



Lake Charles LNG Export Company, LLC
1300 Main Street Houston, Texas 77002
August 14, 2023

RECEIVED

By Docket Room at 11/06/2023 4:31 p.m.

Via eFiling

Ms. Kimberly D. Bose, Secretary
Office of the Secretary
Federal Energy Regulatory Commission
888 First Street, NE,
Washington, DC 20426

**RE: Trunkline Gas Company, LLC
Lake Charles LNG Export Company, LLC
Lake Charles LNG Company, LLC
Lake Charles Liquefaction Project
Docket Nos. CP14-119-000, CP14-120-000 and CP14-122-000
Response to Informal Data Request issued August 4, 2023 (OEP/DLNGB-1)**

Dear Ms. Bose:

On December 17, 2015, the Federal Energy Regulatory (“Commission” or “FERC”) issued an Order Granting Authorization Under Section 3 of the Natural Gas Act, and Approving Abandonment and Issuing A Certificate of Public Convenience and Necessity (“Order”) Under Sections 7(b) and 7(c) of the Natural Gas Act granting the construction and operation of the “Liquefaction Facilities”, and the “Modified Facilities”, respectively, (collectively referred to as the “Lake Charles Liquefaction Project”) subject to the conditions listed in Appendix B of the Order. On December 21, 2015, Trunkline Gas Company, LLC, Lake Charles LNG Export Company, LLC, and Lake Charles LNG Company, LLC, collectively are referred to as “LCLNG” or Applicants, submitted an Implementation Plan as required by Condition 7 in the Order.

LCLNG hereby submits for filing its response to FERC DLNG Staff’s Informal Data Request issued August 4, 2023, regarding LCLNG’s discussion with FERC Staff on November 30, 2022, in the above-referenced docket.

Applicants respectfully request that the information submitted as “**Public**” be placed on the FERC eLibrary as “**Public Information**”. In addition, Applicants respectfully request that the information designated as “**Privileged Information**” and identified as “**CUI/Privileged & Proprietary Business Information - Do Not Release**”, and the information designated as “**Critical Energy Infrastructure Information**” and identified as “**CUI/Critical Energy Infrastructure Information - Do Not Release**”, be accorded as special treatment pursuant to 18 CFR § 388.112.

Applicants are providing copies of this filing directly to the FERC Project Manager. Any questions regarding this filing should be directed to the undersigned at (713) 989-2605.

Respectfully submitted,

TRUNKLINE GAS COMPANY, LLC
LAKE CHARLES LNG EXPORT COMPANY, LLC
LAKE CHARLES LNG COMPANY, LLC

/s/ Blair Lichtenwalter

By: _____
Blair Lichtenwalter
Senior Director, Certificates

cc: Brady Dague – FERC OEP/DLNG/LNGB-1
Mark Notafji – FERC OEP/DLNG/LNGB-1
Shannon Crosley – FERC OEP/DG2E/GB-1

PUBLIC



**TRUNKLINE GAS COMPANY, LLC
LAKE CHARLES LNG COMPANY, LLC
LAKE CHARLES LNG EXPORT COMPANY, LLC**

LAKE CHARLES LIQUEFACTION PROJECT

DOCKET NOS. CP14-119-000, CP14-120-000 AND CP14-122-000

RESPONSE TO INFORMAL DATA REQUEST ISSUED AUGUST 4, 2023 (OEP/DLNGB-1)

**TRUNKLINE GAS COMPANY, LLC
LAKE CHARLES LNG EXPORT COMPANY, LLC
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GENERAL – *Gas Turbine Supplier Change*

FERC/OEP/DLNG-LCLNG-4.1

Until updated heat and material balances (H&MBs) are available, FERC staff will be unable to verify process and mechanical design. Provide updated H&MBs when they are available.

LCLNG Response:

This response is being submitted as *Privileged and Proprietary Information* under separate cover and marked as “**CUI/PRIVILEGED INFORMATION - DO NOT RELEASE**”.

Please see **Attachments 4.1-A** and **4.1-B**, which are being submitted as *Privileged and Proprietary Information* under separate cover and marked as “**CUI/PRIVILEGED INFORMATION - DO NOT RELEASE**”.

