

## 4.4 AIR QUALITY

### 4.4.1 INTRODUCTION

This section provides an overview of the existing air quality conditions within the project area and surrounding region, regulatory framework, and environmental analysis of potential air quality impacts that would result from implementation of the proposed project. Where necessary to offset, reduce or avoid potential effects, mitigation measures are provided. This section concludes with the discussion of residual project impacts [significance after mitigation] and cumulative impacts.

This section has also been prepared to fulfill SWRCB CEQA-Plus requirements. The project must demonstrate compliance with the Federal Clean Air Act to be eligible for Drinking Water State Revolving Fund financing. The Salton Sea Air Basin is considered non-attainment or unclassified for three federally-regulated criteria pollutants, including Ozone (O<sub>3</sub>), Particulate Matter (PM<sub>10</sub>) and Particulate Matter (PM<sub>2.5</sub>). Therefore, the project is required to demonstrate compliance with applicable maintenance plans and conformity requirements, which are further discussed in Section 4.4.2.3 Regional Pollutants of Concern.

### 4.4.2 ENVIRONMENTAL SETTING

The project area is located in the Coachella Valley portion of the Salton Sea Air Basin (SSAB or Air Basin). Meteorological conditions in the Coachella Valley are largely attributable to the low desert geographic setting. The mountains surrounding the region isolate the Coachella Valley from moderating coastal influences and create a hot and dry low-lying desert condition. As the desert heats up, a large area of thermal low pressure develops, which draws cooler coastal air from the north through the narrow San Geronio Pass and into the valley, generating strong winds that cross the most active fluvial (water-related) erosion zones in the valley. These strong winds sweep up, suspend and transport large quantities of sand and dust, reducing visibility, damaging property, and constituting a significant health threat. The region is also subject to seasonal northeasterly Santa Ana winds that are associated with areas of high pressure situated over Nevada and the southwest region.

The Coachella Valley portion of the SSAB is typical of a low desert climate, with summer daytime temperatures that frequently exceed 110°F and drop into the 20°Fs during winter nights. The Valley floor receives an average of four to six inches of rainfall per year, with greater precipitation at higher elevations.

Air inversions, where a layer of stagnant air is trapped near the ground and has high pollutant concentrations, occasionally occur in the Coachella Valley due to local geological and climatic conditions. Inversions create conditions of haziness caused by suspended water vapor, dust, and a variety of chemical aerosols emitted by vehicles, furnaces, and other sources. Due to local conditions, inversions generally occur 6,000 to 8,000 feet above the desert floor.

SCAQMD and other regulating agencies have developed standards and regulations to reduce emissions and enhance air quality throughout the SSAB. These are further described below.

#### 4.4.2.1 Air Quality Standards

Federal and state air quality standards established for criteria pollutants are designed to protect the general population and especially that segment of the population most susceptible to respiratory distress or infection, including the elderly, children, asthmatics, or those who are weak from disease or illness. The following air pollutants are collectively known as criteria air pollutants and are defined as those pollutants for which established air quality standards have been adopted by federal and state governments.

**Ozone** ( $O_3$ ) is a pungent, colorless, toxic gas, and a component of photochemical smog. It is formed when byproducts of combustion react in the presence of ultraviolet sunlight. This process takes place in the atmosphere where oxides of nitrogen combine with reactive organic gases, such as hydrocarbons. Exposure to ozone can result in diminished breathing capacity, increased sensitivity to infections, and inflammation of the lung tissue. Children and people with pre-existing lung disease are most susceptible to the effects of ozone. The SSAB is in non-attainment for the federal 8-hour  $O_3$  standard.

**Carbon Monoxide** (CO) is a colorless, odorless, toxic gas and a byproduct from the partial combustion of fossil fuels, most notably from automobiles and other motor vehicles. Carbon monoxide passes through the lungs directly into the blood stream and reduces the amount of oxygen reaching the vital organs, such as the heart, brain and tissues. In high concentrations, carbon monoxide can contribute to the development of heart disease, anemia, and impaired psychological behavior. Individuals that have heart and blood diseases, smokers, babies in utero, and people with chronic hypoxemia are most susceptible to the effects of CO. The SSAB is in attainment for CO.

**Nitrogen Oxide** (NOx) includes Nitric oxide (NO) and Nitrogen dioxide ( $NO_2$ ), which are the primary oxides of nitrogen, and combined are known as nitrogen oxides. These oxides are produced at high temperatures during combustion as byproducts of motor vehicles, power plants, and off-road equipment. NOx contributes to the formation of ozone serving as the primary receptor of ultraviolet light and initiating the photochemical reaction. Short-term exposure to nitrogen dioxide can result in airway constriction, diminished lung capacity, and is highly toxic by inhalation. Populations living near roadways are more likely to experience effects of nitrogen oxides due to elevated exposure to motor vehicle exhaust. The SSAB is in attainment for  $NO_2$ .

**Sulfur Dioxide** ( $SO_2$ ) results from the combustion of high-sulfur content fuels, such as coal and petroleum. Sources include motor vehicle fuel combustion, chemical manufacturing plants, and sulfur recovery plants. Sulfur dioxide is a colorless, pungent, extremely irritating gas that can cause airway constriction and severe breathing difficulties in asthmatics. High levels of exposure can cause fluid accumulation in the lungs, damage to lung tissue, and sloughing off of cells lining the respiratory tract. The SSAB is in attainment for  $SO_2$ .

**Particulate Matter** ( $PM_{10}$  and  $PM_{2.5}$ ) consists of fine suspended particles of ten microns or smaller in diameter, and are the byproducts of road dust, sand, diesel soot, windstorms, and the abrasion of tires and brakes. The elderly, children and adults with pre-existing respiratory or cardiovascular disease are most susceptible to the effects of PM. Elevated  $PM_{10}$  and  $PM_{2.5}$  levels are also associated with an increase in mortality rates, respiratory infections, occurrences and severity of asthma attacks and hospital admissions. The SSAB is a non-attainment area for  $PM_{10}$  and is classified as attainment/unclassifiable for  $PM_{2.5}$ .

**Volatile Organic Compounds** (VOC) are also known as Reactive Organic Gas (ROG). This class of pollutants has no state or federal ambient air quality standards and is not classified as criteria pollutants; however, they are regulated because they are responsible for contributing to the formation of ozone. They also contribute to higher PM<sub>10</sub> levels because they transform into organic aerosols when released into the atmosphere. VOCs pose a health threat when people are exposed to high concentrations. Benzene, for example, is a hydrogen component of VOC emissions known to be a carcinogen. VOCs are regulated by the SCAQMD on a project-specific level via construction and operational thresholds. There is no attainment status designation, however mitigation measures are required in the event that a project will exceed SCAQMD thresholds.

**Lead** (Pb) occurs in the atmosphere as particulate matter resulting from the manufacturing of batteries, paint, ink, and ammunition. Exposure to lead can result in anemia, kidney disease, gastrointestinal dysfunction, and neuromuscular and neurological disorders. Babies in utero, infants, and children are especially susceptible to health risks associated with exposure to lead by impacting the central nervous system and cause learning disorders. The SSAB is in attainment for lead.

Table 4.4-1 provides the state and national ambient air quality standards for criteria pollutants.

