

3.7 Air Quality

This section supplements the analysis of impacts to air quality in the Master Plan EIR (ESA, 2000; ESA, 2001), based on the following:

- New regulatory requirements that change standards for pollutant emissions; standards are set to be protective of human and environmental health, and changes in standards could change thresholds of significance and conclusions about the severity of impacts.
- New regulatory requirement to evaluate impacts related to greenhouse gas emissions; this is a potentially significant effect not discussed in the Master Plan EIR.
- Scoping comments requesting more detailed analysis of potential odor impacts.

The analysis of these impacts is supplemented in this Draft SEIR. Analysis in the Master Plan EIR that does not require updating is not addressed further in this section.

Information presented in this section follows the Bay Area Air Quality Management District (BAAQMD) *CEQA Guidelines Assessing the Air Quality Impacts of Projects and Plans* (BAAQMD, 1999).

3.7.1 Setting

3.7.1.1 Regional Setting

The project is located in Sonoma County in the Bay Area Air Basin. The regional setting for air quality is the same as described in the Master Plan Draft EIR (ESA, 2000).

3.7.1.2 Regulatory Setting

The current regulatory framework for air quality is similar to that described in the Master Plan Draft EIR (ESA, 2000). Most of the underlying regulations have not changed since the preparation of the Master Plan EIR. However, changes have been made to some of the ambient air quality standards. For example, the California State Implementation Plan (SIP) for ozone (O₃) has been updated, some of the federal and state attainment status designations have changed, and California has enacted climate change regulations. This section summarizes the regulatory changes since completion of the Master Plan EIR.

The regulatory framework for air quality includes following:

- Federal Clean Air Act (CAA) including the National Ambient Air Quality Standards (NAAQS) established in the CAA amendments of 1970, 1977, and 1990
- State Mulford-Carrell Act, which established the California Ambient Air Quality Standards (CAAQS) in 1969
- California Clean Air Act (CCAA) approved in 1988
- Bay Area Air Quality Management District (BAAQMD) rules, regulations, and plans

The current NAAQS and CAAQS are summarized in Table 3.7-1.

TABLE 3.7-1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ^a	National Standards ^b	
			Primary ^c	Secondary ^d
Ozone (O ₃)	8 hour	0.07 ppm	0.08 ppm	0.08 ppm
	1 hour	0.09 ppm	—	—
Respirable Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	—	—
	24 hour	50 µg/m ³	150 µg/m ³	150 µg/m ³
Fine Particulate Matter (PM _{2.5})	Annual Arithmetic Mean	12 µg/m ³	15 µg/m ³	15 µg/m ³
	24 hour	—	35 µg/m ³	35 µg/m ³
Carbon Monoxide (CO)	8 hour	9.0 ppm	9 ppm	—
	1 hour	20 ppm	35 ppm	—
Nitrogen Dioxide ^e (NO ₂)	Annual Arithmetic Mean	0.03 ppm	0.053 ppm	0.053 ppm
	1 hour	0.18 ppm	—	—
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	—	0.03 ppm	—
	24 hour	0.04 ppm	0.14 ppm	—
	3 hour	—	—	0.5 ppm
	1 hour	0.25 ppm	—	—
Lead ^f	Calendar Quarter	—	1.5 µg/m ³	1.5 µg/m ³
	30 Day Average	1.5 µg/m ³	—	—
Visibility Reducing Particles	8 hour	See Note g	—	—
Sulfates	24 hour	25 µg/m ³	—	—
Hydrogen Sulfide	1 hour	0.03 ppm	—	—
Vinyl Chloride ^f	24 hour	0.01 ppm	—	—

Notes:µg/m³ = micrograms/cubic meterPM_{2.5} = particulate matter less than 2.5 microns in aerodynamic diameter

ppm = parts per million (by volume)

PM₁₀ = particulate matter less than 10 microns in aerodynamic diameter

^a California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 hour and 24 hour), nitrogen dioxide, and suspended particulate matter (PM₁₀, PM_{2.5}, and visibility-reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded.

