Appendix E1

Air Quality Construction Methods Memorandum

ESA

RAMBOLL

ENVIRONMENT
& HEALTH

MEMO

To **Jose Campos,**
Office of Community Investment and Infrastructure

From **Michael Keinath**
Sarah Manzano

Subject **Addendum 7 Construction Technical Memorandum: Air Quality Analysis and Health Risk Assessment for the Refinements to the Candlestick Point-Hunters Point Shipyard Phase II Development Plan**

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In 2009, Ramboll Americas Engineering Solutions Inc. (Ramboll), known at the time as ENVIRON International Corporation, performed four ambient air quality (AAQ) human health risk assessments (HHRA) as part of the Environmental Impact Report (EIR) for the proposed Candlestick Point – Hunters Point Shipyard Phase II Development Plan (herein referred to as the "2010 Project"; also known as San Francisco Planning Department Case Number 2007.0946E). The EIR for the 2010 Project was certified in July 2010 and since that time the Project proponent, FivePoint (formerly Lennar Urban) and the City and County of San Francisco, have been working to implement the Project plan.

However, since the certification of the EIR, the 2010 Project has been modified to include revisions to proposed land uses and changes to the phasing plan. This analysis supports Addendum 7 to the EIR, which builds on the analyses of previous addenda. This analysis evaluates the following changes from Addendum 6:

- The increase of office/Research and Development (R&D) space at Candlestick Point (CP) for a total of 2,800,000 square feet of office/R&D and corresponding reduction in office/R&D space at Hunters Point Shipyard Phase II (HPS2), which results in an increase of 1,800,000 square feet of office/R&D at CP than evaluated in Addendum 6;
- Updates to the CP-HPS2 Phasing Plan, including schedule of construction and combination of subphases into six phases; and
- The continued delay of the commencement of construction at HPS2.

As such, the phasing of the 2010 Project and the uses for particular parcels has changed from what was originally evaluated in 2009. A map showing this revised phasing is presented as **Attachment A**. The updated project plans will be referred to as the 2024 Modified Project Variant. To reflect this new phasing, TRC prepared a Construction Workers and Equipment Phasing Plan for the 2024 Modified Project Variant dated 3/29/2024 (included as Appendix G of Addendum 7).

Since completion of the analyses described herein, the phasing of the 2024 Modified Project Variant was renumbered from Phases 0 through 6 to Phases 1 through 7. In addition, Alice Griffith 2 (AG2) has been split into two development phases and one part of AG2 would now be constructed as part of Phase 4 (previously Phase 3) instead of the entirety of AG2 being constructed in Phase 6 (previously Phase 5).

This change does not change the conclusions of our analysis. Although construction of part of AG2 would now occur in an earlier phase, construction equipment is already required to be Tier 4 (or better) and therefore, the emission factors for offroad equipment used in our analysis do not change.

In addition, health impacts from the combination of the partial AG2 construction and other construction during Phase 4 are not expected to be more severe than the combined AG2 construction that was analyzed herein. Due to the distance between the AG2 area and other Phase 4 parcels, the combined impact of construction of both parts of Phase 4 (part of AG2 and the area south of Harney Way) would not be greater than the impact from one part of the phase by itself.

Furthermore, the impact of the construction of the second part of AG2 during Phase 6 on the first part of AG2 would be similar to or less than the impact of all of AG2 on Alice Griffith 1 as originally analyzed. This analysis evaluated the impact of a single-phase AG2 on Alice Griffith 1. In the updated construction schedule, the first part of AG2 would be exposed to less construction than Alice Griffith 1 was exposed to in the analysis herein and therefore would experience lower impacts. In addition, the impacts of construction of the second part of AG2 on Alice Griffith 1 would be reduced due to both reduced construction activity and the physical shielding provided by the first part of AG2.

For these reasons, the analyses described in this memo continue to assume the initial phasing presented in **Attachment A** as a conservative approach. Accordingly, the remainder of this memo references the initial phase numbering from Phases 0 to 6.

Ramboll has conducted a construction HHRA of the revised phasing plan (designated herein as the "2024 Phasing Plan") to determine if the 2024 Modified Project Variant would result in any new significant impacts not identified in the EIR or substantially increase the severity of an impact, as compared to impacts identified in Impact AQ-2 in the 2010 FEIR. In addition, health impacts from chemicals bound to soil-PM_{10} released into the air during construction activities were re-evaluated for the 2024 Modified Project Variant impact, as compared to impacts identified in Impact AQ-3 in the 2010 FEIR.

The construction HHRA and soil-PM_{10} analyses are focused only on the CP portion of the Project. The 2024 Modified Project Variant reduces the land use of Hunters Point Shipyard and delays the start of construction, and thus would reduce construction impacts. Therefore, construction at Hunters Point Shipyard was not evaluated quantitatively. The analysis in Addendums 5 and 6 for HPS2 would be conservative estimates of impacts at HPS2.[1]

EVALUATION OF DIESEL PARTICULATE MATTER FROM CONSTRUCTION ACTIVITIES

Section III.H.4 of the EIR identified the construction thresholds of significance for toxic air contaminants as:

- Probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 1 x 10^{-5} (10 in one million)

[1] Addendum 6 also anticipated a transfer of land uses from HPS2 to CP and relied on the analysis in Addendum 5 for impacts from HPS2.

- Ground level concentrations of non-carcinogenic air contaminants/pollutants resulting in a HI greater than 1 for the MEI.

As discussed in Impact AQ-2 of the EIR, all impacts were determined to be less than Significant with Mitigation, namely mitigation measures MM AQ 2.1 and 2.2, listed below:

- MM AQ 2.1 Implement Emission Control Device Installation on Construction. To reduce DPM [diesel particulate matter] emissions during Project construction, the Project Applicant shall require construction equipment used for the Project to utilize emission control technology such that 50% of the fleet will meet US EPA Tier 2 standards outfitted with California ARB [Air Resources Board] Level 3 VDECS (Verified Diesel Emission Control Strategies) for particulate matter control (or equivalent) during the first two years of construction activities, increasing to 75% of the fleet in the third year and 100% of the fleet starting in the fourth year and for the duration of the Project.
- MM AQ 2.2 Implement Accelerated Emission Control Device Installation on Construction Equipment Used for Alice Griffith Parcels. In addition to mitigation measure MM AQ 2.1, in order to minimize the potential impacts to residents living in Alice Griffith from the construction activities in that area, the Project Applicant will require that all construction equipment used in the Alice Griffith parcels (CP01 though CP06) would utilize equipment which meets the US EPA Tier 2 standards outfitted with California ARB Level 3 VDECS (Verified Diesel Emission Control Strategies) for particulate matter control (or equivalent) throughout the entire duration of construction activities on those parcels.

Below we describe the methods used in this screening level HHRA to determine whether the proposed modifications to the Project Phasing Schedule would result in any new significant impact on air quality beyond those identified in the 2010 FEIR or substantially increase the severity of a significant impact. mitigation measure MM AQ 2.1 is anticipated to be updated consistent with other mitigation measures for construction in the City and County of San Francisco to require Tier 4 construction equipment for the remainder of construction. Therefore, this analysis assumes all equipment used in the future would have Tier 4 engines.

Approach for Construction Diesel Particulate Matter Analysis

Other than modifications detailed below, for this updated HHRA, Ramboll followed the methods outlined in Section III.H Air Quality of the EIR. As discussed there, the methods used to analyze the human health effects from emissions of DPM associated with Project construction equipment were developed consistent with Bay Area Air Quality Management District (BAAQMD), California Environmental Protection Agency (Cal/EPA), and United States Environmental Protection Agency (USEPA) risk assessment guidance. The analysis incorporates conservative (i.e., health protective) methodologies for the following: (1) the estimation of emissions, (2) the calculation of airborne concentrations of DPM during construction activities at receptor locations, and (3) the estimation of excess lifetime cancer risks and non-cancer health effects or hazard indices (HIs). The analysis was updated where appropriate with current recommended methodologies, as discussed in more detail throughout. For instance, since the 2010 FEIR, the Office of Environmental Health Hazards Assessment (OEHHA) issued new guidance for evaluating health risks. To reflect the updated OEHHA guidance, the impacts from construction were re-evaluated using the new guidance.[2]

[2] Office of Environmental Health Hazard Assessment (OEHHA). Guidance Manual for Preparation of Health Risk Assessments. February 2015. Available online at: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

Revised Construction Phasing

As discussed earlier, TRC prepared an updated construction phasing schedule (dated 03/29/2024) which included phase duration, construction equipment list and usage, number of construction workers, and number of construction truck trips for:

- Candlestick Point
- Development of Shoreline of Candlestick Point

Emissions Calculation

Emissions from off-road construction equipment associated with Project development were calculated using the same equipment horsepower and load factor as used in the EIR. Emission factors were sourced from defaults utilized in the California Emissions Estimator Model (CalEEMod) v2022.1, which are based on ARB's 2017 In-Use Off-road Equipment Inventory Model.[3,4] Construction began in 2014, rather than in 2010 as assumed in the original analysis. The updated construction information provided by TRC reflects the updated activity since 2014, including the demolition of the stadium and break in construction activity in recent years. We understand that there has only been minor activity in recent years to accept soil imports. In addition, the Project assumes the use of equipment that meet the stricter US EPA Tier 4 standards rather than US EPA Tier 2 standards outfitted with California ARB Level 3 VDECS (Verified Diesel Emission Control Strategies), as discussed above. Therefore, implementation of mitigation measure MM AQ-2.1 has been revised to reflect the current construction schedule assuming construction equipment used for the Project would be required to utilize emission control technology such that 100% of the fleet will meet US EPA Tier 4 Standards for particulate matter control (or equivalent) for the duration of the Project. Therefore, 100% of the construction equipment after year 4 exceeds the minimum requirement of US EPA Tier 2 standards outfitted with California ARB Level 3 VDECS as detailed in mitigation measures MM AQ-2.1 and MM AQ-2.2. Construction equipment in 2014 and 2015 is assumed to be 50% Tier 4, equipment in 2016 is assumed to be 75% Tier 4 and equipment used 2017 and beyond is assumed to be 100% Tier 4.

Although included in previous addenda, emissions from Field Management equipment were not included in Addendum 7 because that equipment is only used to reduce downtime if other, already accounted for, equipment breaks down, according to TRC. To avoid double-counting emissions from construction equipment, emissions from Field Management equipment were not included in the analysis. In addition, emissions from on-site field trucks were estimated using emission factors for heavy heavy-duty trucks from EMFAC2021. Greenhouse gas (GHG) emissions from off-road trucks were excluded from the total construction GHG emissions in the 2010 EIR. In this analysis, GHG emissions from off-road trucks were conservatively included in calculating the total construction GHG emissions.

Emissions from on-road mobile sources, particularly the running, idling, and starting emissions from worker commute trips and haul truck trips making deliveries and removing materials, were calculated using emission factors developed based on ARB's EMFAC2021 model. The emission factors were developed using the same methodology as the 2010 FEIR, but with the updated EMFAC2021 model rather than the EMFAC2007 model.[5] The worker vehicles were assumed to be gasoline-fueled 50% light duty vehicles (LDA) and 50% light duty trucks (25% LDT1 and 25% LDT2). The haul trucks were assumed to be diesel-fueled 100% medium heavy-duty trucks (MHDT). These are the same

[3] California Air Pollution Control Officers Association (CAPCOA). California Emissions Estimator Model (CalEEMod), Version 2022.1. Available online at http://www.caleemod.com/

[4] CalEEMod supersedes the URBan EMISsions Model (URBEMIS), which was used in the EIR.

[5] ARB. 2021. Emission FaCtor (EMFAC) Model. Available at: https://arb.ca.gov/emfac/

assumptions used in the 2010 EIR. The distance that the workers and haul trucks would travel along the hauling roads was assumed to be the same as the 2010 EIR. Idling and starting emissions from on-road activity were allotted to the construction parcels. Running emissions from on-road activity were attributed to the hauling roads.

Construction emission rates in gram per second are presented in **Attachment B, Table B1**.

Air Dispersion Modeling

Air dispersion modeling (using USEPA AERMOD, version 23132) was conducted for the revised construction activity as a method of comparing the impact of the revised phasing plan to the previously modeled receptor locations (as before, ground level receptors were assumed). The modeled receptor grid is the same grid used for Addendum 6 at existing sensitive receptor and worker locations. A 20 meter by 20-meter grid of volume sources was developed for the revised construction emissions, with emissions within each parcel evenly distributed throughout the volume sources, consistent with the parameters used in the EIR. Construction equipment is assumed to be able to operate in a 13-hour operating window (from 7 am to 8 pm) established for the City of San Francisco; the DEIR assumed construction equipment could operate within an 8-hour period from 7am to 3pm.

The models used the same meteorological data used in the 2010 FEIR. Terrain data was updated using the most recent version of AERMAP (version 18081), the terrain preprocessor for AERMOD. Mobile source starting and idling emissions associated with each parcel development were modeled along with the construction off-road equipment emissions through the volume sources. On-road mobile running emissions from worker vehicles, which occur off-site, were not modeled considering the running emissions are likely to be lower due to cleaner engines as a result of the construction beginning in 2014, 4 years later than that assumed in the 2010 EIR.

Health Risk Assessment

The HHRA was conducted following the 2015 Office of Environmental Health Hazards Assessment (OEHHA) guidance on how to estimate health impacts from toxic air contaminants. All exhaust PM_{10} from diesel-fueled construction equipment was assumed to be DPM.

Following OEHHA 2015 guidance, for assessing impacts to exposed populations from emissions resulting from the Project construction and operational emissions, sensitive receptors were evaluated as a fetus *in utero* at the beginning of the third trimester at the start of construction until the end of construction. The updated health risk assessment guidance tends to result in more conservative results than the results using the previous OEHHA guidance. Therefore, evaluating the 2024 Modified Project Variant using the updated guidance would result in a conservative comparison to the impacts in the 2010 FEIR, which uses the previous OEHHA guidance.

Emissions and exposure to sensitive populations would vary across the 34-year construction period. Therefore, multiple exposure scenarios were evaluated to capture the period of maximum impact on each sensitive population and location both on-site and off-site; these exposure parameters are shown in **Attachment B, Tables B2** and **B3a-e**. Health impacts were evaluated for the following scenarios:

- Scenario 0: Exposure to construction beginning at the start of construction in 2014;
- Scenario 1: Exposure to construction beginning at the start of Phase 1 in 2025;
- Scenario 2: Exposure to construction beginning at the start of Phase 2 in 2028;
- Scenario 5: Exposure to construction beginning at the start of Phase 5 in 2038; and,
- Scenario 6: Exposure to construction beginning at the start of Phase 6 in 2041;

These scenarios were selected for analysis based on magnitude of emissions and proximity to sensitive receptors.

Scaling factors were applied to the first year for each exposure scenario based on the fraction of time the exposure scenario would be exposed to the specific phase of emissions.

Alice Griffith sensitive receptor locations (on-site residents) were adjusted to align with the Alice Griffith parcels that were constructed before the 2024 Modified Project Variant. Off-site Worker and School Child sensitive receptor locations were kept consistent with the DEIR and retained in the analysis, but were conservatively analyzed with receptor exposure parameters.

Results for Construction Diesel Particulate Matter Analysis

The modified Project with the new phasing schedule, beginning four years later than was assumed in the EIR and with the application of mitigation measures MM AQ-2.1 and 2.2, approved in the 2010 FEIR, results in an excess cancer risk at the maximally exposed sensitive receptor location of 8.5 in a million and would not exceed the threshold of >10.0 in 1 million; this receptor is an on-site resident. The non-cancer impacts would be less than the Chronic Hazard Index (HI) threshold of >1 at the maximally exposed individual location, which is an off-site worker. With mitigation, the results for the modified Project are below the significance thresholds for determining whether construction activities would expose sensitive receptors to substantial levels of DPM.

Attachment B, Table B4 shows the health impacts for each receptor type and exposure scenario evaluated. **Attachment B, Table B5** compares the results of the 2024 Project Modification Variant to the results for Candlestick Point in the 2010 FEIR. As shown in the table, impacts from the 2024 Project Modification Variant are higher when compared to the 2010 FEIR, but below significance thresholds.

Construction at Hunters Point Shipyard is similar to or lower than what was analyzed previously, so health impacts from HPS2 would be similar or lower than what was analyzed previously. The maximum impacts from CP are far from the construction at HPS2 at about 2,000 feet at its closest point, so impacts from HPS2 are expected to be minimal at the maximally exposed sensitive receptor. Health risks from CP closer to the construction of HPS2 are similar to the health impacts analyzed previously, so the combined impact of Candlestick Point and Hunters Point Shipyard construction closer to HPS2 is expected to be similar to what was reported in the 2010 FEIR or previous addenda.

Implementation of the modified construction schedule would not result in any new significant effects related to emissions of DPM beyond those identified in the EIR nor a substantial increase in the severity of a significant impact. Therefore, no new mitigation measures would be required.

TOXIC AIR CONTAMINANTS FROM CONSTRUCTION ACTIVITIES

In Impact AQ-3 of the 2010 FEIR, impacts from emissions of toxic air contaminants (TACs) bound to soil PM_{10} from construction activities at Candlestick Point were determined to be Less than Significant with Mitigation, specifically mitigation measure MM HZ-15, which requires the Project Applicant to implement dust control measures. Since the 2010 FEIR, there have been more recent soil studies performed at CP, updated phasing, and advancements in modeling and health risk assessment guidance. In addition, the 2010 FEIR did not evaluate soil PM_{10} impacts from deep-dynamic compaction, which are proposed for the 2024 Modified Project Variant. Below we describe the methods used to evaluate health impacts from soil-bound TAC emissions and whether recent soil studies performed at CP, updated HHRA guidance, analysis of deep-dynamic compaction, and the 2024 Phasing Plan would result in significant impacts on air quality beyond what was evaluated in the 2010 FEIR.

Approach for Airborne PM_{10} Health Risk Assessment

Other than the modifications detailed below, Ramboll followed the methods outlined in Section III.H Air Quality of the 2010 FEIR. As discussed in the EIR, the methodology for analyzing soil dust emissions uses conservative approaches to estimate PM_{10} emissions from soils, calculate airborne PM_{10} and associated chemical concentrations at sensitive receptor locations, and estimate excess lifetime cancer risks and noncancer health effects or HIs from demolition and soil grading activities during Project construction.

