

Jody McCaffree
PO Box 1113
North Bend, OR 97459

June 10, 2019

Andrew Stamp, Hearings Officer
Coos County Planning Department
225 N. Adams St.
Coquille OR 97423

RE: County Remand File No. REM-19-001/LUBA Case No. 2016-095

Dear Hearing Officer Stamp:

Please accept these comments into the record in addition to comments that are being submitted from Attorney Tonia Moro and also comments from Katy Eymann on behalf of Citizens for Renewables and Crag Law on behalf of Oregon Shores. **I am not able to make today's hearing and would like to request that additional time be given for citizens to place comments into the Remand proceeding.** On Remand from LUBA the applicant must address each of the issues sustained by LUBA, however, there have been vast changes to the applicant's plan since the 2015 application and there are currently many other proposed developments pending for the current project design in other land use proceedings. Comments are due today under Jordan Cove's North Bend File No. FP4-19/CBE 5-19 for Concurrent Land Use Applications within North Bend Coos Bay Estuary zoning districts and APCO (North Point) Property zoning districts. It is extremely difficult to prepare testimony for both this hearing and for comments into the North Bend proceeding for this same Jordan Cove LNG project. Please allow citizens more time in which they are able to prepare their substantive comments into this Remand proceeding.

In this proceeding the applicant should really be required to re-apply in order to address issues relating to the applicant's current plans and the cumulative impacts of all of these other connected actions which were not part of Jordan Cove's plan before the County under HBCU-15-05 or even before the Federal Energy Regulatory Commission in 2015.

In March of 2016 the Federal Energy Regulatory Commission (FERC) denied Jordan Cove's prior designed LNG facility that is currently still before the County. Jordan Cove's current 2017 proposal that is now before the FERC has significantly changed since the 2015 facility design that was placed before the County under HBCU-15-05. The FERC Draft EIS process is still underway for the current 2017 Jordan Cove LNG proposal and has not been completed yet. Comments on the Draft EIS are due by July 5, 2019.

The current Jordan Cove 2017 LNG project design now includes on the same property that is currently before the County under this Remand proceeding; a gas processing facility; additional gas flare towers; a power plant; and totally different gas run liquefaction trains that were not a part of the 2015 county application. The current proposed 2017 LNG facility that is before the

1 Exhibit: 3
Date: 6/10/19

FERC now has up to 100-foot-high vapor fences that are proposed to surround the entire property. All these new components create a **far greater hazard** than was considered in the previous County HBCU-15-05 application.

A significant number of other proposed LNG facilities are also now far ahead of the proposed Jordan Cove LNG terminal in their permitting process and in reaching their Final Investment Decisions. The international LNG market is still glutted so not all these projects will be able to find a market and move forward. This makes the proposed Jordan Cove LNG project even less likely to succeed. It is also currently not clear how Jordan Cove will deal with the current U.S. trade war with China.

On March 7, 2019 [Reuters](#) reported that Jordan Cove had signed **non-binding** sales agreements for the terminal's planned capacity:

*... "There is a good chance that some of it (the sales volume) **is Chinese**," Taylor said on the sidelines of LNGA 2019 conference held in Singapore, when asked if any of the potential buyers included Chinese companies.... (Emphasis added)*

On May 13, 2019 [Reuters](#) reported that in retaliation for a U.S. increase in tariffs on \$200 billion in Chinese goods to 25% from 10%, China is set to **increase the tariff on U.S. LNG from 10% to 25% starting June 1**. The report states that:

* * * *

So far this year, only two LNG vessels have gone from the United States to China, versus 14 during the first four months of 2018 before the start of the 10-month trade war.

* * * *

On Monday, China said it would boost the tariff on U.S. LNG to 25% starting June 1 versus the current rate of 10%.

U.S. LNG sales had already been affected by a 60 percent collapse in Japan Korea Marker (JKM) LNG prices seen since September.

"Weaker JKM spot prices in Asia already killed most of the commercial reasoning for U.S. LNG sales to China. The tariff is the knockout blow," said Ira Joseph, head of global gas and power analytics at S&P Global Platts.^[1]

RBN Energy reported on March 26, 2019 that a second wave of North American LNG export projects was officially underway. LNG Canada took final investment decision (FID) last October and would be the first large-scale LNG export facility in Canada. Golden Pass and Calcasieu Pass followed in February, marking the beginning of the next round of LNG export build on the U.S. Gulf Coast. Sabine Pass Train 6 is expected to get the green light any day. It still remains to be seen if these projects will all actually make it to completion given the continued glutted international LNG market.

