APPENDIX E

ALTERNATIVES ANALYSIS

AND

TIER II TCEQ CHECKLIST

LONE STAR NGL MONT BELVIEU, L.P.
SWG-2019-00692
Alternative Analysis – Frac IX & X

A key provision of the 404(b)(1) guidelines is the "practicable alternative test" which requires that "no discharge of fill material shall be permitted if there is a practicable alternative to the proposed fill which would have a less adverse impact on the aquatic ecosystem." This is especially true when the proposed project is not water dependent. The applicant must demonstrate that there are no less damaging sites available and that all onsite impacts to waters of the United States have been avoided to the maximum practicable extent possible. For an alternative to be considered "practicable", it must be available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purpose.

Project Description

Lone Star NGL Mont Belvieu, L.P. (Applicant) proposes to construct a natural gas processing and distilling plant or fractionator, a dimerization unit, and alkylation unit to remove natural gas liquids from natural gas. The long-term plans for this area include constructing multiple buildings and other support related amenities for the surrounding gas plant and fractionator facilities. The project is proposed to be established on a parcel of land comprising of a total of 75.50 acres located south of Farm-to-Market Road (FM) 1942 and west of State Highway (SH) 146 and east of Cedar Bayou in Mont Belvieu, Chambers County, Texas. A wetland delineation according to 1987 Corps of Engineers Wetlands Delineation Manual and 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic & Gulf Coastal Plain (Version 2.0) was conducted. Based on an Approved Jurisdictional Determination (October 2022) the subject property contains 43.39 acres of forested uplands, 32.11 acres of mosaic forested wetlands, and 1,266 linear feet of a non-vegetated tributary to Cedar Bayou.

The Applicant proposes to permanently fill a total of 30.47 acres of mosaic forested wetlands for the purpose of constructing the project. Two on-site and five off-site alternatives were considered based on the following siting criteria: (1) the location of the project tract in relation to existing gas plant facilities and other infrastructure, (2) land availability and use, (3) environmental impact of the project, (4) safety and security of the project site, and (5) tract size.

Siting Criteria

1. Location of the project tract in relation to existing gas facilities and other infrastructure.
In order for the project to be economically feasible and successful as a distilling plant, it must be located no more than 0.50 mile, by existing road, from existing gas plant facilities and other infrastructure. Location beyond 0.50 mile would create economic burdens which would negate the projects pro forma.

2. Land availability and land use
The project site must be located on property the Applicant currently owns, can purchase for current market price of raw unimproved land, is not encumbered by a restrictive easement, and is

able to be cleared in the immediate timeframe and eventually be able to build the fractionator facilities, which will provide support for the overall surrounding gas plant facilities.

3. Environmental impact of the project
The proposed project site must be the least damaging to existing natural resources while still meeting the design needs of the project.

4. Safety and security of the project site
The project site must be located in an area which allows the Applicant to restrict access from the general public, provide safe all-weather ingress and egress from the project site for the Applicant and their contractors, and also provide the public with safe uninterrupted access along FM 1942.

5. Tract size
The ideal project site must be between 55-85 acres in size. The minimum tract size of 55 acres is desired for the proper fractionation process. There is a trade-off between cost and fractionation speed when considering the location of operating buildings, fractionation towers, reboilers, flares, etc.

Alternatives

The applicant's preferred alternative is the one tract as described in the project description. However, the applicant did analyze a no-build alternative, two on-site alternatives, and five off-site alternatives, described below. Maps depicting these alternative site locations can be found in Appendix E.1.

No Action Alternative

- A no-build alternative was analyzed and eliminated for the following reasons: (1) not building the project would deny the Applicant the ability to construct the needed fractionator as well as the future planned gas plant support buildings and facilities; (2) not building the project would not provide job opportunities associated with the construction of the project site and the expansion of operating facilities, and (3) not building the project would cause the Applicant to be unable to expand their current operating facilities due to lack of space resulting in the Applicant not providing additional natural gas refining abilities.