Emissions Calculation

Since the 2010 FEIR, more recent soil studies have been performed within the CP area. To account for these soil studies, analytical results for chemicals in soils within the CP area from the 2015 Geomatrix Consultants, Inc. (Geomatrix) *Final Site Mitigation Plan*: *Candlestick Stadium Redevelopment* report and the 2019 Albion Partners (Albion) *Addendum to Site Management Plan* report were evaluated,[6,7] shown in **Attachment D**. The results from the soil studies were screened for inclusion into the analysis consistent with the criteria used in the 2010 FEIR, namely: a) sampled TACs were included in the analysis if the 95% upper tolerance limit of the arithmetic mean exceeded the representative background concentration from Lawrence Berkeley National Laboratory and b) any sampled concentration within the 0-to-5-foot depth interval was included.

Consistent with the 2010 FEIR approach, the maximum sampled soil concentration for each TAC was determined by phase and used as the soil source concentration, as shown in **Attachment C, Table C1**. **Attachment C, Figure 1** shows the phase areas. Sample GS-08 in the Albion report, located in Phase 6 of the 2024 Modified Project Variant, was identified as an outlier for polychlorinated biphenyl (PCB) concentrations compared to the rest of the soil study data and was determined as not representative of the entire Phase 6 area. As a result, Phase 6 was divided as shown in **Attachment C, Figure 1**, where GS-08 was used as the maximum concentration of southern half of Phase 6 and GS-03 was used to evaluate the northern half of Phase 6. There are several samples between GS-08 and the boundary of the area where the GS-08 concentration is applied that show that concentrations are decreased (by two to three orders of magnitude) in the other half of the site.

PM_{10} emissions from grading and demolition were estimated consistent with the approach in the 2010 FEIR. To capture maximum impacts beyond those analyzed in the 2010 FEIR, PM_{10} emissions were also estimated for deep-dynamic compaction activities following guidance in EPA AP-42 Section 13.2.3 for compacting activities during site preparation.[8] AP-42 Section 13.2.3 recommends the use of bulldozing emission factors for compacting activities. Accordingly, Ramboll used the bulldozing emission factor equations found in CalEEMod User's Guide, Appendix C, which are consistent with AP-42, Section 11.9.

Ramboll assumed that the 2024 Modified Project Variant would apply the same mitigation measures as used in the 2010 FEIR (presented below) for both PM_{10} emission sources. Where applicable, control efficiencies for these mitigation measures were updated using CalEEMod defaults; namely: Water exposed surfaces two times daily, from 55% to 61%; Reduce speed on unpaved roads to less than 15

[6] Geosyntec Consultants, Inc. Final Site Mitigation Plan: Candlestick Stadium Redevelopment Sub-Phases CP-02, CP-03, and CP-04. August 26, 2015.
[7] Albion Partners. Addendum to Site Management Plan: Major Phases CP-02, CP-03, and CP-04, and Storm Drain Outfalls #1, #2, #3, and #4. September 20, 2019.
[8] US EPA. AP-42 Compilation of Air Emission Factors from Stationary Sources. Chapter 13.2.3 Heavy Construction Operations, pg 13.2.3-4. January 1995. Available online at: https://www.epa.gov/sites/default/files/2020-10/documents/13.2.3_heavy_construction_operations.pdf.

miles per hour, from 44% to 57%; and Manage haul road dust by watering the roads three times daily, from 61% to 74%.[9][10]

Air Dispersion Modeling

As in the evaluation of DPM from construction activities, the air dispersion models (USEPA AERMOD, version 23132) were run for the revised construction activity to compare the impact of the revised phasing plan and updated soil studies to the previously modeled receptor locations in the 2019 Modified Project Variant. Modeling parameters were consistent with those used in the EIR for soil disturbing activity: area sources with a zero-meter release height and one-meter initial vertical dimension. Construction equipment used for soil disturbance is assumed to be able to operate in a 13-hour operating window (from 7 am to 8 pm) established for the City and County of San Francisco.

All receptors were analyzed as residential receptors to be conservative. The models used the same meteorological data used in the 2010 FEIR. Terrain data was updated using the most recent version of AERMAP (version 18081).

Health Risk Assessment

The HHRA was conducted following the 2015 Office of Environmental Health Hazards Assessment (OEHHA) guidance for estimating health impacts from toxic air contaminants. Cancer potency factors and chronic reference exposure levels for all chemicals in the analysis were updated to 2023 OEHHA/CARB values, when available, and in all other cases, values from the FEIR were used.[11] These toxicity values are shown in **Attachment C, Table C1.**

To conservatively assess cancer risks and health impacts, sensitive receptors were assumed to be exposed to all soil disturbing activity for each phase simultaneously; this approach overlaps phased construction activity in the earliest years of exposure, which have the highest intake factors. The exposure parameters for are the same as presented in **Attachment B Table B1** and **Table B2b**, for Scenario 1, which evaluates construction beginning in 2025.

As in the evaluation of DPM from construction activities, Alice Griffith sensitive receptor locations (on-site residents) were adjusted to align with the Alice Griffith parcels that were constructed before the 2024 Modified Project Variant. Off-site Worker and School Child sensitive receptor locations were kept consistent with the DEIR and retained in the analysis, but were conservatively analyzed with residential exposure parameters.

As performed in DEIR, the risk assessment was performed for the inhalation pathway and a conservative screening assessment was performed to determine if conclusions would change if multipathway risks were considered. The multipathway screening was conducted for the 2024 Modified Project Variant using the maximum multipathway (MP) factors from the South Coast Air Quality Management District (SCAQMD), consistent with the analysis in the DEIR. The MP factors are a conservative estimate of the ratio of multipathway impacts compared to the inhalation impacts and are used to scale up an analysis of inhalation only impacts to account for multipathway impacts, such as exposure from soil ingestion, dermal absorption, homegrown produce, and mother's milk (for

[9] California Air Pollution Control Officers Association (CAPCOA). California Emissions Estimator Model (CalEEMod), Version 2022.1. Available online at http://www.caleemod.com/

[10] Countess Environmental. 2006. Western Regional Air Partnership (WRAP) Fugitive Dust Handbook; referred to in the CalEEMod Users Guide.

[11] OEHHA/CARB. 2023. Consolidated Table of OEHHA / CARB Approved Risk Assessment Health Values. Available at: https://ww2.arb.ca.gov/resources/documents/consolidated-table-oehha-carb-approved-risk-assessment-health-values. Accessed March 2024.

residents).[12] Estimated total cancer risks were multiplied by the maximum MP factor for all chemicals considered in the health risk assessment, which is 23.12 for poly-cyclic aromatic hydrocarbons (benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, etc.). Noncancer HIs were not multiplied by any factor, as none of the chemicals considered in the health risk assessment have a chronic MP factor. Ramboll updated the multipathway factors to the most recent available from SCAQMD.[13]

This multipathway screening is a highly conservative approach because agency guidelines identify only specific chemicals for a multipath evaluation and the chemical-specific MP factors for many chemicals are less than the maximum MP factor which was used.

Results for Airborne PM_{10} Health Risk Assessment

The 2024 Modified Project Variant with the new phasing schedule, more recent soil studies than evaluated in the 2010 FEIR, and application of mitigation measure MM HZ-15 results in a Project cancer risk at the maximally exposed sensitive receptor location of 0.0072 in a million and would not exceed the threshold of 10.0 in a million; this maximum cancer risk for inhalation occurs at an on-site resident. The maximum non-cancer HI for the modified Project Variant is 0.11 for inhalation, which would be below the significance threshold of 1.0. These results are presented in **Attachment C, Table C2** and **Table C3.**

Application of the maximum MP factor results in an approximately one order of magnitude increase in the estimated total cancer risks, which would remain below 10 in a million after screening for potential multipathway exposures. None of the TACs evaluated have a chronic MP factor and consideration of potential multipathway effects would not affect chronic HI. Therefore, consideration of multipathway exposures would not change the conclusions of this HHRA, and excess lifetime cancer risks and noncancer HIs remain below BAAQMD CEQA thresholds of significance.

Implementation of the modified construction schedule and incorporation of more recent soil studies would not result in any new significant effects related to emissions of soil-bound TACs beyond those identified in the EIR or a substantial increase in the severity of a significant impact. Therefore, no new mitigation measures would be required.

[12] South Coast Air Quality Management District (SCAQMD). 2017. RISK ASSESSMENT PROCEDURES for Rules 1401, 1401.1, and 212. Available at: https://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf

[13] South Coast Air Quality Management District (SCAQMD). 2017. PERMIT APPLICATION PACKAGE "N". Draft version 8.1. Available at: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1401/attachmentn_080717.pdf

ATTACHMENT A
REVISED CONSTRUCTION PHASING


DONNER AVE
INGALLS ST
EGBERT AVE
FITZGERALD AVE
GILMAN AVE
INGERSON AVE
JAMESTOWN AVE
HAWES ST
CHRISTINE NEAL ST
GRIFFITH ST
CARROLL AVE
GIANTS DR
ARELIOUS WALKER DR
ZERLINE DIXON ST
EDWARD J. DEBARTOLO JR. WAY
EARL ST
ELDER SAMUEL PRYOR SMITH SR. ST
WEST HARNEY WAY
CARMEN POLICY AVE
MONTANA CLARK DR
BARRY BONDS LANE
HOLLISTER AVE
RONNIE LOTT LANE
BILL WALSH ST
HARNEY WAY
CANDLESTICK PARK DR
JERRY RICE ROAD
JUAN MARICHAL LANE
ORLANDO CEPEDA LANE
N
0’
750’
Scale: 1” = 750’

ATTACHMENT B
SUMMARY OF CANCER RISKS FROM CONSTRUCTION AT THE MAXIMALLY EXPOSED INDIVIDUALS AND SUPPORTING INFORMATION

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG0	DPM	9.9E-06	2014	Demolition	Excavators
STG0	DPM	1.5E-05	2014	Demolition	On-Site Trucks
STG0	DPM	2.2E-05	2014	Demolition	Rubber Tired Dozers
STG0	DPM	2.5E-06	2014	Demolition	Skid Steer Loaders
STG0	DPM	8.4E-06	2015	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG0	DPM	5.2E-05	2015	Foundation Piles/Structures/Rough-In	Cranes
STG0	DPM	2.9E-05	2015	Foundation Piles/Structures/Rough-In	Excavators
STG0	DPM	2.9E-05	2015	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG0	DPM	7.4E-06	2015	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG0	DPM	8.4E-06	2016	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG0	DPM	5.2E-05	2016	Foundation Piles/Structures/Rough-In	Cranes
STG0	DPM	2.9E-05	2016	Foundation Piles/Structures/Rough-In	Excavators
STG0	DPM	2.6E-05	2016	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG0	DPM	7.4E-06	2016	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG0	DPM	5.7E-06	2017	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG0	DPM	3.5E-05	2017	Foundation Piles/Structures/Rough-In	Cranes
STG0	DPM	2.0E-05	2017	Foundation Piles/Structures/Rough-In	Excavators
STG0	DPM	1.4E-05	2017	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG0	DPM	5.0E-06	2017	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG0	DPM	7.8E-05	2014	Grading & Infrastructure	Excavators
STG0	DPM	1.1E-05	2014	Grading & Infrastructure	Graders
STG0	DPM	6.0E-05	2014	Grading & Infrastructure	On-Site Trucks
STG0	DPM	1.2E-05	2014	Grading & Infrastructure	Other Construction Equipment
STG0	DPM	6.3E-06	2014	Grading & Infrastructure	Pavers
STG0	DPM	1.4E-06	2014	Grading & Infrastructure	Plate Compactors
STG0	DPM	5.4E-06	2014	Grading & Infrastructure	Rollers
STG0	DPM	2.1E-05	2014	Grading & Infrastructure	Rubber Tired Dozers
STG0	DPM	2.0E-05	2014	Grading & Infrastructure	Skid Steer Loaders
STG0	DPM	7.8E-05	2015	Grading & Infrastructure	Excavators
STG0	DPM	1.1E-05	2015	Grading & Infrastructure	Graders
STG0	DPM	5.3E-05	2015	Grading & Infrastructure	On-Site Trucks
STG0	DPM	1.2E-05	2015	Grading & Infrastructure	Other Construction Equipment
STG0	DPM	6.3E-06	2015	Grading & Infrastructure	Pavers
STG0	DPM	1.4E-06	2015	Grading & Infrastructure	Plate Compactors
STG0	DPM	5.4E-06	2015	Grading & Infrastructure	Rollers
STG0	DPM	2.1E-05	2015	Grading & Infrastructure	Rubber Tired Dozers
STG0	DPM	2.0E-05	2015	Grading & Infrastructure	Skid Steer Loaders
STG0	DPM	2.8E-06	2015	Interior and Exterior Finishes	Aerial Lifts
STG0	DPM	4.5E-06	2015	Interior and Exterior Finishes	Forklifts
STG0	DPM	2.5E-06	2015	Interior and Exterior Finishes	Skid Steer Loaders
STG0	DPM	6.4E-06	2015	Interior and Exterior Finishes	Sweepers/Scrubbers
STG0	DPM	5.7E-06	2016	Interior and Exterior Finishes	Aerial Lifts
STG0	DPM	9.0E-06	2016	Interior and Exterior Finishes	Forklifts
STG0	DPM	5.0E-06	2016	Interior and Exterior Finishes	Skid Steer Loaders
STG0	DPM	1.3E-05	2016	Interior and Exterior Finishes	Sweepers/Scrubbers
STG0	DPM	5.7E-06	2017	Interior and Exterior Finishes	Aerial Lifts
STG0	DPM	9.0E-06	2017	Interior and Exterior Finishes	Forklifts
STG0	DPM	5.0E-06	2017	Interior and Exterior Finishes	Skid Steer Loaders
STG0	DPM	1.3E-05	2017	Interior and Exterior Finishes	Sweepers/Scrubbers
STG0	DPM	5.7E-06	2018	Interior and Exterior Finishes	Aerial Lifts
STG0	DPM	9.0E-06	2018	Interior and Exterior Finishes	Forklifts
STG0	DPM	5.0E-06	2018	Interior and Exterior Finishes	Skid Steer Loaders
STG0	DPM	1.3E-05	2018	Interior and Exterior Finishes	Sweepers/Scrubbers
STG1	DPM	1.7E-05	2016	Abatement	Aerial Lifts
STG1	DPM	1.3E-05	2016	Abatement	Forklifts
STG1	DPM	8.6E-06	2016	Abatement	On-Site Trucks
STG1	DPM	7.4E-06	2016	Abatement	Skid Steer Loaders

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG1	DPM	1.7E-05	2016	Demolition	Aerial Lifts
STG1	DPM	3.8E-05	2016	Demolition	Cranes
STG1	DPM	2.9E-05	2016	Demolition	Excavators
STG1	DPM	3.4E-05	2016	Demolition	On-Site Trucks
STG1	DPM	6.1E-06	2016	Demolition	Other Construction Equipment
STG1	DPM	6.3E-05	2016	Demolition	Rubber Tired Dozers
STG1	DPM	7.2E-06	2016	Demolition	Skid Steer Loaders
STG1	DPM	3.3E-05	2017	Demolition	Aerial Lifts
STG1	DPM	7.5E-05	2017	Demolition	Cranes
STG1	DPM	5.7E-05	2017	Demolition	Excavators
STG1	DPM	5.4E-05	2017	Demolition	On-Site Trucks
STG1	DPM	1.2E-05	2017	Demolition	Other Construction Equipment
STG1	DPM	1.2E-04	2017	Demolition	Rubber Tired Dozers
STG1	DPM	1.4E-05	2017	Demolition	Skid Steer Loaders
STG1	DPM	3.3E-05	2018	Demolition	Aerial Lifts
STG1	DPM	7.5E-05	2018	Demolition	Cranes
STG1	DPM	5.7E-05	2018	Demolition	Excavators
STG1	DPM	4.9E-05	2018	Demolition	On-Site Trucks
STG1	DPM	1.2E-05	2018	Demolition	Other Construction Equipment
STG1	DPM	1.2E-04	2018	Demolition	Rubber Tired Dozers
STG1	DPM	1.4E-05	2018	Demolition	Skid Steer Loaders
STG1	DPM	3.3E-05	2019	Demolition	Aerial Lifts
STG1	DPM	7.5E-05	2019	Demolition	Cranes
STG1	DPM	5.7E-05	2019	Demolition	Excavators
STG1	DPM	4.1E-05	2019	Demolition	On-Site Trucks
STG1	DPM	1.2E-05	2019	Demolition	Other Construction Equipment
STG1	DPM	1.2E-04	2019	Demolition	Rubber Tired Dozers
STG1	DPM	1.4E-05	2019	Demolition	Skid Steer Loaders
STG1	DPM	4.7E-06	2029	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG1	DPM	3.2E-05	2029	Foundation Piles/Structures/Rough-In	Cranes
STG1	DPM	1.6E-05	2029	Foundation Piles/Structures/Rough-In	Excavators
STG1	DPM	3.3E-06	2029	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG1	DPM	6.7E-06	2029	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG1	DPM	4.6E-06	2029	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG1	DPM	5.1E-05	2030	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG1	DPM	3.5E-04	2030	Foundation Piles/Structures/Rough-In	Cranes
STG1	DPM	1.8E-04	2030	Foundation Piles/Structures/Rough-In	Excavators
STG1	DPM	3.4E-05	2030	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG1	DPM	7.3E-05	2030	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG1	DPM	5.0E-05	2030	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG1	DPM	1.4E-05	2031	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG1	DPM	9.6E-05	2031	Foundation Piles/Structures/Rough-In	Cranes
STG1	DPM	4.9E-05	2031	Foundation Piles/Structures/Rough-In	Excavators
STG1	DPM	9.2E-06	2031	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG1	DPM	2.0E-05	2031	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG1	DPM	1.4E-05	2031	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG1	DPM	4.7E-05	2032	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG1	DPM	3.2E-04	2032	Foundation Piles/Structures/Rough-In	Cranes
STG1	DPM	1.6E-04	2032	Foundation Piles/Structures/Rough-In	Excavators
STG1	DPM	3.0E-05	2032	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG1	DPM	6.6E-05	2032	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG1	DPM	4.5E-05	2032	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG1	DPM	4.7E-05	2033	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG1	DPM	3.2E-04	2033	Foundation Piles/Structures/Rough-In	Cranes
STG1	DPM	1.6E-04	2033	Foundation Piles/Structures/Rough-In	Excavators
STG1	DPM	3.0E-05	2033	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG1	DPM	6.6E-05	2033	Foundation Piles/Structures/Rough-In	Other Construction Equipment