^[1] <https://www.reuters.com/article/us-usa-trade-china-lng/u-s-liquefied-natural-gas-shipments-to-china-face-mounting-tariffs-idUSKCNISJ1O4>

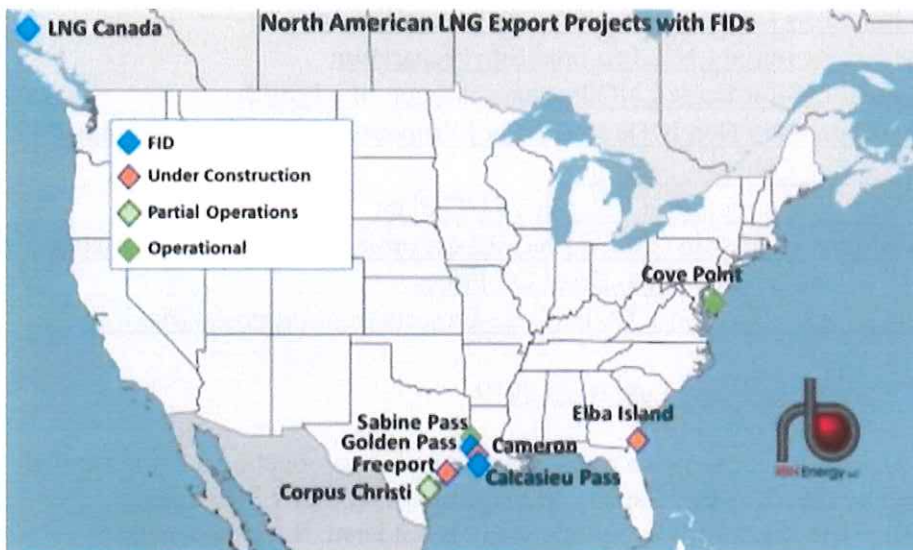


Figure 1. North American LNG Export Projects. Source: RBN Energy LLC^[2]

Pembina needs prove that there is in fact a need for their project and explain how they plan to compete with all these other players in the current glutted international marketplace

Eversheds LNGLawBlog has within the last few months reported the following:

- [BP and ExxonMobil to Contribute \\$20 million Toward FERC Approval of Alaska LNG Project.](#)
- [FERC Grants Freeport LNG Extension to Complete Construction and Enter Service.](#)
- [Cameron LNG Sends Out First Commissioning Cargo; Receives Extension of Time to Complete Facilities.](#)
- [NextDecade Signs EPC Contracts with Bechtel for Rio Grande LNG Project](#)
- [Stonepeak Signs Agreement For \\$1.3 Billion Equity Investment in Venture Global's Calcasieu Pass LNG Project](#)
- [Freeport LNG Requests Extension to Complete Liquefaction Project; DOE Authorizes Train 4 Exports](#)
- [China to Increase Tariff on U.S. LNG from 10% to 25%](#)
- [Construction at Golden Pass LNG Terminal to Start May 13](#)
- [Cameron LNG Expected to Begin Production Soon](#)
- [Final EIS Released for Venture Global Plaquemines LNG Project](#)
- [Port Arthur LNG Receives FERC Construction and DOE Export Authorizations](#)
- [Driftwood LNG Receives FERC Construction and DOE Export Authorizations](#)
- [FERC Releases Final EIS for the Rio Grande LNG Project](#)
- [FERC Releases Final EIS for the Annova LNG Project](#)

^[2] <https://rbnenergy.com/catch-a-wave-what-it-takes-for-an-lng-export-project-to-reach-fid>