The air quality of a particular locale is considered to be in attainment if the measured ambient air pollutant levels for O<sub>3</sub>, CO, SO<sub>2</sub> (1-hour and 24-hour), NO<sub>2</sub>, and PM<sub>10</sub> and PM<sub>2.5</sub> are not exceeded and all other standards are not equaled or exceeded at any time in any consecutive three-year period. Attainment also assumes the national standards (other than O<sub>3</sub>, PM<sub>10</sub>, and those based on annual averages or arithmetic mean) are not exceeded more than once per year. The O<sub>3</sub> standard is in attainment when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

<b>TABLE 4.4-1: STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS</b>				
<b>Pollutant</b>	<b>State Standards</b>		<b>National Standards**</b>	
	<b>Averaging Time</b>	<b>Concentration</b>	<b>Averaging Time</b>	<b>Concentration</b>
Ozone (O <sub>3</sub> )	1-hour 8-hour	0.09 ppm 0.07 ppm	1-hour 8-hour	0.070 ppm
Carbon Monoxide (CO)	1-hour 8-hour	20.0 ppm 9.0 ppm	1-hour 8-hour	35.0 ppm 9.0 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour AAM	0.18 ppm 0.030 ppm	AAM	0.10 ppm* 0.053 ppm
Sulfur Dioxide (SO <sub>2</sub> )	1-hour 24-hour	0.25 ppm 0.04 ppm	1 & 24 hour AAM	0.075ppm**
Particulate Matter (PM <sub>10</sub> )	24-hour AAM	50 µg/m <sup>3</sup> 20 µg/m <sup>3</sup>	24-hour AAM	150 µg/m <sup>3</sup>
Particulate Matter (PM <sub>2.5</sub> )	AAM 24-hour	12 µg/m <sup>3</sup> 35 µg/m <sup>3</sup>	AAM 24-hour	12 µg/m <sup>3</sup> 35 µg/m <sup>3</sup>
Lead	30 day Avg.	1.5 µg/m <sup>3</sup>	3 month Avg.	0.15 µg/m <sup>3</sup>
Visibility Reducing Particles	8-hour	No standard	No federal Standard	No federal Standard
Sulfates	24-hour	25µg/m <sup>3</sup>	No federal Standard	No federal Standard
Hydrogen Sulfide	1-hour	0.03 ppm	No federal Standard	No federal Standard
Vinyl Chloride	24-hour	0.01 ppm	No federal Standard	No federal Standard

Source: California Air Resources Board, 06/04/13  
Notes: ppm = parts per million; ppb= parts per billion; µg/ m<sup>3</sup> = micrograms per cubic meter of air;  
AAM = Annual Arithmetic Mean; \* Note that this standard became effective as of January 22, 2010.  
\*\* Final rule signed June 2, 2010, effective as of August 23,2010

#### 4.4.2.2 Regional Air Quality Monitoring

The SCAQMD operates and maintains two air quality monitoring stations within the Coachella Valley, also known as Source Receptor Area (SRA) 30. The SRA 30 monitoring stations are located in the cities of Indio and Palm Springs, which have been operational since 1985 and 1987, respectively.

Tables 4.4-2, 4.4-3, and 4.4-4 show the maximum concentration and number of days annually that state and federal standards for particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) and ozone were exceeded between 2005 and 2014 in the Valley.

Table 4.4-2 shows that the federal 24-hour standard for PM<sub>10</sub> was exceeded more frequently at the Indio station between 2005 and 2014. PM<sub>10</sub> levels continue to exceed state standards in the Valley.

Table 4.4-3 shows that the federal 24-hour PM<sub>2.5</sub> standard and AAM state standard of >12 µg/m<sup>3</sup> standard have not been exceeded between 2005 and 2014.

Table 4.4-4 shows that the Palm Springs monitoring station exceeds the 1-hour and 8-hour federal and state ozone standards more frequently than the Indio site. This exceedance can be attributable to the Palm Springs station's proximity to the San Gorgonio Pass where ozone is transported into the SSAB from air basins to the west.

<b>TABLE 4.4-2: PM<sub>10</sub> MONITORING DATA FOR THE COACHELLA VALLEY</b>						
<b>Monitoring Station</b>	<b>Year</b>	<b>Maximum Concentration (µg/m<sup>3</sup>/24hours) **</b>	<b>No. Days Exceeding 24-hr. Standards</b>		<b>Annual Average (µg/m<sup>3</sup>)</b>	
			<b>Federal<sup>1</sup></b>	<b>State<sup>2</sup></b>	<b>AAM<sup>3</sup></b>	<b>AGM<sup>4</sup></b>
Palm Springs	2005	66.0	0.0	13.0	25.9	25.4
	2006	226.0	6.6	19.6	28.3	27.7
	2007	83.0	0.0	N/A	30.0	N/A
	2008	75.0	0.0	N/A	17.7	N/A
	2009	140.0	0.0	N/A	20.4	N/A
	2010	144.8	0.0	0.0	19.4	18.3
	2011	396.9	2.0	0.0	21.7	18.1
	2012	143.4	0.0	0.0	19.9	16.1
	2013	185.8	1.0	13.1	23.1	22.1
	2014	313.8	1.1	*	25.4	*
Indio	2005	106.0	0.0	121.7	44.9	45.4
	2006	97.0	N/A	N/A	39.8	N/A
	2007	210.0	5.7	212.3	55.6	56.0
	2008	128.0	N/A	76.3	40.0	39.8
	2009	132.0	N/A	24.0	32.7	31.8
	2010	107.0	0.0	23.9	28.8	29.7
	2011	375.9	2.0	18.6	32.6	35.4
	2012	270.6	N/A	43.2	33.6	33.4
	2013	255.2	3.0	85.2	37.5	38.6
	2014	322.3	6.1	94.9	43.5	44.8

Source: Annual air quality site monitoring reports per ARB. <http://www.arb.ca.gov/adam/> Accessed June 18, 2015.  
 1 = > 150 µg/m<sup>3</sup> in 24 hour period;  
 2 = > 50 µg/m<sup>3</sup> in 24 hour period;  
 3 = Federal Annual Average Standard AAM > 50µg/m<sup>3</sup> revoked December 17, 2006. State standard is AAM > 20µg/m<sup>3</sup>  
 4 = State Annual Average Standard = AGM > 20µg/m<sup>3</sup>  
 \* There are insufficient (or no) data available to determine the value.  
 \*\* Data may include exceptional events.

<b>TABLE 4.4-3: PM<sub>2.5</sub> MONITORING DATA FOR THE COACHELLA VALLEY</b>				
<b>Monitoring Station</b>	<b>Year</b>	<b>Max Concentration (µg/m<sup>3</sup>/24hours)</b>	<b>No. Days Exceeding 24-hr. Standards Federal<sup>a</sup></b>	<b>Annual Average (µg/m<sup>3</sup>) AAM<sup>b, c</sup></b>
Palm Springs	2005*	25.0	N/A	N/A
	2006*	24.7	N/A	N/A
	2007*	32.5	0.0	8.5
	2008	18.1	0.0	7.1
	2009	21.8	0.0	6.6
	2010	12.8	0.0	5.9
	2011	26.3	0.0	6.0
	2012	15.5	0.0	6.5
	2013	18.5	0.0	6.5
	2014	15.5	**	**
Indio	2005*	44.3	N/A	N/A
	2006*	24.2	0.0	9.4
	2007*	26.7	N/A	N/A
	2008	21.5	0.0	8.4
	2009	27.5	0.0	7.8
	2010	16.0	0.0	6.8
	2011	35.4	0.0	7.2
	2012	18.4	0.0	7.6
	2013	25.8	0.0	8.3
	2014	16.8	**	**

Source: Annual air quality site monitoring reports, prepared by ARB. <http://www.arb.ca.gov/adam/> Accessed June 18, 2015.

a = > 35 µg/m<sup>3</sup> in 24 hour period, Federal standard as of December 17, 2006.

B = Federal Annual Average Standard = AAM > 15µg/m<sup>3</sup>

C = State Annual Average Standard = AAM > 12µg/m<sup>3</sup> as of July 5, 2003.

\* Less than 12 full months of data; may not be representative.

\*\* There was insufficient (or no) data available to determine the value.

<b>TABLE 4.4-4: OZONE MONITORING DATA FOR THE COACHELLA VALLEY</b>						
<b>Monitoring Station</b>	<b>Year</b>	<b>Max. Concentration</b>		<b>No. Days Standard Exceeded</b>		
				<b>Federal<sup>1</sup></b>	<b>State<sup>2</sup></b>	
		<b>1 Hour ppm</b>	<b>8 Hour ppm</b>	<b>8 Hour</b>	<b>1 Hour</b>	<b>8 Hour</b>
Palm Springs	2005	0.139	0.116	61	41	78
	2006	0.126	0.109	61	37	79
	2007	0.126	0.102	58	29	83
	2008	0.112	0.101	51	26	70
	2009	0.120	0.098	54	28	74
	2010	0.114	0.099	52	20	78
	2011	0.124	0.099	49	21	69
	2012	0.126	0.101	51	17	79
	2013	0.113	0.104	46	10	82
	2014	0.108	0.093	35	9	61
Indio	2005	0.114	0.095	34	18	58
	2006	0.103	0.090	28	5	42
	2007	0.106	0.095	30	8	48
	2008	0.115	0.092	27	12	44
	2009	0.097	0.090	24	6	41
	2010	0.100	0.087	19	6	45
	2011	0.099	0.090	19	3	42
	2012	0.102	0.089	24	2	45
	2013	0.105	0.087	18	2	38
	2014	0.095	0.091	10	2	30

Source: ARB Annual Air Quality Data Tables. <http://www.arb.ca.gov/adam/> Accessed June 18, 2015.  
1 = > 0.070 parts per million for the 8 hour standard.  
2 = > 0.09 and 0.070 parts per million in 1 hour and 8 hour respectively.