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG1	DPM	4.5E-05	2033	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG1	DPM	1.4E-05	2034	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG1	DPM	9.6E-05	2034	Foundation Piles/Structures/Rough-In	Cranes
STG1	DPM	4.9E-05	2034	Foundation Piles/Structures/Rough-In	Excavators
STG1	DPM	8.7E-06	2034	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG1	DPM	2.0E-05	2034	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG1	DPM	1.4E-05	2034	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG1	DPM	8.4E-06	2017	Grading & Infrastructure	Aerial Lifts
STG1	DPM	2.7E-04	2017	Grading & Infrastructure	Bore/Drill Rigs
STG1	DPM	6.0E-05	2017	Grading & Infrastructure	Excavators
STG1	DPM	1.2E-05	2017	Grading & Infrastructure	Graders
STG1	DPM	4.0E-05	2017	Grading & Infrastructure	On-Site Trucks
STG1	DPM	1.8E-05	2017	Grading & Infrastructure	Other Construction Equipment
STG1	DPM	9.4E-06	2017	Grading & Infrastructure	Pavers
STG1	DPM	1.4E-06	2017	Grading & Infrastructure	Plate Compactors
STG1	DPM	8.1E-06	2017	Grading & Infrastructure	Rollers
STG1	DPM	2.3E-05	2017	Grading & Infrastructure	Rubber Tired Dozers
STG1	DPM	2.2E-05	2017	Grading & Infrastructure	Skid Steer Loaders
STG1	DPM	1.1E-05	2022	Grading & Infrastructure	Aerial Lifts
STG1	DPM	3.6E-04	2022	Grading & Infrastructure	Bore/Drill Rigs
STG1	DPM	8.0E-05	2022	Grading & Infrastructure	Excavators
STG1	DPM	1.6E-05	2022	Grading & Infrastructure	Graders
STG1	DPM	1.5E-05	2022	Grading & Infrastructure	On-Site Trucks
STG1	DPM	2.4E-05	2022	Grading & Infrastructure	Other Construction Equipment
STG1	DPM	1.3E-05	2022	Grading & Infrastructure	Pavers
STG1	DPM	1.8E-06	2022	Grading & Infrastructure	Plate Compactors
STG1	DPM	1.1E-05	2022	Grading & Infrastructure	Rollers
STG1	DPM	3.0E-05	2022	Grading & Infrastructure	Rubber Tired Dozers
STG1	DPM	3.0E-05	2022	Grading & Infrastructure	Skid Steer Loaders
STG1	DPM	2.8E-06	2023	Grading & Infrastructure	Aerial Lifts
STG1	DPM	9.0E-05	2023	Grading & Infrastructure	Bore/Drill Rigs
STG1	DPM	2.0E-05	2023	Grading & Infrastructure	Excavators
STG1	DPM	4.1E-06	2023	Grading & Infrastructure	Graders
STG1	DPM	3.6E-06	2023	Grading & Infrastructure	On-Site Trucks
STG1	DPM	6.1E-06	2023	Grading & Infrastructure	Other Construction Equipment
STG1	DPM	3.2E-06	2023	Grading & Infrastructure	Pavers
STG1	DPM	4.6E-07	2023	Grading & Infrastructure	Plate Compactors
STG1	DPM	2.7E-06	2023	Grading & Infrastructure	Rollers
STG1	DPM	7.7E-06	2023	Grading & Infrastructure	Rubber Tired Dozers
STG1	DPM	7.5E-06	2023	Grading & Infrastructure	Skid Steer Loaders
STG1	DPM	2.8E-06	2025	Grading & Infrastructure	Aerial Lifts
STG1	DPM	9.0E-05	2025	Grading & Infrastructure	Bore/Drill Rigs
STG1	DPM	2.0E-05	2025	Grading & Infrastructure	Excavators
STG1	DPM	4.1E-06	2025	Grading & Infrastructure	Graders
STG1	DPM	3.3E-06	2025	Grading & Infrastructure	On-Site Trucks
STG1	DPM	6.1E-06	2025	Grading & Infrastructure	Other Construction Equipment
STG1	DPM	3.2E-06	2025	Grading & Infrastructure	Pavers
STG1	DPM	4.6E-07	2025	Grading & Infrastructure	Plate Compactors
STG1	DPM	2.7E-06	2025	Grading & Infrastructure	Rollers
STG1	DPM	7.7E-06	2025	Grading & Infrastructure	Rubber Tired Dozers
STG1	DPM	7.5E-06	2025	Grading & Infrastructure	Skid Steer Loaders
STG1	DPM	1.7E-05	2026	Grading & Infrastructure	Aerial Lifts
STG1	DPM	5.3E-04	2026	Grading & Infrastructure	Bore/Drill Rigs
STG1	DPM	1.2E-04	2026	Grading & Infrastructure	Excavators
STG1	DPM	2.4E-05	2026	Grading & Infrastructure	Graders
STG1	DPM	1.9E-05	2026	Grading & Infrastructure	On-Site Trucks
STG1	DPM	3.6E-05	2026	Grading & Infrastructure	Other Construction Equipment

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG1	DPM	1.9E-05	2026	Grading & Infrastructure	Pavers
STG1	DPM	2.7E-06	2026	Grading & Infrastructure	Plate Compactors
STG1	DPM	1.6E-05	2026	Grading & Infrastructure	Rollers
STG1	DPM	4.5E-05	2026	Grading & Infrastructure	Rubber Tired Dozers
STG1	DPM	4.4E-05	2026	Grading & Infrastructure	Skid Steer Loaders
STG1	DPM	1.4E-05	2027	Grading & Infrastructure	Aerial Lifts
STG1	DPM	4.5E-04	2027	Grading & Infrastructure	Bore/Drill Rigs
STG1	DPM	1.0E-04	2027	Grading & Infrastructure	Excavators
STG1	DPM	2.0E-05	2027	Grading & Infrastructure	Graders
STG1	DPM	1.5E-05	2027	Grading & Infrastructure	On-Site Trucks
STG1	DPM	3.0E-05	2027	Grading & Infrastructure	Other Construction Equipment
STG1	DPM	1.6E-05	2027	Grading & Infrastructure	Pavers
STG1	DPM	2.3E-06	2027	Grading & Infrastructure	Plate Compactors
STG1	DPM	1.4E-05	2027	Grading & Infrastructure	Rollers
STG1	DPM	3.8E-05	2027	Grading & Infrastructure	Rubber Tired Dozers
STG1	DPM	3.7E-05	2027	Grading & Infrastructure	Skid Steer Loaders
STG1	DPM	2.5E-05	2028	Grading & Infrastructure	Aerial Lifts
STG1	DPM	8.0E-04	2028	Grading & Infrastructure	Bore/Drill Rigs
STG1	DPM	1.8E-04	2028	Grading & Infrastructure	Excavators
STG1	DPM	3.6E-05	2028	Grading & Infrastructure	Graders
STG1	DPM	2.7E-05	2028	Grading & Infrastructure	On-Site Trucks
STG1	DPM	5.4E-05	2028	Grading & Infrastructure	Other Construction Equipment
STG1	DPM	2.8E-05	2028	Grading & Infrastructure	Pavers
STG1	DPM	4.1E-06	2028	Grading & Infrastructure	Plate Compactors
STG1	DPM	2.4E-05	2028	Grading & Infrastructure	Rollers
STG1	DPM	6.8E-05	2028	Grading & Infrastructure	Rubber Tired Dozers
STG1	DPM	6.6E-05	2028	Grading & Infrastructure	Skid Steer Loaders
STG1	DPM	5.8E-05	2039	Improvements	Excavators
STG1	DPM	8.1E-06	2039	Improvements	Graders
STG1	DPM	5.0E-06	2039	Improvements	On-Site Trucks
STG1	DPM	9.0E-06	2039	Improvements	Other Construction Equipment
STG1	DPM	4.7E-06	2039	Improvements	Pavers
STG1	DPM	1.0E-06	2039	Improvements	Plate Compactors
STG1	DPM	4.0E-06	2039	Improvements	Rollers
STG1	DPM	1.6E-05	2039	Improvements	Rubber Tired Dozers
STG1	DPM	1.5E-05	2039	Improvements	Skid Steer Loaders
STG1	DPM	4.9E-05	2031	Interior and Exterior Finishes	Aerial Lifts
STG1	DPM	7.7E-05	2031	Interior and Exterior Finishes	Forklifts
STG1	DPM	2.3E-06	2031	Interior and Exterior Finishes	On-Site Trucks
STG1	DPM	3.9E-05	2031	Interior and Exterior Finishes	Skid Steer Loaders
STG1	DPM	1.0E-04	2031	Interior and Exterior Finishes	Sweepers/Scrubbers
STG1	DPM	2.0E-05	2032	Interior and Exterior Finishes	Aerial Lifts
STG1	DPM	3.1E-05	2032	Interior and Exterior Finishes	Forklifts
STG1	DPM	9.0E-07	2032	Interior and Exterior Finishes	On-Site Trucks
STG1	DPM	1.6E-05	2032	Interior and Exterior Finishes	Skid Steer Loaders
STG1	DPM	4.0E-05	2032	Interior and Exterior Finishes	Sweepers/Scrubbers
STG1	DPM	9.9E-06	2033	Interior and Exterior Finishes	Aerial Lifts
STG1	DPM	1.6E-05	2033	Interior and Exterior Finishes	Forklifts
STG1	DPM	4.5E-07	2033	Interior and Exterior Finishes	On-Site Trucks
STG1	DPM	7.9E-06	2033	Interior and Exterior Finishes	Skid Steer Loaders
STG1	DPM	2.0E-05	2033	Interior and Exterior Finishes	Sweepers/Scrubbers
STG1	DPM	1.5E-05	2034	Interior and Exterior Finishes	Aerial Lifts
STG1	DPM	2.3E-05	2034	Interior and Exterior Finishes	Forklifts
STG1	DPM	6.5E-07	2034	Interior and Exterior Finishes	On-Site Trucks
STG1	DPM	1.2E-05	2034	Interior and Exterior Finishes	Skid Steer Loaders
STG1	DPM	3.0E-05	2034	Interior and Exterior Finishes	Sweepers/Scrubbers
STG1	DPM	1.5E-05	2035	Interior and Exterior Finishes	Aerial Lifts

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG1	DPM	2.3E-05	2035	Interior and Exterior Finishes	Forklifts
STG1	DPM	6.4E-07	2035	Interior and Exterior Finishes	On-Site Trucks
STG1	DPM	1.2E-05	2035	Interior and Exterior Finishes	Skid Steer Loaders
STG1	DPM	3.0E-05	2035	Interior and Exterior Finishes	Sweepers/Scrubbers
STG1	DPM	1.5E-05	2037	Interior and Exterior Finishes	Aerial Lifts
STG1	DPM	2.3E-05	2037	Interior and Exterior Finishes	Forklifts
STG1	DPM	6.3E-07	2037	Interior and Exterior Finishes	On-Site Trucks
STG1	DPM	1.2E-05	2037	Interior and Exterior Finishes	Skid Steer Loaders
STG1	DPM	3.0E-05	2037	Interior and Exterior Finishes	Sweepers/Scrubbers
STG1	DPM	2.9E-05	2038	Interior and Exterior Finishes	Aerial Lifts
STG1	DPM	4.6E-05	2038	Interior and Exterior Finishes	Forklifts
STG1	DPM	1.2E-06	2038	Interior and Exterior Finishes	On-Site Trucks
STG1	DPM	2.3E-05	2038	Interior and Exterior Finishes	Skid Steer Loaders
STG1	DPM	6.0E-05	2038	Interior and Exterior Finishes	Sweepers/Scrubbers
STG2	DPM	4.1E-06	2016	Demolition	Aerial Lifts
STG2	DPM	1.3E-05	2016	Demolition	Cranes
STG2	DPM	7.1E-06	2016	Demolition	Excavators
STG2	DPM	8.4E-06	2016	Demolition	On-Site Trucks
STG2	DPM	1.6E-05	2016	Demolition	Rubber Tired Dozers
STG2	DPM	1.8E-06	2016	Demolition	Skid Steer Loaders
STG2	DPM	1.6E-05	2017	Demolition	Aerial Lifts
STG2	DPM	5.2E-05	2017	Demolition	Cranes
STG2	DPM	2.8E-05	2017	Demolition	Excavators
STG2	DPM	2.7E-05	2017	Demolition	On-Site Trucks
STG2	DPM	6.2E-05	2017	Demolition	Rubber Tired Dozers
STG2	DPM	7.1E-06	2017	Demolition	Skid Steer Loaders
STG2	DPM	1.6E-05	2018	Demolition	Aerial Lifts
STG2	DPM	5.2E-05	2018	Demolition	Cranes
STG2	DPM	2.8E-05	2018	Demolition	Excavators
STG2	DPM	2.5E-05	2018	Demolition	On-Site Trucks
STG2	DPM	6.2E-05	2018	Demolition	Rubber Tired Dozers
STG2	DPM	7.1E-06	2018	Demolition	Skid Steer Loaders
STG2	DPM	1.6E-05	2019	Demolition	Aerial Lifts
STG2	DPM	5.2E-05	2019	Demolition	Cranes
STG2	DPM	2.8E-05	2019	Demolition	Excavators
STG2	DPM	2.0E-05	2019	Demolition	On-Site Trucks
STG2	DPM	6.2E-05	2019	Demolition	Rubber Tired Dozers
STG2	DPM	7.1E-06	2019	Demolition	Skid Steer Loaders
STG2	DPM	8.2E-06	2031	Demolition	Aerial Lifts
STG2	DPM	2.7E-05	2031	Demolition	Cranes
STG2	DPM	1.4E-05	2031	Demolition	Excavators
STG2	DPM	2.7E-06	2031	Demolition	On-Site Trucks
STG2	DPM	3.1E-05	2031	Demolition	Rubber Tired Dozers
STG2	DPM	3.6E-06	2031	Demolition	Skid Steer Loaders
STG2	DPM	3.4E-05	2033	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG2	DPM	2.8E-04	2033	Foundation Piles/Structures/Rough-In	Cranes
STG2	DPM	1.2E-04	2033	Foundation Piles/Structures/Rough-In	Excavators
STG2	DPM	2.1E-05	2033	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG2	DPM	4.8E-05	2033	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG2	DPM	3.9E-05	2033	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG2	DPM	3.4E-05	2034	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG2	DPM	2.8E-04	2034	Foundation Piles/Structures/Rough-In	Cranes
STG2	DPM	1.2E-04	2034	Foundation Piles/Structures/Rough-In	Excavators
STG2	DPM	2.1E-05	2034	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG2	DPM	4.8E-05	2034	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG2	DPM	3.9E-05	2034	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG2	DPM	4.2E-05	2035	Foundation Piles/Structures/Rough-In	Aerial Lifts

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG2	DPM	3.5E-04	2035	Foundation Piles/Structures/Rough-In	Cranes
STG2	DPM	1.5E-04	2035	Foundation Piles/Structures/Rough-In	Excavators
STG2	DPM	2.6E-05	2035	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG2	DPM	6.0E-05	2035	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG2	DPM	4.9E-05	2035	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG2	DPM	1.7E-05	2036	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG2	DPM	1.4E-04	2036	Foundation Piles/Structures/Rough-In	Cranes
STG2	DPM	5.9E-05	2036	Foundation Piles/Structures/Rough-In	Excavators
STG2	DPM	1.0E-05	2036	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG2	DPM	2.4E-05	2036	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG2	DPM	2.0E-05	2036	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG2	DPM	5.7E-06	2016	Grading & Infrastructure	Aerial Lifts
STG2	DPM	9.0E-05	2016	Grading & Infrastructure	Bore/Drill Rigs
STG2	DPM	4.3E-05	2016	Grading & Infrastructure	Excavators
STG2	DPM	9.0E-06	2016	Grading & Infrastructure	Forklifts
STG2	DPM	9.4E-06	2016	Grading & Infrastructure	Graders
STG2	DPM	3.1E-05	2016	Grading & Infrastructure	On-Site Trucks
STG2	DPM	2.1E-05	2016	Grading & Infrastructure	Other Construction Equipment
STG2	DPM	1.1E-05	2016	Grading & Infrastructure	Pavers
STG2	DPM	1.1E-06	2016	Grading & Infrastructure	Plate Compactors
STG2	DPM	9.1E-06	2016	Grading & Infrastructure	Rollers
STG2	DPM	2.8E-05	2016	Grading & Infrastructure	Rubber Tired Dozers
STG2	DPM	1.8E-05	2016	Grading & Infrastructure	Skid Steer Loaders
STG2	DPM	1.3E-05	2016	Grading & Infrastructure	Sweepers/Scrubbers
STG2	DPM	8.4E-06	2017	Grading & Infrastructure	Aerial Lifts
STG2	DPM	1.3E-04	2017	Grading & Infrastructure	Bore/Drill Rigs
STG2	DPM	6.4E-05	2017	Grading & Infrastructure	Excavators
STG2	DPM	1.3E-05	2017	Grading & Infrastructure	Forklifts
STG2	DPM	1.4E-05	2017	Grading & Infrastructure	Graders
STG2	DPM	3.7E-05	2017	Grading & Infrastructure	On-Site Trucks
STG2	DPM	3.1E-05	2017	Grading & Infrastructure	Other Construction Equipment
STG2	DPM	1.6E-05	2017	Grading & Infrastructure	Pavers
STG2	DPM	1.6E-06	2017	Grading & Infrastructure	Plate Compactors
STG2	DPM	1.3E-05	2017	Grading & Infrastructure	Rollers
STG2	DPM	4.1E-05	2017	Grading & Infrastructure	Rubber Tired Dozers
STG2	DPM	2.7E-05	2017	Grading & Infrastructure	Skid Steer Loaders
STG2	DPM	1.9E-05	2017	Grading & Infrastructure	Sweepers/Scrubbers
STG2	DPM	5.7E-06	2018	Grading & Infrastructure	Aerial Lifts
STG2	DPM	9.0E-05	2018	Grading & Infrastructure	Bore/Drill Rigs
STG2	DPM	4.3E-05	2018	Grading & Infrastructure	Excavators
STG2	DPM	9.0E-06	2018	Grading & Infrastructure	Forklifts
STG2	DPM	9.4E-06	2018	Grading & Infrastructure	Graders
STG2	DPM	2.3E-05	2018	Grading & Infrastructure	On-Site Trucks
STG2	DPM	2.1E-05	2018	Grading & Infrastructure	Other Construction Equipment
STG2	DPM	1.1E-05	2018	Grading & Infrastructure	Pavers
STG2	DPM	1.1E-06	2018	Grading & Infrastructure	Plate Compactors
STG2	DPM	9.1E-06	2018	Grading & Infrastructure	Rollers
STG2	DPM	2.8E-05	2018	Grading & Infrastructure	Rubber Tired Dozers
STG2	DPM	1.8E-05	2018	Grading & Infrastructure	Skid Steer Loaders
STG2	DPM	1.3E-05	2018	Grading & Infrastructure	Sweepers/Scrubbers
STG2	DPM	1.1E-05	2022	Grading & Infrastructure	Aerial Lifts
STG2	DPM	1.8E-04	2022	Grading & Infrastructure	Bore/Drill Rigs
STG2	DPM	8.6E-05	2022	Grading & Infrastructure	Excavators
STG2	DPM	1.8E-05	2022	Grading & Infrastructure	Forklifts
STG2	DPM	1.9E-05	2022	Grading & Infrastructure	Graders
STG2	DPM	1.4E-05	2022	Grading & Infrastructure	On-Site Trucks
STG2	DPM	4.1E-05	2022	Grading & Infrastructure	Other Construction Equipment