- [FERC Releases Final EIS for the Gulf LNG Liquefaction Project](#)
- [Golden Pass Cleared for Initial LNG Terminal Site Preparation](#)
- [FERC Releases Final EIS for Eagle LNG Partners Jacksonville Project](#)
- [Chevron Canada Proposes to Nearly Double Size of Proposed Kitimat LNG Terminal](#)
- [Total and Tellurian Sign LNG Agreements](#)
- [Venture Global Starts Construction at Calcasieu LNG Plant](#)
- [NextDecade, Developer of the Rio Grande LNG export project in Brownsville, Texas, signs 20-year LNG Contract Indexed to Brent Oil Prices](#)
- [DOE Grants Authorization for Non-FTA LNG Re-Exports from Proposed Mexican Terminals](#)
- [Elba Island LNG Exports to Begin Late April 2019](#)

Jordan Cove's proposed use will not provide a public benefit and is not meeting a demonstrated public need as is required by the Coos Bay Estuary Management Plan (CBEMP) zoning requirements and policies. The applicant's economic study is outdated. Recent economic analysis indicates the project is economically unlikely to succeed, as it is more expensive than other comparable projects and has a locational and operational disadvantage, particularly after the shift away from using electricity to freeze the gas for shipping.¹

The project would interfere with the public trust rights

It has been reported that Dungeness crab fishing can yield up to \$100 million in income to the Oregon economy. Coos Bay provides important opportunities for both recreational and commercial crabbing. Most crabbing is undertaken using baited rings. Generally bay crab fishing has a two-hour window and requires the crabber to be in the vicinity to check the rings frequently. A 30-minute interruption caused by a transiting LNG carrier at in the peak period of fishing activity having a 2 hour feasible time window centered over high tide can readily and reasonably be characterized as a *major* disruption of one of the most important (and valuable) recreational uses of the Coos Estuary. LNG hazardous burn zones remain a great concern. On May 7, 2018 the Federal Aviation Administration (FAA) issued 13 Notices of Presumed Hazard on components of the Jordan Cove project, several which are directly related to this proceeding including the two LNG land storage tanks, two proposed Amine gas processing towers and LNG tanker ships in the waterway including in the area of the Marine Slip. (*See Exhibit I*) There would be no feasible or realistic way for the Jordan Cove project to mitigate these hazards.

Dredging Impacts

Jordan Cove is proposing more dredging than indicated in the previous HBCU-15-05 application and is proposing different areas for placement of that dredging material, including dredging material that would be removed from the Ingram Yard property which is the subject of this proceeding. They have yet to do proper tidal soil testing for contaminants that may be found in

¹ https://www.gjsentinel.com/news/western_colorado/energy-consultant-doubts-jordan-cove-economics/article_6124f150-84f5-11e9-870b-20677ce85d90.html

those tidal muds. The proposed dredging would have negative impacts on the estuarine system as a whole along with impacts to navigation, recreation and fishing. Dredging impacts on crabs, clams, oysters and fish will now be worse than previously thought under HBCU-15-05, particularly when cumulative impacts are fully considered.

The applicant has failed to adequately identify and assess these impacts. The County should look at impacts to the estuary as a whole, not just the isolated (although still substantial) impacts of dredging the slip.

The Oregon Dept of State lands is currently reviewing Jordan Cove's application and has yet to sign off on any approvals for the project. They have recently requested additional information from Jordan Cove and have extended their review time on the project's removal-fill permit application until September 2019. (*See Exhibit 2*) On March 11, 2019, the Oregon DEQ also requested additional information from the Project which included, among other things, that the project conduct a benthic macroinvertebrate assessment to comply with the Biocriteria water quality standard (Oregon Administrative Rule 340-0410-0011). (*See Exhibit 3*) On May 6, 2019 the DEQ issued a denial of Jordan Cove's application for 401 Water Quality Certification stating in News Release: (*See Exhibit 4*)

DEQ is denying the requested water quality certification at this time because there is insufficient information to demonstrate compliance with water quality standards, and because the available information shows that some standards are more likely than not to be violated. Through further analysis, and possibly through project changes and mitigation, the applicant may be able to show the standards for certification will be met, but the current record does not allow DEQ to reach that conclusion today.
(Emphasis added)

The DEQ Section 401 Water Quality Certification is required for the U.S. Army Corps of Engineers to issue permits for the project.

