TOPICAL RESPONSE NO. 13: GLOBAL CLIMATE CHANGE UPDATE

Since circulation of the Draft EIS/EIR in April 2009, a number of regulatory developments have occurred that warrant consideration by the Corps and CDFG when deciding whether to approve the proposed Project or one of its alternatives. Additionally, at the recommendation of ENVIRON International Corporation (ENVIRON), the global climate change consultant, the emissions inventories for the proposed Project and its alternatives and methodology for assessing the significance of those emissions have been updated. Specifically, ENVIRON has updated the emission estimates for the residential, nonresidential, mobile, municipal, recreational, and golf course emission categories to be consistent with the best available science, as well as the significance assessment to improve upon the accounting of the proposed Project's consistency with the State of California's emission reduction mandate for year 2020. (The emission estimates for the vegetation, construction and area source emission categories have not been updated.) The updates, which are detailed in the revised global climate change section included in the Final EIS/EIR (revised **Section 8.0**), also are summarized below.

To preface, the scientific community's understanding of global climate change and the regulatory framework established to monitor and reduce greenhouse gas emissions are continuously evolving areas. For example, since public circulation of the Draft EIS/EIR, the updated emissions estimates now account for California's 2010 Renewable Portfolio Standard (RPS) and the AB 1493 regulations (implementation of which has been authorized by the U.S. Environmental Protection Agency (USEPA)). The types of updates summarized in this topical response (and detailed in revised **Section 8.0** of the Final EIS/EIR) are to be expected, and provide the decisionmakers and general public with the most current information available. In addition, the updates reflect the lead agencies' continued, good-faith efforts at full disclosure in this emerging area. Importantly, the updates to the inventory and significance methodologies utilized in Draft EIS/EIR **Section 8.0**, Global Climate Change, do not trigger recirculation standards under NEPA and CEQA because there have been no substantial changes to the Project, its circumstances, or the significance findings presented in the Draft EIS/EIR.

Regulatory Developments

At the federal level, a number of developments have occurred that indicate a national program regulating greenhouse gas emissions is in the pipeline. The pending question is whether that national program will be in the form of congressional legislation or command-and-control regulation via the USEPA. Since circulation of the Draft EIS/EIR in April 2009, the most notable developments are highlighted below:

- **Vehicle Emission Standards:** On September 15, 2009, the U.S. Department of Transportation and USEPA issued a proposed rule that would apply to passenger cars, light-duty trucks, and medium duty passenger vehicles built in model years 2012 through 2016. If finalized, the proposed rule would improve average fuel economy standards to 35.5 miles per gallon by 2016. In addition, the rule proposes to require model year 2016 vehicles to meet an estimated combined average emission level of 250 grams of carbon dioxide per mile. The improved fuel economy standard and greenhouse gas emission levels would reduce carbon dioxide emissions from the light-duty vehicle fleet by about 20 percent by 2020.

- **Mandatory Reporting Regulation:** On October 30, 2009, the USEPA issued the final mandatory reporting regulation for greenhouse gas emissions. Effective December 29, 2009, the regulation

requires suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions to submit annual reports to the USEPA.

- **Endangerment and Cause/Contribute Findings:** On December 7, 2009, the USEPA announced it had adopted findings that high atmospheric levels of greenhouse gases "are the unambiguous result of human emissions, and are very likely the cause of the observed increase in average temperatures and other climatic changes." The USEPA further found that "atmospheric concentrations of greenhouse gases endanger public health and welfare within the meaning of Section 202 of the Clean Air Act." While the findings do not impose any requirements on industry or other entities, it does enable the USEPA to adopt regulations designed to reduce greenhouse gas emissions.

- **Draft NEPA Guidance:** On February 18, 2010, the Council for Environmental Quality (CEQ) issued its "Draft NEPA Guidance on Considerations of the Effects of Climate Change and Greenhouse Gas Emissions." On page 1 of the Draft NEPA Guidance, CEQ "affirms the requirements of the statute [i.e., NEPA] and regulations and their applicability to GHGs and climate change impacts." CEQ also underscores the practical limits on the analysis of global climate change. For example, CEQ provides that "agencies should recognize the scientific limits of their ability to accurately predict climate change effects, especially of a short-term nature, and not devote effort to analyzing wholly speculative effects." (Draft NEPA Guidance, p. 2.)

