



South Coast Air Quality Management District

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FAXED: DECEMBER 8, 2005

December 8, 2005

Robert Kanter, Ph.D.
The Port of Long Beach
Planning Division
925 Harbor Plaza
Long Beach, CA 90802

Dear Dr. Kanter:

**Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR)
For The Long Beach LNG Import Project: October 2005**

The South Coast Air Quality Management District (SCAQMD) appreciates the opportunity to comment on the above-mentioned document. The following comments are meant as guidance for the Lead Agency and should be incorporated in the Final Environmental Impact Statement/Environmental Impact Report.

Pursuant to Public Resources Code Section 21092.5, please provide the SCAQMD with written responses to all comments contained herein prior to the certification of the Final Environmental Impact Statement/Report. The SCAQMD would be happy to work with the Lead Agency to address these issues and any other questions that may arise. Please contact Charles Blankson, Ph.D., Air Quality Specialist – CEQA Section, at (909) 396-3304 if you have any questions regarding these comments.

Sincerely,

Steve Smith, Ph.D.
Program Supervisor – CEQA Section

Attachment

SS: CB
LAC051014-01
Control Number

**Draft Environmental Impact Statement/Report (DEIS/EIR)
for the Long Beach LNG Import Project**

1. **Demolition Emissions:** The proposed project would involve the demolition of the concrete and asphalt pavement and two abandoned buildings on the project site. The lead agency states on page 2-5 of the DEIS/EIR that the environmental impact analysis for the demolition activities was conducted as part of an earlier EIS/EIR that was prepared for the disposal and reuse of the naval complex in 1998. No demolition information from the 1998 EIS/EIR, however, is provided in the current DEIS/EIR. SCAQMD staff requests that the lead agency demonstrate in the Final EIS/EIR that demolition equipment, activities, and construction crews do not exceed what was analyzed in the 1998 EIS/EIR. Further, in addition to any demolition mitigation measures identified in the 1998 EIS/EIR for demolition activities, SCAQMD staff requests that mitigation measures identified for the proposed project's construction activities also be applied to demolition.

2. **Natural Gas Quality:** A primary concern is the air quality impacts resulting from changes to the natural gas quality to be used in the district as a result of the natural gas imported and subsequently supplied to the local natural gas pipeline system by the proposed LNG terminal. According to the Natural Gas Council, the single most important gas quality indicator of potential emission and safety impacts in end-user equipment is the Wobbe Index (WI). The WI of natural gas in this area has traditionally been low. Southern California Gas Company (SCG) operators have stated that their system average higher heating value (HHV) and WI are 1020 Btu/scf and 1332, respectively. On page 2-9 of the DEIS/EIR the lead agency provides a general discussion of gas quality, but there is no firm commitment to reduce the WI. This is important because the higher the WI, the higher the HHV, which has the potential to increase thermal production of oxides of nitrogen (NOx) by 20 percent or more.

SCAQMD staff has confirmed that SES has agreed to accept a maximum 1360 WI on the natural gas supplied to the pipeline (see attached letter from Thomas E. Giles dated December 8, 2005). To comply with the 1360 WI, SES proposes to inject additional nitrogen into the natural gas, which reduces the WI. SES notes they may need to upgrade the nitrogen production equipment from the original 20 MMscf/day capacity (the 20 MMscf/day meets the minimum inert requirement of pipeline gas). **In order to make the commitment enforceable, SCAQMD staff requests that the FERC and POLB make as a condition of any approvals the requirement not to exceed a maximum WI of 1360.** If there is no firm commitment to limit the WI, operational NOx impacts in the DEIS/EIR are potentially substantially underestimated because they do not take into account thermal NOx production from natural gas with a HHV. This would require revising and recirculating the DEIS/EIR.

Finally, the Final EIS/EIR should include a discussion of the nitrogen production system, the impact on the natural gas pipeline quality with the additional nitrogen in the gas (i.e., will the gas exceed four percent total inert gases, as required under So Cal Gas Rule 30), and specifically how the facility plans to meet the 1360 WI.