^b National standards, other than ozone, particulate matter, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

^c National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

^d National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

^e The nitrogen dioxide ambient air quality standard was amended on February 22, 2007, to lower the 1-hour standard and to establish a new annual standard of 0.03 ppm. These changes become effective after regulatory changes are submitted and approved by the Office of Administrative Law.

^f The California Air Resources Board (ARB) has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. The California ARB made this determination following the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

TABLE 3.7-1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ^a	National Standards ^b	
			Primary ^c	Secondary ^d

^g Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

Source: ARB, 2008

The following regulatory changes have occurred since preparation of the Master Plan EIR:

- The nitrogen dioxide (NO₂) CAAQS was amended on February 22, 2007, to lower the 1-hour standard and to establish a new annual standard of 0.03 ppm. These changes will become effective when regulatory changes are submitted and approved by the Office of Administrative Law.
- The federal annual standard for respirable particulate matter defined as particulate matter less than 10 microns in aerodynamic diameter (PM₁₀) was revoked effective December 17, 2006.
- The federal 24-hour standard for fine particulate matter defined as particulate matter less than 2.5 microns in aerodynamic diameter (PM_{2.5}) was lowered from 65 µg/m³ to 35 µg/m³ effective December 17, 2006.
- The federal and California 8-hour ozone standards were established.
- The federal 1-hour ozone standard was revoked effective June 15, 2005.
- The 2007 California SIP for ozone was approved by the California Air Resources Board (ARB) on September 27, 2007. The 2007 SIP for ozone is the first plan designed to show how California will meet the federal 8-hour ozone standard, and represents a transition from the less stringent 1-hour ozone standard that was the benchmark for previous SIPs (ARB, 2007a).
- The 2005 Bay Area Ozone Strategy was adopted by the BAAQMD Board of Directors on January 4, 2006. The 2005 Strategy shows how the Bay Area will make progress towards meeting the California 1-hour ozone standard and reduce transport of ozone and ozone precursors (oxides of nitrogen [NO_x] and reactive organic gases [ROG]) to neighboring air basins.
- Several changes have been made to the federal and state attainment status designations for the Bay Area. As previously stated in the Master Plan Draft EIR (ESA, 2000), the Bay Area Air Basin is designated as a federal state nonattainment area for O₃ and a state nonattainment area for PM₁₀. The current attainment status designations for the Bay Area Air Basin are presented in Table 3.7-2.

3.7.1.3 Toxic Air Contaminants

In addition to the ambient air quality standards for criteria pollutants, the Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588) was enacted in September 1987. The Act requires that toxic air emissions from stationary sources (facilities) be quantified and compiled into an inventory, that risk assessments be conducted according

to methods developed by the Office of Environmental Health Hazard Assessment (OEHHA), and that the public be notified of significant risks posed by nearby facilities. Since the amendment of the statute in 1992 by enactment of Senate Bill (SB) 1731, facilities that pose a potentially significant health risk to the public are required to reduce their risks (ARB, 2007b). The Project is not a facility that would have stationary sources of air pollution. Therefore, the Project would not be subject to AB 2588 and air toxics are not addressed in the impact analysis.

TABLE 3.7-2
Federal and California Air Quality Attainment Status

Pollutant	Averaging Period	Federal Status	California Status
Ozone	8 hour	Nonattainment	Nonattainment
	1 hour	—	Nonattainment
Carbon monoxide	8 hour	Attainment	Attainment
	1 hour	Attainment	Attainment
Nitrogen dioxide	1 hour	Attainment	Attainment
	Annual Arithmetic Mean	Attainment	— ^a
Sulfur dioxide	24 hour	Attainment	Attainment
	1 hour	—	Attainment
PM ₁₀	Annual Arithmetic Mean	Attainment	—
	24 hour	Unclassified	Nonattainment
PM _{2.5}	Annual Arithmetic Mean	—	Nonattainment
	24 hour	Unclassified	—
	Annual Arithmetic Mean	Attainment	Nonattainment

Notes:

^a Attainment status designations have not been made for the new California annual standard established in February 2007.