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG2	DPM	2.1E-05	2022	Grading & Infrastructure	Pavers
STG2	DPM	2.1E-06	2022	Grading & Infrastructure	Plate Compactors
STG2	DPM	1.8E-05	2022	Grading & Infrastructure	Rollers
STG2	DPM	5.4E-05	2022	Grading & Infrastructure	Rubber Tired Dozers
STG2	DPM	3.6E-05	2022	Grading & Infrastructure	Skid Steer Loaders
STG2	DPM	2.5E-05	2022	Grading & Infrastructure	Sweepers/Scrubbers
STG2	DPM	1.7E-05	2029	Grading & Infrastructure	Aerial Lifts
STG2	DPM	2.7E-04	2029	Grading & Infrastructure	Bore/Drill Rigs
STG2	DPM	1.3E-04	2029	Grading & Infrastructure	Excavators
STG2	DPM	2.6E-05	2029	Grading & Infrastructure	Forklifts
STG2	DPM	2.8E-05	2029	Grading & Infrastructure	Graders
STG2	DPM	1.5E-05	2029	Grading & Infrastructure	On-Site Trucks
STG2	DPM	6.1E-05	2029	Grading & Infrastructure	Other Construction Equipment
STG2	DPM	3.1E-05	2029	Grading & Infrastructure	Pavers
STG2	DPM	3.2E-06	2029	Grading & Infrastructure	Plate Compactors
STG2	DPM	2.7E-05	2029	Grading & Infrastructure	Rollers
STG2	DPM	8.1E-05	2029	Grading & Infrastructure	Rubber Tired Dozers
STG2	DPM	5.4E-05	2029	Grading & Infrastructure	Skid Steer Loaders
STG2	DPM	3.8E-05	2029	Grading & Infrastructure	Sweepers/Scrubbers
STG2	DPM	3.1E-05	2030	Grading & Infrastructure	Aerial Lifts
STG2	DPM	4.9E-04	2030	Grading & Infrastructure	Bore/Drill Rigs
STG2	DPM	2.3E-04	2030	Grading & Infrastructure	Excavators
STG2	DPM	4.9E-05	2030	Grading & Infrastructure	Forklifts
STG2	DPM	5.1E-05	2030	Grading & Infrastructure	Graders
STG2	DPM	2.7E-05	2030	Grading & Infrastructure	On-Site Trucks
STG2	DPM	1.1E-04	2030	Grading & Infrastructure	Other Construction Equipment
STG2	DPM	5.8E-05	2030	Grading & Infrastructure	Pavers
STG2	DPM	5.8E-06	2030	Grading & Infrastructure	Plate Compactors
STG2	DPM	5.0E-05	2030	Grading & Infrastructure	Rollers
STG2	DPM	1.5E-04	2030	Grading & Infrastructure	Rubber Tired Dozers
STG2	DPM	9.9E-05	2030	Grading & Infrastructure	Skid Steer Loaders
STG2	DPM	6.9E-05	2030	Grading & Infrastructure	Sweepers/Scrubbers
STG2	DPM	2.8E-05	2031	Grading & Infrastructure	Aerial Lifts
STG2	DPM	4.4E-04	2031	Grading & Infrastructure	Bore/Drill Rigs
STG2	DPM	2.1E-04	2031	Grading & Infrastructure	Excavators
STG2	DPM	4.4E-05	2031	Grading & Infrastructure	Forklifts
STG2	DPM	4.6E-05	2031	Grading & Infrastructure	Graders
STG2	DPM	2.4E-05	2031	Grading & Infrastructure	On-Site Trucks
STG2	DPM	1.0E-04	2031	Grading & Infrastructure	Other Construction Equipment
STG2	DPM	5.3E-05	2031	Grading & Infrastructure	Pavers
STG2	DPM	5.3E-06	2031	Grading & Infrastructure	Plate Compactors
STG2	DPM	4.5E-05	2031	Grading & Infrastructure	Rollers
STG2	DPM	1.4E-04	2031	Grading & Infrastructure	Rubber Tired Dozers
STG2	DPM	8.9E-05	2031	Grading & Infrastructure	Skid Steer Loaders
STG2	DPM	6.3E-05	2031	Grading & Infrastructure	Sweepers/Scrubbers
STG2	DPM	9.8E-05	2042	Improvements	Excavators
STG2	DPM	1.4E-05	2042	Improvements	Graders
STG2	DPM	8.3E-06	2042	Improvements	On-Site Trucks
STG2	DPM	1.5E-05	2042	Improvements	Other Construction Equipment
STG2	DPM	7.9E-06	2042	Improvements	Pavers
STG2	DPM	1.8E-06	2042	Improvements	Plate Compactors
STG2	DPM	6.8E-06	2042	Improvements	Rollers
STG2	DPM	2.7E-05	2042	Improvements	Rubber Tired Dozers
STG2	DPM	2.5E-05	2042	Improvements	Skid Steer Loaders
STG2	DPM	2.3E-05	2035	Interior and Exterior Finishes	Aerial Lifts
STG2	DPM	3.6E-05	2035	Interior and Exterior Finishes	Forklifts
STG2	DPM	1.1E-06	2035	Interior and Exterior Finishes	On-Site Trucks

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Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG2	DPM	1.8E-05	2035	Interior and Exterior Finishes	Skid Steer Loaders
STG2	DPM	4.5E-05	2035	Interior and Exterior Finishes	Sweepers/Scrubbers
STG2	DPM	2.7E-05	2036	Interior and Exterior Finishes	Aerial Lifts
STG2	DPM	4.2E-05	2036	Interior and Exterior Finishes	Forklifts
STG2	DPM	1.3E-06	2036	Interior and Exterior Finishes	On-Site Trucks
STG2	DPM	2.1E-05	2036	Interior and Exterior Finishes	Skid Steer Loaders
STG2	DPM	5.4E-05	2036	Interior and Exterior Finishes	Sweepers/Scrubbers
STG2	DPM	3.1E-05	2037	Interior and Exterior Finishes	Aerial Lifts
STG2	DPM	5.0E-05	2037	Interior and Exterior Finishes	Forklifts
STG2	DPM	1.5E-06	2037	Interior and Exterior Finishes	On-Site Trucks
STG2	DPM	2.5E-05	2037	Interior and Exterior Finishes	Skid Steer Loaders
STG2	DPM	6.3E-05	2037	Interior and Exterior Finishes	Sweepers/Scrubbers
STG2	DPM	3.6E-05	2038	Interior and Exterior Finishes	Aerial Lifts
STG2	DPM	5.7E-05	2038	Interior and Exterior Finishes	Forklifts
STG2	DPM	1.7E-06	2038	Interior and Exterior Finishes	On-Site Trucks
STG2	DPM	2.8E-05	2038	Interior and Exterior Finishes	Skid Steer Loaders
STG2	DPM	7.2E-05	2038	Interior and Exterior Finishes	Sweepers/Scrubbers
STG2	DPM	3.1E-05	2039	Interior and Exterior Finishes	Aerial Lifts
STG2	DPM	5.0E-05	2039	Interior and Exterior Finishes	Forklifts
STG2	DPM	1.5E-06	2039	Interior and Exterior Finishes	On-Site Trucks
STG2	DPM	2.5E-05	2039	Interior and Exterior Finishes	Skid Steer Loaders
STG2	DPM	6.3E-05	2039	Interior and Exterior Finishes	Sweepers/Scrubbers
STG2	DPM	3.1E-05	2040	Interior and Exterior Finishes	Aerial Lifts
STG2	DPM	5.0E-05	2040	Interior and Exterior Finishes	Forklifts
STG2	DPM	1.5E-06	2040	Interior and Exterior Finishes	On-Site Trucks
STG2	DPM	2.5E-05	2040	Interior and Exterior Finishes	Skid Steer Loaders
STG2	DPM	6.3E-05	2040	Interior and Exterior Finishes	Sweepers/Scrubbers
STG3	DPM	2.8E-06	2033	Abatement	Aerial Lifts
STG3	DPM	4.9E-06	2033	Abatement	Excavators
STG3	DPM	9.0E-07	2033	Abatement	On-Site Trucks
STG3	DPM	1.1E-05	2033	Abatement	Rubber Tired Dozers
STG3	DPM	1.2E-06	2033	Abatement	Skid Steer Loaders
STG3	DPM	1.4E-06	2033	Demolition	Aerial Lifts
STG3	DPM	9.0E-07	2033	Demolition	On-Site Trucks
STG3	DPM	1.1E-05	2033	Demolition	Rubber Tired Dozers
STG3	DPM	1.2E-06	2033	Demolition	Skid Steer Loaders
STG3	DPM	1.1E-05	2035	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG3	DPM	7.0E-05	2035	Foundation Piles/Structures/Rough-In	Cranes
STG3	DPM	3.9E-05	2035	Foundation Piles/Structures/Rough-In	Excavators
STG3	DPM	6.9E-06	2035	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG3	DPM	1.2E-05	2035	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG3	DPM	9.9E-06	2035	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG3	DPM	1.1E-05	2037	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG3	DPM	7.0E-05	2037	Foundation Piles/Structures/Rough-In	Cranes
STG3	DPM	3.9E-05	2037	Foundation Piles/Structures/Rough-In	Excavators
STG3	DPM	6.7E-06	2037	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG3	DPM	1.2E-05	2037	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG3	DPM	9.9E-06	2037	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG3	DPM	5.7E-06	2038	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG3	DPM	3.5E-05	2038	Foundation Piles/Structures/Rough-In	Cranes
STG3	DPM	2.0E-05	2038	Foundation Piles/Structures/Rough-In	Excavators
STG3	DPM	3.4E-06	2038	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG3	DPM	6.1E-06	2038	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG3	DPM	5.0E-06	2038	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG3	DPM	2.2E-05	2026	Grading & Infrastructure	Aerial Lifts
STG3	DPM	3.6E-04	2026	Grading & Infrastructure	Bore/Drill Rigs
STG3	DPM	3.5E-05	2026	Grading & Infrastructure	Cranes

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

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Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG3	DPM	1.1E-04	2026	Grading & Infrastructure	Excavators
STG3	DPM	2.2E-05	2026	Grading & Infrastructure	Graders
STG3	DPM	1.5E-05	2026	Grading & Infrastructure	On-Site Trucks
STG3	DPM	3.4E-05	2026	Grading & Infrastructure	Other Construction Equipment
STG3	DPM	1.9E-05	2026	Grading & Infrastructure	Pavers
STG3	DPM	1.8E-06	2026	Grading & Infrastructure	Plate Compactors
STG3	DPM	1.6E-05	2026	Grading & Infrastructure	Rollers
STG3	DPM	9.3E-05	2026	Grading & Infrastructure	Rubber Tired Dozers
STG3	DPM	4.7E-05	2026	Grading & Infrastructure	Skid Steer Loaders
STG3	DPM	2.8E-06	2031	Grading & Infrastructure	Aerial Lifts
STG3	DPM	4.5E-05	2031	Grading & Infrastructure	Bore/Drill Rigs
STG3	DPM	4.4E-06	2031	Grading & Infrastructure	Cranes
STG3	DPM	1.4E-05	2031	Grading & Infrastructure	Excavators
STG3	DPM	2.7E-06	2031	Grading & Infrastructure	Graders
STG3	DPM	1.6E-06	2031	Grading & Infrastructure	On-Site Trucks
STG3	DPM	4.3E-06	2031	Grading & Infrastructure	Other Construction Equipment
STG3	DPM	2.4E-06	2031	Grading & Infrastructure	Pavers
STG3	DPM	2.3E-07	2031	Grading & Infrastructure	Plate Compactors
STG3	DPM	2.1E-06	2031	Grading & Infrastructure	Rollers
STG3	DPM	1.2E-05	2031	Grading & Infrastructure	Rubber Tired Dozers
STG3	DPM	5.9E-06	2031	Grading & Infrastructure	Skid Steer Loaders
STG3	DPM	2.2E-05	2032	Grading & Infrastructure	Aerial Lifts
STG3	DPM	3.6E-04	2032	Grading & Infrastructure	Bore/Drill Rigs
STG3	DPM	3.5E-05	2032	Grading & Infrastructure	Cranes
STG3	DPM	1.1E-04	2032	Grading & Infrastructure	Excavators
STG3	DPM	2.2E-05	2032	Grading & Infrastructure	Graders
STG3	DPM	1.2E-05	2032	Grading & Infrastructure	On-Site Trucks
STG3	DPM	3.4E-05	2032	Grading & Infrastructure	Other Construction Equipment
STG3	DPM	1.9E-05	2032	Grading & Infrastructure	Pavers
STG3	DPM	1.8E-06	2032	Grading & Infrastructure	Plate Compactors
STG3	DPM	1.6E-05	2032	Grading & Infrastructure	Rollers
STG3	DPM	9.3E-05	2032	Grading & Infrastructure	Rubber Tired Dozers
STG3	DPM	4.7E-05	2032	Grading & Infrastructure	Skid Steer Loaders
STG3	DPM	3.1E-05	2033	Grading & Infrastructure	Aerial Lifts
STG3	DPM	4.9E-04	2033	Grading & Infrastructure	Bore/Drill Rigs
STG3	DPM	4.8E-05	2033	Grading & Infrastructure	Cranes
STG3	DPM	1.5E-04	2033	Grading & Infrastructure	Excavators
STG3	DPM	3.0E-05	2033	Grading & Infrastructure	Graders
STG3	DPM	1.7E-05	2033	Grading & Infrastructure	On-Site Trucks
STG3	DPM	4.7E-05	2033	Grading & Infrastructure	Other Construction Equipment
STG3	DPM	2.6E-05	2033	Grading & Infrastructure	Pavers
STG3	DPM	2.5E-06	2033	Grading & Infrastructure	Plate Compactors
STG3	DPM	2.2E-05	2033	Grading & Infrastructure	Rollers
STG3	DPM	1.3E-04	2033	Grading & Infrastructure	Rubber Tired Dozers
STG3	DPM	6.4E-05	2033	Grading & Infrastructure	Skid Steer Loaders
STG3	DPM	1.4E-05	2040	Interior and Exterior Finishes	Aerial Lifts
STG3	DPM	2.2E-05	2040	Interior and Exterior Finishes	Forklifts
STG3	DPM	6.2E-07	2040	Interior and Exterior Finishes	On-Site Trucks
STG3	DPM	1.2E-05	2040	Interior and Exterior Finishes	Skid Steer Loaders
STG3	DPM	3.1E-05	2040	Interior and Exterior Finishes	Sweepers/Scrubbers
STG3	DPM	9.3E-06	2041	Interior and Exterior Finishes	Aerial Lifts
STG3	DPM	1.5E-05	2041	Interior and Exterior Finishes	Forklifts
STG3	DPM	4.2E-07	2041	Interior and Exterior Finishes	On-Site Trucks
STG3	DPM	8.2E-06	2041	Interior and Exterior Finishes	Skid Steer Loaders
STG3	DPM	2.1E-05	2041	Interior and Exterior Finishes	Sweepers/Scrubbers
STG3	DPM	9.3E-06	2042	Interior and Exterior Finishes	Aerial Lifts
STG3	DPM	1.5E-05	2042	Interior and Exterior Finishes	Forklifts