3. **Operational Emissions from Changing Fleet Composition:** On page 2-12 of the DEIS/EIR there is a discussion about the trend to move away from steam turbine propulsion systems to vessels with diesel-driven electric generators. The discussion identifies two approaches to diesel-driven systems: 1. using a combination of diesel and LNG boil off gas as the combustion fuel and 2. using only diesel and no natural gas. The operational emission analysis for the LNG ships assumes only the use of steam propulsion systems operation primarily on boil off gas and diesel. If all diesel-driven ships are used to transport LNG, it is likely these vessels would have higher emissions than vessels using a combination of boil off gas and diesel. Therefore, the lead agency should revise the analysis to include emissions from diesel only vessels or require the use of vessels that use a combination of LNG and diesel that would generate emissions equal to or less than the propulsions emission generated by steam turbine propulsion system vessels evaluated in the DEIS/EIR.

4. **Operational Emissions from Vaporization Equipment:** Table 3.6-1 on page 3-36 shows typical emissions associated with submerged combustion vaporizers and shell and tube vaporizers. For the shell and tube vaporization design, the NO_x and PM₁₀ emissions of 14 and 27 tons per year, respectively, are consistent with the emissions provided in the permit application package. The CO emissions of 25 tons per year are inconsistent with the permit application package because the facility operators are proposing a 5 ppmv BACT limit on the water heaters, which corresponds to 13.3 tons per year. Table 4.9.5-2 on page 4-115, which shows operational emissions from project equipment including vaporization equipment, shows that NO_x and CO emissions are 13.6 and 14.7 tons per year, respectively. These estimates are consistent with the permit application package. PM₁₀ emissions in Table 4.9.5-2 are substantially less than emissions presented in the permit application, 6.6 versus 27 tons per year. The lead agency needs to explain or correct this apparent discrepancy.

5. **Operational Ship Emissions in California Coastal Waters:** On page 4-112, the lead agency states, "Emissions from the LNG ship were calculated from the 27 nm required by the SCAQMD (2003b)" The reference is apparently to a personal communication between Barbara Baird at the SCAQMD and D. Jones of Jeffer, Mangels, Butler & Marmaro. This personal communication is cited in an unsigned memo from Eric Walther of TRC dated October 7, 2003, to me. I have no record of this memo in my files. When contacted about this personal communication, Ms. Baird had no recollection of making this statement. Further, Ms. Baird stated that she would have contacted the SCAQMD's intergovernmental review (IGR) staff before making a comment on appropriate air quality analysis assumptions and methodologies. IF contacted, IGR staff would have recommended evaluating marine

vessels out to the California Coastal boundary, which is approximately 60 miles out from the Port of Long Beach. In addition, at a meeting on July 16, 2003, and in several subsequent conversations with the both the lead agency, I requested that, when calculating ship emissions for the purposes of the CEQA analysis, ship emissions be calculated at the point where the vessel enters California Coastal waters as defined in SCAQMD Rule 1142. As a result, for the purposes of the operational air quality analysis in the DEIS/EIR, total daily operational emissions have been underestimated.

6. Operational Mitigation Measures:

In addition to the operational mitigation measures identified on page 4-116, SCAQMD staff offers the following recommendations for new or modifications of existing mitigation measures.

