



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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January 3, 2007

Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, N. E., Room 1A
Washington, D.C. 20426

SUBJECT: EPA Comments on the FERC Final Environmental Impact Statement (Final EIS) for the FERC "LNG Clean Energy Project" (November 2006); **OEP/DG2E/Gas** Branch 2; Gulf LNG Energy, LLC (Docket No. **CP06-12-000**); Gulf LNG Pipeline, LLC (Docket No. **CP06-13-000**)

Dear Ms. Salas:

Pursuant to Section 309 of the Clean Air Act (CAA) and Section 102(2)(C) of the National Environmental Policy Act (NEPA), U.S. Environmental Protection Agency (EPA) Region 4 has reviewed the Federal Energy Regulatory Commission's (FERC or Commission) **FEIS** for the "LNG [Liquefied Natural Gas] Clean Energy Project" proposed by the applicant (Gulf LNG). Under Section 309 of the CAA, EPA is responsible for reviewing and commenting on major federal actions significantly affecting the quality of the human environment. EPA also serves as a cooperating agency during the NEPA process and has previously submitted comments on the draft EIS on July 24, 2006. Our review of the final EIS includes comments in accordance with both EPA roles.

The final EIS evaluates the environmental impacts of construction and operation of an LNG import terminal complex located on a 33.3-acre site in the Port of Pascagoula in Jackson County, Mississippi, and an associated "sendout" natural gas pipeline. This onshore terminal would include marine and onshore facilities to receive, store and re-gasify (vaporize) LNG to be transhipped to various end-users by a pipeline system. The terminal infrastructure would consist of two 160,000 cubic meter, full containment storage tanks; LNG re-gasification system (10 submerged combustion vaporizers (SCV) – "closed-loop" with capacity of 1.5 billion cubic feet per day); and **support/pipeline** interconnects, electric transmission, vapor handling, and related facilities. Condensate from the re-vaporization system would be discharged into the marine environment adjacent to the facility. Because of the terminal's exposed coastal location, a 45' x 25' circumferential dike wall would be constructed around the entire 33.3-acre LNG terminal site to mitigate potential hazards of hurricane surge. Approximately 3 million yards of new work dredged spoil would be disposed at the existing ocean dredged material disposal site south of Horn Island (Pascagoula ODMDS).

As we noted in our comments on the draft EIS, we continue to recognize the importance of bringing additional natural gas supplies into the Gulf of Mexico region. EPA raised several

2

issues in these earlier comments regarding the potential impacts of the project and the analyses presented in the draft EIS. We are pleased that FERC has presented a considerable amount of additional information and analyses in the final EIS, including appropriate revisions to the text from the draft EIS and responses to our draft EIS comments in Appendix K.

EPA supports the selected preferred alternative for the proposed project with the FERC staff's mitigation measures identified in the final EIS. However, while the majority of our draft EIS comments have been addressed, we request that FERC and the applicant give further consideration to addressing the remaining concerns. Key issues include: air quality modeling, risk analysis and the environmental justice evaluation. Additional details regarding these key issues as well as other concerns are presented in the enclosed *Detailed Comments*.

EPA looks forward to working with FERC staff and representatives of the applicant, as well as other relevant federal and state agencies, so that the appropriate information and analyses are available in the Commission's docket and the Commission's Order can reflect an appropriate resolution of these remaining environmental issues.

Thank you for the opportunity to review and comment on this final EIS. If you have further questions, please contact me at **4041562-9611** (or mueller.heinz@epa.gov) or John Hamilton of my staff at **404/562-9617** (or hamilton.john@epa.gov).

Sincerely,



Heinz J. Mueller, Chief
NEPA Program Office

Enclosure

cc: Ms. Maya Rao, Mississippi Department of Environmental Quality

DETAILED COMMENTS

AIR QUALITY

Provided below are 1) EPA's comments on FERC's responses to significant air quality comments on the draft EIS in Appendix K of the final EIS, and 2) EPA's comments on the new air quality analyses provided in this final EIS. We preface these comments with our understanding of the basis for the air quality analyses.

Basis for Analyses

As indicated in Section 4.12.1.2 of the final EIS, EPA has established National Ambient Air Standards (NAAQS) for criteria pollutants to protect human health and public welfare. EPA has also established the New Source Review (NSR) permitting program including PSD review. The Mississippi Commission on Environmental Quality (MCEQ or MDEQ) has adopted these standards, as well as the NSR program. In reviewing an EIS, we anticipate that a project's potential emissions will be assessed for compliance with NAAQS and NSR/PSD regulatory standards, depending on the status of the minor source baseline data for the individual pollutants in the source's impact area.