Prepared By: Thomas Dyer / Phil Suter
Title: Staff Engineer / Project Consultant
Date: August 10, 2023

**TRUNKLINE GAS COMPANY, LLC
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Attachment 4.1-A

Submitted under separate cover and marked as

“CUI/PRIVILEGED INFORMATION - DO NOT RELEASE”

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Attachment 4.1-B

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GENERAL – *Gas Turbine Supplier Change*

FERC/OEP/DLNG-LCLNG-4.2

Explain whether the Selective Catalytic Reduction (SCR) unit was part of the original design. Indicate whether there is a change or addition to the emissions reduction technology being utilized on the turbines in the new design versus the design filed in the application.

LCLNG Response:

This response is being submitted as *Privileged and Proprietary Information* under separate cover and marked as “**CUI/PRIVILEGED INFORMATION - DO NOT RELEASE**”.

Prepared By: Thomas Dyer / Phil Suter
Title: Staff Engineer / Project Consultant
Date: August 10, 2023

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GENERAL – *Modification to facility flare systems*

FERC/OEP/DLNG-LCLNG-4.3

Indicate if LCLNG has updated the flare basis of design document, and if so, provide this document. Additionally, indicate whether LCLNG has developed a flare load summary, and if so, describe whether there have been any changes to the flare load. If so, provide a summary of the changes and confirmation that the new flare can handle the governing case.

LCLNG Response:

This response is being submitted as *Privileged and Proprietary Information* under separate cover and marked as “**CU/PRIVILEGED INFORMATION - DO NOT RELEASE**”.

Please see **Attachment 4.3**, which is being submitted as *Critical Energy Infrastructure Information* under separate cover and marked as “**CU/CRITICAL ENERGY INFRASTRUCTURE INFORMATION - DO NOT RELEASE**”.

Prepared By: Thomas Dyer/ Phil Suter
Title: Staff Engineer / Project Consultant
Date: August 10, 2023

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Attachment 4.3

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GENERAL – Updated plot/site plan

FERC/OEP/DLNG-LCLNG-4.4

Until updated plot plans are provided, FERC staff are unable to make a determination on impacts and subsequent regulatory review that would be required for this change. Provide updated preliminary plot plans when available.

LCLNG Response:

This response is being submitted as *Privileged and Proprietary Information* under separate cover and marked as “**CUI/PRIVILEGED INFORMATION - DO NOT RELEASE**”.

Please see **Attachments 4.4-A, 4.4-B, 4.4-C, and 4.4-D**, which are being submitted as *Critical Energy Infrastructure Information* under separate cover and marked as “**CUI/CRITICAL ENERGY INFRASTRUCTURE INFORMATION - DO NOT RELEASE**”.

Prepared By: Thomas Dyer / Phil Suter
Title: Staff Engineer / Project Consultant
Date: August 10, 2023

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Attachment 4.4-A

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Attachment 4.4-B

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Attachment 4.4-C

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GENERAL – *West Berth Improvements*

FERC/OEP/DLNG-LCLNG-4.5

The November 30, 2022 project update presentation indicates the west berth will be upgraded to accommodate Q-flex (216,000 m³) LNG ships. The presentation states mooring/breasting dolphins and mooring hooks will be demolished and replaced, and structure reinforcements will be installed. Provide a narrative discussing the structural reinforcements that would be required to accommodate Q-flex ships.

LCLNG Response:

The new mooring/breasting dolphins will experience the berthing loads of all LNG ships, including Q-flex size ships, and will be designed accordingly. The structural reinforcements mentioned in the November 30, 2022 presentation are primarily in reference to the existing west dock concrete frame structure that supports the loading arms (i.e. loading platform). This existing concrete frame structure will require structural reinforcements to support the new loadings arms, which will be finalized during detailed design once the new loading arms are selected. There are no material changes to the berth footprints.

Prepared By: Eric Tkacik / Phil Suter

Title: Staff Engineer / Project Consultant

Date: August 10, 2023

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GENERAL – *West Berth Improvements*

FERC/OEP/DLNG-LCLNG-4.6

Resource Report 13 section 5.1.2 indicates the east and west berths were evaluated to determine the modifications required to safely accommodate LNG carriers between 138,000 m3 and 177,000 m3. Indicate whether the east berth would also be upgraded to accommodate a Q-flex ship in the future.