At the state level, numerous developments have occurred, since completion of the Draft EIS/EIR in April 2009, which support California's continuing efforts to reduce its greenhouse gas emissions and prepare the State to adapt to the effects of climate change. While these developments are discussed in detail in **Section 8.0**, Global Climate Change, of the Final EIS/EIR, a few of the most notable developments are summarized below:

- **Low Carbon Fuel Standard:** Pursuant to its Assembly Bill (AB) 32 authority and consistent with Governor Schwarzengger's Executive Order No. S-01-07 (January 18, 2007), the California Air Resources Board (CARB) adopted a low carbon fuel standard on April 23, 2009. This regulation is responsive to Executive Order No. S-1-07, which calls for a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020.

- **AB 1493 (Pavley) Regulations:** On June 30, 2009, the USEPA granted California's waiver application for the AB 1493 regulations. Therefore, the State is authorized to implement the AB 1493 regulations, which require a 30 percent reduction in greenhouse gas emissions from vehicles by 2016.

- **Senate Bill 97:** On December 30, 2009, following an extensive public outreach program, the California Natural Resources Agency (CNRA) adopted amendments to the CEQA Guidelines that address greenhouse gas emissions and related issues. On page 13 of its Final Statement of Reasons for Regulatory Action (December 2009), the CNRA observed:

  > "Analysis of GHG emissions in a CEQA document presents unique challenges to lead agencies. Such analysis must be consistent with existing CEQA principles, however. Therefore, the Amendments comprise relatively modest changes to various portions of the existing CEQA Guidelines. Modifications address those issues where analysis of

> GHG emissions may differ in some respects from more traditional CEQA analysis. Other modifications clarify existing law that may apply both to analysis of GHG emissions as well as more traditional CEQA analyses."

The adopted amendments became effective on March 18, 2010.

- **CALGREEN:** In early January 2010, the California Building Standards Commission unanimously adopted the first-in-the-nation mandatory statewide green building code, referred to as "CALGREEN." Taking effect on January 1, 2011, these comprehensive regulations will achieve major reductions in emissions, energy consumption, and water use to create a greener California. CALGREEN will require that every new building constructed in California reduce water consumption by 20 percent, divert 50 percent of construction waste from landfills, and install low pollutant-emitting materials. It also requires separate water meters for nonresidential buildings' indoor and outdoor water use, with a requirement for moisture-sensing irrigation systems for larger landscape projects and mandatory inspections of energy systems (*e.g.*, heat furnace, air conditioner and mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity and according to their design efficiencies. CARB estimates that the mandatory provisions will reduce greenhouse gas emissions by 3 million metric tons equivalent in 2020.

- **Adaptation Strategy:** Consistent with Governor Schwarzenegger's Executive Order No. S-13-08, which called on state agencies to develop strategies for the identification and mitigation of expected climate impacts, the CNRA recently issued a document -- the 2009 California Climate Adaptation Strategy (Adaptation Strategy; December 2009) -- that discusses the impacts of climate change upon California, as well as California's climate adaptation strategy. The major anticipated climate changes expected in the State of California include increases in temperature and sea level, and decreases in precipitation, particularly snowfall. These gradual changes will also lead to an increasing number of extreme events, such as heat waves, wildfires, droughts, and floods. The Adaptation Strategy includes a number of recommendations that are designed and intended to assist the State in responding to these changes.

Methodological Developments

Following circulation of the Draft EIS/EIR in April 2009, ENVIRON prepared the "Climate Change Technical Addendum: Resource Management and Development Plan and Spineflower Conservation Plan" (Technical Addendum; October 2009), a copy of which is found in **Appendix F8.0** of the Final EIS/EIR. The Technical Addendum was prepared as an update to the previously circulated "Climate Change Technical Report: Resource Management and Development Plan and Spineflower Conservation Plan" (Technical Report; February 2009), a copy of which is found in **Appendix 8.0** of the Draft EIS/EIR.

