18.0 CUMULATIVE EFFECTS

18.1 SIGNIFICANCE CRITERIA

Section 15355 of the California Environmental Quality Act (CEQA) Guidelines states:

> *"Cumulative impacts refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.*
>
> *(a) The individual effects may be changes resulting from a single project or a number of separate projects.*
>
> *(b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."*

For purposes of thresholds, the concept of "cumulatively considerable" effects, as derived from the CEQA Guidelines, is used, and is adequately protective and encompassing of cumulatively significant effects.

18.2 ANALYSIS OF CUMULATIVE IMPACTS

Development projects that are subject to permitting jurisdiction of the City of Pittsburg (City) Planning Department that may contribute to potential cumulative impacts associated with the proposed project are included on the City of Pittsburg's *Project Pipeline List*, updated in February 2012, available for review on the City's website (City of Pittsburg, 2012). The *Project Pipeline List* includes the following categories of projects that are in various stages (e.g., pending approval, under construction, and built): single-family residential, apartments/condominiums, mixed-use projects, and commercial. Many of these projects are already built or are under construction (i.e., construction phases would not be expected to overlap with the proposed project). In addition, very few of the listed projects are located in proximity to the proposed project. Therefore, the potential for significant cumulative impacts to occur is considered to be low.

There are two planned projects within 1 mile of the WesPac Pittsburg Energy Infrastructure Project, each of which is considered in the cumulative impact

assessment below. A brief description of each project is provided, followed by an assessment of potential cumulative impacts. The areas under consideration included land-based residential, commercial, and industrial projects within a 1-mile radius of the proposed project. The timeframes for these projects are also provided.

18.2.1 Mariner Walk Residential Development, Phase 2

An approved project of potential interest is the Mariner Walk Residential Development Project, located on a 15.6-acre site west of Herb White Way and north of West 8th Street, immediately east of the proposed project. The first phase of construction (Phase 1), which included 35 single-family homes, was completed in early 2011. The Vesting Tentative Map associated with the Mariner Walk Residential Development Project does not expire until October 19, 2013, so the remaining phases of the subdivision (including up to 88 detached, single-family clustered units with common private driveways) could begin construction within a few months of a submittal of a final map and the City Council's acceptance of the map.

Land uses adjacent to this residential development project include a mixture of residential, institutional, and industrial uses. Existing neighborhoods of older, single-family houses are located north and south of the property. Herb White Way, a two-lane street, is east of the property with a neighborhood of single-family homes located on the opposite side of Herb White Way. St. Peter Martyr School, a Kindergarten through 8th grade school, abuts the property to the northeast, and the Delta Diablo Sanitation District pump station abuts the property to the southwest. According to the City, Phase 2 of the Mariner Walk Residential Development Project is approved and construction could coincide with that of the proposed project.

Construction equipment could generate dust and diesel exhaust that could temporarily expose nearby sensitive receptors, which include students at the St. Peter Martyr School campus located north and east of the Mariner Walk Residential Development Project site.

When complete, the development would include 123 homes, with a height of 25 to 26 feet. The project also involves relocation of an existing 5-acre park from the northwestern corner of the property to a 3.8-acre site at the southeastern corner of the property; this project component has been completed. There would be an estimated 1,160 vehicle trips per day. In terms of biological resources, the project would fill 0.8 acre of low-quality seasonal wetlands (with off-site mitigation) and 180 trees would be removed and replaced at a ratio of 1.7:1 (new to existing).

18.2.2 Willow Pass Generating Station

The other planned project of interest in the vicinity of the proposed project is the Willow Pass Generating Station (WPGS) Project. The WPGS project would consist of a new 550-megawatt natural gas-fired electric generating facility and ancillary systems, and involve construction of new generating units that would become the WPGS facility, construction of electric and gas transmission lines adjacent to the WPGS facility, and construction of water supply and wastewater pipelines connecting to the Delta Diablo Sanitation District Wastewater Treatment Plant. NRG Energy, Inc. (NRG, formerly GenOn Delta LLC), the project proponent, completed an Application for Certification with the California Energy Commission (CEC), but the final Staff Assessment has not yet been prepared. The project is in "suspended status" with the CEC. Construction of the WPGS project, if and when it is approved, is not likely to coincide with the proposed project.