Although the final EIS does not provide specific supporting information on the provided air quality modeling (*e.g.*, input emissions, meteorological data, assumptions, procedures, etc.), it appears that the final EIS attempted to show compliance with the regulatory standards by following the modeling guidance provided in 40 CFR Part 51, Appendix W (Guideline on Air Quality Models; November 9, 2005) and EPA's New Source Review Workshop Manual (Draft October 1990). In lieu of performing cumulative impact assessments for each pollutant, these guidance documents provide appropriate and accepted modeling procedures to address the NAAQS and PSD standards. Our comments on the air quality modeling are based on the use of the guidance provided in these documents, as well as the NEPA requirement for full disclosure of air quality impacts that are reasonably foreseeable.

Since these procedures were only partially followed and some important analyses were not performed, some of the methods used to analyze potential air quality impacts may not be appropriate, without further justification, to fully support the conclusion in the final EIS that there would be no significant project impacts on air quality in the vicinity of the project and the nearest PSD Class I area.

EPA Comments on FERC Responses

Responses FA3-2 (Detailed information on the provided analyses), FA3-11 (Modeling information), and FA3-12 (Electronic versions of modeling input/output information) – In each circumstance, the information requested by EPA was not provided in the final EIS. Instead, the final EIS indicates that the project's record was available in FERC's online docket, or that the public reference room contains the requested information. Although we did use the general search function, we were unable to locate the requested information. EPA recommends that this

information be made more clearly available in the docket, and specifically requests that the information be sent electronically to our office at the email addresses noted in our cover letter. We look forward to working with you to obtain the requested information and providing you with our analysis in order to assist your formulation of the Commission's Order for the proposed project.

Response FA3-5 (Ozone 8-hour measurements greater than standard) – The final EIS does not address the apparent measured NAAQS exceedance for background 8-hour ozone, as requested in our comments on the draft EIS. The background 8-hour ozone measurement is 0.084 ppm, while the NAAQS is 0.08 ppm. We recommend that this apparent exceedance be acknowledged and addressed by the Commission's Order.

Response FA3-6 (Air Quality Assessment for NAAQS, PSD increments, and Air Quality Related Values (AQRV)) – The final EIS does contain air quality modeling to address this comment. However, the "project-only" emissions modeling and the cumulative impact modeling used in the final EIS do not follow EPA's guidance, and no explanation is offered to justify using other modeling procedures. We have provided additional review comments under *EPA Comments on the Additional Air Quality Analyses Provided in the Final EIS*.

Response FA3-7 (Cumulative air quality impact assessment) – Although the final EIS does contain additional quantitative information on the cumulative impacts provided, the impact assessment only considers three future projects: Chevron Pascagoula Refinery Expansion, Casotte Landing LNG, and this Gulf LNG Clean Energy Project. However, because FERC indicated that estimated emissions for the Chevron Refinery expansion were unavailable, only the emissions from the two proposed LNG projects were actually included in the cumulative modeling.

We continue to have concerns that the cumulative impact assessment is limited to only these future projects. EPA recommends that the emissions of existing and other proposed sources that could impact the area near the Gulf LNG Clean Energy facility be identified and addressed in the Commission's Order. EPA recommends that this analysis include the existing Chevron Refinery operations, the planned expansion, and any other existing industrial sources.

Response FA3-8 (PSD significant impact levels) – The provided air quality modeling for the Gulf LNG Clean Energy project emissions were compared to PSD significant impact levels (SIL). Based on the air quality guidance referenced in the above *Basis for Analyses* section, EPA recommends that the highest modeled concentration be used when comparing to the PSD SIL rather than the modeled high-second highest (HSH) concentrations.

Response FA3-14 (Construction emissions and impacts) – Although the final EIS includes additional information on the construction emissions and anticipated impacts, we remain concerned that the basis for this analysis may not be appropriate without further justification. Our specific concerns are provided below under Section 4.12.1.4 of the following *EPA Comments on the Additional Air Quality Analyses Provided in the Final EIS*.

Response FA3-16 (Complete information on emissions and impact assessment in conclusion (Section 5.1.11)) – While the *Conclusions and Recommendations* section of the final EIS does contain revised information on both the emissions and impact modeling, this information is based on analyses that are not appropriate without further justification. Therefore, we recommend that this conclusion section be re-evaluated following the development of additional information and analyses that are requested in these comments.