LCLNG Response:

The east berth is capable of receiving Q-flex ships as it exists today. Proposed modifications will maintain the ability to berth Q-flex size ships at the east berth. Additionally, continued engagement will occur with the Lake Charles Pilots and their input will be used for future vessel maneuvering simulations at both berths to ensure safe operations during transit and berthing. The USCG's September 30, 2010 letter acknowledging LCLNG's ability to receive Q-flex ships and March 5, 2012 letter acknowledging the validity of the existing import terminal's Waterway Suitability Assessment for the liquefaction and export project are provided. Please see **Attachments 4.6-A** and **4.6-B**.

Attachments:

- USCG LCLNG Q-Flex Vessel Approval Letter 20100930
- USCG LCLNG WSA Validity Acknowledgement Letter 120305

Prepared By: Eric Tkacik / Phil Suter

Title: Staff Engineer / Project Consultant

Date: August 10, 2023

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Attachment 4.6-A

USCG LCLNG Q-Flex Vessel Approval Letter 20100930

U.S. Department of
Homeland Security

United States
Coast Guard



Captain of the Port
United States Coast Guard
Marine Safety Unit Port Arthur

2901 Turtle Creek Dr.
Port Arthur, TX
Phone: (409) 723-6500
Fax: (409) 723-6534

16611
September 30, 2010

Panhandle Energy
Attn: Mr. L.T. Stone, P.E.
8100 Big Lake Rd.
Lake Charles, LA 70605-0300

Subj: REVIEW OF LETTER OF INTENT MODIFICATION TO RECEIVE Q-FLEX
VESSELS AT TRUNKLINE LNG

Ref: (a) Panhandle Energy letter dated May 14, 2010 w/revised "*Risk Assessment of Q-Flex
LNGC Ship Transit Through Calcasieu Waterway to Trunkline LNG Terminal*"
(b) MSU Lake Charles letter dated June 4, 2009
(c) CG-5222 letter dated March 29, 2010

Dear Mr. Stone:

This is in response to your letters dated April 9, 2009 and May 14, 2010 whereby Panhandle Energy requests a determination of the suitability of the Calcasieu Ship Channel and Port of Lake Charles Industrial Canal to receive vessels up to and including "Q-Flex" class (capacity up to approximately 220,000 m³) at their Trunkline LNG Facility. The submission modifies the facility's current Letter of Intent dated August 1, 1989. The revisions were reviewed and are validated, subject to the following comments:

1. In reference (b), MSU Lake Charles identified a list of minimum requirements to be addressed in lieu of a full Waterway Suitability Assessment as described in Navigation and Vessel Inspection Circular (NVIC) 05-08, CH-1. Upon review of reference (a), we have determined that these requirements have been met.

2. In reference (c), the Coast Guard Headquarters Vessel and Facility Operating Standards Division (CG-5222) provided additional comments regarding the zones of concern used in your initial risk assessment, dated February 16, 2010. Specifically, the zones of concern generated by your dispersion modeling software (PHAST) were less than those permitted in NVIC 05-08, CH-1. Your revised risk assessment, reference (a), included the zones of concern as prescribed in the NVIC and addressed these comments sufficiently.

3. We note that the risk profile of Q-Flex LNGC ship transit established in reference (a) is not significantly different from the corresponding risk profile for 160,000 m³ LNGC ships. The results of your dispersion modeling demonstrate that there is only a maximum 6% increase in pool fire and flash fire distances due to the larger capacity of the Q-Flex ships over the currently approved LNGC vessels. Accordingly, we concur with your assessment that existing emergency management procedures in place for current operations are acceptable for the proposed Q-Flex LNGC shipping.

16611

September 30, 2010

Subj: REVIEW OF LETTER OF INTENT MODIFICATION TO RECEIVE Q-FLEX
VESSELS AT TRUNKLINE LNG

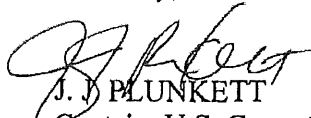
4. Based on vessel maneuvering simulations and input received by the Lake Charles Pilots and considering the larger size of the vessel, we concur that requiring 4 tractor tugs during a portion of the LNGC ship's transit and during docking appropriately mitigates additional navigation safety risk.