### ***Criteria Air Pollutants Summary***

Air quality in the SSAB exceeds state and federal standards for fugitive dust (PM<sub>10</sub>) and ozone (O<sub>3</sub>), and is in attainment/unclassified for PM<sub>2.5</sub>.

Ambient air quality in the SSAB, including the project sites, does not exceed state and federal standards for carbon monoxide, nitrogen dioxides, sulfur dioxide, lead, sulfates, hydrogen sulfide, or vinyl chloride.

Table 4.4-5 shows the basin's federal and state attainment status for criteria pollutants.

<b>TABLE 4.4-5: SALTON SEA AIR BASIN DESIGNATION STATUS</b>		
<b>Criteria Pollutants</b>	<b>Federal Designation</b>	<b>State Designation</b>
Ozone - 8 hour	<b>Nonattainment</b>	<b>Nonattainment</b>
Ozone - 1hour	n/a	<b>Nonattainment</b>
Carbon Monoxide	Attainment	Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
PM <sub>10</sub>	<b>Nonattainment</b>	<b>Nonattainment</b>
PM <sub>2.5</sub>	Attainment/Unclassified	Attainment/Unclassified
Lead	Attainment	Attainment
Sulfates	No standard	Attainment
Hydrogen Sulfide	No standard	Unclassified
Vinyl Chloride	No standard	Not sufficient data
Source: CARB Air Quality Planning Branch, June 2013. This information has been crosschecked with the U.S. EPA Green Book, last updated January 30, 2015.		

#### 4.4.2.3 Regional Pollutants of Concern

Local air quality conditions are determined by climate, geography, and regional activities, including grading, construction and vehicular traffic, as well as heating, cooling, and ventilation (HVAC) equipment.

The Federal Clean Air Act (Federal CAA) requires the California Air Resources Board to designate portions of the state where the national ambient air quality standards are not met as “nonattainment areas.” Under the Federal CCA, the criteria pollutants of concern in the project area are ozone (O<sub>3</sub>) and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>). These are further described below.

##### **PM<sub>10</sub> Emissions**

Historically, PM<sub>10</sub> levels in the Coachella Valley are elevated due to fugitive dust emissions from grading and construction activities, agricultural practices, and strong wind. The finer materials, including sand and silt, can be picked up and transported by the wind and are referred to as “blowsand.” PM<sub>10</sub> particles associated with blowsand are of two types: (1) natural PM<sub>10</sub> produced by direct particle erosion and fragmentation, and (2) secondary PM<sub>10</sub> whereby sand deposited on roadways is further pulverized by motor vehicles and then re-suspended in the air by those vehicles. The project area is located in a PM<sub>10</sub> non-attainment area for the state and federal PM<sub>10</sub> standard.

The Coachella Valley was eligible for redesignation as attainment in 2009-2010 due to the annual average PM<sub>10</sub> concentrations meeting the revoked federal standard. On February 25, 2010 the California Air Resources Board approved the Coachella Valley PM<sub>10</sub> Redesignation Request and Maintenance Plan from serious non-attainment to attainment for the PM<sub>10</sub> National Ambient Air Quality Standard under Federal CAA Section 107. However the Coachella Valley began exceeding thresholds for PM<sub>10</sub> shortly after the redesignation request and continues to exceed thresholds today. As of October 1, 2015 the USEPA has not re-designated the PM<sub>10</sub> classification for the Coachella Valley<sup>1</sup>. The Coachella Valley continues to be in non-attainment for PM<sub>10</sub>.

<sup>1</sup> EPA Green Book Designated Non-attainment Areas for All Criteria Pollutants, as of July 2, 2014. Accessed June 18, 2015.

SCAQMD employs measures to reduce particulate matter in the basin, sets forth new measures that could further reduce particulate matter, and lists those new measures that need further evaluation prior to implementation. In addition, applicable state code and AQMD Rules, including Rule 403 (Fugitive Dust), enforce fugitive dust compliance for all activities within the SSAB.

#### **PM<sub>2.5</sub> Emissions**

Federal and state standards have been developed to regulate fine particulate matter smaller than 2.5 microns in diameter. To achieve federal attainment, a jurisdiction must provide the USEPA with air quality monitoring data that does not violate the fine particle standards over a three-year period. The Coachella Valley is defined as attainment/unclassified for PM<sub>2.5</sub>, based on the state and federal PM<sub>2.5</sub> standards, and does not require implementation plans to demonstrate attainment.

#### **Ozone Emissions**

Under the Federal CAA, the Coachella Valley portion of the SSAB is classified as a “severe-15” O<sub>3</sub> non-attainment area for the 8-hour state standard, which means that the region must come into compliance with Federal ozone standards by December 31, 2027. With future emission controls, the Coachella Valley is expected to achieve the 2008 8-hour federal O<sub>3</sub> standard by 2024.<sup>2</sup>

SCAQMD studies indicate that most O<sub>3</sub> is transported to the SSAB from the upwind South Coast Air Basin (SCAB). It is difficult to quantify the amount of ozone contributed from SCAB; however, reduced O<sub>3</sub> concentration in the SSAB depends, in part, upon reduced ozone emissions in the South Coast Air Basin.

#### **4.4.2.4 Sensitive Receptors**

Some members of the population are especially sensitive to air pollutant emissions and should be given special consideration when evaluating air quality impacts from projects. These people, defined as sensitive receptors, include children, the elderly, persons with preexisting respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. The proposed project is comprised of 32 individual sites located in a mix of urban and rural settings. Detailed descriptions of the sensitive receptor locations screened for project-related air quality impacts are discussed in Section 4.4.4, Impacts and Mitigation Measures, below.

#### **Toxic Air Contaminants**

Toxic Air Contaminants (TAC) cause or contribute to an increase in deaths or serious illness or pose a present or potential hazard to human health. The CARB’s Toxic Air Contaminants Program establishes the process for the identification and control of substances such as asbestos, benzene, beryllium, inorganic arsenic, mercury, vinyl chloride, and other contaminants not addressed by the ambient air pollution program. TACs are required to be inventoried on a statewide level. There are a number of processes and facilities within the state that generate TACs, including electroplating and anodizing operations, gasoline distribution facilities, petroleum refineries, and others. The primary health concern associated with TACs is from mobile sources of particulate matter, which are known for their carcinogenic potential. Approximately 84 percent of the carcinogenic risk is attributed to diesel particulate emissions within the South Coast Air Basin.

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<sup>2</sup> Final 2012 Air Quality Management Plan, prepared by South Coast Air Quality Management District, December 2012.

### 4.4.3 REGULATORY FRAMEWORK

#### 4.4.3.1 Federal, State, and Local Regulations

Federal and state agencies have adopted air quality standards for a variety of pollutants. In 1971, the USEPA established the National Ambient Air Quality Standards (NAAQS) for managing criteria pollutants. The California Clean Air Act (CCAA) became effective on January 1, 1989 and mandated health-based air quality standards at the state level. The California Air Resources Board (CARB) is responsible for enforcing state standards, which are generally more stringent than federal standards. One of the ways standards are applied is through State Implementation Plans (SIP), which are prepared to assist regional air quality management districts in meeting the federal and state ambient air quality standards in accordance with the deadlines specified in the Federal Clean Air Act (CAA) and emission reduction targets of the California Clean Air Act.

Regional and local agencies have also assumed some responsibility for assuring that state and federal air quality standards are achieved. For the Coachella Valley, the SCAQMD is responsible for establishing air quality measurement criteria and relevant management policies for the SSAB.

The 2003 PM<sub>10</sub> Coachella Valley State Implementation Plan (CVSIP) was jointly developed by the SCAQMD, Coachella Valley Association of Governments (CVAG) and its member cities, and was approved by the USEPA. The 2003 PM<sub>10</sub> CVSIP updated the 1990 plan, which was drafted as a requirement of the federal Clean Air Act to demonstrate expeditious attainment of PM<sub>10</sub> standards.<sup>3</sup> On April 18, 2003, the USEPA approved the updated CVSIP.