As noted above, the Technical Addendum updated the emission estimates for the residential, nonresidential, mobile, municipal, recreational, and golf course emission categories. These emission estimates were updated to incorporate regulations that will reduce the amount of greenhouse gas emissions resulting from electricity production and vehicle operation. The specific regulations accounted for include California's 2010 RPS, which requires that 20 percent of the State's power supply be secured

from renewable energy sources by December 31, 2010.[1] The 2010 RPS was incorporated into the inventory methodology in light of the fact that any development enabled by Project approval would occur subsequent to 2010, such that a greater percentage of renewable sources will satisfy California's energy demand and thereby lower emissions. In addition, the reduction in vehicle tailpipe emissions anticipated from implementation of the AB 1493 (Pavley) regulations has been incorporated into the inventory methodology. At the time the Draft EIS/EIR was circulated for public review, it was not clear whether the USEPA would grant California's waiver application; however, as noted above, in June 2009, the waiver was granted. Therefore, it is now appropriate to account for the vehicle emission efficiency improvements that will result from AB 1493. The AB 1493 regulations require a 30 percent reduction in greenhouse gas emissions from vehicles by 2016; incorporation of the AB 1493 regulations into the modeling reduces the proposed Project's mobile source emissions by approximately 20 percent.

The emission estimates also incorporate newer, more applicable data sets and models associated with residential and commercial building energy use. First, the emission estimates were updated to account for implementation of the 2008 Title 24 energy standards, which became effective on January 1, 2010, and the Project applicant's commitment to exceed those standards by 15 percent when constructing the residential and nonresidential development that would be enabled by Project approval. Second, the emission estimates were updated to utilize more current and applicable data sets and models for the calculation of energy use. For the residential buildings, the emission estimates for non-Title 24 energy use now rely on the Building America Research Benchmark Definition model; for the nonresidential buildings, the emission estimates now rely on California Commercial End Use Survey data. Third, when estimating the emissions that would result from the operation of on-site recreational pools, the methodology was revised to utilize data from an updated study that addresses the energy use of five pools in Oakland, California.

Significance Assessment Developments

ENVIRON's Technical Addendum also updated the significance assessments used in the Draft EIS/EIR (April 2009). This assessment builds on information and analysis provided in the Draft EIS/EIR, and incorporates a more current methodological basis for conducting the assessment.

By way of background, the lead agencies, in accordance with NEPA and CEQA principles, disclosed and considered the extent to which the proposed Project and its alternatives would increase emission levels relative to existing, on-site conditions. In other words, the emission inventories prepared by ENVIRON in the Draft EIS/EIR (and as updated by ENVIRON's Technical Addendum) identified project-specific, quantitative emission estimates that account for the numeric increase in emission levels above the existing physical conditions on the Project site. For example, and as depicted in **Table TR-13-1**, below, the proposed Project would increase existing emission levels by approximately 269,000 tonnes of CO_2e per year over the existing conditions on the Project site. Because the Project site is largely vacant land and because of the intermittent nature of the limited on-site activities (*e.g.*, agriculture; grazing; oil leasing),

[1] Of note, the inventory methodology did not account for the anticipated 2020 RPS, which will require that 33 percent of the power supply be secured from renewable energy sources, because the regulations implementing that standard have not yet been promulgated. With that being said, in September 2009, Governor Schwarzenegger issued an executive order directing CARB to adopt, pursuant to its AB 32 authority, a regulation establishing the 33 percent standard by July 31, 2010. Assuming that regulation is adopted, the emissions resulting from Project-related energy use would decrease even further.

both the Draft and Final EIS/EIR consider the existing on-site emission levels to be essentially zero and did not offset the Project-related emissions by accounting for emissions associated with existing site conditions.[2] That being said, ENVIRON's emissions estimate for existing conditions on the Project site demonstrated that upwards of 10,000 metric tons of CO_2e per year likely result from on-site activities. (See ENVIRON's Technical Addendum in **Appendix F8.0** of the Final EIS/EIR.)

While the lead agencies considered the numeric increases above existing emission levels associated with the proposed Project and its alternatives, the agencies ultimately determined that the numeric increase, alone, was not sufficient to support a significance determination. This conclusion was reached in light of the absence of scientific and factual information regarding when particular quantities of greenhouse gas emissions become significant (as climate change is a global issue).

Therefore, the lead agencies turned to AB 32 as a benchmark by which to inform its careful judgment. As disclosed in the Draft EIS/EIR, AB 32 is the State of California's only statutory mandate, with associated regulatory mechanisms, designed to secure an absolute reduction in California's greenhouse gas emission levels. Specifically, by AB 32, California's emission levels must return to 1990 levels by 2020. In order to evaluate the emission reductions that would be required within California to meet AB 32 mandates, CARB estimated greenhouse gas emissions for year 2020 (*i.e.*, the year by which California must reduce its emissions to 1990 levels under AB 32), considering population growth, if "no actions were taken" to reduce emissions; in this analysis, that emissions estimate is referred to as the CARB 2020 NAT scenario. CARB's emissions estimates confirmed that emissions must be reduced by about 29 percent below the CARB 2020 NAT scenario for California to achieve the AB 32 reduction mandates. In essence, the 29 percent improvement over the CARB 2020 NAT scenario is utilized as a best performance standard by which the significance of the proposed Project and its alternatives is measured.