Source: BAAQMD, 2007

3.7.1.4 Greenhouse Gases

Introduction

Any gas that absorbs infrared radiation in the atmosphere is called a greenhouse gas (USEPA, 2008a). Greenhouse gases include, but are not limited to, water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), ozone (O₃), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). The most common greenhouse gas discussed is CO₂. Greenhouse gas emissions are typically quantified in units of CO₂ equivalents (CO₂e) to account for the global warming potential of each gas. The greenhouse gas inventory for California is reported in units of million metric tons of CO₂e (MMTCO₂e).

Increases in atmospheric concentrations of greenhouse gases have been observed to result in increasing the average temperature of the Earth's atmosphere. The link between increasing greenhouse gas emissions and climate change has been the subject of considerable technical analysis and political debate. There is growing consensus that climate change is resulting from increases in greenhouse gas emissions.

Climate change refers to any significant change in measures of climate, such as temperature or precipitation, lasting for an extended period (decades or longer) (USEPA, 2008a). Climate change may result from natural factors, such as changes in the sun's intensity; natural processes within the climate system; and human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and changes in land use (e.g., deforestation, reforestation, urbanization, desertification, etc.) (USEPA, 2008a). A warming climate could have a significant impact on regional, statewide, and national resources and natural processes, such as water supply and quality, agricultural production, and air quality.

State Regulations

In 2005, Executive Order S-3-05 was signed into law, establishing the following target dates by which statewide greenhouse gas emissions would be reduced:

- By 2010, reduce greenhouse gas emissions to 2000 levels.
- By 2020, reduce greenhouse gas emissions to 1990 levels.
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

In 2006, the California legislature passed the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32, codified at Section 1, Division 25.5, Section 38500 et seq. of the California Health & Safety Code). This law requires ARB to design and implement emission limits, regulations, and other measures, such that statewide greenhouse gas emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020 (representing a 25 percent reduction).

AB 32 requires ARB to identify a list of early action greenhouse gas reduction measures by June 30, 2007. ARB staff developed a preliminary list of 37 measures which was expanded to 44 measures upon recommendations from the public and ARB review. The current list of early action measures, from October 2007, is expected to result in reducing greenhouse gas emissions by 42 MMTCO_{2e} (ARB, 2007c). The sectors and early action measures recommended by ARB staff are presented in Table 3.7-3.

TABLE 3.7-3
ARB Recommended Early Action Measures

ID#	Sector	Strategy Name
1	Fuels	Above ground storage tanks
2	Transportation	Diesel – Off-road equipment (non-agriculture)
3	Forestry	Forestry protocol adoption
4	Transportation	Diesel – Port Trucks
5	Transportation	Diesel – Vessel main engine fuel specifications
6	Transportation	Diesel – Commercial harbor craft
7	Transportation	Green ports
8	Agriculture	Manure management (methane digester protocol)
9	Education	Local government GHG reduction guidance / protocols
10	Education	Business GHG reduction guidance / protocols
11	Energy Efficiency	Cool communities program

TABLE 3.7-3
ARB Recommended Early Action Measures

ID#	Sector	Strategy Name
12	Commercial	Reduction of high GWP GHGs used in consumer products
13	Commercial	Reduction of PFCs from semiconductor industry
14	Transportation	SmartWay truck efficiency
15	Transportation	Low Carbon Fuel Standard (LCFS)
16	Transportation	Reduction of HFC-134a from motor vehicle AC servicing
17	Waste	Improved landfill gas capture
18	Fuels	Gasoline dispenser hose replacement
19	Fuels	Portable outboard marine tanks
20	Transportation	Standards for off-cycle driving conditions
21	Transportation	Diesel – Privately owned on-road trucks
22	Transportation	Anti-idling enforcement
23	Commercial	SF ₆ reductions from the non-electric sector
24	Transportation	Tire inflation program
25	Transportation	Cool automobile paints
26	Cement	Cement (A): Blended cements
27	Cement	Cement (B): Energy efficiency of California cement facilities
28	Transportation	Ban of HFC release from motor vehicle AC service/dismantling
29	Transportation	Diesel – off-road equipment (agriculture)
30	Transportation	Add AC leak tightness test and repair to Smog Check
31	Agriculture	Collaborative research on GHG reductions from nitrogen land application
32	Commercial	Specifications for commercial refrigeration
33	Oil and Gas	Reduction of venting/leaks from oil and gas systems
34	Transportation	Requirement of low-GWP GHGs for new motor vehicles AC
35	Transportation	Hybridization of medium and heavy-duty diesel vehicles
36	Electricity	Reduction of SF ₆ in electricity generation
37	Commercial	High GWP refrigerant tracking, reporting, and recovery programs
38	Commercial	Foam recovery/destruction program
39	Fire Suppression	Alternative suppressants in fire protection systems
40	Transportation	Strengthen light-duty vehicle standards
41	Transportation	Truck stop electrification with incentives for truckers
42	Transportation	Diesel –vessel speed reductions
43	Transportation	Transportation refrigeration – electric standby
44	Agriculture	Electrification of stationary agricultural engines