The SSAB, including the project area, is subject to the provisions of the SCAQMD Rule Book,<sup>4</sup> which sets forth policies and other measures designed to meet federal and state ambient air quality standards. These rules, along with SCAQMD's 2012 Air Quality Management Plan<sup>5</sup> are intended to satisfy the planning requirements of both the federal and state Clean Air Acts. The SCAQMD also monitors daily pollutant levels and meteorological conditions throughout the District.

The California Environmental Quality Act (CEQA) also sets forth criteria to determine a project's potential to affect air quality

### 4.4.4 IMPACTS AND MITIGATION MEASURES

#### 4.4.4.1 Significance Criteria

Based on Appendix G of the State CEQA Guidelines, the project would have a significant effect on air quality if it were to:

- a. Conflict with or obstruct implementation of the applicable air quality plan.

<sup>3</sup> 2003 Coachella Valley PM10 State Implementation Plan, August 1, 2003.

<sup>4</sup> South Coast Air Quality Management District Rules and Regulations, Adopted February 4, 1977.

<sup>5</sup> Final 2012 Air Quality Management Plan, prepared by the South Coast Air Quality Management District, December 2012.

- b. Violate any air quality standards or contribute substantially to an existing or projected air quality violation.
- c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- d. Expose sensitive receptors to substantial pollutant concentrations.
- e. Create objectionable odors affecting a substantial number of people.

In addition, the project would create a significant health risk if TAC emissions were to exceed the following SCAQMD health risk significance thresholds:

- a. Maximum Incremental Cancer Risk  $\geq 10$  in 1 million;
- b. Cancer Burden  $> 0.5$  excess cancer cases (in areas 1 in 1 million);
- c. Chronic and Acute Hazard Index  $\geq 1.0$  (project increment)

#### **4.4.4.2 Approach to Analysis**

This section evaluates impacts on air quality resulting from temporary construction activities and the operation of project facilities. The analysis was conducted using methodologies and assumptions recommended by the South Coast Air Quality Management District (SCAQMD) and determined by CVWD to be adequate for use in this analysis. Procedures and methods recommended by the California Air Resources Board (CARB) are also used in this study. This section describes existing air quality, potential short-term construction-related impacts, potential direct and indirect long-term emissions associated with project, and the impacts of these emissions on both the local and regional scale. This section is based on the Air Quality Technical Report prepared by Terra Nova Planning & Research, Inc.

#### ***South Coast Air Quality Management District Thresholds***

The air quality impact analysis also considers construction and operational impacts associated with the proposed project in relation to the SCAQMD's thresholds described below.

Construction equipment, trucks, worker vehicles, and ground-disturbing activities associated with the project would generate emissions of criteria pollutants and precursors. Short-term construction-related impacts and long-term operational (regional and local) impacts were assessed in accordance with SCAQMD-recommended methodologies. Where quantification was required, project-generated construction-related emissions were modeled using the California Emissions Estimator Model Version 2013.2 (CalEEMod) computer program as recommended by the SCAQMD. CalEEMod incorporates CARB's EMFAC2011 model for on-road vehicle emissions and the OFFROAD2011 model for off-road vehicle emissions. CalEEMod is designed to model construction emissions for land development projects and allows for the input of project-specific information. Project-generated emissions were modeled

based on general information provided in the project description and default CalEEMod settings in order to estimate reasonable worst-case conditions.

Project-generated, long-term regional area and mobile-source emissions of criteria air pollutants and ozone (O<sub>3</sub>) precursors were also modeled using CalEEMod. CalEEMod allows land use selections that include project location specifics and trip generation rates. CalEEMod accounts for mobile source emissions associated with vehicle trip generation. Project-generated emissions were modeled based on assumptions for buildout of the project facilities and trip generation from the project-specific transportation analysis. Please refer to Appendix C Air Quality Technical Report for detailed information on input assumptions and modeling output files.

Determinations of significance for construction-related and operational emissions were based on the comparison of project-generated emissions to applicable SCAQMD thresholds (see Table 4.4-6 below).

<b>TABLE 4.4-6: SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS</b>		
<b>Mass Daily Thresholds</b>		
<b>Pollutant</b>	<b>Construction Thresholds</b>	<b>Operational Thresholds</b>
NO <sub>x</sub>	100 pounds/day	100 pounds/day
VOC/ROG	75 pounds/day	75 pounds/day
PM <sub>10</sub>	150 pounds/day	150 pounds/day
PM <sub>2.5</sub>	55 pounds/day	55 pounds/day
SO <sub>x</sub>	150 pounds/day	150 pounds/day
CO	550 pounds/day	550 pounds/day
Lead*	3 pounds/day	3 pounds/day
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Source: SCAQMD 2016.		
*Note: Construction of the project will not result in the release or use of lead. However low level lead emissions would occur during project operations. Lead is further discussed under the Health Risk Assessment impact section.		

#### ***Localized Significance Thresholds***

As part of the SCAQMD's environmental justice program, attention has been focused on localized effects of air quality. The SCAQMD staff has developed localized significance threshold (LST) methodology that can be used to determine whether the project may generate significant adverse localized air quality impacts (both short-term and long-term). The emissions analyzed under the LST methodology are NO<sub>2</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. LSTs are developed based upon the size or total area of the emissions source, the ambient air quality in each source receptor area (SRA) in which the emission source is located, and the distance to the sensitive receptor.

For sites greater than five acres, the SCAQMD recommends that dispersion modeling be performed to determine NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> concentrations on a daily basis. For sites less than five acres, the SCAQMD Mass Rate LST Look-up Tables can be used to determine whether or not a project may generate significant adverse localized air quality impacts. The proposed project is comprised of 32 individual sites located throughout the Coachella Valley; but only two of the sites are larger than five acres (CRRF and the ID8 WBA Water Treatment Facility site). Although these sites are larger than five acres, the project will be conditioned to limit ground disturbing activities to no more than five acres per day, and therefore the Mass Rate LST Look-up Tables were used.

The distance to a sensitive receptor would vary from site to site. Detailed descriptions of the sensitive receptors per site are discussed below.

#### ***Health Risk Assessment***

A Health Risk Assessment (HRA) was prepared for the project to assess the potential for health risks due to emissions of TACs from the treatment systems and other equipment that will be installed as part of the proposed project. SCAQMD has developed thresholds for cancer risk when a project generates cancer risk by the land uses it proposes (for example, a factory emitting TACs). That threshold is 10 cancer cases per million population. SCAQMD has conducted a survey of estimated risk throughout its basins. The SCAQMD MATES-IV Study determined that the average cancer risk in the South Coast Air Basin portion of Riverside County is 223 in one million.

A cancer risk represents the probability (in terms of risk per million individuals) that an individual would contract cancer resulting from exposure to TACs continuously over a lifetime exposure period of 70 years for sensitive receptors. Risk characterization for non-cancer health hazards from TACs is expressed as a hazard index (HI). The HI is a ratio of the predicted concentration of the project's emissions to a concentration considered acceptable to public health professionals, termed the Reference Exposure Level (REL).

#### ***CEQA-Plus Requirements***

The project must demonstrate compliance with federal Clean Air Act by providing project-specific air quality analyses. Because the project is in a non-attainment area, a summary of estimated emissions for the project must be provided; if the emissions are above the federal de minimis levels, a general conformity determination for the project must be made. A general conformity determination can be made if facilities are sized to meet the needs of current population projections used in an approved State Implementation Plan for air quality.

The Salton Sea Air Basin is considered non-attainment or unclassified for three federally-regulated criteria pollutants, including O<sub>3</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>.

#### **4.4.4.3 Construction Impacts and Mitigation Measures**

##### **Impact AQ-1: Construction of the project would not conflict with or obstruct implementation of applicable air quality plans. (Less than Significant)**

Construction of the project is anticipated to occur over a 3-year period starting in 2016 with buildout in 2019. Construction activities include site preparation, site grading, operation of construction equipment, stationary power, building construction and related off-site travel, and off-gassing from paving and architectural coatings. Construction equipment includes, but is not limited to, material hauling equipment, graders, dozers, paving equipment, generators, air compressors, welders, forklifts, industrial saws, water trucks, and crawler tractors. Construction related air quality emissions are temporary and end once construction is complete.