The CARB 2020 NAT scenario relies on specific assumptions, including those relating to electricity generation, vehicle fuel efficiency, and building energy efficiency. In particular, CARB assumed that all new electricity generation would be supplied by natural gas plants, no regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at the 2005 Title 24 standards. Therefore, to assess the consistency of the proposed Project with AB 32's reduction mandate, Project emissions are compared with the emissions that would be anticipated if the Project were constructed in a manner consistent with the assumptions utilized in the CARB 2020 NAT scenario.

The proposed Project would result in the emission of about 269,000 metric tonnes of CO_2e on an annualized basis (and incorporating vegetation and construction emissions). These Project-related changes (*i.e.*, the addition of greenhouse gas emissions) to the existing environmental baseline were then evaluated to determine their significance. In that respect, these emissions are about 31 percent below the level that would be expected if the proposed Project and resulting development were constructed consistent with CARB's assumptions for the CARB 2020 NAT scenario. Because this reduction exceeds

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[2] This approach is consistent with that outlined in the California Supreme Court's recent decision in *Communities for a Better Environment v. South Coast Air Quality Management District* (March 15, 2010). In that opinion, the Court held that the existence of valid permits to operate industrial equipment at certain emission levels did not establish an exception to the general rule that existing physical conditions serve as the baseline for measuring a project's environmental effects. Here, the proposed Project is not the recipient of a permit to emit certain quantities of emissions, and the analysis provided has considered the significance of the emissions measured against existing, on-site conditions.

the 29 percent reduction required for California to achieve the AB 32 reduction mandate, the proposed Project would result in less-than-significant impacts.

Table TR-13-1, below, presents the revised emission inventories for Alternative 2 (the proposed Project) and Alternatives 3 through 7. Additionally, **Table TR-13-1** identifies the percent improvement each Project Alternative demonstrates over the CARB 2020 NAT scenario. As shown, because each Project Alternative is at least 31 percent below the emissions projected under the CARB 2020 NAT scenario, global climate change impacts would be less than significant.

After considering the increase in emission levels above the existing environmental conditions and consistency with AB 32, the lead agencies also considered whether there was other substantial evidence that the greenhouse gases emitted by the proposed Project and its alternatives would still result in cumulatively considerable impacts. The agencies found no such evidence, particularly because the proposed Project and its alternatives were shown not to impede AB 32's reduction mandate, and because the applicant has committed to ensure that emission levels remain less than significant through the imposition of project design features that reduce greenhouse gas emissions.

Table TR-13-1
Summary of Greenhouse Gas Emissions
for the Proposed Project and Alternatives 3 through 7

Development	Source	GHG Emissions			Improvement Over CARB 2020 NAT
		Unit	Project	CARB 2020 NAT	(%)
Alternative 2	Vegetation	tonnes CO_2e	44,988	44,988	N/A
	Construction		556,868	556,868	N/A
	Total (one-time emissions)		**601,856**	**601,856**	**N/A**
	Residential	tonnes CO2e / year	59,449	86,607	31%
	Nonresidential		53,874	72,341	26%
	Mobile		112,138	150,365	25%
	Municipal		21,384	35,348	40%
	Golf Course		165	182	9%
	Recreational (Pools)		4,052	27,213	85%
	Area		2,944	2,944	0%
	Total (annual emissions)		**254,007**	**375,000**	**32.3%**
	Annualized Total	**tonnes CO2e / year**	**269,053[A]**	**390,046**	**31.0%**

Table TR-13-1
Summary of Greenhouse Gas Emissions
for the Proposed Project and Alternatives 3 through 7