Source: ARB, 2007c

In December 2007, the regulation for mandatory reporting of greenhouse gas emissions from major sources was approved. The regulation specifies the types of facilities that must report their greenhouse gas emissions, requirements for reporting and estimating the greenhouse gas emissions, and requirements for emissions verification.

Currently, ARB staff are preparing the Scoping Plan which, under AB 32, must be approved by January 1, 2009. The Scoping Plan contains the main strategies California will use to reduce the greenhouse gas emissions. The Plan will contain a range of reduction actions which can include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system.

Another bill signed into California law that addresses greenhouse gases is SB 97. SB 97 was signed into law in August 2007. CEQA requires the Office of Planning and Research to prepare and develop proposed guidelines for implementation of CEQA by public agencies. Therefore, SB 97 requires the Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resource Agency guidelines for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions by July 1, 2009. The Resource Agency would be required to certify and adopt those guidelines by January 10, 2010. OPR is required to periodically update the guidelines to incorporate new information or criteria established by ARB pursuant to the California Global Warming Solutions Act of 2006.

3.7.1.5 Existing Air Quality

The BAAQMD operates a network of ambient monitoring stations within the Bay Area. Measurements recorded at the Santa Rosa 5th Street monitoring station were used to represent ambient air quality conditions in the Project study area. Updated monitoring data are presented in Table 3.7-4. During the past three years, the monitored data for ozone, NO₂, carbon monoxide (CO), annual PM₁₀, and annual PM_{2.5} were below both the NAAQS and CAAQS. However, the monitored 24-hour PM₁₀ and PM_{2.5} concentrations exceeded both the NAAQS and CAAQS in the year 2006.

3.7.2 Standards of Significance

The Standards of Significance are based on Appendix G of the CEQA Guidelines. Significant impacts could occur if implementation of the Project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people; or
- Conflict with the State implementation measures for reducing greenhouse gas emissions in California to 1990 levels by 2020, as set forth by the timetable established in AB 32, California Global Warming Solutions Act of 2006.

TABLE 3.7-4
Summary of Maximum Ambient Air Monitoring Data in the Project Area

Pollutant	Averaging Time	2004	2005	2006
Ozone (ppm)	1 hour	0.076	0.072	0.077
	8 hour	0.060	0.051	0.058
Nitrogen dioxide (ppm)	Annual Arithmetic Mean	0.011	0.011	0.011
	1 hour	0.048	0.047	0.044
Carbon monoxide (ppm)	1 hour	2.7	2.5	2.4
	8 hour	1.57	1.98	1.70
PM ₁₀ (µg/m ³)	24 hour	48.1	38.9	89.5
	Annual Arithmetic Mean	18.0	15.9	18.8
PM _{2.5} (µg/m ³)	24 hour	26.6	33.6	59.0
	Annual Arithmetic Mean	8.3	7.6	*

Notes:

Sulfur dioxide, hydrogen sulfide, vinyl chloride, and visibility-reducing particles are not monitored in Sonoma County.

ppm parts per million

µg/m³ micrograms per cubic meter

NA There were insufficient (or no) data to determine the value.

*Insufficient (or no) data were available to determine the value.

Source: ARB, 2008 and USEPA, 2008b for the monitoring station named "Santa Rosa – 5th Street."

In addition to the above criteria, the BAAQMD has established significance thresholds which are summarized in Table 3.7-5. The BAAQMD significance thresholds were used to evaluate whether operation of the Project would cause or contribute to an existing air quality violation.