The project would be developed in accordance with all applicable air quality management plans to ensure impacts to air quality are less than significant. Actions include but are not limited to the preparation of a standard dust control management plan and the enforcement of mitigation

measures in the event that criteria pollutant thresholds are exceeded during construction activities. The subject property is located within the SSAB, which is governed by the SCAQMD. SCAQMD is responsible for monitoring criteria air pollutant concentrations and establishing management policies for the SSAB. All development within the SSAB, including the proposed project, is subject to the current SCAQMD Air Quality Management Plan and 2003 PM<sub>10</sub> Coachella Valley State Implementation Plan. These comprehensive plans establish control strategies and guidance on regional emission reductions for air pollutants. Construction of the project would not prevent the SCAQMD from implementing these actions. As discussed in **Impact AQ-2** below, mitigation measures are required to reduce construction related NO<sub>x</sub> emissions to less than significant levels. The **Impact AQ-2** mitigation measure reads as follows:

- To reduce NO<sub>x</sub> emissions, construction equipment shall utilize aqueous diesel fuels, diesel particulate filters and diesel oxidation catalyst (30% reduction equivalent or better) during all construction activities.

Implementation of the above mitigation measure would ensure construction of the proposed project would not obstruct implementation of applicable air quality plans. This impact is less than significant.

**Impact AQ-2: Emissions generated during construction activities would violate air quality standards and would contribute substantially to an existing air quality violation. (Less than Significant with Mitigation)**

Air pollutants are generated from such construction activities as site preparation, site grading, operation of construction equipment, stationary power, building construction and related off-site travel, and off-gassing from paving and architectural coatings. Construction related air quality emissions are temporary and end once construction is complete.

As described above, CalEEMod was used to calculate the potential emission of criteria pollutants associated with construction and operation of the proposed project. It is assumed that construction of the project would occur from July 2016 through July 2019. Detailed construction input assumptions are provided in Table 4.4-7 below. CalEEMod produces emission data for both unmitigated and mitigated conditions. The application of standard dust control measures, use of vehicle oxidation catalysis (30% reduction equivalent), and use of reduced VOC level coatings are captured in the mitigated condition.

Construction-related emissions would be minimized through best development practices, adherence to a project-specific dust control plan, proper maintenance of construction equipment, phased development, and mitigation measures set forth below that limit the project's contribution to air quality impacts during construction.

<b>TABLE 4.4-7: CALEEMOD CONSTRUCTION INPUT ASSUMPTIONS</b>	
<b>Facility</b>	<b>Construction</b>
WBA Well Sites (6 sites)	<ul style="list-style-type: none"> <li>• 3.23 acres total of disturbance</li> <li>• Material Import: 0</li> <li>• Material Export: 0</li> <li>• Paving: 0</li> <li>• Demolition Export: 15 tons</li> </ul>
SBA Well Sites (23 sites)	<ul style="list-style-type: none"> <li>• 14.7 acres total of disturbance</li> <li>• Material Import: 3,279 cubic yards</li> <li>• Material Export: 0</li> <li>• Paving: 3.1 acres</li> <li>• Demolition Export: 45 tons</li> </ul>
ID8 WBA Water Treatment Plant Site and Pipelines	<ul style="list-style-type: none"> <li>• 44.97 acres of disturbance</li> <li>• Material Import: 0 cubic yards</li> <li>• Material Export: 0 cubic yards</li> <li>• Paving: 6.15 acres</li> <li>• Access Road (gravel): 1.3 acres</li> <li>• Demolition Export: 53,842 tons</li> </ul>
LA Quinta WBA Water Treatment Plant Site and Pipelines	<ul style="list-style-type: none"> <li>• 3.23 acres of disturbance</li> <li>• 36,012 square foot building (light industrial)</li> <li>• Material Import: 0 cubic yards</li> <li>• Material Export: 0 cubic yards</li> <li>• Paving: 1.82 acres</li> <li>• Demolition Export: 26,919 tons</li> </ul>
CRRF Site and Water Pipeline	<ul style="list-style-type: none"> <li>• 38.5 acres of disturbance</li> <li>• 67,300 square foot building (light industrial)</li> <li>• Material Import: 6,876 cubic yards</li> <li>• Material Export: 0</li> <li>• Paving: 17 acres</li> <li>• Demolition Export: 0</li> </ul>
TOTALS FOR INPUT	<ul style="list-style-type: none"> <li>• Site acreage of disturbance: 103.4 acres</li> <li>• Building Space: 103,312 square feet</li> <li>• Material Import: 10,155 cubic yards</li> <li>• Material Export: 0 cubic yards</li> <li>• Paving: 28.07 acres</li> <li>• Gravel: 1.3 acres</li> <li>• Demolition Export: 80,821 tons</li> </ul>

<b>TABLE 4.4-8: CONSTRUCTION EMISSIONS SUMMARY MAXIMUM DAILY EMISSIONS (LBS/DAY)</b>						
<b>Construction Year</b>	<b>CO</b>	<b>NO<sub>x</sub></b>	<b>ROG</b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
2016	75.98	116.56	11.30	0.14	30.46	10.01
2017	73.36	109.13	10.58	0.10	14.10	9.53
2018	138.76	122.40	67.94	0.24	12.28	7.66
2019	20.93	17.73	67.67	0.03	1.93	1.19
<b>SCAQMD Threshold*</b>	<b>550.00</b>	<b>100.00</b>	<b>75.00</b>	<b>150.00</b>	<b>150.00</b>	<b>55.00</b>
<b>Impact?</b>	<b>No</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: CalEEMod Version 2013.2. See Appendix C for detailed tables. Value shown represents the average unmitigated emissions from summer and winter.  
\*Source: "SCAQMD Air Quality Significance Thresholds" prepared by South Coast Air Quality Management District, March 2015. Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea and Mojave Desert Air Basins). Thresholds are pounds per day in a single year. Project construction emissions from 2016-2019 are not cumulative.

As shown in Table 4.4-8, SCAQMD daily thresholds for criteria pollutants CO, ROG, SO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> would not be exceeded during construction of the chromium-6 project. However, NO<sub>x</sub> emissions have the potential to exceed SCAQMD thresholds during the 2016-2018 construction years; this impact is considered significant and requires mitigation. Implementation of Mitigation Measure AQ-2 would reduce NO<sub>x</sub> emission from a high of 122.4 pounds per day to a high of 90.58 pounds per day, which is approximately 10 pounds below the daily NO<sub>x</sub> threshold (See Table 4.4-9). As shown in Table 4.4-9 below, all criteria pollutants would be below SCAQMD daily thresholds under mitigated conditions. This impact is less than significant.

**Mitigation Measure AQ-2: Implement air quality control measures during construction.**

The construction contractor shall implement the following air quality control measures during construction of the Cr6 project to reduce NO<sub>x</sub> emissions to less than significant levels:

- To reduce NO<sub>x</sub> emissions, construction equipment shall utilize aqueous diesel fuels, diesel particulate filters and diesel oxidation catalyst (30% reduction equivalent or better) during all construction activities.

<b>TABLE 4.4-9: MITIGATED CONSTRUCTION EMISSIONS SUMMARY MAXIMUM DAILY EMISSIONS (LBS/DAY)</b>							
		<b>CO</b>	<b>NO<sub>x</sub></b>	<b>ROG</b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
Chromium-6 Project Buildout	2016	75.98	85.66	11.30	0.14	15.84	7.45
	2017	73.37	80.23	10.58	0.10	9.14	6.97
	2018	138.76	90.58	67.94	0.24	12.28	7.66
	2019	20.93	12.57	67.67	0.03	1.93	1.19
<b>SCAQMD Threshold*</b>		<b>550.00</b>	<b>100.00</b>	<b>75.00</b>	<b>150.00</b>	<b>150.00</b>	<b>55.00</b>
<b>Impact Statement</b>		<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: CalEEMod Version 2013.2. See Appendix C for detailed tables. Value shown represents the average unmitigated emissions from summer and winter.  
\*Source: "SCAQMD Air Quality Significance Thresholds" prepared by South Coast Air Quality Management District, March 2015. Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea and Mojave Desert Air Basins). Thresholds are pounds per day in a single year. Project construction emissions from 2016-2019 are not cumulative.

**Impact AQ-3: Pollutants generated during construction would not expose sensitive receptors to substantial concentrations. (Less than Significant)**

The Mass Rate Look-Up tables for LST were used to determine if the proposed project would have the potential to generate significant adverse localized air quality impacts during construction. The LST for SRA 30 was used to determine LST emission thresholds. Sensitive receptors would vary from site to site. Table 4.4-10 identifies the nearest sensitive receptor to the project sites, and maximum daily acreage disturbed.