Development	Source	GHG Emissions			Improvement Over CARB 2020 NAT
		Unit	Project	CARB 2020 NAT	(%)
Alternative 3	Vegetation	tonnes CO_2e	43,737	43,737	N/A
	Construction		527,600	527,600	N/A
	Total (one-time emissions)		**571,337**	**571,337**	**N/A**
	Residential	tonnes CO_2e / year	56,683	82,578	31%
	Nonresidential		53,355	71,673	26%
	Mobile		106,921	143,369	25%
	Municipal		20,184	33,638	40%
	Golf Course		165	182	9%
	Recreational (Pools)		3,956	26,565	85%
	Area		2,755	2,755	0%
	Total (annual emissions)		**244,019**	**360,761**	**32.4%**
	Annualized Total	**tonnes CO2e / year**	**258,303[A]**	**375,044**	**31.1%**
Alternative 4	Vegetation	tonnes CO_2e	43,531	43,531	N/A
	Construction		499,698	499,698	N/A
	Total (one-time emissions)		**543,229**	**543,229**	**N/A**
	Residential	tonnes CO_2e / year	57,440	83,681	31%
	Nonresidential		41,031	53,803	24%
	Mobile		108,349	145,284	25%
	Municipal		18,903	32,038	41%
	Golf Course	tonnes CO_2e / year	165	182	9%
	Recreational (Pools)		4,052	27,213	85%
	Area		2,789	2,789	0%
	Total (annual emissions)		**232,729**	**344,990**	**32.5%**
	Annualized Total	**tonnes CO2e / year**	**246,310[A]**	**358,571**	**31.3%**
Alternative 5	Vegetation	tonnes CO_2e	42,953	42,953	N/A
	Construction		483,263	483,263	N/A
	Total (one-time emissions)		**526,215**	**526,215**	**N/A**
	Residential	tonnes CO_2e / year	55,624	81,035	31%
	Nonresidential		40,362	52,944	24%
	Mobile		104,922	140,688	25%
	Municipal		18,260	31,023	41%
	Golf Course		165	182	9%
	Recreational (Pools)		3,859	25,917	85%
	Area		2,689	2,689	0%
	Total (annual emissions)		**225,881**	**334,478**	**32.5%**

Table TR-13-1
Summary of Greenhouse Gas Emissions
for the Proposed Project and Alternatives 3 through 7

Development	Source	GHG Emissions			Improvement Over CARB 2020 NAT
		Unit	Project	CARB 2020 NAT	(%)
	Annualized Total	**tonnes CO2e / year**	**239,036[A]**	**347,633**	**31.2%**
Alternative 6	Vegetation	tonnes CO_2e	43,531	43,531	N/A
	Construction		457,415	457,415	N/A
	Total (one-time emissions)		**500,946**	**500,946**	**N/A**
	Residential	tonnes CO_2e / year	53,165	77,449	31%
	Nonresidential		39,769	52,180	24%
	Mobile		100,288	134,419	25%
	Municipal		17,202	29,509	42%
	Golf Course		165	182	9%
	Recreational (Pools)		3,666	24,621	85%
	Area		2,522	2,522	0%
	Total (annual emissions)		**216,777**	**320,883**	**32.4%**
	Annualized Total	**tonnes CO2e / year**	**229,301[A]**	**333,407**	**31.2%**
Alternative 7	Vegetation	tonnes CO_2e	33,670	33,670	N/A
	Construction		385,285	385,285	N/A
	Total (one-time emissions)		**418,955**	**418,955**	**N/A**
	Residential	tonnes CO_2e / year	45,553	66,363	31%
	Nonresidential		25,406	33,602	24%
	Mobile		85,917	115,204	25%
	Municipal		14,540	24,765	41%
	Golf Course		165	182	9%
	Recreational (Pools)		2,991	20,086	85%
	Area		2,210	2,210	0%
	Total (annual emissions)		**176,781**	**262,412**	**32.6%**
	Annualized Total	**tonnes CO2e / year**	**187,255[A]**	**272,885**	**31.4%**

Table Note "A": The annualized emissions totals attributable to the proposed Project and its alternatives generally shown in this column represent the increase in greenhouse gases over the existing, on-site emission levels, which were conservatively assumed to be zero. The Project-related emission levels represent an obvious change to the existing conditions; however, the change alone is not considered significant unless and until measured against some standard supported by an acceptable methodology. The lead agencies used AB 32 as its standard, and relied on the methodology developed by ENVIRON to assess whether Project-related emissions were significant in light of the selected standard.

Source: ENVIRON, 2009.

Other Developments

The Final EIS/EIR also includes updated literature surveys in **Appendix F8.0** that address the impacts of global climate change on sensitive biological resources and water resources. These surveys have been revised to address literature released since completion of the Draft EIS/EIR in April 2009.

For additional information regarding the refinements made to the climate change analysis, please see revised **Section 8.0** of the Final EIS/EIR and ENVIRON's Technical Addendum (**Appendix F8.0** of the Final EIS/EIR).