TABLE 3.7-5
Significance Thresholds for Long-Term Project Emissions

Pollutant	Significance Threshold (lbs/day)
Reactive organic gases (ROG)	80
Nitrogen oxides (NO _x)	80
PM ₁₀	80

Source: BAAQMD, 1999

Potential air quality impacts were assessed either qualitatively or quantitatively by comparison to the significance criteria described above. A separate analysis of potential impacts from construction and operation was necessary because the sources and duration of emissions from these activities would be different. The methods used to quantify emissions and characterize the significance of impacts from construction and operation activities are described below.

Construction Emission Calculation Methods

Construction emissions were calculated for exhaust emissions from construction equipment and fugitive dust emissions from earthmoving activities. Construction exhaust and fugitive dust emissions were estimated using Rimpco and Associates' URBEMIS 2007 software (version 9.2.4). Emissions were estimated for NO_x, ROG, PM₁₀, and PM_{2.5}. NO_x and ROG are precursors to ozone formation so emissions of these compounds were used to evaluate ozone impacts. Construction activities include tree clearing, excavation, embankment construction, and pond liner installation. Construction emissions were calculated for the maximum daily emissions which would be expected during the excavation phase. During excavation, construction equipment such as a grader, excavator, scraper, and water truck would be used. It was assumed construction activities that generate emissions would occur eight hours per day.

Operations Emission Calculation Methods

Operation emissions for the Project would be minimal and would result from routine maintenance activities and as-needed repair or replacement of Project facilities. The primary source of emissions would be from gasoline fueled vehicles driving to the Project site. Therefore, operation emissions were quantified by assuming daily operation emissions, on days when maintenance activities are being performed, would be 10 percent of the maximum daily exhaust emissions estimated for daily construction activities.

3.7.3 Impacts and Mitigation Measures

Impact 3.7-1: Operation of the Project would not conflict with implementation of an applicable air quality plan.

Analysis: Less than Significant

A comparison of potential Project impacts was made to the implementation plans outlined in the *Bay Area 2005 Ozone Strategy* (BAAQMD, 2006), the *Town of Windsor General Plan – 2015* (Ogden, 1996), and the *Sonoma County General Plan 2020* (Sonoma County, 1989). The *Bay Area 2005 Ozone Strategy* documents the control measures the BAAQMD will use to continue to improve air quality in the Bay Area. The ozone strategy includes emission reductions achieved from the existing and proposed regulations and provides emission inventories through 2020. The ozone control strategy includes stationary source control measures to be implemented through Air District regulations, mobile source control measures to be implemented through incentive programs and other activities, and transportation control measures to be implemented through transportation programs (BAAQMD, 2006). Operation of the Project would result in ozone emissions from a very minor level of vehicular traffic, and the Project would be consistent with the control strategies in the 2005 Ozone Strategy because the main source of emissions from the Project would be from privately-owned motor vehicles. Compliance with measures established by the BAAQMD would also provide consistency goals and policies for air quality listed in the *Town of Windsor General Plan* and the *Sonoma County General Plan*. Therefore, the Project would not conflict with implementation of applicable air quality plan.

Mitigation: None required

Impact 3.7-2: Construction of the Project could cause or contribute to a violation of an air quality standard.

Analysis: Less than Significant

Construction of the Project would result in exhaust and fugitive dust emissions. Exhaust emissions from construction equipment used to construct the Project would result in short-term emissions of NO_x, ROG, PM₁₀, and PM_{2.5}. Estimated peak daily construction emissions are presented in Table 3.7-6. The primary pollutant of concern from construction activities is fugitive dust (BAAQMD, 1999).

TABLE 3.7-6
Construction Emissions

Emission Source	Emissions (lb/day) ^a			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Exhaust emissions	12.3	105	4.9	4.5
Fugitive dust	--	--	392	82
Total	12.3	105	397	86

Note:

^a Emissions calculated using URBEMIS 2007 (v. 9.2.4) for the year 2010 in Sonoma County.