EPA Comments on the Additional Air Quality Analyses Provided in the Final EIS

Section 4.12.1.3 - Environmental Analysis: Air Quality and Noise; Regulatory Requirements for Air Quality

PSD Class I Area Impacts – The final EIS indicates the maximum modeled project impacts at the Breton National Wildlife Area PSD Class I area were less than the SIL. We are concerned, however, that Table 4.12.1-7 providing the modeling results uses the high-second highest (HSH) values for short-term concentrations rather than the recommended highest concentration. Emission Scenario C represents the total project emissions, which includes all project associated mobile emissions. This scenario's HSH 24-hour SO₂ concentration of 0.1998 µg/m³ appears equal to the SIL of 0.2 µg/m³. EPA recommends additional analysis given the expectation that the maximum modeled concentration will be greater than the SIL.

PSD Class I Area Visibility – The final EIS provides a VISCREEN visibility analysis for the Breton Class I area. This is an appropriate coherent plume analysis as Breton is less than 50 km from the proposed project location. However, the specific "reasonable worst-case operating scenario" (pg. 4-119 of final EIS) used in this assessment and detailed information on this modeling were not provided in the final EIS. We recommend that this information be made clearly available in the docket, and specifically provided to EPA and MDEQ, and ultimately addressed in the Commission's Order.

Section 4.12.1.4 - Environmental Analysis: Air Quality and Noise; Impact and Mitigation

Construction Impacts – The final EIS indicates that the annual construction emissions during the 2006 through 2009 period are expected to be less than the annual operational emissions. The final EIS also states that because the impact modeling of the operational emissions showed no significant impacts, construction emissions are not expected to have significant impacts on air quality. As summarized below, EPA continues to have concerns over the basis provided for discounting impacts associated with construction emissions.

- Only operational emission Scenario A produced Class II area modeling impacts less than the PSD SIL. The annual operational Scenario A emissions (Table 4.12.1-3) are much less than the annual construction emissions. Therefore, it appears to be

inappropriate to use the modeling results from this operational emission scenario to estimate impacts from construction.

- Operational emission Scenario C is the only scenario that includes all emissions associated with the project. Annual Scenario C operational emissions are still less than the maximum annual construction emission for all pollutants, except SO₂. Consequently, the modeling results from this operational emission scenario do not appear to appropriately represent the expected construction impacts.

Project Emissions – Although project emissions for both the construction and operation of the facility were provided in Tables 4.12.1-2 and 4.12.1-3, respectively, detailed information on the basis for the estimated emissions was not provided. EPA recommends that FERC staff provide the detailed emission calculation information in the docket and address it in the Commission's Order to allow for a complete review and evaluation of the potential impacts. We expect that this additional information would answer questions concerning the relatively small magnitude of the LNG ship unloading emissions.

PSD Class I Area Increment Assessment – A "Project-Only" impact assessment was provided for the Breton Class I area in Table 4.12.1-17. The following comments are associated with this assessment.

- The short-term concentrations in this table are the HSH values. According to the guidance referenced above in the *Basis for Analyses* section of these comments, maximum concentrations are the appropriate values to use to compare "project-only" impacts to the SIL. Given the HSH 24-hour SO₂ impact of 0.1998 µg/m³ that is equal to the SIL of 0.2 µg/m³, it is expected that the maximum concentration will exceed the SIL. If such is the case, we recommend a cumulative compliance assessment of the PSD SO₂ 24-hour increment.
- PSD increments, as opposed to the NAAQS, are the targets of concern for PSD Class I areas.

We recommend FERC staff provide additional specific information on the modeling (*e.g.*, input emissions and meteorology used, assumptions and procedures used) in the docket and that this information be addressed in the Commission's Order. This additional information should include electronic versions of the input and output modeling files. Our staff was unable to locate the requested information on FERC's online docket.

Class II Area Impact Assessments – Table 4.12.1-8 provides the quantitative assessment of air quality impacts in the Class II area about the proposed facility from the project emissions. The following comments are associated with this assessment.

- Per the guidance referenced in the *Basis for Analyses* section of these comments, and as

with the Class I area assessment, the maximum concentrations (not the HSH concentrations) should be used to compare "project-only" to the SIL.

