get some more, and not
15 tonight; there's not gonna be time, but what you said
16 was that this may well be a thousand times less
17 hazardous than this, and this is the one that prevails.

18 Well, that's an important thing for us to know,
19 and is that thousand a number you picked out of the air
20 just by way of illustration, or is that, you know, a
21 fairly acceptable scientific guess, and how much of this
22 kind, the bad kind, remains? How much of this has been
23 found there? That's another question that maybe tonight
24 you can't answer, but I certainly hope these two things
25 will be quantified as a lot of this stuff that we need

1 to know.

2 I'll hand this microphone over, but one more
3 thing I want to point out was that the man who explored
4 the cave, it was right here.

5 AUDIENCE MEMBER: Right there.

6 MR. CLOGG: Right about there, all right. I've
7 been living here a long time and visiting here a long,
8 long time before that, and the intense industrial
9 activity on this site was not here.

10 You know, there's a runway for G.P.'s aircraft,
11 and this I assume is the entrance to the bay, that is
12 Noyo Bay.

13 So if he found, if the water falling on this
14 man made him break out the next day and if he observed
15 that there was much less marine life in there, then I
16 will submit to you that these places where the activity
17 around that mill site for decades and decades and
18 decades is much more intense, then all the caves that he
19 did not explore around here are likely to show those
20 signs that he saw vastly more emphatically than what he
21 saw.

22 Oh, and where would this stuff, if we haul it
23 offsite, where? Petaluma? My God, that's unthinkable,
24 and yet where else?

25 On the other hand, if we leave it here and

1 encapsulate it, one of these documents that I picked up
2 from the table said that that is secure for like thirty
3 years. Thirty years, then what happens? Can you repair
4 the leaks? Will technology have advanced to the point
5 where you can do something better? Thirty years. Hey,
6 I wish that I were young enough that I could say that
7 thirty years seems like a long time to me, but I'm not.
8 Thirty years seems like that (snaps fingers). So I
9 would run that one right out of town, right out of hand.

10 So what we have is a dilemma, folks. That's
11 when both choices are awful, and I have to agree that
12 the time that we have been given to study this to make
13 our decision is not adequate.

14 Fort Bragg may be, when all this is said and
15 done, one of the most desirable places on the whole
16 western coast of the United States, counting all the
17 states from here to Mexico and Canada, and never has it
18 been confronted with a more important decision or a more
19 important issue than this one. So we don't have the
20 time, people. We have to have the time.

21 I'm sorry for taking to long.

22 MR. GILLERA: Thank you for all your comments.
23 I'm not in a position to comment on the more
24 philosophical ones, but I can certainly talk about the
25 life of the proposed lining.

1 Although the life of the treatment stuff itself
2 is up for debate, the actual liner material proposed to
3 be used onsite actually has, studies have shown that the
4 actual lifespan of that liner can last anywhere from
5 three hundred to perhaps even greater than a thousand
6 years, and the installation of that liner will be done
7 with careful instruction and quality assurance
8 specificifications to assure that it does perform in a
9 very long-term.

10 MS. SPARKS: I would like Ed to explain the
11 liner. It comes in rolls, and then guys get down on
12 like their hands and knees --

13 AUDIENCE MEMBER: Girls.

14 MS. SPARKS: Girls, too. Sorry. What do they
15 do to these rolls of liner? What do they do to the
16 rolls of liner?

17 MR. GILLERA: The liner material itself is
18 called LLDPE. I'm not going to try to explain what that
19 acronym stands for, but it is a very sturdy material
20 that has been tested and tested over and over again for
21 its resiliency and its lifespan.

22 That liner itself, it comes in large rolls, and
23 it's brought to the site, measured and cut, and these
24 pieces are seamed together by welding, not welding in
25 the sense of metal welding, but welding sort of plastic

1 together to ensure that it -- It becomes essentially one
2 large piece of material.

3 This liner is placed on the bottom of the
4 excavated area. A gravel layer is also placed beneath
5 that particular liner.

6 That serves two purposes. One purpose is to
7 serve as an individual marker, and it also serves to
8 protect against burrowing animals.

9 This entire cell is covered with another layer,
10 a geosynthetic clay liner, which prevents water from
11 infiltrating into that pit and also prevents water from
12 running through that material.

13 MS. SPARKS: Okay. Ed, this is Jody again. I
14 just want to point out that I think I've looked at every
15 landfill, and you are calling this a cell, but I'm going
16 to call it a landfill because of the plans for the
17 future if we left the dioxin on the site, but please
18 note in the first bullet, it says the liner material,
19 and I don't differ with that. I believe this plastic
20 stuff will last for three hundred to a thousand years.

21 The problem is is with the installation of the
22 liner. The seams come apart, and holes form. A lot is
23 also dependent on what goes in the liner and keeping
24 water out of it, but to say that the liner is going to
25 last three hundred to a thousand years, I have some

1 problem with that. The liner material will last, but
2 the seams fail, and they fail in every landfill that I
3 know of, including Kettleman Hills and those places.

4 So I just think it's very important that you
5 differentiate the liner material from the liner system.

6 MR. GILLERA: Absolutely agreed, but I have
7 been working very diligently in trying to find
8 information not just for you but for the community to
9 share so far as the lifespan of typically what these
10 consolidation areas will last to.

11 MS. MAZUR: Thais Mazur. I have a question,
12 please.

13 Will you please, and, Ed, I guess this would be
14 for you, fifty-three PPT, that was never answered. How
15 was that arrived at for the trail? The level of dioxin
16 would be cleaned up to fifty-three PPT. What is that?
17 How was that arrived?

18 MS. KLEIN: Fifty-three parts per trillion was
19 derived from our analysis of the use of the land for
20 recreational purposes, and it assumed that people from
21 zero to six and then from six for the next twenty-four
22 years would visit the park, the trail for one hour a
23 day, but from fifty to two hundred days a year for
24 thirty years, then making those kind of assumptions, and
25 then going back to the toxicity of TCDD, we derived a

1 safe level, that is to say a level where the risk of
2 getting cancer would not exceed one in a million people
3 exposed to that soil level of getting cancer from the
4 exposure.

5 That was the cleanup level, but I need to
6 stress to you that that is not the level that would be
7 left behind.

8 I do have a slide that maybe we could find. I
9 think those of you who have come to the previous
10 presentations perhaps would remember this slide.

11 I state in this slide that the background risk
12 of getting cancer for all of us, the former slide said
13 point three three, about one third of us, but we
14 actually went back to the cancer registry for
15 California, and actually, the number unfortunately is
16 higher than that. It's about point four three. That is
17 to say more than forty percent of us will get cancer
18 sometime in their lives and for reasons unknown, I mean
19 for a variety of reasons.

20 Now, let me just, to answer the question, the
21 fourth slide shows the assumed concentrations that would
22 remain on the trail or the park after the remediation
23 that we proposed in this work plan takes place. That is
24 to say, how much of these chemicals would still be
25 there, and the arsenic value is five point five to six

1 point nine.

2 I just need to tell you that those are
3 background levels of arsenic, but arsenic is a known
4 chemical, a known carcinogen, so we're adding it here,
5 but arsenic is not associated with any of the former
6 mill activities. It's simply there because it's
7 everywhere. It's in the soil. It's a natural component
8 of the soil.

9 But the very last bullet here says the dioxin
10 in TEQ concentrations would range from between eleven
11 and twenty-one picograms to grams, which is about or
12 which is equal to eleven to twenty-one parts per
13 trillion, and so it is lower than the fifty-three parts
14 per trillion that we had estimated to represent one in a
15 million risk for dioxin.

16 MS. MAZUR: Thais Mazur. Just really quick, I
17 want to say I think we should try the bioremediation and
18 microremediation onsite. That's my vote. You'll hear
19 more about that tonight. We have good news.

20 I would also like to ask a question, and then
21 I'll pass off the microphone. When you did the
22 recreational levels and you looked at children, did you
23 also look at children burying themselves up to their
24 necks in the sand in the intertidal zone? Did you look
25 at activities in the sand, including a child burying

1 their body or of their friends burying their bodies up
2 to their necks in the sand?