Source: CH2M HILL

Fugitive dust emissions from construction activities would be mitigated using the control measures set forth in the BAAQMD CEQA Guidelines, which were also certified as part of the Final Master Plan EIR (ESA, 2001). The BAAQMD emphasizes implementation of effective control measures rather than detailed quantification of construction emissions (BAAQMD, 1999). According to the BAAQMD CEQA Guidelines, implementation of the mitigation measures identified in the CEQA Guidelines would reduce fugitive dust emissions during construction. Therefore, short-term air quality impacts from fugitive dust emissions would be mitigated to a less-than-significant level with implementation of Master Plan EIR Mitigation Measure 4.8.1. There are no supplemental impacts beyond those analyzed in the Master Plan EIR and no further discussion is required.

Fugitive dust control measures would not address exhaust emissions of NO_x or ROG, which contribute to the formation of the nonattainment pollutant ozone. Construction equipment exhaust emissions (NO_x and ROG) are included in the emissions inventory that is the basis for the regional air quality plans and are not expected to impede attainment or maintenance of the ozone standards in the Bay Area (BAAQMD, 1999). Approximately 13 months of the construction schedule may require use of a diesel- or gasoline-powered generator. Used only during construction hours, typical emissions are expected to be similar to those from a small piece of construction equipment (e.g., truck). Therefore, short-term air quality impacts from construction equipment exhaust emissions would be less than significant.

After mitigation: Less than Significant

Impact 3.7-3: Operation of the Project could cause or contribute to a violation of an air quality standard.

Analysis: Less than Significant

Operation emissions for the Project would be minimal and would result from routine maintenance activities and as-needed repair or replacement of Project facilities. The pumps are powered by electricity and would not create any local emissions. The primary source of emissions would be from gasoline-fueled vehicles driving to the Project site. Therefore, operation emissions were quantified by assuming daily operation emissions would be 10 percent of the maximum daily exhaust emissions estimated for construction. The air quality impact from operation would be less than significant because operation emissions would be less than the BAAQMD Thresholds of Significance (see Table 3.7-7).

Mitigation: None required

TABLE 3.7-7
Operation Emissions

Emission Source	Emissions (lb/day)			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Operation Activities	1.23	10.5	0.49	0.45
Threshold	80	80	80	NA

Note:

NA = A significance threshold has not been established for PM_{2.5}.

Source: BAAQMD, 1999

Impact 3.7-4: The Project could cause objectionable odors affecting people.

Analysis: Less than Significant

The odor impact of the Project was evaluated based on the potential emissions of odorous compounds and the location of the nearest receptor, a private residence, located approximately 250 feet east of the pond. A detailed analysis of the potential odor impacts is included in Appendix H to this Draft SEIR. Emissions of the following compounds were estimated to evaluate the potential for an odor impact from the Project:

- Hydrogen sulfide
- Organic reduced sulfur compounds
- Ammonia
- Amine compounds
- Volatile organic compounds

The preliminary design for the pond estimates that at capacity the pond will be approximately 84 feet deep at its deepest point and will cover approximately 18.1 acres. Odor potential is based in part on surface area from which odors could be emitted. This size pond has the potential to emit odors based on its large contributing surface area, but odorous emissions are expected to be minimal due to the high level of treatment completed

prior to conveying the water to the pond. Table 3.7-8 presents the potential odor emissions for the odorous compounds that may be emitted from the pond. The “emission potential” refers to a projection of the potential for the odorous component to be measured in significant quantities in the pond emissions.

TABLE 3.7-8
Odorous Component Potential for Emission and Impacting the Nearest Receptor

Odorous Component	Emission Potential
Hydrogen sulfide	Negligible
Organic reduced sulfur compounds	Negligible
Ammonia	Negligible
Amine compounds	Negligible
Volatile organic compounds	Negligible

Source: CH2M HILL

The following summarizes the basis for the potential odor impacts listed in Table 3.7-8. Additional information is presented in Appendix H.