- Modify the third bullet point on page 4-116 to require use of ultra low sulfur diesel instead of the fuels listed.
- Modify the fourth bullet point on page 4-116 to require using boil off gas.
- Add a mitigation measure to provide shore-side electrical power (cold ironing) for the ships' electrical needs, instead of operating auxiliary engines.
- Retard the injection of fuel into the cylinder to reduce the peak temperature and pressure in the cylinder during the combustion process, thus, reducing thermal NO_x formation.
- Reduce ship cruising speeds, this can result in reducing fuel usage and reducing ship emissions.
- Selective catalytic reduction (SCR) technology can be used to reduce NO_x emissions by over 90 percent for Tier 3 standards for Category 1 and 2 engines.
- Evaluate installing exhaust gas recirculation. Exhaust gas recirculation (EGR) technology has been extensively developed for on-road and off-road applications for NO_x emission reductions and this technology will be used to comply with the stringent on-road 2007 engine standards. EGRs can be used on Category 1 and 2 marine diesel engines to reduce NO_x, PM, and hydrocarbon emissions by approximately 50percent, 70 percent, and 25 percent, respectively. Diesel with approximately 150 ppmw or less of sulfur should be adequate for EGR systems in these applications.
- Evaluate water injection. Water injection in compression ignited (CI) diesel engines and the use of on-board diesel fuel water emulsification can reduce NO_x emissions by 25-50 percent. These technologies are currently available and are cost effective in reducing NO_x emissions, and can concurrently also reduce PM emissions.
- Evaluate installing PM traps. PM traps have been developed for various on-road and off-road applications, and many of these traps are CARB verified. These traps can reduce PM emissions by greater than 85 percent. However, most PM traps that are effective in PM reduction are catalyzed, and such traps can only be used in conjunction with ultra low sulfur diesel (ULSD) fuel.

- Evaluate installing diesel oxidation catalysts. Diesel oxidation catalysts (DOC) have been developed for various on-road and off-road applications, and some DOCs are CARB verified. DOCs used in conjunction with crankcase vapor recovery and wet exhaust systems are cost effective in reducing PM, NO_x, hydrocarbon, and SO_x emissions. DOCs used with Marine Exhaust Systems' Eco-Silencer can reduce NO_x, PM and SO_x by approximately 20 percent, 80 percent and 90 percent, respectively.
 - Control strategies applicable to existing auxiliary engines include engine retrofits, and aftertreatment. Retrofit and aftertreatment technologies used for Category 1 and 2 marine engines such as SCR, DPFs, DOC, EGR, water injection, and emulsified fuels can also be used on auxiliary marine engines to significantly reduce PM, NO_x and hydrocarbon emissions.
7. **EPA ISC-Prime Model:** The lead agency performed the air quality analysis using EPA ISC-Prime model. The lead agency claims in Appendix 9-2 to have used the "NOCALM" model option. SCAQMD staff would like to point out that the lead agency did not use the "NOCALM" model option as claimed. The lead agency did not follow SCAQMD modeling procedures which requires the "NOCALM" model option.
8. **Health Risk Assessment:** The lead agency performed the health risk assessment using the ACE2588 model.. This model was the appropriate model in use prior to July 1, 2005. The SCAQMD has revised the Risk Assessment procedures for Rules 1401 and 212 since July 1, 2005. The revised procedures require that risk assessment to be performed using the CARB's Hotspots Analysis and Reporting Program. This procedure can be accessed at the following website: www.arb.ca.gov/toxics/harp/harp.htm. Based on the results of health risk assessment, rerunning the analysis using the revised procedures could increase risk slightly, but is unlikely to change the conclusions regarding cancer and non-cancer health risks.
9. **General Conformity:** SCAQMD staff worked with Sound Energy Solutions (SES) in the development of the General Conformity Analysis that that will be submitted to FERC. SCAQMD staff concurs with the methodology used to demonstrate general conformity. The emissions information used for SIP budgets appears to be consistent with the applicable SIP budgets. The emissions information for the project may need to be revised in light of the above comments on operational emissions. Staff understands that SES has committed to ensuring that the WI of the natural gas will be at or below the levels recommended by SCAQMD (see comment #2 above and attached letter from Thomas E. Giles). This will ensure that NO_x emissions will not increase due to gas with a potentially higher WI. This commitment must be realized through enforceable permit conditions for the project. Finally, SCAQMD staff requests that the lead agency clarify, when the general conformity document will be made available to the public for formal review and comment.