Operation of the WPGS project would require approximately 20 full-time permanent personnel (12 employees working a day shift and 8 employees working a rotating shift). The WPGS would be staffed 7 days a week, 24 hours a day. When the WPGS is not operating, personnel would be present, as necessary, for maintenance and to prepare the WPGS for startup. Because power produced by the WPGS facility would be sold into the northern California wholesale power market and depend on market demand, in any given hour the WPGS may operate at peak load, base load, or part load, with one or both units operating. Peak-load operation would most likely occur during summer peak hours, and minimum-load operation would occur during off-peak hours.

18.2.3 Resources for which Cumulative Impacts are not Likely to Occur

Cumulative impacts were assessed by reviewing other construction projects proposed within the project site vicinity and analyzing whether implementation of the proposed project concurrent with the two planned projects noted above or any of the projects listed in the City's *Project Pipeline List* as having a status of either under construction, pending, or approved could result in any significant cumulative impacts. The analysis determined that because the proposed project is an infill development within a built-out industrial area of the City of Pittsburg, which would restore existing storage and marine terminals and would not change historical land uses, significant cumulative impacts from this project combined with all other reasonably foreseeable projects in the vicinity related to terrestrial resources; cultural resources; geology soils, and seismicity; public services and utilities; land use and recreation; population and housing; marine transportation; and water resources are not anticipated.

18.2.4 Resources for which Cumulative Impacts Could Occur

Potentially significant impacts to air quality, greenhouse gas emissions, aquatic resources, hazards and hazardous materials, and noise were analyzed below in greater detail to determine if construction and/or operation of the proposed project concurrently with the Mariner Walk Residential Development Project and/or WPGS Project would result in significant temporary or permanent cumulative impacts.

18.2.4.1 Air Quality

As discussed in Chapter 4.0: Air Quality, four existing surrounding sources were documented to be within 1,000 feet of the proposed project boundary. Per the Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines (BAAQMD, 2012), Chapter 4.0: Air Quality addresses health risks associated with construction and operation of the proposed project and existing sources of air pollutants. The two planned projects would result in additional cumulative impacts.

Proposed Project and Existing Sources of Air Pollutants:

> The proposed project and existing sources of air pollutants contribute increased cancer risk, chronic non-cancer risk, and particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$) by approximately 57.2 in a million, 0.118, and 0.182 micrograms per cubic meter ($\mu g/m^3$), respectively.

Additional Sources of Air Pollutants:

> As per the approved Mitigated Negative Declaration under CEQA for the Mariner's Walk Residential Development (City of Pittsburg, 2005), the project impacts with mitigation would be less than the significance thresholds for all areas, including air quality and health risk.
>
> According to the WPGS project's Application for Certification submitted to the CEC, dated June 2008, the increased cancer risk, chronic non-cancer risk, and $PM_{2.5}$ are approximately 0.087 in a million, 0.004, and 0.06 $\mu g/m^3$, respectively.

Table 18-1 provides the proposed project, existing, and additional sources of air pollutants, and identifies cumulative increased cancer risk, chronic health risk index, and $PM_{2.5}$ for the proposed project, surrounding sources, and planned sources (i.e., WPGS and Mariner's Walk). Table 18-2 provides similar proposed and existing, additional, and cumulative risk information for Alternative 1. Cumulative emissions for the proposed project, the five surrounding sources, and known planned sources would not result in cumulative risk in excess of BAAQMD thresholds for either the proposed project or Alternative 1.