- Scenario C impacts for all pollutants, except CO, exceed the SIL. We recommend that FERC address these modeled ambient concentrations greater than the SIL because the reported short-term concentrations for this comparison are not the maximum values.
- When project impacts are significant, additional cumulative impact assessments may be needed to ensure compliance with NAAQS and PSD increments. EPA recommends that the Commission's Order address the need to perform cumulative modeling and that the modeling results be made available in the docket.
- To assess compliance with the NAAQS, Table 4.12.1-8 adds the "project-only" impacts to the background monitoring concentrations. Per the guidance referenced in the Basis *for* Analyses section of these comments, without further justification, this does not appear to be an accepted procedure to assess NAAQS compliance. We recommend cumulative impact assessments be performed for "project-only" emission impacts greater than the SIL to assess PSD increment and NAAQS compliance and be made available in the docket.

Section 4.14.8 - Cumulative Impacts; Air Quality and Noise

Cumulative Impacts – The final EIS provides an assessment of the proposed Gulf LNG Clean Energy Project with the construction and operation of two other projects (*i.e.*, Casotte Landing LNG and Chevron Pascagoula Refinery Expansion). The final EIS compares the estimated emissions for these projects to the total emissions in Jackson County. It also provides Class II impacts for the two proposed LNG projects in the area: Casotte Landing LNG and Gulf LNG Clean Energy. Because FERC indicated that estimated emissions for the Chevron Refinery expansion were unavailable, the Chevron Refinery expansion has not been included in any modeling. The following comments are associated with this cumulative impacts assessment.

Consistent with the guidance referenced in the Basis *for* Analyses section of these comments, EPA recommends that the cumulative impact assessment not be limited to only the three proposed projects in Table 4.14.7-1. EPA recommends that analysis include the existing Chevron Refinery operations, the planned expansion, and any other existing industrial sources. We recommend that the Commission's Order address the need to perform this cumulative impact assessment modeling and that the modeling results be made available in the docket.

The final EIS states that all Class I SIL and Class II project impacts are below the applicable NAAQS. As indicated above, Class I impacts appear to be greater than applicable SIL. The final EIS's approach to address Class II NAAQS compliance

(i.e., adding the project only impacts to the background monitoring concentration), without further justification, does not appear to be appropriate. Instead, EPA recommends that FERC provide a cumulative impact assessment that includes nearby sources with the background monitored concentrations for comparison with the NAAQS. We also recommend that this be addressed in the Commission's Order and provided in the docket.

- EPA is concerned that an assessment for compliance with the PSD increments was not provided in the final EIS. Although a PSD permit is not required for this proposed project, its emissions may consume PSD increment. Note that the 24-hour SO₂ maximum concentration in Table 4.14.8-2 is larger than the PSD increment. The scaled PM₁₀ 24-hour concentration in Table 4.14.8-3 is also larger than the PSD increment. We recommend FERC address compliance with the PSD increment in the Commission's Order and provide the relevant information in the docket.

Section 5.1.11 - Conclusions and Recommendations; Air Quality and Noise

The FERC staff's conclusions regarding air quality may need to be revised to reflect EPA's comments noted above.

RECOMMENDATION (AIR QUALITY): The conclusions regarding air quality reached by FERC staff may need to be revised based on EPA's comments concerning the need for additional information and modeling analyses, as noted above. EPA looks forward to working with FERC staff and representatives of the applicant, as well as MDEQ, to address these issues so that the Commission's Order and docket can reflect a full assessment and an appropriate resolution of the potential air quality impacts.

Subject matter contacts: Mr. Stan Krivo, 404-562-9123 and Ms. Katy Forney, 404-562-9130.

DREDGED MATERIAL DISPOSAL

The Gulf LNG Clean Energy Project includes a new berthing area covering approximately 61 acres and will be dredged to 42 feet MLLW. The total quantity of sediments to be dredged, including two feet of advance maintenance, and an allowable overdepth of up to two feet, would be approximately 3 million cubic yards. In a September 15, 2006, MPRSA Section 103 Evaluation, the U.S. Army Corps of Engineers (COE) determined that material from the Gulf LNG Clean Energy Project is suitable for ocean disposal.

EPA Region 4 has completed an independent review of COE's Section 103 Evaluation Report, the supporting document (*Chemistry, Bioassay And Bioaccumulation Analyses Conducted On Sediments Collected From Southeast Of Bayou Casotte, Mississippi – LNG Clean Energy Project, August 2005*), and the supplemental information provided to EPA on November 3,

2006. EPA has also completed an independent evaluation of the suitability of dredged material for disposal at the Pascagoula Ocean Dredged Material Disposal Site (ODMDS).