5. This acceptance of the submitted documentation applies only to vessels up to "Q-Flex" class. Vessels of a larger size will require additional assessment.

Although a Letter of Intent was submitted in your April 9, 2009 letter, the transit of the proposed larger vessels does not significantly impact or modify your facility operations and is consistent with existing large vessel traffic on the Calcasieu waterway. Accordingly, a revised Letter of Recommendation is not required. Trunkline LNG's Letter of Recommendation dated September 12, 1989 remains valid.

Should have any questions regarding this letter, please contact LCDR Robert Compher at (337) 491-7801.

Sincerely,


J. J. PLUNKETT
Captain, U.S. Coast Guard
Captain of the Port

Copy: Commander, Eighth Coast Guard District (dp)
Commander, Coast Guard Sector Houston-Galveston
Supervisor, Liquefied Gas Carrier NCOE
Commanding Officer, MSU Lake Charles

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Attachment 4.6-B

USCG LCLNG WSA Validity Acknowledgement Letter 120305

U.S. Department of
Homeland Security

United States
Coast Guard



Commanding Officer
United States Coast Guard
Marine Safety Unit Lake Charles

127 West Broad St, Suite 200
Lake Charles, LA 70601
Ph: (337) 491-7800
Fax: (337) 491-7840
Email: msulakecharles@uscg.mil

16610
March 5, 2012

Trunkline LNG, LLC
Attn: Dennis Odum
8100 Big Lake Road
Lake Charles, LA 70605-0300

Subject: TRUNKLINE LIQUEFIED NATURAL GAS (LNG) LIQUIFACTION AND EXPORT
PROJECT

- Ref: (a) Panhandle Energy letter to MSU Lake Charles dated February 17, 2012
(b) Lanier & Associates, "Addendum to the Ship Traffic Study for the Calcasieu River", dated February 23, 2004, submitted to FERC under Docket No. CP02-60-004 and approved September 17, 2004
(c) USCG Letter, "Review of Letter of Intent Modification to Receive Q-Flex Vessels at Trunkline LNG", dated September 30, 2010
(d) "Risk Assessment of Q-Flex LNGC Ship Transit Through Calcasieu Waterway to Trunkline LNG Terminal", dated May 14, 2010

Dear Mr. Odum:

Per your request in reference (a), I have reviewed your proposal to install components to liquefy and export domestic natural gas at Trunkline LNG for a determination on whether a new Letter of Intent or revision to the current Waterway Suitability Assessment (WSA) will be required by the U. S. Coast Guard.

As per 33 Code of Federal Regulations (CFR) 127.001(b), the Letter of Intent requirements apply only to "new construction" which impacts the Marine Transfer Area, defined as "that part of a waterfront facility handling LNG between the vessel, or where the vessel moors, and the last manifold or valve immediately before the receiving tanks." Since the proposed modifications for the liquefaction components clearly lie outside the Marine Transfer Area, a new Letter of Intent will not be required.

Submission requirements for a Waterways Suitability Assessments are located in USCG Navigation and Vessel Inspection Circular (NVIC) 01-2011. Trunkline LNG is currently authorized up to 225 LNG carriers per year, per reference (b), and may accept vessel sizes up to and including "Q-Flex", per reference (c). You have indicated that the proposed liquefaction project will not increase the size or frequency of LNG vessel traffic at the Trunkline LNG facility. Therefore, the most recent Waterways Suitability Assessment, reference (d), remains valid and no further modifications will be required.

Subj: TRUNKLINE LNG LIQUEFACTION AND EXPORT PROJECT

16610
March 5, 2012

Applicable amendments to your Operations Manual, Emergency Manual, and Facility Security Plan must be made to ensure these manuals capture changes to your operations and the increased facility footprint associated with the liquefaction project.

Should you have any questions or concerns, please contact Lieutenant Tony Moré at (337) 721-5750 or by email at julio.a.more@uscg.mil.

Sincerely,



R. C. COMPHER
Lieutenant Commander, U. S. Coast Guard
Captain of the Port
By direction

Copy: CG Marine Safety Unit Port Arthur
CG Sector Houston-Galveston
Eighth Coast Guard District (LNG)
Federal Energy Regulatory Commission

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GENERAL – *West Berth Improvements*

FERC/OEP/DLNG-LCLNG-4.7

Describe all work proposed to update the LNG berths for larger vessels, including any dredging that may be necessary. Describe any associated environmental impacts.

