

INTEROFFICE MEMORANDUM
January 14, 2021

TO: Flora Chan
FROM: Flora Chan

Via: Daphne Y. Chong

SUBJECT: Results of Health Risk Assessment (HRA)
Hanson Aggregates Pier 94 (San Francisco, CA), Plant #23564, Application #27982
Aggregate & Sand Off-loading Facility
S1 Hopper Chute to Feed Belt Conveyor,
S2 Feed Belt Conveyor to Boom Stacking Conveyor
S3 Boom Stacking Conveyor to Stockpile
S4 Stockpiles and Road Dust

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 Aggregate & Sand Off-loading Facility:

S1 Hopper Chute to Feed Belt Conveyor
S2 Feed Belt Conveyor to Boom Stacking Conveyor
S3 Boom Stacking Conveyor to Stockpile
S4 Stockpiles
Paved Road Dust

Results from this HRA indicate that the maximum chronic hazard index (HI) is estimated at 0.064. Respirable crystalline silica is the only toxic air contaminant (TAC) in this analysis. Since crystalline silica has no cancer potency value or acute reference exposure level, this HRA has no cancer risk or acute hazard index.

In accordance with the District's Regulation 2-5-301, this project does not require TBACT because the estimated source chronic hazard index is less than 0.2. This project complies with the Regulation 2-5-302 project risk requirements.

EMISSIONS: The emission rates of toxic air contaminant (TAC) emitted by (S1, S2, S3, S4 and Paved Road Dust) are presented in the following tables:

Sources	Annual Crystalline Silica Emissions [lb/year]
S1	29.29
S2	29.29
S3	29.29
S4	43.78
Road Dust from Paved Road	459.98
Total	591.63

MODELING: The AERMOD air dispersion computer model (version 19191) was used to estimate annual average ambient air concentrations. The model was run with Mission Bay (2008-2012) 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. Stack and building 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 94 (S1, S2, S3, S4 and Paved Road)

Receptor	NAD 83 UTM Coordinates (meters)		Cancer Risk (in a million)	Chronic HI	Acute HI
	Easting (x)	Northing (y)			
Resident	554,375.3	4,176,954.3	NA	0.0063	NA
Worker	555,100.0	4,177,340.0	NA	0.064	NA

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