<b>TABLE 4.4-10: SENSITIVE RECEPTORS NEAR PROJECT SITES</b>			
<b>Site Name</b>	<b>Nearest Sensitive Receptor</b>	<b>Distance<sup>1</sup></b>	<b>Acres Disturbed<sup>2</sup></b>
SBA 4510-1	Multi-family, west and south	25 meters	1
SBA 4610-1	Single-family, northeast, across freeway	500 meters	1
SBA 4720-1	Single-family, west and south	25 meters	1
SBA 4721-1	Single-family northwest	50 meters	1
SBA 4722-1	Single-family, west	25 meters	1
SBA 5632-2	Multi-family, southwest	25 meters	1
SBA 5657-2	Single-family, south	200 meters	1
SBA 5664-1	Single-family, west and south	25meters	1
SBA 5676-2	Single-family, northwest	200 meters	1
SBA 5677-1	Single-family, north and east	25 meters	1
SBA 5678-1	Multi-family, north	50 meters	1
SBA 5679-1	Single-family, east	25 meters	1
SBA 5711-2	Single-family, east	25 meters	1
SBA 5717-1	Single-family, north and west	25 meters	1
SBA 5718-1	Public Park, south and west	25 meters	1
SBA 5719-1	Single-family, east and south	25 meters	1
SBA 5720-1	Single-family, east	25 meters	1
SBA 6701-1	Single-family, south and northeast	50 meters	1
SBA 6726-1	Single-family, west	25 meters	1
SBA 6728-1	Single-family, west	25 meters	1
SBA 6734-1	Single-family, west	25 meters	1
SBA 6805-1	Single-family, north	100 meters	1
SBA 6808-1	Single-family northwest	100 meters	1
WBA 3408-1	Single-family, southwest	25 meters	1
WBA 3409-2	Single-family, immediately west	25 meters	1
WBA 3410-1	Possible single-family, north	25 meters	1
WBA 6723-1	Single-family, east	25 meters	1
WBA 6724-1	Single-family, west	25 meters	1
WBA 6725-1	Single-family, east	25 meters	1
CRRF Site	NA- Greater than 500 meters	NA	NA
ID8 WBA Site	Single-family, north	200 meters	5
La Quinta WBA Site	Single-family, south	50 meters	5

1. Distance is based on the LST Screening tables. The options are 25, 50, 100, 200, and 500 meters.  
 2. Acres disturbed are based on the LST Screening tables. The options are for 1, 2, and 5 acre site disturbances. Actual site acreage would vary.

As previously discussed, a single CalEEMod run was conducted for buildout of the project to estimate construction emissions for all facilities (see Table 4.4-8).

Because the SBA and WBA well sites are within the closest proximity to sensitive receptors, and because construction activities on these sites are smaller in scale when compared to the three treatment facilities, a separate CalEEMod run was conducted to estimate average construction emissions just for the SBA and WBA well sites. Table 4.4-10 shows the maximum daily construction emissions for a typical SBA and WBA well site. These emissions provide the basis for determining potential impacts to sensitive receptors in proximity to the well sites. As shown in the table, construction emissions at typical SBA and WBA well sites would not exceed SCAQMD thresholds. The emissions identified in Table 4.4-8 provide the basis for determining impacts to sensitive receptors in proximity to the ID8 WBA Water Treatment Facility, and La Quinta WBA Water Treatment Facility sites. The CRRF site is not listed in Table 4.4-12 because there are no sensitive receptors within 500 meters of the site and no impacts would occur.

<b>TABLE 4.4-11: TYPICAL SBA AND WBA WELL SITE CONSTRUCTION EMISSIONS SUMMARY MAXIMUM DAILY EMISSIONS (LBS/DAY)</b>							
		<b>CO</b>	<b>NO<sub>x</sub></b>	<b>ROG</b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub><sup>*</sup></b>	<b>PM<sub>2.5</sub><sup>*</sup></b>
SBA Well Site	2016	15.25	20.75	2.04	0.01	3.08	2.02
WBA Well Site	2016	14.85	20.37	2.00	0.01	3.06	2.01
<b>SCAQMD Threshold</b>		<b>550.00</b>	<b>100.00</b>	<b>75.00</b>	<b>150.00</b>	<b>150.00</b>	<b>55.00</b>
<b>Impact?</b>		<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
Source: CalEEMod Version 2013.2. See Appendix C for detailed tables. Value shown represents the average emissions from summer and winter.							
*Value shows "mitigated emissions," meaning the implementation of standard dust control measures.							

Results of the LST analysis are shown in Table 4.4-12 and indicate that LST thresholds would not be exceeded under mitigated conditions. As previously discussed, the project would be developed in accordance with SCAQMD Rule 403, and apply best management practices to ensure impacts to sensitive receptors are less than significant.

<b>TABLE 4.4-12: LOCALIZED SIGNIFICANCE THRESHOLDS (LBS/DAY)</b>				
<b>Facility Type</b>	<b>CO</b>	<b>NOx</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
<b>25 Meters, 1 Acre</b>				
SBA/WBA Sites	15.25	20.75	3.08	2.02
LST	878	132	4	3
Impact	No	No	No	No
<b>50 Meters, 1 Acre</b>				
SBA/WBA Sites	15.25	20.75	3.08	2.02
LST	1,387	166	13	5
Impact	No	No	No	No
<b>100 Meters, 1 Acre</b>				
SBA/WBA Sites	15.25	20.75	3.08	2.02
LST	2,565	238	35	10
Impact	No	No	No	No
<b>200 Meters, 1 Acre</b>				
SBA/WBA Sites	15.25	20.75	3.08	2.02
LST	6,021	376	80	24
Impact	No	No	No	No
<b>500 Meters, 1 Acre</b>				
SBA/WBA Sites	15.25	20.75	3.08	2.02
LST	24,417	733	214	105
Impact	No	No	No	No
<b>50 Meters, 5 Acres</b>				
La Quinta WBA Water Treatment Facility Site*	123.47	95.07	18.53	9.47
LST	3,237	340	44	11
Impact	No	No	No	No
<b>200 Meters, 5 Acres</b>				
ID8 WBA Water Treatment Facility Site*	123.47	95.07	18.53	9.47
LST	10,178	547	112	37
Impact	No	No	No	No
Source: CalEEMod Version 2013.2. See Appendix C. Emissions show the highest emitting day for the highest emitting year for all emissions generated onsite during construction.				
* Emissions show mitigated conditions and application of standard dust control practices. See Table 4.4-14.				

### Health Risk Assessment

Construction activities and equipment used, and hence the TAC emissions, would vary from location to location and month to month. Therefore, short-duration construction activities were not evaluated for health risk impacts (see Appendix B, Health Risk Assessment).

### Impact AQ-4: Project construction activities would not create objectionable odors affecting a substantial number of people. (Less than Significant)

Construction of the project has the potential to result in short term odors associated with asphalt paving and use of heavy equipment; however, any such odors would be quickly dispersed below detectable thresholds as distance from the construction site increases. Additionally, odors related to construction activities are not considered a “nuisance” under SCAQMD Rule 402 because they will not be released in quantities that would cause injury,

detriment, or annoyance to a considerable number of persons, or endanger the comfort, health or safety of any such persons. Therefore, this air quality impact would be less than significant.

#### 4.4.4.5 Operation Impacts and Mitigation Measures

**Impact AQ-5: Emissions generated during project operations would not violate air quality standards and would not contribute substantially to an existing air quality violation. (Less than Significant)**

##### **Operation and Maintenance Impacts**

Criteria air pollutant emissions from ongoing project operations are largely the consequence of three emission source categories: Energy, Mobile, and Area sources. Energy sources refer to direct and indirect use of fossil fuels for energy use, such as electricity usage for well operation and building use. Mobile sources refer to emissions associated with motor vehicle trips generated by the project. Area sources refer to consumable products such as landscaping, building maintenance and cleaning supplies, restroom supplies, and periodic reapplication of architectural coatings.

##### **Mobile Source Assumptions**

The CRRF site would be the only project facility with full-time workers, generating approximately 58 commuter trips per weekday. The WBA and SBA wells, and the WBA treatment facilities would only require occasional maintenance trips, chemical deliveries, and resin pick-up/deliveries. For conservative analysis, it was assumed that the all project facilities combined would generate approximately 60 trips per weekday. These assumptions were applied to CalEEMod's operational trip rates for the project.