LCLNG Response:

This response is being submitted as *Privileged and Proprietary Information* under separate cover and marked as “**CUI/PRIVILEGED INFORMATION - DO NOT RELEASE**”.

Please see **Attachment 4.7**, which is being submitted as *Critical Energy Infrastructure Information* under separate cover and marked as “**CUI/CRITICAL ENERGY INFRASTRUCTURE INFORMATION - DO NOT RELEASE**”.

Prepared By: Eric Tkacik / Phil Suter
Title: Staff Engineer / Project Consultant
Date: August 10, 2023

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GENERAL – *Carbon Capture and Sequestration*

FERC/OEP/DLNG-LCLNG-4.8

The March 24, 2023 response provides a PFD which indicates block flows for the carbon sequestration system and states it is under development. If available, provide process flow diagrams or a system schematic for the carbon capture and sequestration (CCS) system.

LCLNG Response:

This response is being submitted as *Privileged and Proprietary Information* under separate cover and marked as “**CUI/PRIVILEGED INFORMATION - DO NOT RELEASE**”.

Please see **Attachments 4.8-A, 4.8-B, and 4.8-C**, which are being submitted as *Critical Energy Infrastructure Information* under separate cover and marked as “**CUI/CRITICAL ENERGY INFRASTRUCTURE INFORMATION - DO NOT RELEASE**”.

Prepared By: Thomas Dyer / Phil Suter
Title: Staff Engineer / Project Consultant
Date: August 10, 2023

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Attachment 4.8-A

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Attachment 4.8-B

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Attachment 4.8-C

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GENERAL – *Carbon Capture and Sequestration*

FERC/OEP/DLNG-LCLNG-4.9

Explain whether the proposed CCS facilities would include any process tie-ins with LCLNG's approved LNG facilities.

LCLNG Response:

The CCS equipment will connect to the acid gas line upstream of the Thermal Oxidizers and will process and capture the CO₂ extracted from the feed gas. The acid gas will either be processed in the thermal oxidizers and emitted to atmosphere or further treated and compressed to be sent via pipeline to storage. The LNG facility will be capable of processing and liquefying feed gas with or without the carbon capture facilities online. Utilities will be supplied from the common LCLNG systems.

Prepared By: Thomas Dyer / Phil Suter

Title: Staff Engineer / Project Consultant

Date: August 10, 2023

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GENERAL – *Carbon Capture and Sequestration*

FERC/OEP/DLNG-LCLNG-4.10

Explain how the proposed onsite and offsite CCS facilities and their operation would be distinct and separated from the approved LNG facilities and their operation. Your explanation and supporting documentation (e.g., drawings, calculations, etc.) should include but not be limited to the following:

- a. Basic process control systems, such as instrumentation, logic controllers, human machine interfaces, control valves and operators used to control and operate the approved LNG facilities and proposed onsite and offsite CCS facilities and any associated network architecture drawings and cause and effect matrices.
- b. Safety instrumented systems, such as instrumentation, logic controllers, human machine interfaces, shutoff valves and remotely/manually operated and automatically operated emergency shutdown systems used to safely shutdown or isolate and protect the approved LNG facilities from the proposed onsite and offsite CCS facilities and any network architecture drawings and associated cause and effect matrices.
- c. Operations and maintenance personnel and control rooms used to control and operate the approved LNG facilities and proposed onsite and offsite CCS facilities and any organizational charts, procedures, or policies separating their function. Also, describe any required escorts or supervision of operational activities by LCLNG personnel over operation or maintenance personnel of the proposed onsite and offsite CCS facilities.
- d. Security personnel and physical security systems, such as fencing and vehicle barriers, access control, CCTV monitoring, lighting for the approved LNG facilities and proposed onsite and offsite CCS facilities, including drawings for each security system described that illustrates the separation of physical access between the approved LNG facilities and the proposed onsite and offsite CCS facilities.
- e. Cybersecurity systems and any network architecture drawings used to separate or limit access to the approved LNG facilities and their operation from the proposed onsite and offsite CCS facilities and their operation.
- f. Spill containment systems used to prevent escalation and cascading damage from any hazardous releases from the proposed onsite and offsite CCS facilities to the approved LNG facilities.
- g. Ignition control measures, such as electrical area classifications, setbacks, gas detection and shutdowns at HVAC and combustion air intakes, within the proposed onsite CCS facilities to prevent the ignition of a leak released either from the approved LNG facilities and proposed onsite CCS facilities.
- h. Fire and Gas System, including hazard detection equipment, such as open-path gas detectors, point gas detectors, and flame detectors, logic controllers, human machine interfaces, and any automatically operated shutdown systems used to detect and alert operators of any hazardous material release or fire from the approved LNG facilities and proposed onsite CCS facilities and associated cause and effect matrices that would shutdown or activate fire protection systems in the approved LNG facilities and proposed onsite CCS facilities.
- i. Hazard control systems, such as handheld fire extinguishers, fixed dry chemical systems and deluge systems, etc., to protect the approved LNG facilities from the proposed onsite CCS facilities.