- Hydrogen sulfide and inorganic sulfide species will be removed from the wastewater over the course of the treatment scheme at the water reclamation plant. No inorganic aqueous sulfide species are expected in the recycled water produced by the plant; thus there is no potential for emissions such as hydrogen sulfide from the proposed pond.
- Complex organic reduced sulfur compounds will be removed from the wastewater over the course of the treatment scheme at the water reclamation plant. Although some organic loading is expected in the pond due to it being surrounded by vegetation, there will not be sufficient sulfide content in the wastewater to form these compounds.
- Low ammonia levels (1.86 ppm) were measured in one sample that contributed to the 2006 Annual Monitoring Report (Town of Windsor, 2007); remaining samples were below the detection limit of 1 ppm. Even in the instance where measurable ammonia is present in the pond, the estimated corresponding emissions would be significantly lower than the ammonia human detection threshold of 17 ppm.
- Amine compounds typically found in wastewater treatment are not projected to be present in the recycled water at levels in excess of the human detection threshold. These compounds are removed in upstream processes and emissions are found more in solids processing facilities.
- Laboratory testing indicates that the concentrations of volatile organic compounds in the plant’s recycled water are low, and correspond to gaseous emissions that are much lower than the detection threshold. Therefore, negligible emissions of VOCs are expected from the proposed pond due to these low concentrations, which are likely the result of low influent concentrations and the high level of treatment.

The proposed pond would be expected to have negligible odor impacts to the nearest receptor. In addition, the Project is located in a rural area with very few residences. The

Project is not expected to result in objectionable odors affecting a substantial number of people; therefore, the air quality impact would be less than significant.

Mitigation: None required

Impact 3.7-5: Implementation of the Project could conflict with the State's implementation measures for reducing greenhouse gas emissions and thereby have a negative effect on global climate change.

Analysis: Less than Significant

Implementation of the Project would result in emissions of greenhouse gases. Greenhouse gases would result from construction of the Project, maintenance activities, and potential N₂O emissions from the pond. Greenhouse gas emissions from construction and operation combustion sources were estimated following the same method described above for criteria pollutants. CO₂ emissions from construction and operation of the Project are presented in Table 3.7-9. URBEMIS2007 only estimates emissions of CO₂, so emissions of CH₄ and N₂O were not included. However, CO₂ emissions typically represent more than 90 percent of the CO₂e emissions resulting from combustion sources so only reporting CO₂ emissions represents the majority of the greenhouse gas emissions. Also, during operation, N₂O may be emitted from the pond. The N₂O emissions from the pond would result from the natural denitrification of nitrogen-containing compounds in the recycled water. However, since the pond would store recycled water and would not be under anaerobic conditions, the pond would be expected to be an unlikely source of N₂O (IPCC, 2006).

TABLE 3.7-9
Greenhouse Gas Emissions

Emission Source	CO ₂ Emissions (metric tons/year) ^a
Construction	4.69
Operation	0.47

Note:

^a Emissions calculated using URBEMIS 2007 (v. 9.2.4) for the year 2010 in Sonoma County.

Source: CH2M HILL

Greenhouse gas emissions from the Project would not be expected to individually have an impact on climate change. Therefore, the Project was evaluated to determine whether it may conflict with the State's implementation measures to reduce greenhouse gas emissions. The following criteria were used to determine whether the Project may conflict with the State's goals to reduce greenhouse gas emissions:

- Whether the Project conflicts with the 44 early action measures; and
- How greenhouse gas emissions from the Project compare to the State greenhouse gas reduction goal of 174 MMTCO₂e by 2020 and to the 25,000 metric tons/year reporting threshold established for major sources in the regulation for mandatory reporting of greenhouse gas emissions.

Implementation of the Project would not conflict with the early action measures summarized in Table 3.7-3. In addition, operation of the Project would be expected to result in minor greenhouse gas emissions from routine or direct N₂O emissions from the pond. Greenhouse gas emissions from operation would be a very small percentage (several orders of magnitude less than 0.00001 percent) of the 174 MMTCO₂e reduction goal. In addition, the Project would not be classified as a major source since emissions would be less than 25,000 metric tons per year. Although construction of the pond would result in the loss of 28 acres of oak woodland, which would result in a loss of a carbon sink, mitigation measures for oak woodland would offset the loss. Operation of the Project would not be expected to conflict with implementation of AB 32; therefore, the impact would be less than significant.

Mitigation: None required

3.7.4 References

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