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Memorandum

To: Alexandre Balcerzak
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District 1-Environmental Management
California Department of Transportation

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Subject: **Air Quality and GHG Analyses for the Savage Creek Intake Project**

Project Description

Caltrans District 1 proposes to upgrade/retrofit the existing water intake and diversion structure by removing and replacing the existing collection manifold, backfilling the diversion box with graded media, and installing a new fish friendly wedge-wire screen. The project is located in Humboldt County on Route 101 at postmile 103.6.

The purpose of this project is to require less maintenance, allow for a fish-friendly passage within the creek, and improve influent water quality. The project is needed due to sediment accumulation that causes algae and biofilm build-up in the existing intake device.

Air Quality

Transportation Conformity

Humboldt County is categorized as an attainment/unclassified area for all current National Ambient Air Quality Standards (NAAQS). Therefore, transportation conformity requirements do not apply.

Long-Term Effects (Operational Emissions)

This project would not change traffic volume, fleet mix, speed, or any other factor that would cause an increase in emissions relative to the no build alternative; therefore, this project would not cause an increase in operational emissions.

No minimization measures are recommended for operational emissions.

Short-Term Effects (Construction Emissions)

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other construction-related activities. Emissions from construction equipment also are expected and

would include carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOCs), directly-emitted particulate matter (PM₁₀ and PM_{2.5}), and toxic air contaminants such as diesel exhaust particulate matter. Construction activities are expected to increase traffic congestion in the area, resulting in increases in emissions from traffic during the delays. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Fugitive dust would be generated during grading and construction operations. Sources of fugitive dust include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site may deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM₁₀ emissions may vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀ emissions depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Minimization Measures

Implementation of the following measures, some of which may also be required for other purposes such as storm water pollution control, will reduce air quality impacts resulting from construction activities. Please note that although these measures are anticipated to reduce construction-related emissions, these reductions cannot be quantified at this time.

- The construction contractor must comply with the 2022 Caltrans Standard Specifications in Section 14-9. Section 14-9.02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including the North Coast Unified Air Quality Management District regulations and local ordinances.
- Water or a dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions.
- Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by CA Code of Regulations Title 17, Section 93114.
- Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, will be used.
- All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust during transportation.
- Equipment and materials storage sites will be located as far away from residential uses as practicable. Construction areas will be kept clean and orderly.

Greenhouse Gas (GHG)

Long-Term Effects (Operational Emissions)

The purpose of this project is to require less maintenance, allow for a fish-friendly passage within the creek, and improve influent water quality. The project would not increase capacity and would not change travel demands or traffic patterns when compared to the no-build alternative. Therefore, an increase in operational GHG is not anticipated.

Short-Term Effects (Construction Emissions)

Construction is expected to begin in 2023 and last approximately 180 working days. The proposed project would result in generation of short-term construction-related GHG emissions. Construction GHG emissions consist of emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays and detours due to construction. These emissions would be generated at different levels throughout the construction phase.

The CAL-CET2020 was used to estimate average carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbon-134a (HFC-134a) emissions from construction activities. Table 1 summarizes estimates of average GHG emissions generated by on-site equipment for the project. The average carbon dioxide equivalent (CO₂e) produced during construction is estimated to be approximately 17 metric tons.

Table 1. Estimates (US tons) of GHG Emissions during Construction

Construction Year	CO₂	CH₄	N₂O	HFC-134a	CO₂e*
2023	11	0.000	0.001	0.000	11.298
2024	6	0.000	0.000	0.000	6.000
Total	17	0.001	0.001	0.001	18.753

* A quantity of GHG is expressed as carbon dioxide equivalent (CO₂e) that can be estimated by the sum after multiplying each amount of CO₂, CH₄, N₂O, and HFC-134a by its global warming potential (GWP). Each GWP of CO₂, CH₄, N₂O, and HFC-134a is 1, 25, 298, and 1430, respectively.

Minimization Measures

- The construction contractor must comply with the 2022 Caltrans Standard Specifications in Section 14-9. Section 14-9.02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including the North Coast Unified Air Quality Management District regulations and local ordinances.
- Compliance with Title 13 of the California Code of Regulations, which includes idling restrictions of construction vehicles and equipment to no more than 5 minutes.

- Caltrans 2022 Standard Specification 7-1.02C "Emissions Reduction" ensures that construction activities adhere to the most recent emissions reduction regulations mandated by the California Air Resource Board.
- Alternative fuels such as renewable diesel should be used for construction equipment.
- Limit idling to 5 minutes for delivery and dump trucks and other diesel-powered equipment.
- Schedule truck trips outside of peak morning and evening commute hours.
- Reduce construction waste and maximize the use of recycled materials (reduces consumption of raw materials, reduces landfill waste, and encourages cost savings).
- Encourage Improved fuel efficiency from construction equipment.
- Maintain equipment in proper tune and working condition.
- Use right size equipment for the job.
- Use equipment with new technologies.
- Apply Construction Environmental Training: Supplement existing training with information regarding methods to reduce GHG emissions related to construction.

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