On-Site Alternatives

- On-Site Alternative 1 (ON-1), the primary on-site alternative included re-locating the proposed project to avoid jurisdictional areas within the same property parcel. This on-site alternative was reviewed and eliminated due to the inability for the Applicant to meet the most basic needs of the project. Specifically, the project area would not meet the physical dimensions required to construct all necessary facility equipment for the proposed volumes of mixed natural gas liquids intended to be processed at the fractionator.

- On-Site Alternative 2 (ON-2), a second on-site alternative, included the project development plans extending west and including an additional 2.59 acres of forested wetlands

and 0.58 acres of non-forested wetlands for site development; however, due to recent advances in fractionator design, a smaller footprint is capable of producing the equivalent output as previous generation fractionators. The implementation of new-gen fractionators was able to minimize and avoid impacts to forested wetlands. This on-site alternative was reviewed and eliminated due to the additional forested wetland impact.

On-Site Alternative 3 (ON-3), a third on-site alternative, included the project development plans and no avoidance of the tributary or buffer along the tributary. This would create an additional 1.64 acres of forested wetland impact along with 1,266 linear feet of tributary impact. This on-site alternative was reviewed and eliminated due to the additional waters of the U.S. impact.

On-Site Alternative 4 (ON-4), a fourth on-site alternative, included the project development plans, avoidance of the tributary, but no riparian buffer along the tributary. This would create an additional 1.64 acres of forested wetland impact along. This on-site alternative was reviewed and eliminated due to the additional waters of the U.S. impact and the removal of the riparian buffer.

Off-Site Alternatives

- Off-Site Alternative 1 (OFF-1) is located approximately 4,200 feet (0.80 mile) to the northeast of the proposed project site and is 0.50 mile from the Applicant's closest existing gas plant facilities and infrastructure. OFF-1 would not meet the Applicant's location needs in relationship to existing gas plant facilities and other infrastructure. OFF-1 would also not meet a feasible land availability purchase price, due to the lack of land for sale. Based on a review of the National Wetland Inventory (NWI) Maps, United States Geological Survey (USGS) topographic maps, infrared aerial photography, and true color aerial photography, it appears that this tract would have a smaller environmental impact than the proposed project site on a wetland acreage basis; however, the site was not accessible for delineation. OFF-1 would not satisfy the Applicant's needs concerning the safety and security of the site. OFF-1 is accessible by multiple ingress and egress points and directly adjacent to FM 1942, which would be challenging to monitor and secure. This location is directly adjacent to FM 1942, and while the Applicant could potentially limit direct vehicle access, security on the site would be compromised due to the adjacent public roadway. OFF-1 would also create additional unsafe driving conditions due to a security check-point located just off FM 1942 causing a heavy truck (semi-tractor trailer) back-up during construction material delivery times. OFF-1 is approximately 31.35 acres which would not meet the Applicant's needs for land availability for the desired project tract size; therefore, OFF-1 does not meet the tract size siting criteria. While OFF-1 satisfies siting criteria 3, it was eliminated due to the failure of the site meeting criteria 1, 2, 4, and 5.

- Off-Site Alternative 2 (OFF-2) is located north of the proposed project site and is approximately 0.15 miles from the closest existing gas plant facilities and infrastructure. OFF-2 would meet the Applicant's location needs in relationship to existing infrastructure. OFF-2 is within the tract size desired for the project but would not meet the needs of the land availability and land use as the property has a proposed project planned and has been permitted under SWG-2017-00254. OFF-2 was eliminated due to the failure of the site meeting the siting criteria of land availability and land use.