Table 18-1: Proposed Project Cumulative Health Risk

	Increased Cancer Risk (in a million)	**Chronic Health Risk Index**	**$PM_{2.5}$ ($\mu g/m^3$)***
Proposed project and existing sources	57.2	0.118	0.182
Planned sources (Mariner's Walk Residential Development)	0	0	0
Planned sources (Willow Pass Generating Station)	0.087	0.004	0.06
Cumulative total	57.3	0.122	0.242
Significance threshold	100	10.0	0.8
Exceeds significance threshold? (Yes/No)	No	No	No

*$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter; $\mu g/m^3$ = micrograms per cubic meter

Table 18-2: Alternative 1 Cumulative Health Risk

	Increased Cancer Risk (in a million)	**Chronic Health Risk Index**	**PM2.5 (µg/m3)***
Alternative 1and existing sources	55.0	0.115	0.179
Planned sources (Mariner's Walk Residential Development)	0	0	0
Planned sources (Willow Pass Generating Station)	0.087	0.004	0.06
Cumulative total	55.1	0.119	0.239
Significance threshold	100	10.0	0.8
Exceeds significance threshold? (Yes/No)	No	No	No

*$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter; $\mu g/m^3$ = micrograms per cubic meter

18.2.4.2 Greenhouse Gas Emissions

As discussed Chapter 5.0: Greenhouse Gas Emissions, greenhouse gas (GHG) emissions from any single project are insignificant when considered in the context of global climate impacts. However, because the cumulative effect of any individual project can contribute to an increase, albeit very small, in atmospheric concentrations of GHG, the BAAQMD released updated CEQA Guidelines (May 2011) requiring that the effects of climate change be addressed in CEQA documents when an individual project exceeds a significance threshold of 10,000 metric tons (MT) of carbon dioxide equivalents per year (CO_2e/year).

The proposed project's calculated GHG contribution ranges between 264 and 5,726 MT of CO_2e/year and totals approximately 7,798 MT of CO_2e during the approximate two-year construction period. The GHG contribution during operations was calculated to be 33,147 MT of CO_2e/year (refer to Chapter 5.0: Greenhouse Gas Emissions), which represents a small fraction of the regional GHG emissions inventory. Additionally, GHG emissions locally, regionally, and nationally may actually decrease with implementation of the proposed project due to variations in delivery distribution options of oil (refer to Impact GG-1 in Chapter 5.0). On a local level, GHG emissions from the proposed project would be more than offset in the near term from the planned shutdown of five petroleum coke-fired power plants in the San Francisco Bay Area by GWF Power Systems (939,500 MT of CO_2e/year) and, to a lesser extent, the recent shutdown of two plant operations at Criterion Catalyst in Pittsburg (1,230 tons of CO_{2e} per year). There is no evidence that the need or capacity for replacement of these operations would occur either regionally or nationally. Therefore, it is anticipated that local GHG emissions would likely decrease cumulatively, even with proposed project implementation.

18.2.4.3 Aquatic Biology

The marine terminal would receive approximately 144 vessel visits a year, resulting in an increase in copper loading to the San Francisco Bay (Bay) from marine antifouling coatings and contributing to the cumulative copper loading to the Bay. The greatest contributor of copper to the Bay is from Central Valley rivers, local watershed sources, and erosion of buried sediment (Looker, 2007). As shown in Table 18-3, in the period between 2000 and 2004, antifouling marine coatings loaded approximately 25 kilograms (kg) of copper into the Bay each day, approximately 2 percent of the daily load.