Table 4.4-13 provides the operational assumptions entered into the CalEEMod run. Electricity demand inputs were derived from information presented in Section 4.12.4.4 of the Mineral and Energy Resources section.

<b>TABLE 4.4-13: CALEEMOD OPERATIONAL ASSUMPTIONS</b>	
<b>Facility</b>	<b>Operational Inputs</b>
WBA Well Sites (6 sites)	<ul style="list-style-type: none"> <li>• Reduces existing electricity demand by 490,494 kWh annually</li> <li>• Approximately 104 new vehicle trips annually</li> </ul>
SBA Well Sites (23 sites)	<ul style="list-style-type: none"> <li>• 3,350,280 kWh increase annually</li> <li>• Approximately 104 new vehicle trips annually for all well sites</li> </ul>
ID8 WBA Water Treatment Facility	<ul style="list-style-type: none"> <li>• 7,061,000 kWh increase annually</li> <li>• Assumes 50 trips annually for deliveries</li> </ul>
LA Quinta WBA Water Treatment Facility	<ul style="list-style-type: none"> <li>• 5,571,000 kWh increase annually</li> <li>• Assumes 50 trips annually for deliveries</li> </ul>
CRRF: Evaporation Pond	<ul style="list-style-type: none"> <li>• 1,893,690 kWh increase annually</li> <li>• 60 commute trips daily</li> <li>• 80 disposal trips per year</li> <li>• 40 delivery trips per year</li> </ul>
CRRF: Brine Crystallization	<ul style="list-style-type: none"> <li>• 4,389,690 kWh increase annually</li> </ul>

<b>TABLE 4.4-13: CALEEMOD OPERATIONAL ASSUMPTIONS</b>	
<b>Facility</b>	<b>Operational Inputs</b>
	<ul style="list-style-type: none"> <li>• 60 commute trips daily</li> <li>• 58 disposal trips</li> <li>• 40 delivery trips per year</li> </ul>
PROJECT TOTAL (CRRF Evaporation Pond Process)	<ul style="list-style-type: none"> <li>• 17,385,476 kWh increase annually</li> <li>• Assumes 60 work trips daily (This would account for occasional delivery trips)</li> <li>• 80 disposal trips annually</li> </ul>
PROJECT TOTAL (CRRF Brine Crystallization Process)	<ul style="list-style-type: none"> <li>• 19,881,476 kWh increase annually</li> <li>• Assumes 60 work trips daily (This would account for occasional delivery trips)</li> <li>• 58 disposal trips annually</li> </ul>
Note: Either the evaporation pond process or the brine crystallization process would be employed, not both simultaneously.	

Table 4.4-14 summarizes the potential emissions of criteria pollutants from day-to-day operations of the proposed project when completed. These emissions include the three operational emissions sources discussed above: energy, mobile, and area sources. As shown in Table 4.4-14, SCAQMD thresholds would not be exceeded during operation of the project. It should be noted that the operational emissions presented do not show added efficiencies of vehicle fleet mix, which would likely shift in future years to include more electric vehicles and alternative fuel vehicles, which could further reduce emissions associated with mobile sources. Therefore, operational air quality impacts from the project are expected to be less than significant.

<b>TABLE 4.4-14: OPERATIONAL EMISSIONS OF CRITERIA POLLUTANTS (LBS/DAY)</b>							
<b>CRRF Evaporation Pond Process</b>	<b>Completion Year</b>	<b>CO</b>	<b>NOx</b>	<b>ROG</b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
	2019	6.66	3.52	38.90	0.01	0.55	0.24
	<b>SCAQMD Threshold</b>	<b>550.00</b>	<b>100.00</b>	<b>75.00</b>	<b>150.00</b>	<b>150.00</b>	<b>55.00</b>
	<b>Impact?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>CRRF Brine Crystallization Process</b>	<b>Completion Year</b>	<b>CO</b>	<b>NOx</b>	<b>ROG</b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
	2019	6.66	3.52	38.90	0.01	0.55	0.24
	<b>SCAQMD Threshold</b>	<b>550.00</b>	<b>100.00</b>	<b>75.00</b>	<b>150.00</b>	<b>150.00</b>	<b>55.00</b>
	<b>Impact?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
Source: CalEEMod Version 2013.2.2. See Appendix C for detailed tables. Value shown represents average daily unmitigated emission across summer and winter activities.							
Note: Either the evaporation pond process or the brine crystallization process would be employed, not both simultaneously.							

**Impact AQ-6: Pollutants generated during operation would not expose sensitive receptors to substantial concentrations. (Less than Significant)**

A Health Risk Assessment (HRA) was prepared by Yorke Engineering, LLC (2016) to evaluate potential health risks associated with operation of the proposed project. The HRA evaluated impacts from TACs emitted by the treatment system equipment, on-site mobile sources, and the emergency generator engines using the most recent methodology and toxicity values required by the California Office of Environmental Health Hazard Assessment (OEHHA). TAC emissions were estimated for the three CVWD facilities: CRRF, La Quinta WBA Water Treatment Facility, and the ID8 WBA Water Treatment Facility. The SBA facilities are not expected to emit regulated TAC air contaminants.

The CRRF TAC emissions sources include the emergency engine, various chemical storage and process tanks, a crystallizer, and a filter press. TAC emissions from the CRRF include low levels of ammonia, hydrochloric acid, diesel particulate matter (DPM), arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium, and uranium. The WBA water treatment process itself would not emit regulated TACs at either facility (La Quinta and ID8). However the diesel engine-driven emergency generator and on-site mobile activities would result in DPM emissions. A summary of the emission estimates and calculations can be found in the Health Risk Assessment attached to Appendix C of this EIR.

Results of the TAC emission estimates and associated health risks were evaluated using four threshold methods, including Maximum Individual Cancer Risk (MICR), Chronic Hazard Index (HIC), Acute Hazard Index (HIA), and Cancer Burden.

- MICR is the estimated probability of a maximally exposed individual potentially contracting cancer as a result of continuous exposure to TACs over a period of 30 years for residential receptor locations or 25 years for off-site worker receptor locations. Sensitive receptors, such as schools, hospitals, convalescent homes, and day-care centers, are evaluated as residential receptors.
- HIC is the sum of the individual substance chronic hazard indices for all TACs affecting the same target organ system, because some TACs increase non-cancer health risk due to long-term (chronic) exposures.
- HIA is the sum of the individual substance acute hazard indices for all TACs affecting the same target organ system, because some TACs increase non-cancer health risk due to short-term (acute) exposures. Acute risk can be calculated at the nearest receptor at any point at or beyond the fence line for an exposure duration of 1 hour.
- Cancer burden is the estimated increase in the occurrence of cancer cases in a population subject to an MICR of greater than or equal to 1.0 in one million (1.0E-06) resulting from exposure to TACs. The cancer burden is determined for the population located within the zone of impact, defined as the area within the one in one million cancer risk isopleth. The area is determined by measuring the distance from the emission source to the nearest receptor with a theoretical risk of 1.0E-06. In this case, the theoretical cancer risk from the CRRF and ID8 facilities did not exceed 1.0E-06, and cancer burden was not calculated. For the La Quinta WBA water treatment facility, the theoretical cancer risk is predicted to exceed 1.0E-06 off-site and cancer burden was calculated.

As shown in the following tables, operation of the proposed project would not result in significant health risk impacts related to TAC emissions. Therefore, project impacts would be less than significant.