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG3	DPM	4.2E-07	2042	Interior and Exterior Finishes	On-Site Trucks
STG3	DPM	8.2E-06	2042	Interior and Exterior Finishes	Skid Steer Loaders
STG3	DPM	2.1E-05	2042	Interior and Exterior Finishes	Sweepers/Scrubbers
STG3	DPM	9.3E-06	2043	Interior and Exterior Finishes	Aerial Lifts
STG3	DPM	1.5E-05	2043	Interior and Exterior Finishes	Forklifts
STG3	DPM	4.2E-07	2043	Interior and Exterior Finishes	On-Site Trucks
STG3	DPM	8.2E-06	2043	Interior and Exterior Finishes	Skid Steer Loaders
STG3	DPM	2.1E-05	2043	Interior and Exterior Finishes	Sweepers/Scrubbers
STG4	DPM	1.7E-05	2037	Demolition	Aerial Lifts
STG4	DPM	2.9E-05	2037	Demolition	Excavators
STG4	DPM	5.0E-06	2037	Demolition	On-Site Trucks
STG4	DPM	6.4E-05	2037	Demolition	Rubber Tired Dozers
STG4	DPM	7.4E-06	2037	Demolition	Skid Steer Loaders
STG4	DPM	2.8E-05	2039	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG4	DPM	1.7E-04	2039	Foundation Piles/Structures/Rough-In	Cranes
STG4	DPM	9.8E-05	2039	Foundation Piles/Structures/Rough-In	Excavators
STG4	DPM	1.6E-05	2039	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG4	DPM	2.4E-05	2039	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG4	DPM	2.5E-05	2039	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG4	DPM	2.8E-05	2040	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG4	DPM	1.7E-04	2040	Foundation Piles/Structures/Rough-In	Cranes
STG4	DPM	9.8E-05	2040	Foundation Piles/Structures/Rough-In	Excavators
STG4	DPM	1.6E-05	2040	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG4	DPM	2.4E-05	2040	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG4	DPM	2.5E-05	2040	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG4	DPM	2.8E-05	2027	Grading & Infrastructure	Aerial Lifts
STG4	DPM	4.4E-04	2027	Grading & Infrastructure	Bore/Drill Rigs
STG4	DPM	4.4E-05	2027	Grading & Infrastructure	Cranes
STG4	DPM	1.7E-04	2027	Grading & Infrastructure	Excavators
STG4	DPM	4.4E-05	2027	Grading & Infrastructure	Forklifts
STG4	DPM	3.6E-05	2027	Grading & Infrastructure	Graders
STG4	DPM	3.3E-05	2027	Grading & Infrastructure	On-Site Trucks
STG4	DPM	6.5E-05	2027	Grading & Infrastructure	Other Construction Equipment
STG4	DPM	3.2E-05	2027	Grading & Infrastructure	Pavers
STG4	DPM	4.1E-06	2027	Grading & Infrastructure	Plate Compactors
STG4	DPM	2.7E-05	2027	Grading & Infrastructure	Rollers
STG4	DPM	1.4E-04	2027	Grading & Infrastructure	Rubber Tired Dozers
STG4	DPM	9.0E-05	2027	Grading & Infrastructure	Skid Steer Loaders
STG4	DPM	6.3E-05	2027	Grading & Infrastructure	Sweepers/Scrubbers
STG4	DPM	3.1E-05	2034	Grading & Infrastructure	Aerial Lifts
STG4	DPM	4.9E-04	2034	Grading & Infrastructure	Bore/Drill Rigs
STG4	DPM	4.8E-05	2034	Grading & Infrastructure	Cranes
STG4	DPM	1.9E-04	2034	Grading & Infrastructure	Excavators
STG4	DPM	4.9E-05	2034	Grading & Infrastructure	Forklifts
STG4	DPM	4.0E-05	2034	Grading & Infrastructure	Graders
STG4	DPM	2.9E-05	2034	Grading & Infrastructure	On-Site Trucks
STG4	DPM	7.1E-05	2034	Grading & Infrastructure	Other Construction Equipment
STG4	DPM	3.5E-05	2034	Grading & Infrastructure	Pavers
STG4	DPM	4.6E-06	2034	Grading & Infrastructure	Plate Compactors
STG4	DPM	3.0E-05	2034	Grading & Infrastructure	Rollers
STG4	DPM	1.5E-04	2034	Grading & Infrastructure	Rubber Tired Dozers
STG4	DPM	9.9E-05	2034	Grading & Infrastructure	Skid Steer Loaders
STG4	DPM	6.9E-05	2034	Grading & Infrastructure	Sweepers/Scrubbers
STG4	DPM	2.5E-05	2035	Grading & Infrastructure	Aerial Lifts
STG4	DPM	4.0E-04	2035	Grading & Infrastructure	Bore/Drill Rigs
STG4	DPM	3.9E-05	2035	Grading & Infrastructure	Cranes
STG4	DPM	1.5E-04	2035	Grading & Infrastructure	Excavators

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG4	DPM	4.0E-05	2035	Grading & Infrastructure	Forklifts
STG4	DPM	3.2E-05	2035	Grading & Infrastructure	Graders
STG4	DPM	2.4E-05	2035	Grading & Infrastructure	On-Site Trucks
STG4	DPM	5.8E-05	2035	Grading & Infrastructure	Other Construction Equipment
STG4	DPM	2.8E-05	2035	Grading & Infrastructure	Pavers
STG4	DPM	3.7E-06	2035	Grading & Infrastructure	Plate Compactors
STG4	DPM	2.4E-05	2035	Grading & Infrastructure	Rollers
STG4	DPM	1.2E-04	2035	Grading & Infrastructure	Rubber Tired Dozers
STG4	DPM	8.1E-05	2035	Grading & Infrastructure	Skid Steer Loaders
STG4	DPM	5.7E-05	2035	Grading & Infrastructure	Sweepers/Scrubbers
STG4	DPM	1.7E-05	2036	Grading & Infrastructure	Aerial Lifts
STG4	DPM	2.7E-04	2036	Grading & Infrastructure	Bore/Drill Rigs
STG4	DPM	2.6E-05	2036	Grading & Infrastructure	Cranes
STG4	DPM	1.0E-04	2036	Grading & Infrastructure	Excavators
STG4	DPM	2.6E-05	2036	Grading & Infrastructure	Forklifts
STG4	DPM	2.2E-05	2036	Grading & Infrastructure	Graders
STG4	DPM	1.6E-05	2036	Grading & Infrastructure	On-Site Trucks
STG4	DPM	3.9E-05	2036	Grading & Infrastructure	Other Construction Equipment
STG4	DPM	1.9E-05	2036	Grading & Infrastructure	Pavers
STG4	DPM	2.5E-06	2036	Grading & Infrastructure	Plate Compactors
STG4	DPM	1.6E-05	2036	Grading & Infrastructure	Rollers
STG4	DPM	8.3E-05	2036	Grading & Infrastructure	Rubber Tired Dozers
STG4	DPM	5.4E-05	2036	Grading & Infrastructure	Skid Steer Loaders
STG4	DPM	3.8E-05	2036	Grading & Infrastructure	Sweepers/Scrubbers
STG4	DPM	3.1E-05	2037	Grading & Infrastructure	Aerial Lifts
STG4	DPM	4.9E-04	2037	Grading & Infrastructure	Bore/Drill Rigs
STG4	DPM	4.8E-05	2037	Grading & Infrastructure	Cranes
STG4	DPM	1.9E-04	2037	Grading & Infrastructure	Excavators
STG4	DPM	4.9E-05	2037	Grading & Infrastructure	Forklifts
STG4	DPM	4.0E-05	2037	Grading & Infrastructure	Graders
STG4	DPM	2.8E-05	2037	Grading & Infrastructure	On-Site Trucks
STG4	DPM	7.1E-05	2037	Grading & Infrastructure	Other Construction Equipment
STG4	DPM	3.5E-05	2037	Grading & Infrastructure	Pavers
STG4	DPM	4.6E-06	2037	Grading & Infrastructure	Plate Compactors
STG4	DPM	3.0E-05	2037	Grading & Infrastructure	Rollers
STG4	DPM	1.5E-04	2037	Grading & Infrastructure	Rubber Tired Dozers
STG4	DPM	9.9E-05	2037	Grading & Infrastructure	Skid Steer Loaders
STG4	DPM	6.9E-05	2037	Grading & Infrastructure	Sweepers/Scrubbers
STG4	DPM	9.8E-05	2048	Improvements	Excavators
STG4	DPM	1.4E-05	2048	Improvements	Graders
STG4	DPM	8.4E-06	2048	Improvements	On-Site Trucks
STG4	DPM	1.5E-05	2048	Improvements	Other Construction Equipment
STG4	DPM	7.9E-06	2048	Improvements	Pavers
STG4	DPM	1.8E-06	2048	Improvements	Plate Compactors
STG4	DPM	6.8E-06	2048	Improvements	Rollers
STG4	DPM	2.7E-05	2048	Improvements	Rubber Tired Dozers
STG4	DPM	2.5E-05	2048	Improvements	Skid Steer Loaders
STG4	DPM	4.8E-05	2042	Interior and Exterior Finishes	Aerial Lifts
STG4	DPM	7.5E-05	2042	Interior and Exterior Finishes	Forklifts
STG4	DPM	2.7E-06	2042	Interior and Exterior Finishes	On-Site Trucks
STG4	DPM	4.2E-05	2042	Interior and Exterior Finishes	Skid Steer Loaders
STG4	DPM	1.1E-04	2042	Interior and Exterior Finishes	Sweepers/Scrubbers
STG4	DPM	3.0E-05	2045	Interior and Exterior Finishes	Aerial Lifts
STG4	DPM	4.7E-05	2045	Interior and Exterior Finishes	Forklifts
STG4	DPM	1.7E-06	2045	Interior and Exterior Finishes	On-Site Trucks
STG4	DPM	2.6E-05	2045	Interior and Exterior Finishes	Skid Steer Loaders
STG4	DPM	6.7E-05	2045	Interior and Exterior Finishes	Sweepers/Scrubbers

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG4	DPM	2.4E-05	2046	Interior and Exterior Finishes	Aerial Lifts
STG4	DPM	3.7E-05	2046	Interior and Exterior Finishes	Forklifts
STG4	DPM	1.3E-06	2046	Interior and Exterior Finishes	On-Site Trucks
STG4	DPM	2.1E-05	2046	Interior and Exterior Finishes	Skid Steer Loaders
STG4	DPM	5.3E-05	2046	Interior and Exterior Finishes	Sweepers/Scrubbers
STG4	DPM	2.4E-05	2047	Interior and Exterior Finishes	Aerial Lifts
STG4	DPM	3.7E-05	2047	Interior and Exterior Finishes	Forklifts
STG4	DPM	1.3E-06	2047	Interior and Exterior Finishes	On-Site Trucks
STG4	DPM	2.1E-05	2047	Interior and Exterior Finishes	Skid Steer Loaders
STG4	DPM	5.3E-05	2047	Interior and Exterior Finishes	Sweepers/Scrubbers
STG4	DPM	4.8E-05	2048	Interior and Exterior Finishes	Aerial Lifts
STG4	DPM	7.5E-05	2048	Interior and Exterior Finishes	Forklifts
STG4	DPM	2.7E-06	2048	Interior and Exterior Finishes	On-Site Trucks
STG4	DPM	4.2E-05	2048	Interior and Exterior Finishes	Skid Steer Loaders
STG4	DPM	1.1E-04	2048	Interior and Exterior Finishes	Sweepers/Scrubbers
STG5	DPM	2.8E-05	2019	Abatement	Aerial Lifts
STG5	DPM	2.2E-05	2019	Abatement	Forklifts
STG5	DPM	8.8E-06	2019	Abatement	On-Site Trucks
STG5	DPM	1.2E-05	2019	Abatement	Skid Steer Loaders
STG5	DPM	4.9E-05	2019	Demolition	Excavators
STG5	DPM	3.5E-05	2019	Demolition	On-Site Trucks
STG5	DPM	1.1E-04	2019	Demolition	Rubber Tired Dozers
STG5	DPM	1.2E-05	2019	Demolition	Skid Steer Loaders
STG5	DPM	4.9E-05	2020	Demolition	Excavators
STG5	DPM	2.0E-05	2020	Demolition	On-Site Trucks
STG5	DPM	1.1E-04	2020	Demolition	Rubber Tired Dozers
STG5	DPM	1.2E-05	2020	Demolition	Skid Steer Loaders
STG5	DPM	9.8E-06	2044	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG5	DPM	6.1E-05	2044	Foundation Piles/Structures/Rough-In	Cranes
STG5	DPM	3.4E-05	2044	Foundation Piles/Structures/Rough-In	Excavators
STG5	DPM	4.3E-06	2044	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG5	DPM	8.6E-06	2044	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG5	DPM	3.6E-05	2045	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG5	DPM	2.2E-04	2045	Foundation Piles/Structures/Rough-In	Cranes
STG5	DPM	1.3E-04	2045	Foundation Piles/Structures/Rough-In	Excavators
STG5	DPM	1.6E-05	2045	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG5	DPM	3.2E-05	2045	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG5	DPM	2.7E-04	2038	Grading & Infrastructure	Bore/Drill Rigs
STG5	DPM	1.7E-04	2038	Grading & Infrastructure	Excavators
STG5	DPM	2.4E-05	2038	Grading & Infrastructure	Graders
STG5	DPM	1.9E-05	2038	Grading & Infrastructure	On-Site Trucks
STG5	DPM	3.0E-05	2038	Grading & Infrastructure	Other Construction Equipment
STG5	DPM	1.6E-05	2038	Grading & Infrastructure	Pavers
STG5	DPM	3.7E-06	2038	Grading & Infrastructure	Plate Compactors
STG5	DPM	1.3E-05	2038	Grading & Infrastructure	Rollers
STG5	DPM	5.3E-05	2038	Grading & Infrastructure	Rubber Tired Dozers
STG5	DPM	6.7E-05	2038	Grading & Infrastructure	Skid Steer Loaders
STG5	DPM	4.9E-04	2039	Grading & Infrastructure	Bore/Drill Rigs
STG5	DPM	3.0E-04	2039	Grading & Infrastructure	Excavators
STG5	DPM	4.5E-05	2039	Grading & Infrastructure	Graders
STG5	DPM	3.4E-05	2039	Grading & Infrastructure	On-Site Trucks
STG5	DPM	5.5E-05	2039	Grading & Infrastructure	Other Construction Equipment
STG5	DPM	2.9E-05	2039	Grading & Infrastructure	Pavers
STG5	DPM	6.9E-06	2039	Grading & Infrastructure	Plate Compactors
STG5	DPM	2.5E-05	2039	Grading & Infrastructure	Rollers
STG5	DPM	9.8E-05	2039	Grading & Infrastructure	Rubber Tired Dozers
STG5	DPM	1.2E-04	2039	Grading & Infrastructure	Skid Steer Loaders

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG5	DPM	3.1E-04	2040	Grading & Infrastructure	Bore/Drill Rigs
STG5	DPM	1.9E-04	2040	Grading & Infrastructure	Excavators
STG5	DPM	2.8E-05	2040	Grading & Infrastructure	Graders
STG5	DPM	2.2E-05	2040	Grading & Infrastructure	On-Site Trucks
STG5	DPM	3.5E-05	2040	Grading & Infrastructure	Other Construction Equipment
STG5	DPM	1.8E-05	2040	Grading & Infrastructure	Pavers
STG5	DPM	4.4E-06	2040	Grading & Infrastructure	Plate Compactors
STG5	DPM	1.6E-05	2040	Grading & Infrastructure	Rollers
STG5	DPM	6.2E-05	2040	Grading & Infrastructure	Rubber Tired Dozers
STG5	DPM	7.9E-05	2040	Grading & Infrastructure	Skid Steer Loaders
STG5	DPM	1.0E-04	2042	Improvements	Excavators
STG5	DPM	2.2E-05	2042	Improvements	Graders
STG5	DPM	1.3E-05	2042	Improvements	On-Site Trucks
STG5	DPM	2.4E-05	2042	Improvements	Other Construction Equipment
STG5	DPM	1.3E-05	2042	Improvements	Pavers
STG5	DPM	2.8E-06	2042	Improvements	Plate Compactors
STG5	DPM	1.1E-05	2042	Improvements	Rollers
STG5	DPM	4.3E-05	2042	Improvements	Rubber Tired Dozers
STG5	DPM	3.9E-05	2042	Improvements	Skid Steer Loaders
STG5	DPM	1.2E-04	2050	Improvements	Excavators
STG5	DPM	2.4E-05	2050	Improvements	Graders
STG5	DPM	1.5E-05	2050	Improvements	On-Site Trucks
STG5	DPM	2.7E-05	2050	Improvements	Other Construction Equipment
STG5	DPM	1.4E-05	2050	Improvements	Pavers
STG5	DPM	3.1E-06	2050	Improvements	Plate Compactors
STG5	DPM	1.2E-05	2050	Improvements	Rollers
STG5	DPM	4.8E-05	2050	Improvements	Rubber Tired Dozers
STG5	DPM	4.4E-05	2050	Improvements	Skid Steer Loaders
STG5	DPM	1.2E-04	2051	Improvements	Excavators
STG5	DPM	2.4E-05	2051	Improvements	Graders
STG5	DPM	3.0E-05	2051	Improvements	On-Site Trucks
STG5	DPM	2.7E-05	2051	Improvements	Other Construction Equipment
STG5	DPM	1.4E-05	2051	Improvements	Pavers
STG5	DPM	3.1E-06	2051	Improvements	Plate Compactors
STG5	DPM	1.2E-05	2051	Improvements	Rollers
STG5	DPM	4.8E-05	2051	Improvements	Rubber Tired Dozers
STG5	DPM	4.4E-05	2051	Improvements	Skid Steer Loaders
STG5	DPM	3.2E-05	2048	Interior and Exterior Finishes	Aerial Lifts
STG5	DPM	5.1E-05	2048	Interior and Exterior Finishes	Forklifts
STG5	DPM	1.2E-06	2048	Interior and Exterior Finishes	On-Site Trucks
STG5	DPM	2.8E-05	2048	Interior and Exterior Finishes	Skid Steer Loaders
STG5	DPM	7.2E-05	2048	Interior and Exterior Finishes	Sweepers/Scrubbers
STG5	DPM	6.4E-05	2049	Interior and Exterior Finishes	Aerial Lifts
STG5	DPM	1.0E-04	2049	Interior and Exterior Finishes	Forklifts
STG5	DPM	2.5E-06	2049	Interior and Exterior Finishes	On-Site Trucks
STG5	DPM	5.6E-05	2049	Interior and Exterior Finishes	Skid Steer Loaders
STG5	DPM	1.4E-04	2049	Interior and Exterior Finishes	Sweepers/Scrubbers
STG6	DPM	4.2E-06	2045	Demolition	Aerial Lifts
STG6	DPM	1.9E-05	2045	Demolition	Excavators
STG6	DPM	3.3E-06	2045	Demolition	On-Site Trucks
STG6	DPM	4.3E-05	2045	Demolition	Rubber Tired Dozers
STG6	DPM	4.9E-06	2045	Demolition	Skid Steer Loaders
STG6	DPM	8.4E-06	2046	Demolition	Aerial Lifts
STG6	DPM	3.9E-05	2046	Demolition	Excavators
STG6	DPM	6.6E-06	2046	Demolition	On-Site Trucks
STG6	DPM	8.5E-05	2046	Demolition	Rubber Tired Dozers
STG6	DPM	9.8E-06	2046	Demolition	Skid Steer Loaders