Table 18-3: Estimated Inputs of Total Copper to San Francisco Bay, 2000-2004

Source	Load (kilograms/day)
Sacramento and San Joaquin rivers	740
Urban and non-urban runoff	180
Wastewater (north of Dumbarton Bridge)	23
Industrial wastewater	0.5
Antifouling marine coatings	25
Atmospheric deposition (wet)	1.4
Atmospheric deposition (dry)	2.1
Erosion of buried sediment	342
Total:	**1,314**

Source: Looker, 2007

Based on the mass loading of the vessels, number of vessel calls, and estimated days in the Bay, the project may result in the addition of approximately 0.6 to 0.9 kg of copper per day (refer to Chapter 6.0: Aquatic Resources). Although this amount is approximately 0.04 percent of the total daily estimated copper load to the Bay, it does represent approximately 4 percent of the total contribution of copper from antifouling coatings. However, shipping through Suisun Bay has decreased in the decade since these copper loads were estimated. In 2005, the number of commercial vessel trips was double what it was in 2009 (refer to Chapter 16.0: Marine Transportation and Marine Terminal Operations). Therefore, copper loading from the antifouling coatings on vessels visiting the marine terminal would not cause a net increase above the 2000-2004 estimates.

18.2.4.4 Hazards and Hazardous Materials

Mariner Walk Residential Development Project, Phase 2

Construction of Phase 2 of the Mariner Walk Residential Development Project would require the use of hazardous materials such as fuel, lubricating oil, paints, adhesives, and solvents. If more than 1,320 gallons of petroleum product were stored on-site during construction (e.g., fuel supply for construction equipment) then the owner would be required to prepare and implement a Spill Prevention, Containment, and Countermeasure (SPCC) Plan pursuant to 40 Code of Federal

Regulations (CFR) 112, and secondary containment would be required for all bulk storage containers. In addition, construction would be required to occur in conformance with a National Pollutant Discharge Elimination System (NPDES) permit for stormwater runoff, including requirements for best management practices to be implemented to prevent hazardous materials from coming in contact with stormwater. Spills or other accidental releases of hazardous materials could occur from the residential construction work but the Mariner Walk project would occur on a separate parcel in a separate drainage area and, therefore, such spills could not combine with the proposed project, affect the proposed project, or have a significant risk of being affected by the proposed project. Therefore, there would be no reasonably foreseeable potential for significant cumulative impacts.

Once construction of Phase 2 of the Mariner Walk project is complete, hazardous materials present on the Mariner Walk project parcel would be limited to household-type hazardous materials and containers that would not have the potential for significant hazardous materials impacts that would be cumulatively significant with the proposed project. Based on these considerations, there would be no potential for the Mariner Walk project to cause significant cumulative hazardous materials impacts.

Willow Pass Generating Station

The Willow Pass Generating Station, if constructed, would be located on the site of the existing NRG facility, immediately west of the proposed project's East Tank Farm. As described in Section 18.2.2, construction timing for the Willow Pass Generating Station would be unlikely to coincide with construction of the proposed project, but could occur after the proposed project is in place. Construction of the Willow Pass Generating Station would require the use of hazardous materials such as fuel, lubricating oil, paints, adhesives, solvents, and compressed gasses during construction. If more than 1,320 gallons of petroleum product were stored on-site during construction (e.g., fuel supply for construction equipment) then the owner would be required to prepare and implement an SPCC Plan pursuant to 40 CFR 112, and secondary containment would be required for all bulk storage containers. In addition, construction would be required to occur in conformance with a NPDES permit for stormwater runoff, including requirements for best management practices to be implemented to prevent hazardous materials from coming in contact with stormwater.

Construction of the Willow Pass Generating Station would include removal of an existing currently unused bulk oil storage tank (Tank 7) located adjacent to and west of the proposed project's East Tank Farm. Spills or other accidental releases of hazardous materials could occur from the construction work at the Willow Pass Generating Station, but that project would occur on a separate parcel in a separate drainage area and, therefore, such spills could not combine with the proposed project, affect the proposed project, or have a significant risk of being affected by the proposed project. Therefore, there would be no reasonably foreseeable

potential for significant cumulative impacts from construction of the Willow Pass Generating Station.