3 Thank you. I'd like that answered.

4 MR. GILLERA: I could speak real quickly about
5 the microremediation. We have looked at
6 microremediation, and some studies have shown that it
7 has been successful in treating certain chemicals such
8 as PCPs, Pentachlorophenol, petroleum hydrocarbons, and
9 some of these studies have shown some success with
10 dioxin and furan.

11 However, that success has only been shown in
12 the laboratory or small bench-scale studies basically in
13 the lab and petri dishes.

14 Currently we don't have any available data, nor
15 am I aware of any data out there, that has shown that
16 microremediation works on a pilot-scale or a full-scale
17 application to treat dioxin, and that information is
18 really key for us to even consider that method as a
19 viable alternative to treating dioxins onsite.

20 We have been talking to experts within our
21 department in coordination with the City of Bragg to
22 give it a closer consideration as far as trying to
23 figure out whether this stuff will work for dioxins
24 onsite, and in the future, hopefully we can include
25 people from the community with that dialogue to get

1 their feedback.

2 MS. TRACY: My name is Sheila Dawn Tracy,
3 T-r-a-c-y.

4 I was glad to hear you say of your scientific
5 integrity. I feel that all the people on the board are
6 very honorable, but that's really not the problem here.

7 The problem is that the only way to really
8 assess the risk is to know what we already have in your
9 bodies as Rafael said.

10 The people in this community have fly ash in
11 their gardens. They have fly ash on the playing fields
12 that their kids fall down on, and they have been exposed
13 over a number of years.

14 So I have not a question but a proposal. I
15 propose that we forget about the December 31st deadline
16 and the four point two million dollars that the Coastal
17 Conservatory will give for the coastal trail, and that
18 if you really want to do a good job to protect the
19 community, that you have voluntary testing for dioxin
20 levels of everyone who resides in the community, and
21 that's the base level that we should start with.

22 MR. JENSEN: David Jensen, J-e-n-s-e-n. I live
23 in Fort Bragg. I was gone for a few years, and it gave
24 me a really interesting perspective when I returned.

25 I think that an accurate and a reasonable

1 determination of a meaningful background level is the
2 key to a well thought out remediation program at this
3 site. More importantly, it's the key to gaining the
4 trust of this community.

5 By background, I don't mean the mill site. I
6 mean there has to be an actual background. I think that
7 were I in charge of this remediation project, I would
8 jump on that like a cowboy on a horse because I think
9 one of the things that we as a community are unaware of
10 is how ubiquitous dioxin is in our community, not just
11 in the downtown area but all around

12 This is an area where people burn wood, and we
13 have since 1850 when we came to this town. We've been
14 burning wood for cooking, heating. That's our fuel
15 source here, and it's illogical not to suspect that
16 we're going to have high levels of dioxins throughout
17 this community and in all the adjoining communities:
18 Westport, Mendocino Albion, all up and down the coast.

19 That raises the issue of what is a meaningful
20 cleanup level at this site because without background,
21 you can't make a meaningful cleanup.

22 The thing that bothers me -- Point number one.
23 Point number two is at the very beginning of this
24 process, we were assured by the Fort Bragg City Council,
25 and I asked in a meeting. Thais was there. It was a

1 late night: What's gonna be our cleanup level? And we
2 were told from the very start of this project that it
3 was going to be residential level, and I hear, I
4 continually hear now migration away from that earlier
5 promise.

6 It was going to be residential level, and I'll
7 tell you why I think that's very important. Point
8 number one, this site is going to change for years and
9 years. We've been here since 1850. We've been here
10 about a hundred and fifty, hundred and sixty years, and
11 this town's gone through a lot of iterations. This
12 town's gonna go through a lot more iterations in the
13 next hundred and fifty-eight, two hundred and
14 fifty-eight years. We're going to be here until the sea
15 levels rise, you know, and force us off, which I don't
16 anticipate happening very soon.

17 This site, which I've been in part of the
18 planning, and we've got ideas, and somebody's gonna come
19 along in another generation or two, and today's business
20 district, yesterday's housing district became today's
21 business district which becomes tomorrow's housing
22 district all over again.

23 Point number one: Residential level is the
24 only appropriate level of cleanup for this site.

25 Point number two, one of the things that I

1 learned when I came back to this town is just how dirty
2 this town is. This is a filthy town.

3 I lived on North Franklin, and I was appalled
4 at how much dust would accumulate on my refrigerator
5 overnight. Where was the dust coming from? The
6 prevailing northwesterly winds were inundating my house
7 with fine dust particles.

8 Now, if we set one level for recreational use
9 and that recreational use is upstream and that
10 recreational use anticipates the active use of those
11 fragile soils, the kicking up of dust, and if for
12 instance dioxins travel on dust particles, you cannot
13 assume two levels of cleanup. You can't assume a lower
14 level of cleanup upwind, recreational, from a high level
15 of cleanup downwind, residential. It won't work.
16 They're incompatible. You have to have a single cleanup
17 level on this site.

18 AUDIENCE MEMBER: Bravo.

19 MR. JENSEN: One last point, and then I'll hand
20 over the microphone.

21 I've been, you know, I've been -- I don't have
22 a decision yet in my mind about the cap. There's pros;
23 there's cons. It's a deal with the devil, but one of
24 the things that bothers me about it is here's -- I'm
25 going to put this piece of paper for the folks in the

1 back. I'm going to put this piece of paper at the edge
2 of the cap right there.

3 Now, do you see these blue dots right here and
4 right here? Those are ponds.

5 Now, before I really saw this map, I was
6 poo-pooing the idea of the groundwater because I know
7 how hard it is to get meaningful groundwater that close
8 to the ocean, you know, potable, useful groundwater.
9 There are wet spots. There's wetlands. God knows that.

10 Look at this. I mean the reason that the ponds
11 are where they are on the mill site is that's where that
12 natural water was. That's where the natural water was a
13 a hundred and fifty years ago when they started building
14 this mill.

15 I've not taken a real good look at the full
16 study of the design study for the cap, but it just jumps
17 out at me as a layman that we're butting right up
18 against what's obviously a wet drainage that goes down
19 into this.

20 This formation is here because streams were
21 coming down here once, and here was an old stream bed.
22 Most of them have been buried. There's the remnants of
23 it, and there's our disposal cell, and I don't know.
24 This seems a little close.

25 Thank you very much.

1 MS. WHITEN: Ed?

2 MR. GILLERA: One quick clarification: All the
3 ponds onsite were manmade. None of those are natural
4 features.

5 MR. JENSEN: Well, I think they were manmade
6 because there was water there to make them, you know.
7 They didn't have large water pumps back in the day of
8 Mr. Johnson. They went the easy way. They put ponds
9 where there was water to create ponds. That was my
10 point.

11 MS. KLEIN: All evening long, I've really been
12 astonished by the thoughts that have gone into your
13 comments, all of you, and I want to address at least a
14 couple of the ones that you made with respect to
15 residential versus recreational.

16 When we look at land that we're going to
17 evaluate, we do consider what the future use of the land
18 will be, and those parcels, those parts of this site
19 that are going to be utilized for residential purposes
20 are going to held to residential standards.

21 Those parts that we know that will be coast,
22 that will be made into a trail, or that is the plan, to
23 make it into a trail and parkland, and therefore, we
24 assume use of the land accordingly.

25 You asked a question about the fact that by

1 making an assumption, that we will be leaving slightly
2 higher levels, that we would allow slightly higher
3 levels of dioxins, for example, on that coastal strip
4 and that that might cause a risk of the transport of
5 dioxin-laden dust, for example, onto the residential
6 areas of the site in the future.

7 We did do some modeling that the result of that
8 is in one of the documents, I believe in the health risk
9 assessment portion of the remedial investigation for the
10 coastal trail that shows that the resuspension of soils
11 by wind; you have a very windy site here except for
12 today. The resuspension of the dust-laden or the
13 dioxins in the soil into the air and blowing over
14 towards those areas of the site which would be
15 residential would be inconsequential. It would be so
16 small that it does not pose any risk at all.

17 I think in one of my early slides, I said that
18 more than ninety percent of our exposure really comes
19 from the ingestion of food products, and inhalation and
20 dermal contact is a very, it's a minor portion of it,
21 but I just wanted to say that we did model it. We did
22 look at it. It is in the risk assessment, I believe in
23 the remedial investigation portion for the coastal
24 trail.