<b>TABLE 4.4-15: HEALTH RISK RESULTS - CRRF</b>			
<b>Impact Parameter</b>	<b>Health Risk Impact</b>	<b>SCAQMD Significance Thresholds</b>	<b>Significant (Yes/No)</b>
MICR – Resident	6.32E-07	1 E-05	No
HIC – Resident	2.75E-04	1.0	No
HIA – Resident	9.22E-03	1.0	No
MICR - Worker	6.61E-08	1 E-05	No
HIC - Worker	2.60E-04	1.0	No
HIA - Worker	9.22E-03	1.0	No
Cancer Burden	---	0.5	No

<b>TABLE 4.4-16: HEALTH RISK RESULTS – La Quinta WBA</b>			
<b>Impact Parameter</b>	<b>Health Risk Impact</b>	<b>SCAQMD Significance Thresholds</b>	<b>Significant (Yes/No)</b>
MICR – Resident	1.27E-06	1 E-05	No
HIC – Resident	3.42E-04	1.0	No
HIA – Resident	0.0	1.0	No
MICR - Worker	1.06E-07	1 E-05	No
HIC - Worker	3.42E-04	1.0	No
HIA - Worker	0.0	1.0	No
Cancer Burden	1.23E-04	0.5	No

<b>TABLE 4.4-17: HEALTH RISK RESULTS – ID8</b>			
<b>Impact Parameter</b>	<b>Health Risk Impact</b>	<b>SCAQMD Significance Thresholds</b>	<b>Significant (Yes/No)</b>
MICR – Resident	9.82E-09	1 E-05	No
HIC – Resident	3.32E-06	1.0	No
HIA – Resident	0.0	1.0	No
MICR - Worker	1.53E-09	1 E-05	No
HIC - Worker	3.32E-06	1.0	No
HIA - Worker	0.0	1.0	No
Cancer Burden	---	0.5	No

**Impact AQ-7: Project operation would not create objectionable odors affecting a substantial number of people. (Less than Significant)**

Operation of the project would not cause objectionable odors that could affect a substantial number of people, because the project wells would run on electrical power (no direct emissions) and chemicals used for water treatment would be stored in the well facility buildings. Therefore,

since there is no odor potential during operation of the project, this air quality impact would be less than significant.

**4.4.5 SIGNIFICANCE AFTER MITIGATION**

Residual impacts would be less than significant. As discussed in Impact AQ-2, above, construction of the project has the potential to exceed SCAQMD daily thresholds for NOx. NOx emissions are directly related to the operation of construction equipment. To reduce NOx emissions below the SCAQMD threshold of 100 pounds per day, oxidation catalysts with a 30% reduction equivalent were applied to all construction equipment. It should be noted that CalEEMod assumes all pieces of equipment are operating at the same time during each phase of construction (i.e. grading phase, building construction phase, paving phase etc.). In reality, fewer pieces of construction equipment may be running at any given time. Thus, emissions of NOx are likely to be overstated and the analysis is considered conservative.

Table 4.4-18 shows that under mitigated conditions, all criteria pollutants would be below SCAQMD daily thresholds. The project would be required to implement the mitigation measure provided under Mitigation Measure AQ-2, above. Adherence to the mitigation measures would ensure this air quality impact would be less than significant.

<b>TABLE 4.4-18: MITIGATED CONSTRUCTION EMISSIONS SUMMARY MAXIMUM DAILY EMISSIONS (LBS/DAY)</b>							
		<b>CO</b>	<b>NOx</b>	<b>ROG</b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
Chromium-6 Project Buildout	2016	75.98	85.66	11.30	0.14	15.84	7.45
	2017	73.37	80.23	10.58	0.10	9.14	6.97
	2018	138.76	90.58	67.94	0.24	12.28	7.66
	2019	20.93	12.57	67.67	0.03	1.93	1.19
<b>SCAQMD Threshold*</b>		<b>550.00</b>	<b>100.00</b>	<b>75.00</b>	<b>150.00</b>	<b>150.00</b>	<b>55.00</b>
<b>Impact Statement</b>		<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
Source: CalEEMod Version 2013.2. See Appendix C for detailed tables. Value shown represents the average unmitigated emissions from summer and winter. *Source: "SCAQMD Air Quality Significance Thresholds" prepared by South Coast Air Quality Management District, March 2015. Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea and Mojave Desert Air Basins). Thresholds are pounds per day in a single year. Project construction emissions from 2016-2019 are not cumulative.							

**4.4.6 CUMULATIVE IMPACTS**

**Impact AQ-7: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). (Less than Significant )**

Due to the dispersing nature of air emissions, the geographic scope for the analysis of potential cumulative air quality impacts is the overall Salton Sea Air Basin (SSAB) region in which the

facilities are being constructed and operated. Unlike other sections in this document, cumulative impacts were not analyzed using a list-based or growth projection approach. Cumulative impacts within the SSAB are the result of all construction and operational activities within the region and neighboring air districts. Therefore, cumulative impacts were analyzed in the context of regional and State plans, and the projection approach was used.

The SSAB is designated as non-attainment under both the CAAQS and the NAAQS for ozone and PM<sub>10</sub>, and unclassified for PM<sub>2.5</sub>. Emissions of CO, NO<sub>x</sub> and ROG that exceed the SCAQMD operational thresholds would significantly contribute to the ozone nonattainment designation, while emissions of PM<sub>10</sub> that exceed the SCAQMD thresholds would significantly contribute to the PM<sub>10</sub> nonattainment designation.

Construction activities associated with development of the project have the potential to exceed SCAQMD daily thresholds for NO<sub>x</sub>. However, these emissions would be reduced to less than significant levels with application of the mitigation measures presented above (see Mitigation Measure AQ-2). Emissions of CO, NO<sub>x</sub>, ROG, PM<sub>10</sub> and PM<sub>2.5</sub> during construction of the project are unavoidable and would marginally contribute to regional ozone and PM<sub>10</sub> non-attainment designations. The following discussions address cumulative impacts related to ozone and PM<sub>10</sub> and PM<sub>2.5</sub>.

#### Regulation of Ozone

As previously discussed, SCAQMD studies indicate that most ozone is transported to the Salton Sea Air Basin from the upwind sources in the South Coast Air Basin. The amount of ozone contributed from other air basins is difficult to quantify; however, improved air quality in the project area depends upon reduced ozone emissions in the South Coast Air Basin. Therefore, cumulative impacts to ozone are better managed on a multi-regional scale as opposed to single projects. The SCAQMD 2012 AQMP provides current and future measures to reduce both stationary and mobile source ozone emissions. Proposed measures to reduce ozone include emission reductions from coatings and solvents, RECLAIM facilities, early transitions to cleaner mobile technologies, and incentives to adopt net zero and near zero technologies.

CalEEMod does not generate ozone emissions directly and therefore emissions of ozone precursors (CO, NO<sub>x</sub>, and ROG) were evaluated to determine project-related impacts to ozone. Ozone precursors are the primary pollutants involved in the chemical reaction process that forms ozone. The proposed project would not exceed local construction or operational thresholds for ozone precursors under mitigated conditions. In addition, the project would adhere to applicable ozone reduction measures set forth by SCAQMD, including SCAQMD Rule 1113 that regulates ROG (VOC) levels in architectural coatings, which would further reduce ongoing emissions of ozone precursors.

Development and operation of the proposed project would adhere to ozone reduction measures set forth by the SCAQMD. Therefore, the proposed project would not have a cumulatively considerable air quality impact related to ozone.

#### Regulation of PM<sub>2.5</sub>

Federal and state standards have been developed to regulate fine particulate matter smaller than 2.5 microns in diameter. To achieve federal attainment, a jurisdiction must provide the

USEPA with air quality monitoring data that does not violate the fine particulate standards over a three-year period. The Coachella Valley is defined as attainment/unclassified for PM<sub>2.5</sub>, based on the state and federal PM<sub>2.5</sub> standards and does not require Implementation Plans to demonstrate attainment.

#### Regulation of PM<sub>10</sub>

Similar to ozone, PM<sub>10</sub> is regulated through the SCAQMD 2012 Air Quality Management Plan and 2002 PM<sub>10</sub> Coachella Valley State Implementation Plan (CVSIP). Additional PM<sub>10</sub> reduction measures include applicable state code and AQMD Rules, such as Rule 403 (Fugitive Dust), which enforces fugitive dust compliance for all activities within the SSAB. As shown in the analysis above, the proposed project would not exceed local daily thresholds for PM<sub>10</sub>. Therefore, cumulative impacts to PM<sub>10</sub> are considered less than significant.

In conclusion, cumulative air quality impacts related to construction and operation of the proposed project are considered less than significant. Development and operation of the proposed project would not exceed air quality maximum daily thresholds for CO, NO<sub>x</sub> and PM<sub>10</sub> under mitigated conditions, which are cumulative thresholds by their nature. In addition, the proposed project is consistent with regulation requirements of ozone and PM<sub>10</sub> in the Salton Sea Air Basin. Therefore, impacts related to ozone and PM<sub>10</sub> emissions would be less than significant and would not result in a cumulatively considerable contribution to criteria air pollutant emissions.

#### **4.4.7 REFERENCES**

CalEEMod Version 2013.2

California Air Resources Board. 2015. *iADAM: Air Quality Data Statistics*. Retrieved from <http://www.arb.ca.gov/adam/>.

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