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LAKE CHARLES LNG EXPORT COMPANY, LLC
LAKE CHARLES LNG COMPANY, LLC
LAKE CHARLES LIQUEFACTION PROJECT
DOCKET NOS. CP14-119-000, CP14-120-000 AND CP14-122-000
RESPONSE TO FERC - OEP INFORMAL DATA REQUEST
ISSUED AUGUST 4, 2023 (OEP/DLNG-1)**

- j. Emergency response plans and personnel that would prevent escalation to or from the approved LNG facilities from or to the proposed onsite CCS facilities.

LCLNG Response:

Onsite CCS equipment will not be distinct and separate from the LNG facilities. For the remaining facilities, the design and contracts are not finalized, but LCLNG envisions the delineations as follows: Offsite CCS pipelines and facilities will be designed, owned, and operated by a different entity, separate from LCLNG and the scope of the LNG facility project. The metering facility will be located onsite or adjacent and include some tie-ins of communication, safety equipment and utilities as such similar to the feed gas metering. Each sub-bullet below contains specific details for each category.

- a. All such process controls systems are integrated into the LNG facility for the onsite CCS equipment; these details will be developed in detailed design for the final design package. The offsite system will be located at other locations and be completely segregated from the LNG facility. Onsite metering station will include some communication data and status that crosses the fence line in a typical arrangement.
- b. Safety instrumented systems associated with the onsite CCS equipment will be integrated into the overall facility; these details will be developed in detailed design for the final design package. Offsite and metering safety instrumented systems will be completely segregated and neither site will have any direct influence over the other.
- c. Onsite CCS equipment will utilize the same operations and maintenance personnel and control rooms; there is no separation in their function from the rest of the LNG facility. Offsite CCS facilities will utilize completely segregated personnel and control rooms owned and operated by other entities. The metering station has not been located at this time however it will be fenced and segregated from the LNG facility; in the event that it is within the site boundaries, escorts and supervision will be required while they are on the LNG facility site moving to and from the metering station; if there is access from offsite, no escort will be required.
- d. Onsite CCS equipment is part of the overall LNG facility and will utilize the same security and access as the LNG facility; no additional security for the CCS equipment is provided. Offsite CCS facilities will utilize their operating entity's completely separate systems and personnel. Metering facilities that may be located on site will include fencing to segregate it from the remainder of the LNG facility; no drawings are provided as the metering location is not defined.
- e. Onsite CCS equipment falls within the LNG facility and will utilize the same cybersecurity and network systems to limit access. Offsite facilities will utilize their own segregated systems associated with that operating entity. Cybersecurity and network architecture between the LNG facility and the metering facilities is not defined, but will be the same as the interface between the LNG facility and the feed gas pipeline.
- f. The onsite CCS equipment will follow the same spill containment philosophy and systems as the LNG facility; these details will be developed in detailed design for the final design package. If the metering facility is located on site, it may have spill systems integrated into the LNG facility or it

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RESPONSE TO FERC - OEP INFORMAL DATA REQUEST
ISSUED AUGUST 4, 2023 (OEP/DLNG-1)**

will retain its own systems pending final location and design. Offsite CCS facilities will follow their own philosophies as required by the regulations associated with their projects.