25 MS. LORRAINE PAUL: We still need more time. Do

1 any of you who are making this decision, do any of you
2 live in this area? Are any of you going to be affected
3 by your decision? Two weeks is not enough time to
4 make -- I've just been here a little while, and there's
5 more questions than are answers, and I'm hoping that you
6 truly have heard people tonight.

7 This affects our lives, and it's a corporation
8 making a decision about people who live here, and do any
9 of you live here who are making this decision? Are you
10 going to be affected by your decision?

11 Lorraine Paul.

12 I'm sorry that I went ahead, but I don't
13 understand how you can make a decision and expect us to
14 know all this in such a short amount of time. Do people
15 have to beg?

16 MS. TSUJI: I can only respond to your request
17 to extend the comment period even longer. I am not
18 empowered by my management to make that decision
19 tonight. I have heard you.

20 Every meeting that we've had up here, we
21 returned, and we've debriefed management. In fact, last
22 time when we were up here, the team, we stayed up until
23 one just talking about what we're going to do at this
24 meeting tonight, and this is how we came up with, you
25 know, a best guess as to how to effectively communicate

1 and give you guys answers.

2 So we have heard you guys loud and clear
3 tonight. We will probably do another debriefing
4 tonight, and I will most certainly --- Monday morning I
5 already have appointments with my management to brief
6 them on what happened, you know, the general types of
7 comments received.

8 Numerous people have asked for more time, and I
9 will share that with the department management, and you
10 know, we'll get back to you guys to let you know if it
11 will be extended more. I can't make any promises, but I
12 will be your voice within the department.

13 MR. BURNET: My name is Tom Burnet,
14 B-u-r-n-e-t. I've been a resident of the coast and the
15 town of forty years.

16 I printed up something that this gentleman
17 previous to me has pretty much echoed. It was supposed
18 to be printed in the paper this week, but it didn't get
19 in.

20 I would only like to address -- First I want to
21 thank you people for your time and patience and all this
22 coverage here.

23 I would like to address the townspeople of Fort
24 Bragg, of which I am no longer a member; I moved a mile
25 south out of the limits, but your City Council should

1 have been here tonight, and you better get them on the
2 ball because these people, not you people but the other
3 people that aren't here, you're listening, but they're
4 gonna roll over this. They want to do what they want to
5 do, and we have the power or the City Council through
6 your vote has the power to zone this place and to slow
7 things down and to get things right, and you know what's
8 right. You've said it tonight.

9 These people are trying to help. They need to
10 be guided by your elected officials. They need to be
11 here.

12 Thank you.

13 MS. SCOTT: Thank you for continuing to hear
14 those in line. Debra, D-e-b-r-a, Scott.

15 A gentleman had to leave earlier who's a
16 long-time diver here, and he asked me to speak for him
17 and say that when you speak to the Natural Resources
18 trustees and the folks from NOAA, we strongly encourage
19 you to renew your testing, and instead of using mussels,
20 use abalone. Abalone has a thirty-year lifespan, blah,
21 blah.

22 I also wanted to give a heretical suggestion
23 which is that rather than consider that you can't
24 consider microremediation because there's been no pilot
25 studies, I suggest that because we are in the radical

1 situation that we are, that that dioxin has been sitting
2 as long as it's been sitting there, that we could be the
3 pilot study.

4 I just want to be one more voice, having heard
5 many, many testimonies from people with access to the
6 site over the last twenty-five years, that full-site
7 characterization has not happened, and a fuller-site
8 characterization I understand is time consuming and is
9 expensive, is really necessary for you to do the job
10 that you so sincerely want to do.

11 In regards to capping, all of us have a very
12 great concern. Mitch spoke very well about our
13 suspicions.

14 Ed, I trust you, but I think that this is
15 between the value of the material and what can really
16 happen in a dump site. You might want to reconsider how
17 you speak to us because I think that it makes your
18 speaking have less -- We're less likely to trust your
19 sincerity because the number of things that can go wrong
20 and what we all know about all the variables of that
21 site, the idea that anything is really going to be well
22 stored in that site, I think we have very great
23 suspicions of.

24 We also have very great concerns that once G.P.
25 caps it, no matter what happens, they're not going to go

1 back to it. They're going to be done, and that's our
2 concern, one of our concerns around the capping.

3 Thank you.

4 MR. GILLERA: I'd like to speak on the
5 bioremediation. Like I said earlier, our department has
6 not fully discounted that method. What we did commit to
7 do is look into it even further, and at this point, we
8 just don't have that information to make that decision.

9 MR. WUETKE: I also want to say thank you to
10 all you people. Antonio Wuetke, W-u-e-t-k-e.

11 I have a positive announcement to make, but
12 before I do, I wanted to look at the capping from a
13 different point of view, not so much the safety
14 standpoint but from the statement it makes about the
15 continuation of a control-based relationship to the
16 environment, and that's not what this community is
17 about. We're not trying to perpetuate the mistakes from
18 the past. We want to step beyond them and get ready for
19 the future.

20 The good news is that we had a conference, a
21 phone conference with the Paul Stamets today who would
22 be very happy to talk with you, and he asked you to take
23 the initiative and call him. He is a very busy man. I
24 know you are, too, but he feels it's more logical for
25 you to call him.

1 He thinks that there are models for successful
2 bioremediation, including dioxins, and he would love to
3 be part of this project.

4 Thank you.

5 MS. MARGARET PAUL: Margaret Paul here.

6 One thing that seems like it's been overlooked
7 is when the City Council, aka Fort Bragg Redevelopment
8 Agency, voted for Polanco, to enact the Polanco Act, it
9 gave them, as I understand it, the ability to be the
10 lead agency in whatever goes on, the remediation, the
11 investigation and the redevelopment on the site.

12 If we all come to the meeting Monday and if
13 even half of what we've said today comes up Monday
14 night, we could be on the way to getting them to slow
15 things down. I think our motto should be, "What's the
16 hurry?"

17 We're letting four point two million dollars,
18 we're saying that's more important than a hundred years
19 from now, fifty years from now, forty-five years from
20 now, the health of our community. It's not.

21 AUDIENCE MEMBER: Right.

22 MS. MARGARET PAUL: And suppose we don't want a
23 coastal trail if it's going to be a poisonous trail? We
24 don't know all the effects these substances can have on
25 children and people in general. Their immune systems

1 are compromised, especially after years and years of
2 living here and being exposed to them.

3 I had my thyroid removed after a year of
4 working downtown when I first moved here. It was pretty
5 immediate. Maybe I had a build-up and couldn't take it
6 anymore. I think it was burning other people's waste in
7 the incinerator.

8 AUDIENCE MEMBER: The mic is too close. We
9 can't hear you.

10 MS. MARGARET PAUL: Oh, I'm sorry.

11 Please, I urge you to urge everybody you know
12 to come Monday. If we don't, we'll have to file a
13 lawsuit if things don't go the way we want them to. We
14 prevail upon on our elected representatives, the Fort
15 Bragg Redevelopment Agency, and we ask them, beg them,
16 whatever, petition them, to turn down either of the two
17 most popular, the capping and the trucking so it's in
18 somebody else's backyard, those alternatives. Those are
19 unacceptable.

20 I think in the best of all worlds, we wait a
21 year. We wait five years until science catches up, and
22 bioremediation is a viable thing in Europe. That's the
23 way they're going. You know, we're way behind, and
24 there is information out there.

25 Again, let's make it our motto, "What's the

1 hurry?" We will pay in the end if we hurry.

2 MS. LUNA: My name is Andrea Luna, and I've
3 been on the coast over thirty-five years, and for the
4 past ten years, I have lived at North Main and Laurel,
5 right up here. I can't find it.

6 AUDIENCE MEMBER: Further down.

7 MS. LUNA: Further down, yeah, right there.
8 Twenty-four seven I lived through the burning and
9 incineration when I couldn't breathe a lot of times, and
10 my chest was tight.

11 Where is the pressure coming from to wrap this
12 up so quickly? Where is the timeline? Is it coming
13 from G.P.? Is this timeline cast in concrete? Is this
14 an administrative timeline? Those are questions.