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG6	DPM	2.8E-06	2047	Demolition	Aerial Lifts
STG6	DPM	1.3E-05	2047	Demolition	Excavators
STG6	DPM	2.2E-06	2047	Demolition	On-Site Trucks
STG6	DPM	2.9E-05	2047	Demolition	Rubber Tired Dozers
STG6	DPM	3.3E-06	2047	Demolition	Skid Steer Loaders
STG6	DPM	3.1E-05	2049	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG6	DPM	1.9E-04	2049	Foundation Piles/Structures/Rough-In	Cranes
STG6	DPM	1.1E-04	2049	Foundation Piles/Structures/Rough-In	Excavators
STG6	DPM	1.8E-05	2049	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG6	DPM	3.3E-05	2049	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG6	DPM	2.7E-05	2049	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG6	DPM	1.1E-05	2052	Foundation Piles/Structures/Rough-In	Aerial Lifts
STG6	DPM	7.0E-05	2052	Foundation Piles/Structures/Rough-In	Cranes
STG6	DPM	3.9E-05	2052	Foundation Piles/Structures/Rough-In	Excavators
STG6	DPM	1.3E-05	2052	Foundation Piles/Structures/Rough-In	On-Site Trucks
STG6	DPM	1.2E-05	2052	Foundation Piles/Structures/Rough-In	Other Construction Equipment
STG6	DPM	9.9E-06	2052	Foundation Piles/Structures/Rough-In	Skid Steer Loaders
STG6	DPM	5.0E-04	2041	Grading & Infrastructure	Bore/Drill Rigs
STG6	DPM	2.0E-04	2041	Grading & Infrastructure	Excavators
STG6	DPM	3.9E-05	2041	Grading & Infrastructure	Graders
STG6	DPM	2.8E-05	2041	Grading & Infrastructure	On-Site Trucks
STG6	DPM	8.5E-05	2041	Grading & Infrastructure	Other Construction Equipment
STG6	DPM	3.1E-05	2041	Grading & Infrastructure	Pavers
STG6	DPM	3.9E-06	2041	Grading & Infrastructure	Plate Compactors
STG6	DPM	2.6E-05	2041	Grading & Infrastructure	Rollers
STG6	DPM	1.5E-04	2041	Grading & Infrastructure	Rubber Tired Dozers
STG6	DPM	9.5E-05	2041	Grading & Infrastructure	Skid Steer Loaders
STG6	DPM	6.1E-04	2042	Grading & Infrastructure	Bore/Drill Rigs
STG6	DPM	2.5E-04	2042	Grading & Infrastructure	Excavators
STG6	DPM	4.8E-05	2042	Grading & Infrastructure	Graders
STG6	DPM	3.4E-05	2042	Grading & Infrastructure	On-Site Trucks
STG6	DPM	1.0E-04	2042	Grading & Infrastructure	Other Construction Equipment
STG6	DPM	3.8E-05	2042	Grading & Infrastructure	Pavers
STG6	DPM	4.8E-06	2042	Grading & Infrastructure	Plate Compactors
STG6	DPM	3.2E-05	2042	Grading & Infrastructure	Rollers
STG6	DPM	1.9E-04	2042	Grading & Infrastructure	Rubber Tired Dozers
STG6	DPM	1.2E-04	2042	Grading & Infrastructure	Skid Steer Loaders
STG6	DPM	6.1E-04	2043	Grading & Infrastructure	Bore/Drill Rigs
STG6	DPM	2.5E-04	2043	Grading & Infrastructure	Excavators
STG6	DPM	4.8E-05	2043	Grading & Infrastructure	Graders
STG6	DPM	3.4E-05	2043	Grading & Infrastructure	On-Site Trucks
STG6	DPM	1.0E-04	2043	Grading & Infrastructure	Other Construction Equipment
STG6	DPM	3.8E-05	2043	Grading & Infrastructure	Pavers
STG6	DPM	4.8E-06	2043	Grading & Infrastructure	Plate Compactors
STG6	DPM	3.2E-05	2043	Grading & Infrastructure	Rollers
STG6	DPM	1.9E-04	2043	Grading & Infrastructure	Rubber Tired Dozers
STG6	DPM	1.2E-04	2043	Grading & Infrastructure	Skid Steer Loaders
STG6	DPM	6.1E-04	2044	Grading & Infrastructure	Bore/Drill Rigs
STG6	DPM	2.5E-04	2044	Grading & Infrastructure	Excavators
STG6	DPM	4.8E-05	2044	Grading & Infrastructure	Graders
STG6	DPM	3.4E-05	2044	Grading & Infrastructure	On-Site Trucks
STG6	DPM	1.0E-04	2044	Grading & Infrastructure	Other Construction Equipment
STG6	DPM	3.8E-05	2044	Grading & Infrastructure	Pavers
STG6	DPM	4.8E-06	2044	Grading & Infrastructure	Plate Compactors
STG6	DPM	3.2E-05	2044	Grading & Infrastructure	Rollers
STG6	DPM	1.9E-04	2044	Grading & Infrastructure	Rubber Tired Dozers
STG6	DPM	1.2E-04	2044	Grading & Infrastructure	Skid Steer Loaders

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG6	DPM	5.5E-04	2045	Grading & Infrastructure	Bore/Drill Rigs
STG6	DPM	2.3E-04	2045	Grading & Infrastructure	Excavators
STG6	DPM	4.3E-05	2045	Grading & Infrastructure	Graders
STG6	DPM	3.1E-05	2045	Grading & Infrastructure	On-Site Trucks
STG6	DPM	9.5E-05	2045	Grading & Infrastructure	Other Construction Equipment
STG6	DPM	3.4E-05	2045	Grading & Infrastructure	Pavers
STG6	DPM	4.3E-06	2045	Grading & Infrastructure	Plate Compactors
STG6	DPM	2.9E-05	2045	Grading & Infrastructure	Rollers
STG6	DPM	1.7E-04	2045	Grading & Infrastructure	Rubber Tired Dozers
STG6	DPM	1.1E-04	2045	Grading & Infrastructure	Skid Steer Loaders
STG6	DPM	6.1E-04	2046	Grading & Infrastructure	Bore/Drill Rigs
STG6	DPM	2.5E-04	2046	Grading & Infrastructure	Excavators
STG6	DPM	4.8E-05	2046	Grading & Infrastructure	Graders
STG6	DPM	3.4E-05	2046	Grading & Infrastructure	On-Site Trucks
STG6	DPM	1.0E-04	2046	Grading & Infrastructure	Other Construction Equipment
STG6	DPM	3.8E-05	2046	Grading & Infrastructure	Pavers
STG6	DPM	4.8E-06	2046	Grading & Infrastructure	Plate Compactors
STG6	DPM	3.2E-05	2046	Grading & Infrastructure	Rollers
STG6	DPM	1.9E-04	2046	Grading & Infrastructure	Rubber Tired Dozers
STG6	DPM	1.2E-04	2046	Grading & Infrastructure	Skid Steer Loaders
STG6	DPM	1.7E-05	2053	Interior and Exterior Finishes	Aerial Lifts
STG6	DPM	2.7E-05	2053	Interior and Exterior Finishes	Forklifts
STG6	DPM	2.9E-06	2053	Interior and Exterior Finishes	On-Site Trucks
STG6	DPM	1.5E-05	2053	Interior and Exterior Finishes	Skid Steer Loaders
STG6	DPM	3.8E-05	2053	Interior and Exterior Finishes	Sweepers/Scrubbers
STG6	DPM	1.4E-05	2054	Interior and Exterior Finishes	Aerial Lifts
STG6	DPM	2.3E-05	2054	Interior and Exterior Finishes	Forklifts
STG6	DPM	2.5E-06	2054	Interior and Exterior Finishes	On-Site Trucks
STG6	DPM	1.3E-05	2054	Interior and Exterior Finishes	Skid Steer Loaders
STG6	DPM	3.2E-05	2054	Interior and Exterior Finishes	Sweepers/Scrubbers
STG6	DPM	9.7E-06	2055	Interior and Exterior Finishes	Aerial Lifts
STG6	DPM	1.5E-05	2055	Interior and Exterior Finishes	Forklifts
STG6	DPM	1.7E-06	2055	Interior and Exterior Finishes	On-Site Trucks
STG6	DPM	8.5E-06	2055	Interior and Exterior Finishes	Skid Steer Loaders
STG6	DPM	2.2E-05	2055	Interior and Exterior Finishes	Sweepers/Scrubbers
STG6	DPM	1.9E-05	2056	Interior and Exterior Finishes	Aerial Lifts
STG6	DPM	3.1E-05	2056	Interior and Exterior Finishes	Forklifts
STG6	DPM	3.3E-06	2056	Interior and Exterior Finishes	On-Site Trucks
STG6	DPM	1.7E-05	2056	Interior and Exterior Finishes	Skid Steer Loaders
STG6	DPM	4.3E-05	2056	Interior and Exterior Finishes	Sweepers/Scrubbers
STG6	DPM	1.9E-05	2057	Interior and Exterior Finishes	Aerial Lifts
STG6	DPM	3.1E-05	2057	Interior and Exterior Finishes	Forklifts
STG6	DPM	3.3E-06	2057	Interior and Exterior Finishes	On-Site Trucks
STG6	DPM	1.7E-05	2057	Interior and Exterior Finishes	Skid Steer Loaders
STG6	DPM	4.3E-05	2057	Interior and Exterior Finishes	Sweepers/Scrubbers
STG6	DPM	7.2E-06	2058	Interior and Exterior Finishes	Aerial Lifts
STG6	DPM	1.1E-05	2058	Interior and Exterior Finishes	Forklifts
STG6	DPM	1.3E-06	2058	Interior and Exterior Finishes	On-Site Trucks
STG6	DPM	6.3E-06	2058	Interior and Exterior Finishes	Skid Steer Loaders
STG6	DPM	1.6E-05	2058	Interior and Exterior Finishes	Sweepers/Scrubbers
CONHAUL	DPM	6.8E-06	2014	Demolition	Hauling
STG0	DPM	1.7E-06	2014	Demolition	Hauling
CONHAUL	DPM	1.5E-05	2015	Foundation Piles/Structures/Rough-In	Hauling
STG0	DPM	3.7E-06	2015	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	4.8E-05	2016	Foundation Piles/Structures/Rough-In	Hauling
STG0	DPM	1.2E-05	2016	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	2.4E-05	2017	Foundation Piles/Structures/Rough-In	Hauling

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG0	DPM	5.7E-06	2017	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	1.3E-05	2014	Grading & Infrastructure	Hauling
STG0	DPM	3.3E-06	2014	Grading & Infrastructure	Hauling
CONHAUL	DPM	2.0E-05	2015	Grading & Infrastructure	Hauling
STG0	DPM	4.9E-06	2015	Grading & Infrastructure	Hauling
CONHAUL	DPM	5.1E-06	2015	Interior and Exterior Finishes	Hauling
STG0	DPM	1.2E-06	2015	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	3.3E-05	2016	Interior and Exterior Finishes	Hauling
STG0	DPM	7.9E-06	2016	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	2.4E-05	2017	Interior and Exterior Finishes	Hauling
STG0	DPM	5.7E-06	2017	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	1.6E-05	2018	Interior and Exterior Finishes	Hauling
STG0	DPM	3.9E-06	2018	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	4.8E-05	2016	Abatement	Hauling
STG1	DPM	1.2E-05	2016	Abatement	Hauling
CONHAUL	DPM	3.3E-05	2016	Demolition	Hauling
STG1	DPM	7.9E-06	2016	Demolition	Hauling
CONHAUL	DPM	4.8E-05	2017	Demolition	Hauling
STG1	DPM	1.1E-05	2017	Demolition	Hauling
CONHAUL	DPM	3.2E-05	2018	Demolition	Hauling
STG1	DPM	7.7E-06	2018	Demolition	Hauling
CONHAUL	DPM	1.4E-05	2019	Demolition	Hauling
STG1	DPM	3.7E-06	2019	Demolition	Hauling
CONHAUL	DPM	2.4E-07	2029	Foundation Piles/Structures/Rough-In	Hauling
STG1	DPM	6.6E-08	2029	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	1.7E-06	2030	Foundation Piles/Structures/Rough-In	Hauling
STG1	DPM	4.6E-07	2030	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	2.0E-06	2031	Foundation Piles/Structures/Rough-In	Hauling
STG1	DPM	4.8E-07	2031	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	2.1E-06	2032	Foundation Piles/Structures/Rough-In	Hauling
STG1	DPM	4.9E-07	2032	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	2.7E-06	2033	Foundation Piles/Structures/Rough-In	Hauling
STG1	DPM	6.1E-07	2033	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	9.0E-07	2034	Foundation Piles/Structures/Rough-In	Hauling
STG1	DPM	1.9E-07	2034	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	3.6E-05	2017	Grading & Infrastructure	Hauling
STG1	DPM	8.5E-06	2017	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.1E-06	2022	Grading & Infrastructure	Hauling
STG1	DPM	4.1E-07	2022	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.3E-07	2023	Grading & Infrastructure	Hauling
STG1	DPM	4.8E-08	2023	Grading & Infrastructure	Hauling
CONHAUL	DPM	6.5E-08	2025	Grading & Infrastructure	Hauling
STG1	DPM	2.2E-08	2025	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.2E-06	2026	Grading & Infrastructure	Hauling
STG1	DPM	3.8E-07	2026	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.0E-06	2027	Grading & Infrastructure	Hauling
STG1	DPM	3.1E-07	2027	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.2E-06	2028	Grading & Infrastructure	Hauling
STG1	DPM	3.4E-07	2028	Grading & Infrastructure	Hauling
CONHAUL	DPM	4.5E-07	2039	Improvements	Hauling
STG1	DPM	8.1E-08	2039	Improvements	Hauling
CONHAUL	DPM	6.5E-06	2031	Interior and Exterior Finishes	Hauling
STG1	DPM	1.6E-06	2031	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	8.3E-07	2032	Interior and Exterior Finishes	Hauling
STG1	DPM	2.0E-07	2032	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	5.5E-07	2033	Interior and Exterior Finishes	Hauling
STG1	DPM	1.2E-07	2033	Interior and Exterior Finishes	Hauling

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
CONHAUL	DPM	9.0E-07	2034	Interior and Exterior Finishes	Hauling
STG1	DPM	1.9E-07	2034	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	8.4E-07	2035	Interior and Exterior Finishes	Hauling
STG1	DPM	1.7E-07	2035	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	4.8E-07	2037	Interior and Exterior Finishes	Hauling
STG1	DPM	9.2E-08	2037	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	7.6E-07	2038	Interior and Exterior Finishes	Hauling
STG1	DPM	1.4E-07	2038	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	1.6E-05	2016	Demolition	Hauling
STG2	DPM	3.9E-06	2016	Demolition	Hauling
CONHAUL	DPM	4.8E-05	2017	Demolition	Hauling
STG2	DPM	1.1E-05	2017	Demolition	Hauling
CONHAUL	DPM	3.2E-05	2018	Demolition	Hauling
STG2	DPM	7.7E-06	2018	Demolition	Hauling
CONHAUL	DPM	1.4E-05	2019	Demolition	Hauling
STG2	DPM	3.7E-06	2019	Demolition	Hauling
CONHAUL	DPM	1.3E-06	2031	Demolition	Hauling
STG2	DPM	3.3E-07	2031	Demolition	Hauling
CONHAUL	DPM	2.2E-06	2033	Foundation Piles/Structures/Rough-In	Hauling
STG2	DPM	4.9E-07	2033	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	2.4E-06	2034	Foundation Piles/Structures/Rough-In	Hauling
STG2	DPM	5.2E-07	2034	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	2.8E-06	2035	Foundation Piles/Structures/Rough-In	Hauling
STG2	DPM	5.8E-07	2035	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	6.6E-07	2036	Foundation Piles/Structures/Rough-In	Hauling
STG2	DPM	1.3E-07	2036	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	3.3E-05	2016	Grading & Infrastructure	Hauling
STG2	DPM	7.9E-06	2016	Grading & Infrastructure	Hauling
CONHAUL	DPM	3.6E-05	2017	Grading & Infrastructure	Hauling
STG2	DPM	8.5E-06	2017	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.6E-05	2018	Grading & Infrastructure	Hauling
STG2	DPM	3.9E-06	2018	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.1E-06	2022	Grading & Infrastructure	Hauling
STG2	DPM	4.1E-07	2022	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.4E-06	2029	Grading & Infrastructure	Hauling
STG2	DPM	3.9E-07	2029	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.7E-06	2030	Grading & Infrastructure	Hauling
STG2	DPM	4.6E-07	2030	Grading & Infrastructure	Hauling
CONHAUL	DPM	6.5E-06	2031	Grading & Infrastructure	Hauling
STG2	DPM	1.6E-06	2031	Grading & Infrastructure	Hauling
CONHAUL	DPM	8.5E-07	2042	Improvements	Hauling
STG2	DPM	1.4E-07	2042	Improvements	Hauling
CONHAUL	DPM	1.4E-06	2035	Interior and Exterior Finishes	Hauling
STG2	DPM	2.9E-07	2035	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	9.8E-07	2036	Interior and Exterior Finishes	Hauling
STG2	DPM	2.0E-07	2036	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	1.1E-06	2037	Interior and Exterior Finishes	Hauling
STG2	DPM	2.1E-07	2037	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	1.0E-06	2038	Interior and Exterior Finishes	Hauling
STG2	DPM	1.9E-07	2038	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	1.1E-06	2039	Interior and Exterior Finishes	Hauling
STG2	DPM	1.9E-07	2039	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	7.9E-07	2040	Interior and Exterior Finishes	Hauling
STG2	DPM	1.4E-07	2040	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	2.8E-07	2033	Abatement	Hauling
STG3	DPM	6.2E-08	2033	Abatement	Hauling
CONHAUL	DPM	2.8E-07	2033	Demolition	Hauling