- g. The onsite CCS equipment will follow the same ignition control measures as the LNG facility; these details will be developed in detailed design for the final design package. Offsite CCS facilities will follow their owner entity required and regulated measures. Metering facilities on or adjacent to the site will be analyzed for necessary ignition control measures from either internal to the metering facility or external on the LNG facility side to ensure compliance with the LNG facility requirements, design to be determined when the metering facility is further defined.
- h. The onsite CCS equipment will follow the same fire and gas protection philosophy as the remainder of the LNG facility, C&E will be developed in detailed design for the final design package. Offsite facilities will follow their operating entity philosophies and procedures and will be separate from the LNG facility. There will be no associated shutdowns or activations from the LNG facility to the metering facility as there are no hazardous fluids into the CCS pipeline.
- i. The onsite CCS equipment will follow the same philosophy as the LNG facility for locating hazard control systems. These will be developed in detailed design for the final design package.
- j. The onsite CCS equipment will follow the same philosophy as the LNG facility for emergency response. These plans will be updated in detailed design for the final design package.

Prepared By: Thomas Dyer / Phil Suter

Title: Staff Engineer / Project Consultant

Date: August 10, 2023

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LAKE CHARLES LIQUEFACTION PROJECT
DOCKET NOS. CP14-119-000, CP14-120-000 AND CP14-122-000
RESPONSE TO FERC - OEP INFORMAL DATA REQUEST
ISSUED AUGUST 4, 2023 (OEP/DLNG-1)**

GENERAL – *Carbon Capture and Sequestration*

FERC/OEP/DLNG-LCLNG-4.11

Indicate whether the CCS system would use or produce any hazardous and/or flammable materials (condensate, hot oil, etc.), and if so, provide design details on any pressure vessels or tanks that would contain these hazardous fluids. Discuss whether the existing firewater system, including monitors and hydrants, would offer adequate coverage and firewater density to prevent escalation impacts to the approved LNG facilities from the proposed onsite CCS facilities if hazardous fluids would be present. Additionally, clarify how the approved LNG facilities' firewater system would interact with the fire and gas system for the onsite CCS system.

LCLNG Response:

This response is being submitted as *Privileged and Proprietary Information* under separate cover and marked as “**CUI/PRIVILEGED INFORMATION - DO NOT RELEASE**”.

Prepared By: Thomas Dyer / Phil Suter
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LAKE CHARLES LIQUEFACTION PROJECT
DOCKET NOS. CP14-119-000, CP14-120-000 AND CP14-122-000
RESPONSE TO FERC - OEP INFORMAL DATA REQUEST
ISSUED AUGUST 4, 2023 (OEP/DLNG-1)**

GENERAL – *Carbon Capture and Sequestration*

FERC/OEP/DLNG-LCLNG-4.12

Describe the structural basis of the design of the proposed onsite and offsite CCS facilities. If a failure of the proposed CCS facilities would occur as a result of a natural hazard, indicate what the potential impact to the approved LNG facilities would be. For example, indicate whether a 10,000-year wind speed would cause failure of any of the proposed onsite CCS components and indicate the potential impact from projectiles of those components on the approved LNG facilities using CEB 187 or equivalent methodologies. As another example, indicate whether flooding or seismic events that the approved LNG facilities would be designed to withstand would cause structural collapse of the proposed onsite CCS facilities and whether that structural collapse could result in failures of the approved LNG facilities, such as at tie-ins. If failures would occur, provide an analysis of the impacts with hazard modeling.

LCLNG Response:

The onsite CCS equipment will follow the same specifications and bases of design as the remainder of the LNG facility. Thus the CCS equipment will withstand the same hazards as the remainder of the facility.

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RESPONSE TO FERC - OEP INFORMAL DATA REQUEST
ISSUED AUGUST 4, 2023 (OEP/DLNG-1)**

GENERAL – *Carbon Capture and Sequestration*

FERC/OEP/DLNG-LCLNG-4.13

Discuss the impacts that the CCS facilities could potentially have on the reliability of the approved LNG facilities should the CCS facilities go down.

LCLNG Response:

The CCS equipment has no reliability impact on the remainder of the LNG facility. In the event of an outage of this equipment or any downstream pipeline(s) or facilities, the thermal oxidizers are still in place and permitted and will be used to safely process acid gas.