15 MS. TSUJI: When the city enacted Polanco, in
16 working with them, because of the Coastal Commission's
17 grant to the city, excuse me, the Coastal Conservancy.
18 I need to correct myself. The grant monies run out the
19 end of this calendar year.

20 In order for the grant monies to be transferred
21 to the city to be able to acquire the property, it is my
22 understanding that the cleanup has to be certified by
23 the department, which means we have to approve this
24 document for implementation. The work has to occur this
25 summer 'cause there is a time limit as to when they can

1 be out in the field digging, and it's basically April
2 14th to October 15th, and they need to then prepare a
3 report and submit it to us for our review and approval
4 by December 31st of '08.

5 MS. LUNA: But it's possible that that could be
6 worked with?

7 MS. TSUJI: The department, if the choice was
8 not to go forward with this document and approve it and
9 it goes kind of back to the drawing board, there is no
10 deadline on the part of the department to get it, to
11 approve it by the end of the year.

12 MS. LUNA: Thank you.

13 MS. TSUJI: It is the Coastal Conservancy grant
14 that is the factor.

15 MS. LUNA: That's the problem. I feel I am and
16 the community is being faced with a Sophie's Choice, an
17 ecological Sophie's Choice. Containment or transporting
18 to someplace else is flawed.

19 We need more time to figure this out. There is
20 not a community consensus about this. The community
21 process is not in sync with the timeline that has been
22 set up for us, and we need some creative work around
23 that. That's what I feel right now because we're the
24 ones -- I'm speaking for my grandchildren and their
25 children's children.

1 I have a lot of respect for what you're trying
2 to do, but this is a problem that we have to deal with.
3 We do have a lot of potential to do something creative
4 with bioremediation, but there's not a quick fix.

5 You know, we have extremely high rates of
6 breast cancer here, thyroid problems. Who knows what we
7 were breathing in? No one would give us information
8 when they were burning that stuff.

9 Who is here representing G.P. tonight?

10 AUDIENCE MEMBER: Who is what?

11 MS. LUNA: Georgia-Pacific. Anybody?

12 AUDIENCE MEMBER: What was the question?

13 MS. LUNA: Who is representing Georgia-Pacific
14 tonight?

15 AUDIENCE MEMBER: Bridgette, are you?

16 MS. DeSHIELDS: I'm not with Georgia-Pacific.
17 I'm hired by them.

18 MS. LUNA: You're hired by Georgia-Pacific?

19 MS. DeSHIELDS: Yes.

20 MS. LUNA: Well, I don't want to put you on the
21 spot, but I want to say publicly that
22 Georgia-Pacific was supposed to be sustaining the
23 forestry, and you know, the mill closed down.

24 Georgia-pacific could fold and go someplace
25 else, and we're the ones, we are the ones that have been

1 suffering through this and are bearing the brunt of
2 this, and I really feel like we need more time so you
3 can talk to your managers. I don't know how much and to
4 what kind of a larger arena we have to politicize this,
5 but there's no good solution right now, and we should
6 not be forced into something that is really not going to
7 work for us.

8 MR. SHEPARD: My name is Jonathan Shepard.

9 I want to address the invisible elephant in the
10 room. That's a very good question that Andrea just
11 raised about where's Georgial-Pacific. I've been going
12 to these meetings for three years, and I haven't heard
13 one single person stand up and say, "I represent the
14 Georgia-Pacific Company, and this is what we want, and
15 this is what we think ought to happen." So I want to
16 provide the community with a little bit of information
17 that I came up with.

18 First of all, there seems to be some confusion
19 in the community as to who exactly owns what is
20 generally referred to as the G.P. mill site.

21 Our local radio station suggested that the G.P.
22 Corporation was a wholly-owned subsidiary of the
23 Coca-Cola Corporation.

24 AUDIENCE MEMBER: NO, K-o-c-h.

25 MR. SHEPARD: That information was entirely

1 incorrect. The Georgia-Pacific Company is not owned by
2 the Coca-Cola Corporation. It is the wholly-owned
3 subsidiary of Koch Industries.

4 Koch who? Koch Industries was founded in 1945
5 by Fred C. Koch as part of the oil services industry,
6 specializing in oil pipeline construction and
7 maintenance and on-shore facilities servicing offshore
8 oil rigs.

9 I wonder why they got fascinated by the G.P.
10 mill site, but that's an aside.

11 Later the company diversified into engineering,
12 financial services, corporate agriculture and ranching,
13 chemicals, fibers and polymers, and with the 2004
14 twenty-one billion dollar acquisition of Georgia-Pacific
15 Corporation forest products.

16 The Koch Industries entirely owns the
17 Georgia-Pacific Corporation. That means they are the
18 ones who ultimately call the shots. I'm sure they
19 agree. I'm sure it's corporate policy to let the
20 Georgia-Pacific Company do all the negotiations except
21 when one of them gets sticky.

22 The company employs eighty-thousand people
23 world-wide and operates in dozens of countries. Some
24 people refer to it as Halliburton on steroids.

25 Forbes Magazine refers to the Koch Industries

1 Company as the, quote, world's largest private company
2 with revenues of ninety billion dollars a year.

3 Does that make Koch Industries the largest
4 company in the world? No.

5 The appellation "largest private company"
6 refers to the fact that shares of the company are not
7 publicly traded on the stock market, and for this
8 reason, the company is not required to release certain
9 financial information to the Securities and Exchange
10 Commission.

11 Who runs Koch Industries? It is purported that
12 the Koch brothers themselves, the sons of the founder,
13 own a majority of the shares of Koch Industries.

14 Whatever the case, the brothers, Charles G.
15 Koch and David M. Koch, C.E.O. and executive vice
16 president respectively, rank as two of the wealthiest
17 men in the world.

18 The most recent Forbes Magazine survey of the
19 wealthiest people in the United States have both men
20 listed as tied for thirty-third on the list and both
21 worth an estimated seventeen billion, not million,
22 billion dollars.

23 What is the company's philisophy? This is the
24 last part, the part you've been waiting for.

25 An organization called Media Transparency,

1 which investigates how big corporations operate, points
2 out that Charles G. Koch founded the conservative think
3 tank, Cato Institute.

4 The family has long, for many, many years,
5 backed the John Birch Society. They have taken a
6 leadership position in attempting to debunk global
7 warming and, quote, make substantial contributions,
8 twelve million dollars, to like-minded organizations
9 trying to debunk global warming.

10 In touting limited government and free markets,
11 these organizations that they have founded, that Koch
12 Industries has founded, doubt the dangers of various
13 chemicals and environmental pollutants as well as
14 challenging research efforts to document hazards.

15 One CSE paper -- That's another think tank they
16 founded, argues that environmental conservation requires
17 a, quote, common-sense approach, and therefore,
18 government should be limited in investigating toxic
19 problems.

20 Assuming any difficult decisions regarding the
21 G.P. mill site will eventually float up to Koch
22 Industries board room and assuming the brothers, as
23 majority stockholders of Koch Industries and
24 their various wholly-owned and bought subsidiary,
25 Georgia-Pacific.

1 I have a few questions.

2 Number one: Are Charles and David, our
3 seventeen-billion-dollar men, aware of the fact that
4 this Fort Bragg is in California and not in North
5 Carolina, and do they know that? I ask that just to
6 make sure we're all on the same page.

7 Second question, has either brother ever
8 visited the California Fort Bragg? And if they have or
9 if they'd like to come, and I'd like to invite them to
10 come, would either of them be willing to build for
11 themselves I'm sure a very fine home, with spectacular
12 ocean views?

13 If they design it as a duplex, as many of us
14 now know, if they design it as a duplex with one common
15 wall, one brother living in one end, the other brother
16 living at the other end, it qualifies to sit right on
17 the cap, and then they can live their philosophy.
18 Nothing in there will hurt them. Global warming isn't
19 going to happen. Money counts more than anything, more
20 than you people, more than this city, more than anybody
21 living on this coast, because they don't even know if
22 this coast is California or Fort Bragg, I will wager.

23 I thank you very much.

24 MS. MORRIS: Well, that's a tough act to
25 follow.

1 Theresa Morris. I have worked with a lot of
2 the State Coastal Conservancy Commission in my career,
3 in my profession, and I don't know what exactly the
4 source is of funding for this particular grant.