RECOMMENDATION (DREDGED MATERIAL): EPA concurs with the COE's determination that the proposed new dredged material will comply with the criteria set forth in 40 CFR Part 227, and may be disposed at the Pascagoula ODMDS.

Subject matter contact: Mr. Doug Johnson, 404-562-9386.

ENVIRONMENTAL JUSTICE ANALYSIS

EPA acknowledges the additional data provided in the final EIS regarding the demographics and economic status of the City of Pascagoula, Jackson County, and the State of Mississippi. However, we are concerned that the final EIS does not fully address whether the proposed project would result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

RECOMMENDATION (ENVIRONMENTAL JUSTICE): EPA recommends that FERC staff analyze how the addition of the proposed project would impact the current pollution load for low-income and minority populations in the project area. We also recommend that more specific information be provided as to the status of the residences closest to the LNG facility and the **sendout** pipeline. It is further recommended that more information be provided to describe to what extent the public participation effort involved low-income and minority populations that may be affected by FERC's action. We recommend that this additional information and analyses be addressed in the Commission's Order and made available in the docket.

Subject matter contacts: Ms. Gracy Danois 404-562-9119 and Ms. Ntale Kajumba, 404-562-9620.

EVALUATION OF RISK ANALYSIS

Our risk analysis comment concerns a conclusion contained in the Conclusions and Recommendations Section 5.1.12 – Reliability and Safety. In the final EIS, FERC included the calculated thermal radiation and flammable vapor hazard distances for an accident or an attack on an LNG vessel. The final EIS utilizes a "design spill" created by a 1-meter hole in an LNG cargo vessel. A spill resulting from a 1-meter hole would generate a vapor cloud extending 9,776 feet (1.85 miles) to the Lower Flammable Limit (LFL). According to information on page ES-7 of the Executive Summary, the nearest residence is 1.7 miles from the LNG Clean Energy Project terminal site. According to Section 4.8.1 of the final EIS, an existing industrial complex is located about 0.5 miles north of the site, including Chevron's Pascagoula Refinery

(and future Clean Energy site of the Casotte Landing LNG terminal). Therefore, under the scenario developed by FERC, the vapor cloud could penetrate and possibly envelope the nearest residences and businesses. If an ignition source is present where the vapor cloud exists, it could produce an explosion and widespread fire. EPA believes that the proximity of the closest residences and businesses to a potential vapor cloud warrants additional analysis and discussion in the Commission's Order to further justify the final EIS's conclusion that the risk to the public is not significant.

RECOMMENDATION (RISK ANALYSIS): EPA recommends that the FERC staff provide additional analyses regarding thermal radiation and flammable vapor hazard scenarios to more clearly demonstrate the conclusion of insignificant risk, and that these analyses be addressed in the Commission's Order and included in the docket.

Subject matter contacts: Ms. Phyllis Warrilow, 404-562-9198 and Ms. Ellen Rouch, 404-562-9575.

ONSHORE/WETLAND EFFECTS

EPA acknowledges the inclusion of a Gulf Clean Energy LNG Project draft mitigation and restoration plan in the final EIS. Section 5.4.5.1 (Monitoring Design) of the Mitigation Plan states, "In the event that establishment of the marsh is unsuccessful, appropriate action will be taken to correct the deficiencies." While a contingency plan must be somewhat site-specific and issue-specific, we recommend that the project's contingency plan reflect an approach that is sensitive to restoration needs that may require revision as conditions change. Such an approach would consider the three wetland parameters (*i.e.*, hydrology, vegetation, and soils) that are integral to a successful **mitigation/restoration** plan. Also, we recommend that the contingency plan contain specific information describing how any restoration deficiencies that might arise would be effectively addressed.

RECOMMENDATION (WETLAND EFFECTS): EPA recommends that FERC and Gulf LNG prepare a sufficiently detailed contingency plan in the event the wetland restoration actions are unsuccessful. We suggest that **FERC/Gulf LNG** continue consultations with the COE, EPA, MDMR, NMFS (and other applicable agencies) to provide more plan details prior to finalization of the Section 404 permit process.

Subject matter contact: Mr. Ron Mikulak, 404-562-9233.

Submission Contents

EPA Region 4 Comment Letter FEIS
CleanEnergyEPAltr.pdf..... 1-10