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
STG3	DPM	6.2E-08	2033	Demolition	Hauling
CONHAUL	DPM	1.1E-06	2035	Foundation Piles/Structures/Rough-In	Hauling
STG3	DPM	2.3E-07	2035	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	6.4E-07	2037	Foundation Piles/Structures/Rough-In	Hauling
STG3	DPM	1.2E-07	2037	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	2.6E-07	2038	Foundation Piles/Structures/Rough-In	Hauling
STG3	DPM	4.8E-08	2038	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	1.6E-06	2026	Grading & Infrastructure	Hauling
STG3	DPM	5.1E-07	2026	Grading & Infrastructure	Hauling
CONHAUL	DPM	6.6E-07	2031	Grading & Infrastructure	Hauling
STG3	DPM	1.6E-07	2031	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.7E-06	2032	Grading & Infrastructure	Hauling
STG3	DPM	3.9E-07	2032	Grading & Infrastructure	Hauling
CONHAUL	DPM	3.0E-06	2033	Grading & Infrastructure	Hauling
STG3	DPM	6.8E-07	2033	Grading & Infrastructure	Hauling
CONHAUL	DPM	3.4E-07	2040	Interior and Exterior Finishes	Hauling
STG3	DPM	5.9E-08	2040	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	1.7E-07	2041	Interior and Exterior Finishes	Hauling
STG3	DPM	2.9E-08	2041	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	3.4E-07	2042	Interior and Exterior Finishes	Hauling
STG3	DPM	5.7E-08	2042	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	1.4E-07	2043	Interior and Exterior Finishes	Hauling
STG3	DPM	2.2E-08	2043	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	9.5E-07	2037	Demolition	Hauling
STG4	DPM	1.8E-07	2037	Demolition	Hauling
CONHAUL	DPM	6.0E-07	2039	Foundation Piles/Structures/Rough-In	Hauling
STG4	DPM	1.1E-07	2039	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	4.5E-07	2040	Foundation Piles/Structures/Rough-In	Hauling
STG4	DPM	7.9E-08	2040	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	2.0E-06	2027	Grading & Infrastructure	Hauling
STG4	DPM	6.2E-07	2027	Grading & Infrastructure	Hauling
CONHAUL	DPM	3.3E-06	2034	Grading & Infrastructure	Hauling
STG4	DPM	7.1E-07	2034	Grading & Infrastructure	Hauling
CONHAUL	DPM	2.5E-06	2035	Grading & Infrastructure	Hauling
STG4	DPM	5.2E-07	2035	Grading & Infrastructure	Hauling
CONHAUL	DPM	9.8E-07	2036	Grading & Infrastructure	Hauling
STG4	DPM	2.0E-07	2036	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.7E-06	2037	Grading & Infrastructure	Hauling
STG4	DPM	3.4E-07	2037	Grading & Infrastructure	Hauling
CONHAUL	DPM	3.7E-07	2048	Improvements	Hauling
STG4	DPM	5.9E-08	2048	Improvements	Hauling
CONHAUL	DPM	1.4E-06	2042	Interior and Exterior Finishes	Hauling
STG4	DPM	2.3E-07	2042	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	8.3E-07	2045	Interior and Exterior Finishes	Hauling
STG4	DPM	1.3E-07	2045	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	5.5E-07	2046	Interior and Exterior Finishes	Hauling
STG4	DPM	8.7E-08	2046	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	2.4E-07	2047	Interior and Exterior Finishes	Hauling
STG4	DPM	3.8E-08	2047	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	5.9E-07	2048	Interior and Exterior Finishes	Hauling
STG4	DPM	9.4E-08	2048	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	1.8E-05	2019	Abatement	Hauling
STG5	DPM	4.7E-06	2019	Abatement	Hauling
CONHAUL	DPM	1.8E-05	2019	Demolition	Hauling
STG5	DPM	4.7E-06	2019	Demolition	Hauling
CONHAUL	DPM	0	2020	Demolition	Hauling
STG5	DPM	0	2020	Demolition	Hauling

Table B1

Unscaled Modeled Construction Emission Rates

Candlestick Point - Hunters Point Shipyard Phase II Development Plan

San Francisco, California

Source Group	Pollutant	Emissions (g/s)	Year	Subphase	Equipment
CONHAUL	DPM	2.1E-07	2044	Foundation Piles/Structures/Rough-In	Hauling
STG5	DPM	3.4E-08	2044	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	1.8E-06	2045	Foundation Piles/Structures/Rough-In	Hauling
STG5	DPM	2.9E-07	2045	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	7.6E-07	2038	Grading & Infrastructure	Hauling
STG5	DPM	1.4E-07	2038	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.7E-06	2039	Grading & Infrastructure	Hauling
STG5	DPM	3.0E-07	2039	Grading & Infrastructure	Hauling
CONHAUL	DPM	7.9E-07	2040	Grading & Infrastructure	Hauling
STG5	DPM	1.4E-07	2040	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.4E-06	2042	Improvements	Hauling
STG5	DPM	2.3E-07	2042	Improvements	Hauling
CONHAUL	DPM	2.0E-07	2050	Improvements	Hauling
STG5	DPM	3.1E-08	2050	Improvements	Hauling
CONHAUL	DPM	2.0E-07	2051	Improvements	Hauling
STG5	DPM	3.1E-08	2051	Improvements	Hauling
CONHAUL	DPM	4.4E-07	2048	Interior and Exterior Finishes	Hauling
STG5	DPM	7.0E-08	2048	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	7.0E-07	2049	Interior and Exterior Finishes	Hauling
STG5	DPM	1.1E-07	2049	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	4.9E-07	2045	Demolition	Hauling
STG6	DPM	7.9E-08	2045	Demolition	Hauling
CONHAUL	DPM	8.2E-07	2046	Demolition	Hauling
STG6	DPM	1.3E-07	2046	Demolition	Hauling
CONHAUL	DPM	1.2E-07	2047	Demolition	Hauling
STG6	DPM	1.9E-08	2047	Demolition	Hauling
CONHAUL	DPM	6.5E-07	2049	Foundation Piles/Structures/Rough-In	Hauling
STG6	DPM	1.0E-07	2049	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	5.8E-08	2052	Foundation Piles/Structures/Rough-In	Hauling
STG6	DPM	9.1E-09	2052	Foundation Piles/Structures/Rough-In	Hauling
CONHAUL	DPM	7.5E-07	2041	Grading & Infrastructure	Hauling
STG6	DPM	1.3E-07	2041	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.9E-06	2042	Grading & Infrastructure	Hauling
STG6	DPM	3.1E-07	2042	Grading & Infrastructure	Hauling
CONHAUL	DPM	7.4E-07	2043	Grading & Infrastructure	Hauling
STG6	DPM	1.2E-07	2043	Grading & Infrastructure	Hauling
CONHAUL	DPM	7.9E-07	2044	Grading & Infrastructure	Hauling
STG6	DPM	1.3E-07	2044	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.7E-06	2045	Grading & Infrastructure	Hauling
STG6	DPM	2.6E-07	2045	Grading & Infrastructure	Hauling
CONHAUL	DPM	1.5E-06	2046	Grading & Infrastructure	Hauling
STG6	DPM	2.4E-07	2046	Grading & Infrastructure	Hauling
CONHAUL	DPM	5.1E-08	2053	Interior and Exterior Finishes	Hauling
STG6	DPM	8.0E-09	2053	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	8.7E-08	2054	Interior and Exterior Finishes	Hauling
STG6	DPM	1.4E-08	2054	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	5.8E-08	2055	Interior and Exterior Finishes	Hauling
STG6	DPM	9.1E-09	2055	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	1.2E-07	2056	Interior and Exterior Finishes	Hauling
STG6	DPM	1.8E-08	2056	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	2.3E-07	2057	Interior and Exterior Finishes	Hauling
STG6	DPM	3.6E-08	2057	Interior and Exterior Finishes	Hauling
CONHAUL	DPM	4.3E-08	2058	Interior and Exterior Finishes	Hauling
STG6	DPM	6.8E-09	2058	Interior and Exterior Finishes	Hauling

Table B2
Exposure Parameters
Candlestick Point - Hunters Point Shipyard Phase II Development Plan
San Francisco, California

Population	Receptor Age Group	Exposure Parameters					
		Daily Breathing Rate (DBR)[1]	Exposure Duration (ED)[2]	Fraction of Time at Home (FAH)[3]	Exposure Frequency (EF)[4]	Averaging Time (AT)	Intake Factor, Inhalation (IF_{inh})
		[L/kg-day]	[years]	[unitless]	[days/year]	[days]	[m^3/kg-day]
Residents[5]	3rd Trimester	361	1.0	1.0	350	25,550	0.0049
	Age 0-<2 Years	1,090	1.0	1.0	350	25,550	0.015
	Age 2-<16 Years	572	1.0	1.0	350	25,550	0.0078
	Age 16-30 Years	261	1.0	0.73	350	25,550	0.0026

Notes:

1. Daily breathing rates for residents reflect default breathing rates from OEHHA 2015 and BAAQMD 2022 CEQA Guidelines: 95th percentile 24-hour daily breathing rate for 3rd trimester and age 0-<2 years; 80th percentile for ages 2 years and older.
2. Exposure Duration is shown in Table B3b-e for each scenario.
3. Fraction of time spent at home is conservatively assumed to be 1 (i.e., 24 hours/day) for age groups from the third trimester to less than 16 years old based on recommendation from OEHHA (OEHHA 2015). The fraction of time at home for adults age 16-30 reflects default OEHHA guidance (OEHHA 2015).
4. Exposure frequency reflects default residential exposure frequency from OEHHA 2015.
5. All residents will be assumed to be exposed to risks for 30 years beginning at the first year of construction and through remaining years of operation.

Calculation:

IF_{inh} = DBR * FAH * EF * ED * CF / AT

CF = 0.001 (m^3/L)

Abbreviations:

AT - averaging time
BAAQMD - Bay Area Air Quality Management District
DBR - daily breathing rate
ED - exposure duration
EF - exposure frequency
IF_{inh} - intake factor
kg - kilogram
L - liter
m^3 - cubic meter
OEHHA - Office of Environmental Health Hazard Assessment

References:

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.
Bay Area Air Quality Management District (BAAQMD). 2023. California Environmental Quality Act (CEQA) Air Quality Guidelines. Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

Table B3a
Age Sensitivity Weighted Intake Factors by Year and Age Bin for Scenario 0
Candlestick Point - Hunters Point Shipyard Phase II Development Plan
San Francisco, California

Year[1]	Resident				
	Fraction of Year in Age Bin[2]				Age Sensitivity Weighted Intake Factor by Year, Inhalation[3,4]
	3rd Trimester	0-2	2-16	16-30	(m^3/kg-day)
2014	0.25	0.75			0.12
2015		1			0.15
2016		0.25	0.75		0.055
2017			1		0.024
2018			1		0.024
2019			1		0.024
2020			1		0.024
2021			1		0.024
2022			1		0.024
2023			1		0.024
2024			1		0.024
2025			1		0.024
2026			1		0.024
2027			1		0.024
2028			1		0.024
2029			1		0.024
2030			0.25	0.75	0.008
2031				1	0.0026
2032				1	0.0026
2033				1	0.0026
2034				1	0.0026
2035				1	0.0026
2036				1	0.0026
2037				1	0.0026
2038				1	0.0026
2039				1	0.0026
2040				1	0.0026
2041				1	0.0026
2042				1	0.0026
2043				1	0.0026
2044				1	0.0026
2045				1	0.0026
2046				1	0.0026
2047				1	0.0026
2048				1	0.0026
2049				1	0.0026
2050				1	0.0026
2051				1	0.0026
2052				1	0.0026
2053				1	0.0026
2054				1	0.0026
2055				1	0.0026
2056				1	0.0026
2057				1	0.0026
2058				0.25	0.0007

Notes:

1. Exposure Scenario 0 begins at the start of construction on 1/01/2014.
2. The exposure duration for all years is 1, as the health risk assessment is based on annual emissions. While the 3rd Trimester is only 3 months, the exposure duration for the first year is set to 1 since annual average concentrations are used to calculate risks.
3. The Intake Factors have been multiplied by the Age Sensitivity Factors and weighted by the exposure duration for each age bin.
4. Intake Factors are based on exposure assumptions in Table B2.

Abbreviations:

IF - intake factor
m^3 - cubic meter
kg - kilogram

References:

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Bay Area Air Quality Management District (BAAQMD). 2023. California Environmental Quality Act (CEQA) Air Quality Guidelines. Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

Table B3b
Age Sensitivity Weighted Intake Factors by Year and Age Bin for Scenario 1
Candlestick Point - Hunters Point Shipyard Phase II Development Plan
San Francisco, California

Year[1]	Resident				
	Fraction of Year in Age Bin[2]				Age Sensitivity Weighted Intake Factor by Year, Inhalation[3,4]
	3rd Trimester	0-2	2-16	16-30	(m^3/kg-day)
2025	0.99	0.01			0.05
2026		1			0.15
2027		1.00	0.00		0.149
2028			1		0.024
2029			1		0.024
2030			1		0.024
2031			1		0.024
2032			1		0.024
2033			1		0.024
2034			1		0.024
2035			1		0.024
2036			1		0.024
2037			1		0.024
2038			1		0.024
2039			1		0.024
2040			1		0.024
2041			1.00	0.00	0.023
2042				1	0.0026
2043				1	0.0026
2044				1	0.0026
2045				1	0.0026
2046				1	0.0026
2047				1	0.0026
2048				1	0.0026
2049				1	0.0026
2050				1	0.0026
2051				1	0.0026
2052				1	0.0026
2053				1	0.0026
2054				1	0.0026
2055				1	0.0026
2056				1	0.0026
2057				1	0.0026
2058				1.00	0.0026

Notes:

1. Exposure Scenario 1 begins at the start of construction on 10/01/2025.
2. The exposure duration for all years is 1, as the health risk assessment is based on annual emissions. While the 3rd Trimester is only 3 months, the exposure duration for the first year is set to 1 since annual average concentrations are used to calculate risks.
3. The Intake Factors have been multiplied by the Age Sensitivity Factors and weighted by the exposure duration for each age bin.
4. Intake Factors are based on exposure assumptions in Table B2.

Abbreviations:

IF - intake factor

m^3 - cubic meter

kg - kilogram

References:

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Bay Area Air Quality Management District (BAAQMD). 2023. California Environmental Quality Act (CEQA) Air Quality Guidelines. Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

Table B3c
Age Sensitivity Weighted Intake Factors by Year and Age Bin for Scenario 2
Candlestick Point - Hunters Point Shipyard Phase II Development Plan
San Francisco, California

Year[1]	Resident				
	Fraction of Year in Age Bin[2]				Age Sensitivity Weighted Intake Factor by Year, Inhalation[3,4]
	3rd Trimester	0-2	2-16	16-30	(m^3/kg-day)
2028	1				0.05
2029	0.08	0.92			0.14
2030		1			0.149
2031		0.08	0.92		0.034
2032			1		0.024
2033			1		0.024
2034			1		0.024
2035			1		0.024
2036			1		0.024
2037			1		0.024
2038			1		0.024
2039			1		0.024
2040			1		0.024
2041			1		0.024
2042			1		0.024
2043			1		0.024
2044			1		0.024
2045			0.08	0.92	0.0043
2046				1	0.0026
2047				1	0.0026
2048				1	0.0026
2049				1	0.0026
2050				1	0.0026
2051				1	0.0026
2052				1	0.0026
2053				1	0.0026
2054				1	0.0026
2055				1	0.0026
2056				1	0.0026
2057				1	0.0026
2058				1	0.0026
2059				0.08	0.0002

Notes:

1. Exposure Scenario 2 begins at the start of construction on 10/31/2028.
2. The exposure duration for all years is 1, as the health risk assessment is based on annual emissions. While the 3rd Trimester is only 3 months, the exposure duration for the first year is set to 1 since annual average concentrations are used to calculate risks.
3. The Intake Factors have been multiplied by the Age Sensitivity Factors and weighted by the exposure duration for each age bin.
4. Intake Factors are based on exposure assumptions in Table B2.

Abbreviations:

IF - intake factor
m^3 - cubic meter
kg - kilogram

References:

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Bay Area Air Quality Management District (BAAQMD). 2023. California Environmental Quality Act (CEQA) Air Quality Guidelines. Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

Table B3d
Age Sensitivity Weighted Intake Factors by Year and Age Bin for Scenario 5
Candlestick Point - Hunters Point Shipyard Phase II Development Plan
San Francisco, California

Year[1]	Resident				
	Fraction of Year in Age Bin[2]				Age Sensitivity Weighted Intake Factor by Year, Inhalation[3,4]
	3rd Trimester	0-2	2-16	16-30	(m^3/kg-day)
2038	0.27	0.73			0.12
2039		1			0.15
2040		0.32	0.68		0.064
2041			1		0.024
2042			1		0.024
2043			1		0.024
2044			1		0.024
2045			1		0.024
2046			1		0.024
2047			1		0.024
2048			1		0.024
2049			1		0.024
2050			1		0.024
2051			1		0.024
2052			1		0.024
2053			1		0.024
2054			0.32	0.68	0.009
2055				1	0.0026
2056				1	0.0026
2057				1	0.0026
2058				1	0.0026

Notes:

1. Exposure Scenario 5 begins at the start of construction on 1/27/2038.
2. The exposure duration for all years is 1, as the health risk assessment is based on annual emissions. While the 3rd Trimester is only 3 months, the exposure duration for the first year is set to 1 since annual average
3. The Intake Factors have been multiplied by the Age Sensitivity Factors and weighted by the exposure duration for
4. Intake Factors are based on exposure assumptions in Table B2.

Abbreviations:

IF - intake factor
m^3 - cubic meter
kg - kilogram

References:

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Bay Area Air Quality Management District (BAAQMD). 2023. California Environmental Quality Act (CEQA) Air Quality Guidelines. Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

Table B3e
Age Sensitivity Weighted Intake Factors by Year and Age Bin for Scenario 6
Candlestick Point - Hunters Point Shipyard Phase II Development Plan
San Francisco, California

Year[1]	Resident				
	Fraction of Year in Age Bin[2]				Age Sensitivity Weighted Intake Factor by Year, Inhalation[3,4]
	3rd Trimester	0-2	2-16	16-30	(m^3/kg-day)
2041	0.29	0.71			0.12
2042		1			0.15
2043		0.40	0.60		0.074
2044			1		0.024
2045			1		0.024
2046			1		0.024
2047			1		0.024
2048			1		0.024
2049			1		0.024
2050			1		0.024
2051			1		0.024
2052			1		0.024
2053			1		0.024
2054			1		0.024
2055			1		0.024
2056			1		0.024
2057			0.40	0.60	0.011
2058				1	0.0026

Notes:

1. Exposure Scenario 6 begins at the start of construction on 2/25/2041.
2. The exposure duration for all years is 1, as the health risk assessment is based on annual emissions. While the 3rd Trimester is only 3 months, the exposure duration for the first year is set to 1 since annual average concentrations are used to calculate risks.
3. The Intake Factors have been multiplied by the Age Sensitivity Factors and weighted by the exposure duration for
4. Intake Factors are based on exposure assumptions in Table B2.