5 I also was part of the trail planning workshop,
6 and I very much am in favor of the public trail along
7 the bluff edge of this property and what the Coastal
8 Conservancy and the city are trying to do, but Coastal
9 Conservancy grants in my experience are routinely
10 extended if that is necessary. So I think in this
11 situation, perhaps more time is needed rather than
12 having that deadline, which may be one that could be
13 extended.

14 It really should be discussed with the Coastal
15 Conservancy, the City of Fort Bragg, and the Department
16 of Toxic Substances if there is an opportunity here to
17 extend that funding source so that this can really be
18 dealt with in a way that the community feels good about,
19 'cause I think everybody needs to be feel good about
20 this, to have it feel like, after centuries of having
21 the whole waterfront in this town controlled by a
22 corporation that employed many people in the town but
23 really ultimately was more concerned with their profit
24 than this town.

25 This is an opportunity to start fresh and to

1 really have the responsible entities for the
2 contamination take care of the problem.

3 So thank you very much, and I really appreciate
4 the dedication that all of you have to doing your jobs
5 well and with integrity and to listening to our comments
6 this evening and throughout this process.

7 I do think that more time would be a good
8 thing, and the conservancy grant may not, that deadline
9 may not be real.

10 Thank you.

11 MR. GILLERA: They're folding up chairs behind
12 me, so I think they're kicking us out, but I'd just like
13 to mention that there's some very important information
14 in our presentation, and it's contained in these slides
15 that I didn't get to. So please take it home and look
16 it over. It's some critical information that I think
17 you folks should know.

18 Also, there's been some very pointed questions
19 posted up there regarding CEQA. If you want answers to
20 those questions, you're free to contact Susan Wilcox,
21 and her information is posted on the back of the agenda.

22 Thank you.

23 MS. SPARKS: I have a question. How will we
24 know that there is an extension?

25 MR. GILLERA: Jody's question was how will you

1 folks know if there's another extension.

2 Like Denise said earlier, we'll go back to our
3 managers and brief them about what requests and what
4 concerns were expressed this evening, and based on the
5 decision, I'll let you folks know either through email,
6 note cards or an official notice.

7 Thank you.

8 (Whereupon, the public meeting adjourned at
9 10:25 p.m.)

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1 REPORTER'S CERTIFICATE

2

3 I, Stephanie Anne Fox, a duly certified shorthand
4 reporter of the State of California, do hereby certify:
5 That the foregoing pages, numbered 1 through 125,
6 inclusive, constitute a full, true, and correct
7 transcript of the notes taken by me in the foregoing
8 proceedings in the within-entitled matters.

9

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12 Dated: April 16, 2008

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Stephanie Anne Fox, CSR #4640

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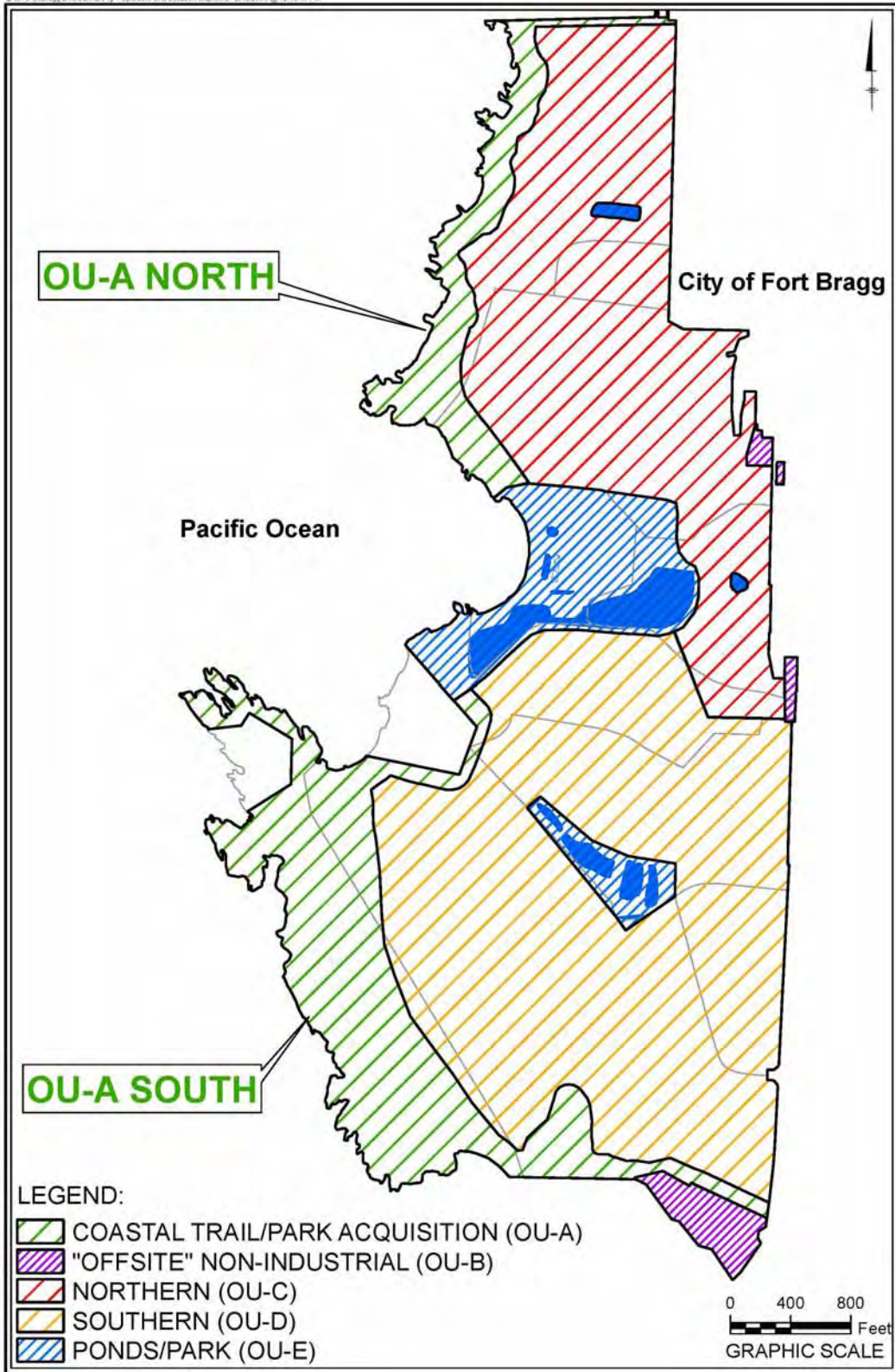
24

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RESPONSIVENESS SUMMARY
REMEDIAL ACTION PLAN
FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY

ATTACHMENT C

OU-A Map



RESPONSIVENESS SUMMARY
REMEDIAL ACTION PLAN
FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY

ATTACHMENT D

Fact sheet, Public Notice and Postcards associated with the OU-A RAP



Department of
Toxic Substances
Control

*The Mission of
the Department of
Toxic Substances
Control is to
provide the highest
level of safety, and
to protect public
health and the
environment from
toxic harm.*



State of California



California
Environmental
Protection Agency

Fact Sheet, March 2008

Draft Remedial Action Plan for The Georgia-Pacific Mill Site Operable Unit A is Available for Review

The draft Remedial Action Plan (RAP) for the Coastal Trail and Parkland Zone (also known as Operable Unit A (OU-A)) of the former Georgia-Pacific Mill Site located at 90 West Redwood Avenue, Fort Bragg, Mendocino County, California is now available for public review and comment. The draft RAP describes the proposed remedial alternatives to address soil contaminated with lead, polychlorinated biphenyls (PCBs), and dioxins/furans within the OU-A.

The Department of Toxic Substances Control (DTSC) encourages you to review and comment on the draft RAP. Comments may be provided at the upcoming Public Meeting, via the telephone, e-mail, or US Postal Service. Contact information is listed in the box below and located on page 4 of the fact sheet.

There is no immediate health risk because the public is not exposed to contaminated soil or other environmental media. However, because investigations indicate the presence of contaminants in soil at concentrations that could pose a potential risk to human health and the environment, DTSC has recommended that a cleanup plan be prepared. DTSC will oversee the proposed remedial action and ensure that it is performed in a manner that does not harm people or the environment.