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RESPONSE TO FERC - OEP INFORMAL DATA REQUEST
ISSUED AUGUST 4, 2023 (OEP/DLNG-1)**

GENERAL – *Carbon Capture and Sequestration*

FERC/OEP/DLNG-LCLNG-4.14

Provide USDOT PHMSA concurrence confirming whether the onsite CCS facilities are subject to USDOT PHMSA’s 49 CFR Part 193 regulations or 49 CFR Part 192, 195, or other regulations.

LCLNG Response:

The LNG facility and its contents, including the CCS equipment follows 49 CFR 193. The metering facility and downstream pipeline follow 49 CFR 195; the scope for part 195 confirms it is for transportation of carbon dioxide.

Prepared By: Thomas Dyer/ Phil Suter
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RESPONSE TO FERC - OEP INFORMAL DATA REQUEST
ISSUED AUGUST 4, 2023 (OEP/DLNG-1)**

GENERAL – *Carbon Capture and Sequestration*

FERC/OEP/DLNG-LCLNG-4.15

Indicate whether the offsite CO2 transfer line would be aboveground or buried and identify where the 49 CFR 192/193 break would occur within the transfer line. Additionally, clarify whether concurrence with USDOT PHMSA would be obtained pertaining to the applicability of 49 CFR Part 192 for the CO2 transfer line. Lastly, indicate the federal and/or state agency that would have jurisdiction over the storage well regarding the safety and reliability engineering design, construction, and operations.

LCLNG Response:

The break between the LNG facility (193) and the offsite CO2 pipeline (195) will be the break flange between the LNG facility and the pipeline metering facility. LCLNG envisions that the pipeline will have aboveground metering followed by a transition to an underground pipeline, similar with the feed gas pipeline, however the routing is to be determined by the pipeline entity.

It is LCLNG's understanding that the USEPA has jurisdiction over the storage well (40 CFR 144/146). Other entities, not LCLNG, will be responsible for the design or permitting of the overall CO2 pipeline and the storage well.

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Title: Staff Engineer / Project Consultant
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RESPONSE TO FERC - OEP INFORMAL DATA REQUEST
ISSUED AUGUST 4, 2023 (OEP/DLNG-1)**

GENERAL – *Hydrogen/Ammonia Project*

FERC/OEP/DLNG-LCLNG-4.16

Clarify whether the hydrogen/ammonia project would be located within the property bounds of the approved LCLNG facility.

LCLNG Response:

This response is being submitted as *Privileged and Proprietary Information* under separate cover and marked as “**CUI/PRIVILEGED INFORMATION - DO NOT RELEASE**”.

Prepared By: Eric Tkacik / Phil Suter

Title: Staff Engineer / Project Consultant

Date: August 10, 2023

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GENERAL – *Hydrogen/Ammonia Project*

FERC/OEP/DLNG-LCLNG-4.17

Provide a narrative that describes the function of the hydrogen/ammonia plant. If available, provide a process narrative, process flow diagrams, and tank/pressure vessel list. Lastly, clarify the phase and concentration of ammonia that would be stored at the proposed project site (aqueous, gaseous, etc.).

LCLNG Response:

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Prepared By: Eric Tkacik / Phil Suter
Title: Staff Engineer / Project Consultant
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GENERAL – *Hydrogen/Ammonia Project*

FERC/OEP/DLNG-LCLNG-4.18

Discuss whether the hydrogen/ammonia plant would have any tie-ins with the approved LCLNG facility.

LCLNG Response:

Tie-ins between a hydrogen/ammonia plant and the approved LCLNG facility do not exist.

Prepared By: Eric Tkacik / Phil Suter

Title: Staff Engineer / Project Consultant

Date: August 10, 2023

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GENERAL – *Hydrogen/Ammonia Project*

FERC/OEP/DLNG-LCLNG-4.19

Indicate whether there are plans to consult FERC on the review of this hydrogen/ammonia review project. Clarify which proposed federal agencies would have jurisdiction over this proposed plant and applicable federal regulations.

LCLNG Response:

Please see the response to 4.17 above. Active engagement with all agencies, including federal, will continue for the approved LCLNG facility.

Prepared By: Eric Tkacik / Phil Suter
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Date: August 10, 2023

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