• Off-Site Alternative 3 (OFF-3) is located approximately 2,240 feet (0.43 miles) to the northeast of the proposed project site and is adjacent to existing gas plant facilities and infrastructure. OFF-3 would meet the Applicant's location needs in relationship to existing gas plant facilities and other infrastructure. OFF-3 would not meet a feasible land availability purchase price, due to the land not being for sale. Based on a review of the National Wetland Inventory Maps, USGS topographic maps, infrared aerial photography, and true color aerial photography, it appears that this tract would have less environmental impacts (approximately 20 acres of forested wetlands); however, the site was not accessible for delineation. OFF-3 would not satisfy the Applicant's needs concerning the safety and security of the site. This location is directly adjacent to FM 1942, making the site difficult to monitor and secure. OFF-3 is accessible by FM 1942, a public roadway and while vehicular access could be limited by a checkpoint gate, this would cause a safety issue along FM 1942 during peak delivery and access times. OFF-3 is approximately 42 acres which is under the desired project tract size for the siting criteria. While OFF-3 satisfies siting criteria 1 and 3; it was eliminated due to the failure of the site to meet criteria 2, 4, and 5.

• Off-Site Alternative 4 (OFF-4) is located approximately 1,250 feet (0.23 miles) to the south of the proposed project site and is adjacent to the Applicant's existing gas plant facilities and infrastructure. OFF-4 would meet the Applicant's location needs in relationship to existing gas plant facilities and other infrastructure. OFF-4 would meet land availability because the Applicant currently owns this particular parcel. OFF-4 would not meet the land use because of the layout of the property. The property would restrict the layout of potential fractionator facilities and amenities. Based on a review of the NWI Maps, USGS topographic maps, infrared aerial photography, and true color aerial photography, it appears that this tract would have less environmental impacts (approximately 36.71 acres of forested wetlands) than the proposed project site on an acreage basis. OFF-4 would satisfy the Applicants needs concerning the safety and security of the site. This location restricts access from the general public, provides safe all-weather ingress and egress for the Applicant and their contractors, and also provides the public with safe uninterrupted access along FM 1942. OFF-4 is approximately 60 acres which meets the desired project tract size for the siting criteria. While OFF-4 satisfies siting criteria 1, 3, 4, and 5, it was eliminated due to the failure of the site to meet criteria 2.

• Off-Site Alternative 5 (OFF-5) is located approximately 3,450 feet (0.65 miles) to the north of the proposed project site and is 0.41 mile from the Applicant's closest existing gas plant facilities and infrastructure. Based on a review of the NWI Maps, USGS topographic maps, infrared aerial photography, and true color aerial photography, it appears that this tract would have a larger environmental impact than the proposed project site on a wetland acreage basis; however, the site was not accessible for delineation. OFF-5 would not satisfy the Applicant's needs concerning the safety and security of the site. OFF-5 is accessible by multiple ingress and egress points and directly adjacent to FM 1942, which would be challenging to monitor and secure. This location is directly adjacent to FM 1942, and while the Applicant could potentially limit direct vehicle access, security on the site would be compromised due to the adjacent public roadway. OFF-5 would also create additional unsafe driving conditions due to a security check-point located just off FM 1942 causing a heavy truck (semi-tractor trailer) back-up during construction material delivery times. OFF-5 is approximately 92.5 acres which would not meet the Applicant's needs for land availability for the desired project tract size; therefore, OFF-5

does not meet the tract size siting criteria. OFF-5 was eliminated due to the failure of the site to meet any criteria.

Applicant's Preferred Alternative

- The preferred alternative is the proposed construction of the project as described above. The Applicant prefers the proposed project design because: (1) the current design has been changed from the original design and impacts to jurisdictional waters of the U.S. have been reduced by 3.17 acres; (2) the proposed project area was chosen by the Applicant's team of engineers as being the most beneficial location in order to serve as the fractionator facility as well as future gas plant support facilities and other ancillary buildings; (3) the proposed project in its currently proposed location will provide the Applicant with a project site that they can secure and provide the public with unimpeded access on FM 1942; (4) the proposed project will provide local jobs during the construction of the project and in the future with the ability to expand gas plant facilities; (5) the Applicant has further avoided and minimized impacts to jurisdictional areas by avoiding all non-vegetated waters of the U.S. (tributaries); and (6) by further reducing impacts to jurisdictional areas, the Applicant would not be able to successfully construct the project as designed and or meet the purpose and need of the project. This preferred alternative meets all of the siting criteria requirements for the project.