Operation of the Willow Pass Generating Station would include storage and use of hazardous materials, including aqueous ammonia for the emission control systems, combustion exhaust catalysts, lubricating and insulating oils, coolant, acids and caustics for water treatment, and various cleaning chemicals. Only aqueous ammonia would be stored in an amount exceeding the threshold for regulation under California's Accidental Release Prevention regulations. Aqueous ammonia would not be stored or used at the proposed project and poses different types of hazards than the bulk petroleum products that are the primary hazardous material for the proposed project. Therefore, there would be no foreseeable cumulative impact from aqueous ammonia. Insulating oil in sealed transformers at the Willow Pass Generating Station would exceed 1,320 gallons and, therefore, the owner would be required to develop and implement an SPCC Plan in accordance with 40 CFR 112. These regulations would require secondary containment for oil-filled equipment and all oil-filled containers of 55 gallons or more. Considering these factors, and considering that the Willow Pass Generating Station is located on a separate site in a different drainage area, it is not foreseeable that a hazardous material release at the Willow Pass Generating Station could significantly increase any hazardous material risk of the proposed project, or have a significant risk of being affected by the proposed project. Therefore, there would be no significant cumulative impact related to hazardous materials.

18.2.4.5 Noise

Mariner Walk Residential Development, Phase 2

Like the proposed project, the Mariner Walk Residential Development Project would comply with required local construction noise restrictions contained in the Noise Element of the *City of Pittsburg General Plan* (City of Pittsburg, 2004) and Pittsburg Municipal Code (City of Pittsburg, 2011a). Local construction noise restrictions primarily limit construction activities near residential areas to certain days and times, but do not prescribe a specific noise-level limit for construction. The Mariner Walk Residential Development Project also proposes additional noise mitigation measures, which include construction of an 8-foot sound wall at the common property line with the adjacent St. Peter Martyr School prior to beginning construction of the residential buildings (City of Pittsburg, 2005).

If construction occurs concurrently, compliance of both projects with the City's general plan and noise ordinance restrictions, along with mitigation measures proposed for the Mariner Walk Residential Development Project, would reduce cumulative construction noise from both projects below significant levels.

Willow Pass Generating Station

The WPGS project is licensed through the CEC permitting process. A cumulative impact analysis was prepared on behalf of the WPGS project proponent (URS, 2009) that assessed noise impacts using both CEQA and CEC guidelines.

The CEC siting regulations with respect to noise are more stringent than local regulations applicable to the proposed project, as discussed in Chapter 13.0: Noise and Vibration. The CEC requires that new power-generating facilities do not increase background noise levels (i.e., L_{90} or the sound level exceeded 90 percent of the time), measured during the quietest four consecutive hours of a given 25-hour period, by more than 5 A-weighted scale decibels (dBA)[1] when operational.

It was determined that to meet the criteria in the CEC siting regulations, the proposed project would need to institute noise controls to reduce the operational noise to less than 42 dBA at the residential receptor locations east of the East Tank Farm (refer to Chapter 13.0: Noise and Vibration). A noise assessment was conducted (see Appendix A: Characterization of WesPac Energy Pittsburg LLC Marine Terminal Dredging Project Sediments: Dredge Materials Sampling and Analysis Results), and presents various operational equipment scenarios and noise levels associated with each piece of equipment. The results of the noise assessment are also summarized in Table 13-8 in Chapter 13.0: Noise and Vibration. Noise controls, specifically noise-barrier walls, constructed at strategic locations throughout the East and South Tank Farms, have been included as integral parts of the project design, as described in Chapter 2.0: Proposed Project and Alternatives, and, when implemented as part of the proposed project, would reduce cumulative operational noise from both projects below significant levels.

18.3 REFERENCES

18.3.1 Printed References and Websites

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[1]Typical measurement scale for a unit of noise (decibel) that has been shown to provide a good correlation with human response to sound; dBA is the most widely used descriptor for community noise assessments.

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18.3.2 Personal Communication

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