PUBLIC MEETING

The Department of Toxic Substances Control will hold a Public Meeting to discuss and receive your comments on the draft Remedial Action Plan. The meeting is scheduled for **March 26, 2008** from 7:00 p.m to 9:00 p.m. at the following location:

Redwood Elementary School
324 South Lincoln Street
Fort Bragg, California 95437

PUBLIC COMMENT PERIOD - March 13 to April 14, 2008

Submit comments to:

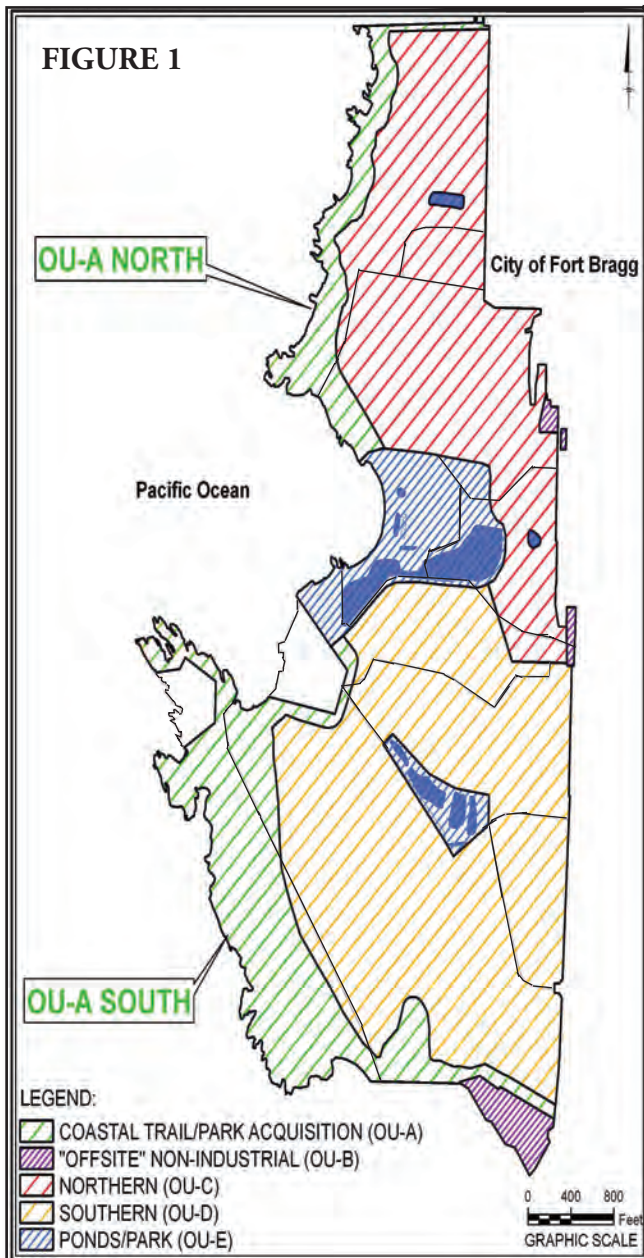
Edgardo Gillera, Project Manager
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, CA 94710-2721
EGillera@dtsc.ca.gov

Comments mailed must be postmarked by the deadline date of **April 14, 2008** and comments e-mail, faxed, or telephoned must be received no later than **5:00 p.m.** that same day. For additional information, please contact Edgardo Gillera at (510) 540-3826 or fax at (510) 540-3819.



Site History

Sawmill operations began at the site in 1885. Georgia-Pacific acquired the site in 1973 and stopped lumber production in 2002. The cleanup plan addresses the Coastal Trail and Parkland Zone, designated as OU-A, which encompasses parcels planned for future development as a coastal trail and park. OU-A is made up of two separate areas, referred to as OU-A North and OU-A South (See Figure 1).



During active operations at the site, OU-A was primarily used for storing logs and untreated lumber. In addition to the mill operations, other site activities in these areas included material disposal and open burning.

Environmental Investigations

Site investigations at OU-A have been ongoing since 2002 with a recent effort to fill data gaps under the oversight of DTSC. Data from all site investigations are summarized in the OU-A Remedial Investigation (RI) Report for the Coastal Trail and Parkland Zone, which was approved by DTSC on February 14, 2008.

The RI identified seven Presumptive Remedy Areas (PRAs), or areas to be remediated, where chemicals in soil were found above acceptable levels. The PRAs are in areas designated as Glass Beach 2 and the Parcel 3 Former Scrap Yard in OU-A North, and the Parcel 10 Fill Area in OU-A South. The contaminants of concern in these PRAs include lead, PCBs, and dioxins/furans.

Proposed Cleanup Options

The cleanup options (also known as remedial alternatives) evaluated in the draft RAP for OU-A are:

- No action
- Land use restrictions/controls
- Soil removal with offsite disposal
- Consolidation and capping
- Bioremediation

Based on careful analysis of the options (see Sections 4 and 5 of the RAP) the following alternatives are recommended because they protect human health and the environment, are permanent and economically feasible. Land use restrictions/controls will be a component of all proposed alternatives that will prevent sensitive uses of the site in any areas that do not meet acceptable standards for residential use.

If soil removal and offsite disposal is the selected alternative for the lead-contaminated area in Glass Beach 2 and the PCB-impacted in the Parcel 3 Former Scrap Yard in OU-A North, contaminated soil would be excavated, directly loaded into trucks and transported to the appropriate offsite disposal facility. Approximately 140-cubic yards of lead-contaminated soil and 990-cubic yards of PCB-contaminated soil will be excavated. After the contaminated soil is excavated,

samples will be taken to confirm that the soils with contaminant concentrations above site remediation goals have been removed. The excavated areas will be backfilled with clean soil, regraded and revegetated.

If consolidation and capping is the selected alternative for the soils impacted with dioxins/furans in portions of Glass Beach 2 and Parcel 10 Fill Area in OU-A South, contaminated soil would be excavated and then consolidated in another area of the Site (see Figure 2). Approximately 13,000-cubic yards of dioxin/furan-contaminated soil will be excavated. The excavated material would be placed in consolidation cell of approximately 1.3-acres. The consolidation cell will be lined (with a synthetic liner) and covered with an engineered cap. The cap will prevent contact with the contaminated soil. The capped area will be revegetated or covered with asphalt. This alternative will require operation and maintenance of the engineered cap and long-term monitoring to ensure that the engineered cap is working properly. Land use restrictions will also be placed on the consolidation area to prevent sensitive uses of that area.

The locations of the areas to be remediated and the consolidation area is depicted in Figure 2.

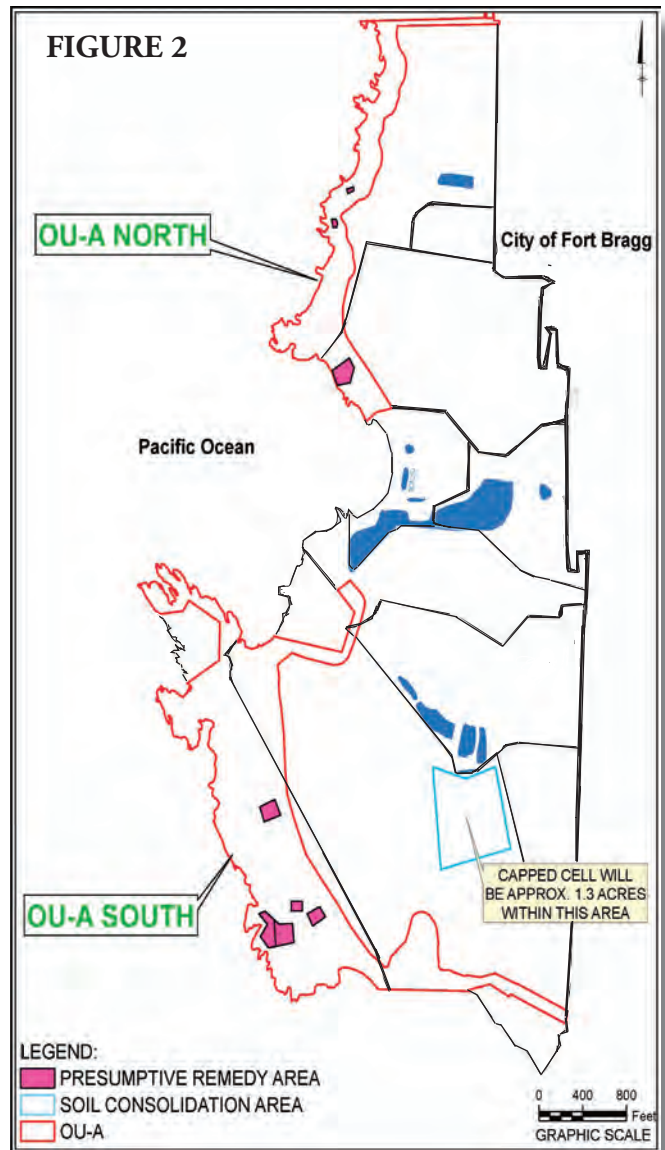
Safety and Dust Control During Cleanup

The following actions will be implemented during this process to ensure public safety and minimize dust:

- Driving all vehicles at slow speeds while on the property
- Spraying of work areas, stockpiles and roadways with clean water to control dust
- Securing trucks with covers before they leave the site
- Truck tires entering and exiting the site will be brushed to remove soils and debris
- Monitoring the air at the site to ensure the amount of dust stays at safe levels

Proposed Transportation Route for Trucks

Approximately 1,100-cubic yards of lead- and PCB-contaminated soil will be removed and taken offsite for disposal. It will take about 65 truckloads to remove the contaminated soil from the Site.



Trucks will leave the site down Hwy 20. Disposal facilities are state licensed and approved. This work will be limited to the hours between 6:00 am and 1:00 pm daily. The cleanup process is expected to take about 4 months.

California Environmental Quality Act (CEQA)

In compliance with CEQA, DTSC has prepared an Initial Study to evaluate the potential impacts of the proposed project on the environment. The findings of the Initial Study indicate that the project should not have a significant effect on public health or the environment. Therefore, DTSC has prepared a proposed Negative Declaration for the OU-A cleanup. Both the Initial Study and proposed Negative Declaration are also available for review and comment during the public comment period.

Next Steps

At the end of the public comment period, DTSC will review and respond to public comments and make any necessary revisions to the draft RAP for OU-A prior to final approval. Also, a response to comments document will be mailed to everyone who makes a comment and provides their name and address. The soil removal is expected to take place from spring to fall of 2008. After the cleanup is done, Georgia-Pacific will conduct soil testing to confirm cleanup goals have been reached and submit a Completion Report to DTSC for review and approval.

Where to Find the Documents

The draft RAP and other site-related documents are available for review at the following locations:

Information Repository

Fort Bragg Library
499 East Laurel Street
Fort Bragg, CA 95437
(707) 964-2020
Sunday & Monday: Closed
Tuesday & Thursday: 10:00 am to 6:00 pm
Friday & Saturday: 10:00 am to 5:00 pm
Wednesday: Noon to 8:00 pm

Fort Bragg City Hall
Planning Counter
416 N. Franklin Street
Fort Bragg, CA 95437
(707) 961-2823
Monday through Friday: 9:00 am to 5:00 pm

Administrative Record

Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, CA 94710-2721
(510) 540-3800 (please call for an appointment)
Monday through Friday: 8:00 am to 5:00 pm

Site documents are also available at DTSC Envirostor Database www.envirostor.dtsc.ca.gov. A computer is available in the DTSC file room for your use.

Who to Contact for Information

We appreciate hearing from the community and welcome your questions and concerns. If more information or questions regarding this fact sheet, the draft RAP for OU-A, or the Georgia-Pacific Mill Site overall, please contact:

Edgardo Gillera
DTSC Project Manager
(510) 540-3826
(510) 540-3819 fax
EGillera@dtsc.ca.gov

Public Participation Inquires:

Ms. Joyce Whiten
Public Participation Supervisor
Public Participation Branch
(916) 255-6684
1-866-495-5651 toll free
JWhiten@dtsc.ca.gov

Media Inquiries:

Ms. Jeanne Garcia
DTSC Public Information Officer
(818) 771-6573
JGarcia1@dtsc.ca.gov

NOTICE TO HEARING-IMPAIRED INDIVIDUALS

You can obtain additional information about the site by using the California State Relay Service at 1 (888) 877 5378 (TDD). Ask them to contact Joyce Whiten at (916) 255-6684 regarding the Georgia-Pacific, Fort Bragg Mill Site project.

ANNUNCIO

Si prefiere hablar con alguien en español acerca de ésta información, favor de llamar a Jacinto Soto, Departamento de Control de Substancias Tóxicas. El número de teléfono es 510-540-3842.



NOTICE OF PUBLIC COMMENT PERIOD

DRAFT REMEDIAL ACTION PLAN FORMER GEORGIA-PACIFIC WOOD WOOD PRODUCTS FACILITY 90 West Redwood Avenue, Fort Bragg, California

PUBLIC COMMENT PERIOD: MARCH 13 – APRIL 11

WHAT'S BEING PROPOSED?

The California State Department of Toxic Substances Control (DTSC) invites public comment on the draft Remedial Action Plans (RAPs) for the Coastal Trail & Parkland Zone (OU-A), and the Interim Action Areas of the Former Georgia-Pacific Wood Products Facility in Fort Bragg, California.

The draft OU-A RAP proposes to excavate soil impacted with lead and polychlorinated biphenyls (PCBs). The excavated soil would be transported offsite for disposal. Soil impacted with dioxins/furans would be excavated, then consolidated and capped onsite.

The draft Interim Action RAP proposes to excavate soil impacted with metals and PCBs. The excavated soil would be transported offsite for disposal. Soil impacted with petroleum-related compounds would be excavated and treated onsite using enhanced bioremediation. Groundwater encountered in the excavation areas will also be treated in-situ using oxygen-releasing material and other nutrients.

There is no immediate health risk because the public is not exposed to contaminated soil or other environmental media; however, DTSC recommends that plans be developed to address soil and groundwater contamination in these specific areas of the property.

DTSC has prepared a draft Initial Study and Mitigated Negative Declaration for the remedial activities and pursuant to the California Environmental Quality Act (CEQA). The findings of the Initial Study indicate that the projects should not have a significant effect on public health or the environment.

HOW DO I PARTICIPATE?

This notice provides the community an opportunity to learn more about the project and provide comments to DTSC about the proposed cleanup during the public comment period. Your participation is encouraged. Comments concerning the draft RAPs may be submitted in writing to Joyce Whiten, Public Participation Specialist, DTSC, 8800 Cal Center Drive, Sacramento, CA 95826, e-mail address: JWhiten@dtsc.ca.gov, and must be postmarked or e-mailed by April 11, 2008.

WHERE DO I GET MORE INFORMATION?

A copy of the draft RAPs, and other project documents are available at the Fort Bragg Library, 499 E. Laurel St., Fort Bragg and at Fort Bragg City Hall (Planning Counter), 416 N. Franklin St., Fort Bragg. It is also available at the DTSC fileroom at the address listed above. For more information about the DTSC, please visit our website at www.envirostor.dtsc.ca.gov.

CONTACT:

Joyce Whiten, DTSC Public Participation Specialist (866) 495-5651, press (#), then press (#)
Edgardo Gillera, DTSC Project Manager (510) 540-3826
Jeanne Garcia, DTSC Public Information Officer (Media Contact) (818) 717-6573
Bridgette DeShields (Responsible Party Contact) (707) 776-0865 x 17



**PUBLIC NOTICE
OF SMALL GROUP MEETING
GEORGIA-PACIFIC MILL SITE
Fort Bragg, California
Meeting Date: March 13, 2008**

***Si desea informacion en Espanol, comuniquese con Jesus Cruz, Especialista
en Participacion Publica al 1 (866) 495-5651***

The California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) is holding two Small Group Meetings to discuss with community members the proposed remedial alternatives for the Operable Unit A (OU-A) draft Remedial Action Plan (RAP) and the Interim Action Remedial Action Plan (IA RAP) for the Georgia-Pacific Mill Site. Representatives from DTSC will be present to discuss the issues and answer questions regarding the proposed plans.