Abbreviations:

IF - intake factor

m^3 - cubic meter

kg - kilogram

References:

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Bay Area Air Quality Management District (BAAQMD). 2023. California Environmental Quality Act (CEQA) Air Quality Guidelines. Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

Table B4
Health Impacts from Project Construction at the Maximally Exposed Individuals (MEI) For All Scenarios
Candlestick Point - Hunters Point Shipyard Phase II Development Plan
San Francisco, California

Receptor Type	Excess Lifetime Cancer Risk[1] (in a million)				
	S0	**S1**	**S2**	**S5**	**S6**
Off-Site Resident	3.6	4.4	4.4	5.4	4.6
Alice Griffith Onsite Resident	5.6	2.8	3.3	8.5	5.6
Off-Site Worker[3]	4.0	4.3	4.2	8.2	3.8
School Child[3]	2.2	2.5	2.7	3.2	2.2

Receptor Type	Chronic Hazard Index[2]				
	S0	**S1**	**S2**	**S5**	**S6**
Off-Site Resident	0.0032	0.0032	0.0032	0.0032	0.0022
Alice Griffith Onsite Resident	0.00471	0.00471	0.00471	0.00471	0.00283
Off-Site Worker[3]	0.00473	0.00473	0.00473	0.00473	0.00218
School Child[3]	0.0016	0.0016	0.0016	0.0016	0.0012

Notes:

1. Cancer risks were estimated using the following equation:

   Riskinh =Ci x CF x IFinh x CPFi x ASF

   Where:
   Riskinh = Cancer Risk for the Inhalation Pathway (unitless)
   Ci = Annual Average Air Concentration for Chemical "i" (µg/m3)
   CF = Conversion Factor (mg/µg)
   IFinh = Intake Factor for Inhalation (m3/kg-day)
   CPFi = Cancer Potency Factor for Chemical "i" (mg/kg-day)-1
   ASF = Age Sensitivity Factor (unitless)

2. Chronic HI = ΣChronic HQi = Σ [Ci / cRELi]

   Where:
   HI: Hazard Index
   HQ_i: Hazard Quotient for Chemical i
   C_i: Average Daily Air Concentration for Chemical i (µg/m^3)
   $cREL_i$: Non-cancer Chronic Reference Exposure Level for Chemical i (µg/m^3)

3. Off-site Worker and School Child locations were kept consistent with the DEIR, but were conservatively analyzed with receptor exposure parameters for the calculation of cancer risk.

Table B5
Summary of Cancer Risks[1] from Project Construction at the Maximally Exposed Individuals (MEI)[2]
Candlestick Point - Hunters Point Shipyard Phase II Development Plan
San Francisco, California

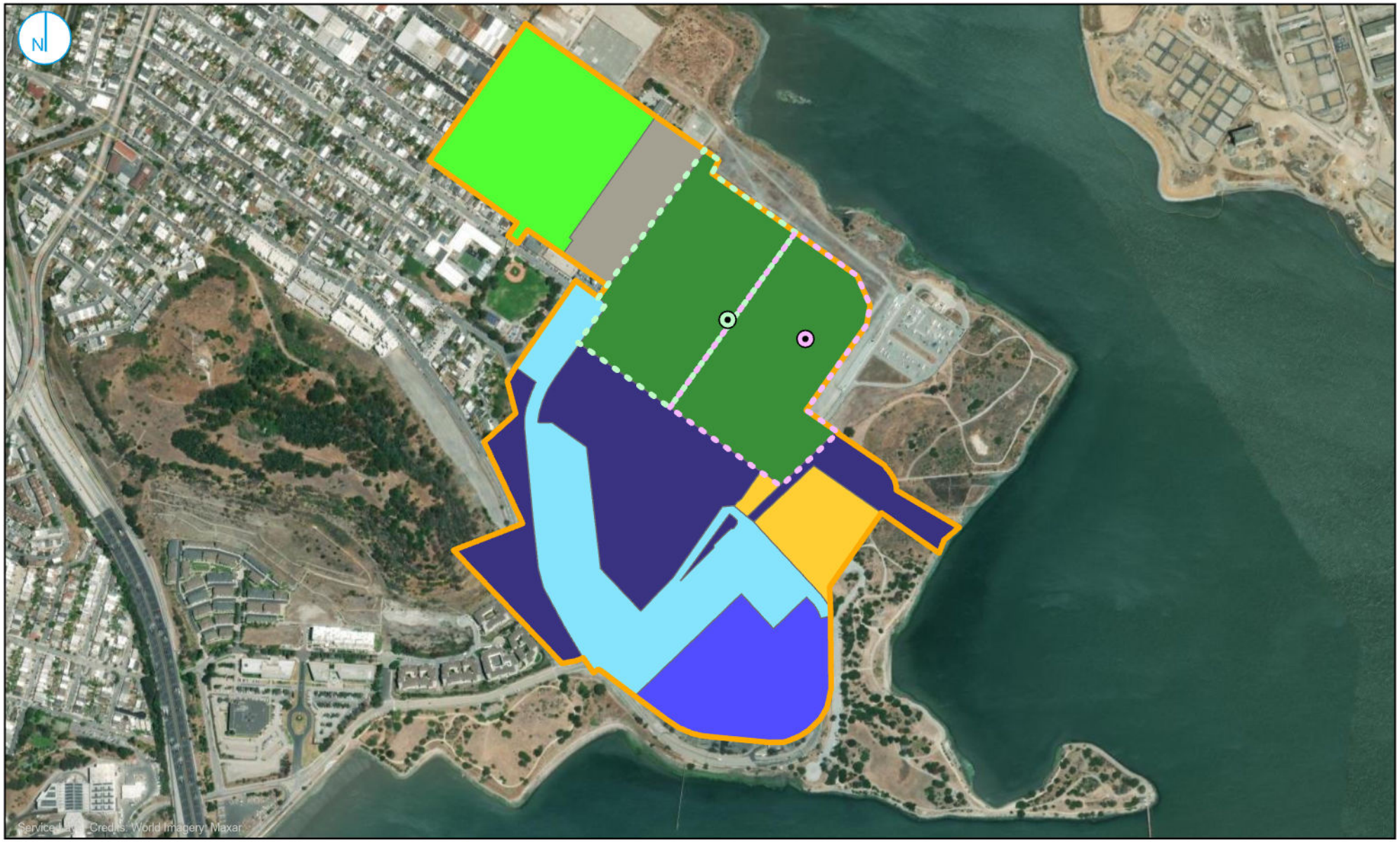
Project Area	Project Analysis	Cancer Risk[1]					
		School Child	Offsite Worker	Offsite Resident		Alice Griffith Onsite Resident	
				High End	Average	High End	Average
Candlestick Point	2010 EIR	1.5E-06	3.3E-06	2.8E-06	2.2E-06	4.5E-06	3.5E-06
	2024 Addendum	3.2E-06	8.2E-06	5.4E-06		8.5E-06	
Hunters Point Shipyard	2010 EIR	2.3E-07	3.8E-06	3.2E-06	2.5E-06	--	--
	2017 Addendum	2.1E-07	3.5E-06	1.7E-06	1.3E-06	--	--
Candlestick Point - Hunters Point Shipyard Phase II Development Plan	2010 EIR	1.7E-06	7.1E-06	6.0E-06	4.7E-06	4.5E-06	3.5E-06
	2017/2024 Addendum	3.4E-06	1.2E-05	7.1E-06	6.7E-06	8.5E-06	8.5E-06

Notes:

1. Since the publication of the EIR, OEHHA has released new health risk assessment guidance (OEHHA 2015), which no longer differentiates between high-end and average cancer risk.

2. UTM coordinates of the Candlestick Point MEI (same location for 2010 EIR and 2019 Addendum unless otherwise specified):
   School Child: 553990.69, 4174701
   Offsite Worker (2010 EIR): 554247, 4174920
   Offsite Worker (2024 Addendum): 554097, 4175020
   Offsite Resident (2010 EIR): 554097, 4174620
   Offsite Resident (2024 Addendum): 553847, 4174970
   Onsite Resident (2010 EIR): 554140, 4174900
   Onsite Resident (2024 Addendum): 554180, 4174920

ATTACHMENT C
CONSTRUCTION PHASING FOR SOIL TACS, SUMMARY OF CANCER RISKS FROM SOIL TACS AT THE MAXIMALLY EXPOSED INDIVIDUALS, AND SUPPORTING INFORMATION



LEGEND

- GS-08
- GS-11
- Stage 6 (A)
- Stage 6 (B)
- CP Project Boundary

0 250 500 Feet

- Stage 0
- Stage 1
- Stage 2
- Stage 3
- Stage 4
- Stage 5
- Stage 6

CONSTRUCTION ANALYSIS
SOIL TAC ANALYSIS

Candlestick Point - Hunters Point Shipyard Phase II
San Francisco, California

FIGURE 01

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.

RAMBOLL

Table C1
Toxicity Values for Carcinogens and Noncarcinogens and Concentrations by Stage
Candlestick Point - Hunters Point Shipyard Phase II Development Plan
San Francisco, California

Chemical	CASRN	Cancer Potency Factor ([mg/kg-day]$^{-1}$)		Chronic Reference Exposure Level (ug/m^3)		Maximum Sampled Soil Concentration by Stage [mg/kg]							
		Value	Reference	Value	Reference	0	1	2	3	4	5	6a	6b
Antimony	7440360	----	OEHHA/CARB 2023	----	OEHHA/CARB 2023	0	0	5.7	0	0	0	0	0
Copper	7440508	----	OEHHA/CARB 2023	----	OEHHA/CARB 2023	0	110	98	0	11	0	41	33
Lead	7439921	0.042	OEHHA/CARB 2023	----	OEHHA/CARB 2023	0	10	220	0	9.5	0	29	63
Zinc	7440666	----	OEHHA/CARB 2023	----	OEHHA/CARB 2023	0	70	130	0	38	0	73	98
PCBs (aroclor-1260)	11096825	2.0	CalEPA 2009	7.0E-05	IRIS	0	0	0.13	0	0.044	0	0.014	60
Acenaphthene	83329	----	OEHHA/CARB 2023	210	IRIS, r-r	0	0	0	0	0	0	0	0
Acenaphthylene	208968	----	OEHHA/CARB 2023	----	OEHHA/CARB 2023	0	0	0	0	0	0	0	0.12
Anthracene	120127	----	OEHHA/CARB 2023	1050	IRIS, r-r	0	0	0	0	0	0	0	0
Benzo(a)anthracene	56553	0	OEHHA/CARB 2023	----	OEHHA/CARB 2023	0	0	0	0	0	0	0	0.36
Benzo(a)pyrene	50328	4	OEHHA/CARB 2023	----	OEHHA/CARB 2023	0	0	0	0	0	0	0	0.67
Benzo(b)fluoranthene	205992	0	OEHHA/CARB 2023	----	OEHHA/CARB 2023	0	0	0	0	0	0	0	0.65
Benzo(g,h,i)perylene	191242	----	OEHHA/CARB 2023	----	OEHHA/CARB 2023	0	0	0	0	0	0	0	0.38
Benzoic acid	65850	----	OEHHA/CARB 2023	14000	IRIS, r-r	0	0	0	0	0	0	0.93	0
Benzo(k)fluoranthene	207089	0.39	OEHHA/CARB 2023	----	OEHHA/CARB 2023	0	0	0	0	0	0	0	0.22
Bis(2- ethyylhexyl)phthalate	117817	0.0084	OEHHA/CARB 2023	70	IRIS, r-r	0	0	0.015	0	0	0	0	0
Butylbenzylphthalate	85687	0.0019	PPRTV, r-r	700	IRIS, r-r	0	0	0	0	0	0	0	0.5
Chrysene	218019	0.039	OEHHA/CARB 2023	----	OEHHA/CARB 2023	0	0	0	0	0	0	0	0.44
Dibenz(a,h)anthracene	53703	4.1	OEHHA/CARB 2023	----	OEHHA/CARB 2023	0	0	0	0	0	0	0	0
Fluoranthene	206440	----	OEHHA/CARB 2023	140	IRIS, r-r	0	0	0	0	0	0	0	1.4
Fluorene	86737	----	OEHHA/CARB 2023	140	IRIS, r-r	0	0	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	193395	0.39	OEHHA/CARB 2023	----	OEHHA/CARB 2023	0	0	0	0	0	0	0	0.3
Isophorone	78591	0.0010	IRIS, r-r	2000	OEHHA/CARB 2023	0	0	0	0	0	0	0	0.85
Napthalene	91203	0.12	OEHHA/CARB 2023	9	OEHHA/CARB 2023	0	0	0	0	0	0	0	0
Phenanthrene	85018	----	OEHHA/CARB 2023	----	OEHHA/CARB 2023	0	0	0	0	0	0	0	0.95
Phenol	108952	----	OEHHA/CARB 2023	200	OEHHA/CARB 2023	0	0	0.084	0	0	0	0.21	0.075
Pyrene	129000	----	OEHHA/CARB 2023	105	IRIS, r-r	0	0	0	0	0	0	0	1.6
Heptachlor epoxide	1024573	6	CalEPA 2009	0.046	IRIS, r-r	0	0	0	0	0	0	0	0.025
Dieldrin	60571	16	CalEPA 2009	0.18	IRIS, r-r	0	0	0	0	0	0	0	0.057
4,4'-DDE	72559	0.34	CalEPA 2009	2.5	NCEA, r-r	0	0	0	0	0	0	0	0
Endrin	72208	----	OEHHA/CARB 2023	1.1	IRIS, r-r	0	0	0	0	0	0	0	0.068
Endosulfan II	33213659	----	OEHHA/CARB 2023	21	IRIS, r-r	0	0	0	0	0	0	0	0.036
Endosulfan sulfate	1031078	----	OEHHA/CARB 2023	21	IRIS, r-r	0	0	0	0	0	0	0	0.15
4,4'-DDD	72548	0.24	CalEPA 2009	11	NCEA, r-r	0	0	0	0	0	0	0	0.33
4,4'-DDT	50293	0.34	CalEPA 2009	1.8	IRIS, r-r	0	0	0.048	0	0	0	0	0.044
alpha-Chlordane	5103719	----	OEHHA/CARB 2023	0.70	IRIS	0	0	0.014	0	0	0	0	0.042
gamma-Chlordane	5103742	----	OEHHA/CARB 2023	0.70	IRIS	0	0	0.012	0	0	0	0	0.052

Abbreviations:

EPA - Environmental Protection Agency
IRIS - Integrated Risk Information System
mg - milligram

References

California Environmental Protection Agency (Cal EPA). 2009. Toxicity Criteria Database. Available at: https://oehha.ca.gov/chemicals.

OEHHA/CARB. 2023. Consolidated Table of OEHHA / CARB Approved Risk Assessment Health Values. Available at: https://ww2.arb.ca.gov/resources/documents/consolidated-table-oehha-carb-approved-risk-assessment-health-values. Accessed March 2024.

USEPA. 2024. Integrated Risk Information (IRIS) Database. Available online: http://www.epa.gov/iris.

Table C2
Summary of Cancer Risks[1] from Airborne Soil TACs at the Maximally Exposed Individuals (MEI)[2]
Candlestick Point - Hunters Point Shipyard Phase II Development Plan
San Francisco, California

Project Area	Project Analysis	Cancer Risk[1]					
		School Child	Offsite Worker	Offsite Resident		Alice Griffith Onsite Resident	
				High End	Average	High End	Average
Candlestick Point	2010 EIR	6.8E-09	1.7E-08	2.7E-08	2.1E-08	3.8E-08	3.0E-08
	2024 Addendum	2.7E-09	6.1E-09	5.4E-09		7.2E-09	
Hunters Point Shipyard	2010 EIR	1.2E-09	1.1E-08	7.3E-09	5.7E-09	1.9E-09	1.5E-09
Candlestick Point - Hunters Point Shipyard Phase II Development Plan	2010 EIR	7.2E-09	1.8E-08	2.7E-08	2.1E-08	3.9E-08	3.0E-08
	2010 EIR/2024 Addendum	3.9E-09	1.7E-08	1.3E-08		9.1E-09	

Notes:

1. Since the publication of the EIR, OEHHA has released new health risk assessment guidance (OEHHA 2015), which no longer differentiates between high-end and average cancer risk.

2. UTM coordinates of the Candlestick Point MEI, 2024 Addendum:
   School Child: 553990.69, 4174701
   Offsite Worker: 554297, 4174920
   Offsite Resident: 554097, 4174620
   Onsite Resident: 554240, 4174800

Table C3
Summary of Chronic HI[1] from Airborne Soil TACs at the Maximally Exposed Individuals (MEI)[2]
Candlestick Point - Hunters Point Shipyard Phase II Development Plan
San Francisco, California

Project Area	Project Analysis	Chronic HI					
		School Child	Offsite Worker	Offsite Resident		Alice Griffith Onsite Resident	
				Adult	Child	Adult	Child
Candlestick Point	2010 EIR	2.0E-04	0.0031	0.0036	0.0069	0.0053	0.010
	2024 Addendum	0.041	0.095	0.075		0.11	
Hunters Point Shipyard	2010 EIR	0.0039	0.026	0.018	0.018	--	--
Candlestick Point - Hunters Point Shipyard Phase II Development Plan[3]	2010 EIR	0.0040	0.013	0.0089	0.018	0.0067	0.013
	2010 EIR/2024 Addendum	0.045	0.12	0.093		0.11	

Notes:

1. Since the publication of the EIR, OEHHA has released new health risk assessment guidance (OEHHA 2015), which no longer differentiates between child and adult chronic HI.

2. UTM coordinates of the Candlestick Point MEI, 2024 Addendum:
   School Child: 553990.69, 4174701
   Offsite Worker: 554297, 4174920
   Offsite Resident: 554097, 4174620
   Onsite Resident: 554260, 4174860

3. Chronic HI from Candlestick Point and EIR Hunters Point Shipyard were summed, which conservatively assumes that the maximum chronic HI (calcuated from an annual average) from each project area would be coincident in time.