INTEROFFICE MEMORANDUM
March 3, 2021

TO: **Flora Chan** **Via:** **Daphne Y. Chong**
FROM: **Flora Chan**

SUBJECT: **Results of Health Risk Assessment (HRA)**
Hanson Aggregates Pier 92 Sand Yard (San Francisco, CA),
Sand Off-loading Facility (S1), Sand Stockpiles (S2) and Road Dust;
Plant #13407, Application #28839

SUMMARY: Per your request, a health risk assessment (HRA) was completed for the above referenced permit application. This analysis estimates the incremental health risk resulting from toxic air contaminant (TAC) emissions from Sand Off-loading Facility (S1), Sand Stockpiles (S2) and Road Dust at this facility.

Results from this HRA indicate that the project chronic hazard index (HI) is estimated at 0.090. Respirable crystalline silica is the only toxic air contaminant (TAC) assessed in this analysis. Since crystalline silica is not a carcinogen and does not have an established acute reference exposure level (REL), this HRA only includes an assessment of the chronic HI.

In accordance with the District's Regulation 2-5-301, this project does not require TBACT because the estimated source risk is a chronic HI less than 0.20. This project complies with the Regulation 2-5-302 project risk requirements.

EMISSIONS: Hanson provided operation details and source parameters for this HRA refinement. The revised TAC emission rates (emitted by S1, S2 and Unpaved/Paved Road Dust) are presented in the following table:

Source Descriptions	Annual Crystalline Silica Emissions [lb/year]
Sand Off-loading (S1)	31.25
Sand Stockpiles (S2)	10.95
Road Dust - Front Loader on Unpaved Road	202.13
Road Dust - Transfer Truck on Unpaved Road	233.27
Road Dust - Transfer Truck on Paved Road	55.25
Total	**532.85**

MODELING: The AERMOD air dispersion computer model (version 19191) was used to estimate annual average ambient air concentrations. The model was run with San Francisco International Airport (2013-2017) AERMOD ready meteorological data. The model was referenced in NAD 83 UTM coordinates and used 10-meter NED terrain data files for San Francisco County. Model runs were made with rural dispersion coefficients to best represent the land use around this facility. A flagpole height of 1.5 meters was used at each receptor to represent the human breathing zone. Area and volume sources parameters for the analysis were based on information provided by the applicant.

HEALTH RISK: Health risk estimates were calculated in accordance with the BAAQMD's Air Toxics NSR Program HRA Guidelines, dated December 2016. Estimates of residential risk assume potential exposure to annual average TAC concentrations occur 350 days per year, for 30 years. In addition, residential risk estimates assume a 95th percentile breathing rate for age groups younger than two years old, and 80th percentile breathing rate for age groups that are older than or equal to two years of age. Risk estimates for offsite workers assume potential exposure occurs 8 hours per day, 250 days

per year, for 25 years. For offsite workers, the 95th percentile 8-hour breathing rate based on moderate activity was assumed. Residential cancer risk estimates include age sensitivity factors (ASFs) and fraction of time at home (FAH) adjustments. The ASFs are age-specific weighting factors used in calculating cancer risks from exposures of infants, children and adolescents, to reflect their anticipated special sensitivity to carcinogens. The estimated health risks for this permit application are presented in the table below.

HRA Results – Pier 92 (S1, S2, and Unpaved Road)

Receptor	NAD 83 UTM Coordinates (meters)		Cancer Risk (in a million)	Chronic HI	Acute HI
	Easting (x)	Northing (y)			
Resident	553957.2	4177092.8	NA	0.0018	NA
Worker	554741.1	4177851.0	NA	0.090	NA

Student risk values were not calculated because there are no K-12 schools within 1,000 feet of the source.