Please plan to attend one of the Small Group Meetings scheduled for **March 13, 2008** at the following two locations:

Larsen Hall, St. Michaels Church

201 E Fir St
Fort Bragg, CA 95437

10:00 a.m. to 1:00 p.m.

Dana Gray Elementary School

1197 East Chestnut Street
Fort Bragg, California 95437

7:00 p.m. to 9:00 p.m.

If you have further questions regarding the site or the planned community forums, please contact:

Edgardo Gillera

Project Manager

Site Mitigation and Brownfields Reuse Program

Department of Toxic Substances Control

(510) 540-3826

EGillera@dtsc.ca.gov

Joyce Whiten

Public Participation Supervisor

Office of External Affairs

Department of Toxic Substances Control

(916) 255-6684 or toll free (866) 495-5651

JWhiten@dtsc.ca.gov

For Media, inquiries please contact Jeanne Garcia, DTSC Public Information Officer at (818) 717-6573 or via email at JGarcia1@dtsc.ca.gov.

NOTICE TO HEARING-IMPAIRED INDIVIDUALS –

TDD users can obtain additional information regarding this site through the California State Relay Service at 1-(888) 877-5378. Ask to speak with Joyce Whiten at (916) 255-6684.

**IMPORTANT NOTICE
PUBLIC MEETING
ON
THE GEORGIA-PACIFIC MILL SITE**

This meeting is to provide the community the opportunity to continue the discussion on the **Interim Action Remedial Action Plan (IA-RAP)** and the **OU-A Remedial Action Plan (OU-A RAP)** for the Georgia-Pacific Mill Site.

MEETING INFORMATION

DATE: APRIL 11, 2008
TIME: 7:00 P.M.
LOCATION: REDWOOD ELEMENTARY SCHOOL
324 South Lincoln Street
Fort Bragg, California 95437

If you have any questions regarding this meeting, please contact Edgardo
Gillera, DTSC Project Manager at 510-540-3826 or via email at
EGillera@dtsc.ca.gov



IMPORTANT NOTICE

PUBLIC COMMENT PERIOD EXTENSION

ON THE DRAFT REMEDIAL ACTION PLANS FOR THE FORMER GEORGIA-PACIFIC MILL SITE

COMMENT PERIOD EXTENSION: MARCH 13 TO APRIL 28, 2008

The Community of Fort Bragg has requested the Department of Toxic Substances Control (DTSC) for an extension of the Public Comment Period on the draft Remedial Action Plans (RAP)s for the Operable Unit A (OU-A) and the Interim Action Areas as well as the CEQA draft Mitigated Negative Declaration at the former Georgia-Pacific Mill Site in Fort Bragg, California.

Based on this request, DTSC has granted the **two-week extension**, which extends the current Public Comment Period **through April 28, 2008**. This extension provides the community additional time and opportunity to review site-related documents and submit comments on the draft RAPs.

If you have any questions regarding this meeting, please contact Edgardo Gillera, DTSC Project Manager at 510-540-3826 or via email at EGillera@dtsc.ca.gov

ANNUNCIO

Si prefieres hablar con alguien en español acerca de esta información, favor de llamar a Jacinto Soto, Departamento de Control de Sustancias Tóxicas. El número de teléfono es 510-540-3842.

Appendix F

California Environmental Quality Act
Notice of Determination

**CALIFORNIA ENVIRONMENTAL QUALITY ACT
NOTICE OF DETERMINATION**

To: Office of Planning and Research
State Clearinghouse
P.O. Box 3044, 1400 Tenth Street, Room 212
Sacramento, CA 95812-3044

From: Department of Toxic Substances Control
Brownfields & Environmental Restoration Program
700 Heinz Avenue, Suite 200
Berkeley, CA 94710

Subject: *FILING OF NOTICE OF DETERMINATION IN COMPLIANCE WITH SECTION 21108 OR 21152 OF THE PUBLIC RESOURCES CODE*

Project Title: OPERABLE UNIT A REMEDIAL ACTION PLAN/ FEASIBILITY STUDY & INTERIM ACTION REMEDIAL ACTION PLAN/ FEASIBILITY STUDY; GEORGIA-PACIFIC WOOD PRODUCTS FACILITY

State Clearinghouse No.: 2008032049

Project Location: FORT BRAGG, CALIFORNIA

County: MENDOCINO

Project Description:

Georgia-Pacific LLC submitted a proposed Operable Unit A (OU-A) Remedial Action Plan and Feasibility Study (OU-A RAP), to the California Department of Toxic Substances Control (DTSC) for approval pursuant to authority granted under Chapter 6.8 of the California Health and Safety Code (H&SC). Work described in the RAP (Arcadis BBL 2008a, 2008b) would be completed pursuant to DTSC's Site Investigation and Remediation Order for the site (Docket No. HSA RAO 06 07 150; the Order). The OU-A RAP addresses Sections 5.7 and 5.11 of the Order.

Background:

DTSC conducted an Initial Study under the California Environmental Quality Act (CEQA) to determine whether approval of activities related to the OU-A RAP and an Interim Action Remedial Action Plan and Feasibility Study (IA-RAP), referred to collectively as the "proposed project", could have a significant effect on the environment. This Initial Study concluded that only biological resources could have potentially significant impacts resulting from the proposed project. Consequently, mitigation measures were incorporated into the project to avoid or reduce biological impacts to less than significant levels and DTSC prepared and circulated for public review and comment a draft Mitigated Negative Declaration and a Mitigation Measure Monitoring and Reporting Program (MMMRP) in compliance with CEQA and its Guidelines (SCH#2008032049).

DTSC collected and evaluated comments received during the review and comment period and subsequently decided to obtain additional information and data to evaluate whether features and conditions within OU-A have contributed or may contribute to contamination within the sea caves or intertidal zone below and along the bluff. DTSC deferred final approval on the OU-A RAP until it had re-examined the Initial Study's environmental analysis of potential impacts in light of the data generated in the additional investigations. DTSC approved the final Mitigated Negative Declaration and IA-RAP and filed a Notice of Determination on June 3, 2008 in compliance with CEQA and its Guidelines.

After obtaining and analyzing additional information and data regarding sea cave conditions, DTSC concluded that although no evidence has thus far come to light to suggest that contamination within the OU extends beyond its boundaries, and no additional environmental impacts of potential significance have been identified, additional protective and monitoring requirements would be required to further ensure that impacts related to OU-A RAP activities would continue to be avoided or reduced to less than significant levels. These requirements are described in an Addendum to the Mitigated Negative Declaration (August 2008).

Findings:

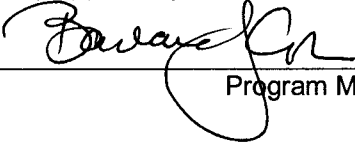
DTSC finds that there is no substantial evidence that the OU-A RAP portion of the project will have a significant effect on the environment, and that the Mitigated Negative Declaration, Addendum and additional support information and data reflect DTSC's independent judgment and analysis.

This is to advise that, as Lead Agency a Responsible Agency under CEQA, DTSC approved the above-described project on August 28, 2008 and has made the following determinations regarding the above-described project:

CALIFORNIA ENVIRONMENTAL QUALITY ACT NOTICE OF DETERMINATION

- 1. The project will will not have a significant effect on the environment.
- 2. A Negative Declaration Mitigated Negative Declaration Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
- 3. Mitigation measures were were not made a condition of the approval of the project
- 4. A Mitigation Measure Monitoring or Reporting Plan was was not adopted for this project.
- 5. A Statement of Overriding Considerations was was not adopted for this project.
- 6. Findings were were not made pursuant to the provisions of CEQA.

The Mitigated Negative Declaration, MMRP, comments and responses, and the record of project approval are available for reviewing in the File Room/Custodian at 700 Heinz Avenue, Suite 200, Berkeley, CA 94710.

Edgardo Gillera	Hazardous Substances Scientist	(510) 540-3826
Contact Person Name	Contact Person Title	Phone #
	Program Manager Signature	8/28/08
		Date
Barbara Cook	Manager, Brownfields & Environmental Restoration Program	(510) 540-3843
Program Manager Name	Program Manager Title	Phone #

Date Received For Filing and Posting at OPR:
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