How are we supposed to review and critique all this information when our own regulatory agencies are having issues with the information Jordan Cove has provided? Under Coos Bay Estuary Management Plan (CBEMP) 4a, the appropriate state agency is to perform the impact assessment requirements found in CBEMP Policy #4. DEQ has issued a denial clearly stating that the information is not adequate enough to issue the project a permit. **That should be reason enough for the County to ALSO issue a denial of the project's land use application which would impact a natural aquatic zoned area in the Coos Estuary.**

I would like to request that all relevant testimony and exhibits that were previously submitted into the HBCU-15-05 proceeding be included in with this Remand application process in order to prevent duplication of materials that are still of relevant. I look forward to being able to further submit substantive testimony into this proceeding.

Sincerely,
/s/ Jody McCaffree
Jody McCaffree

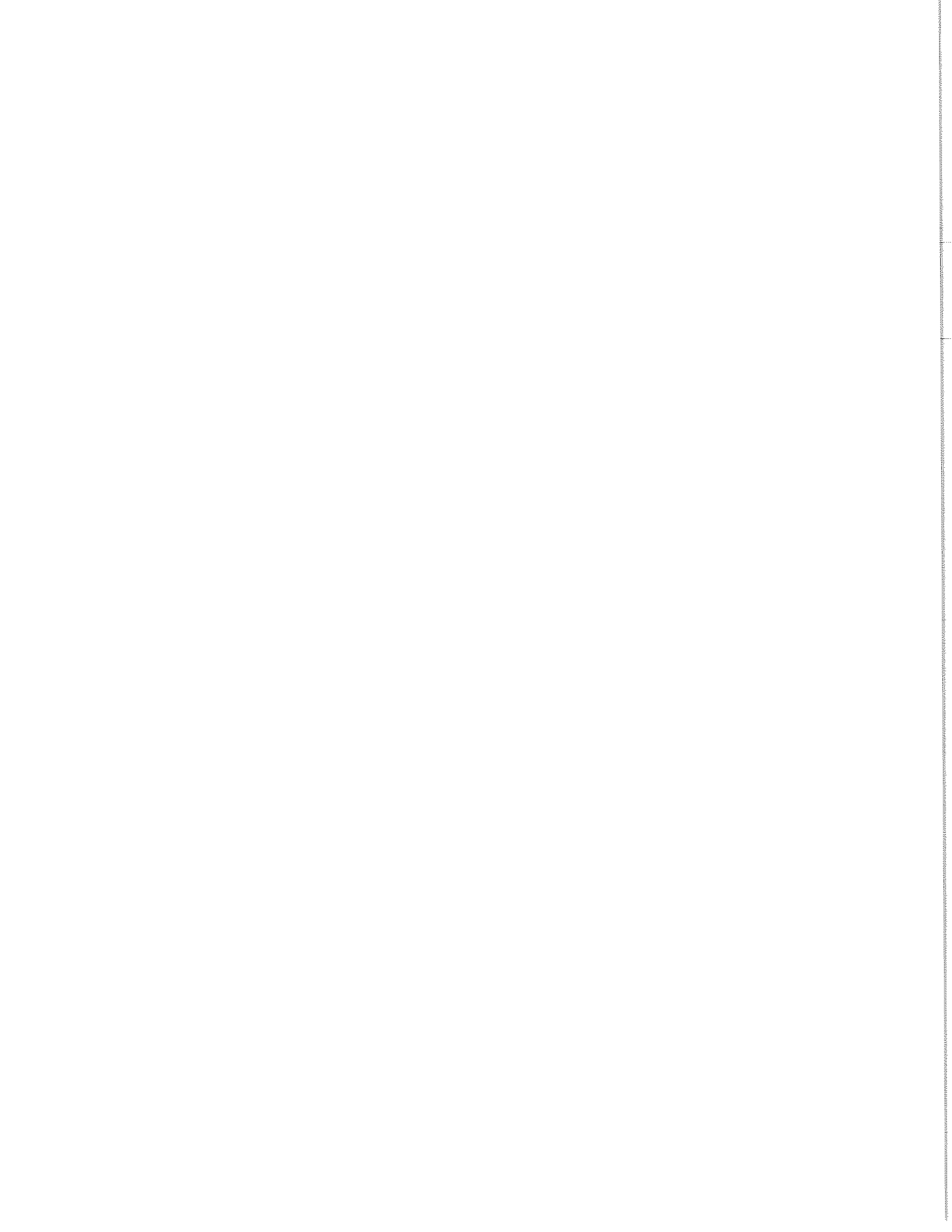
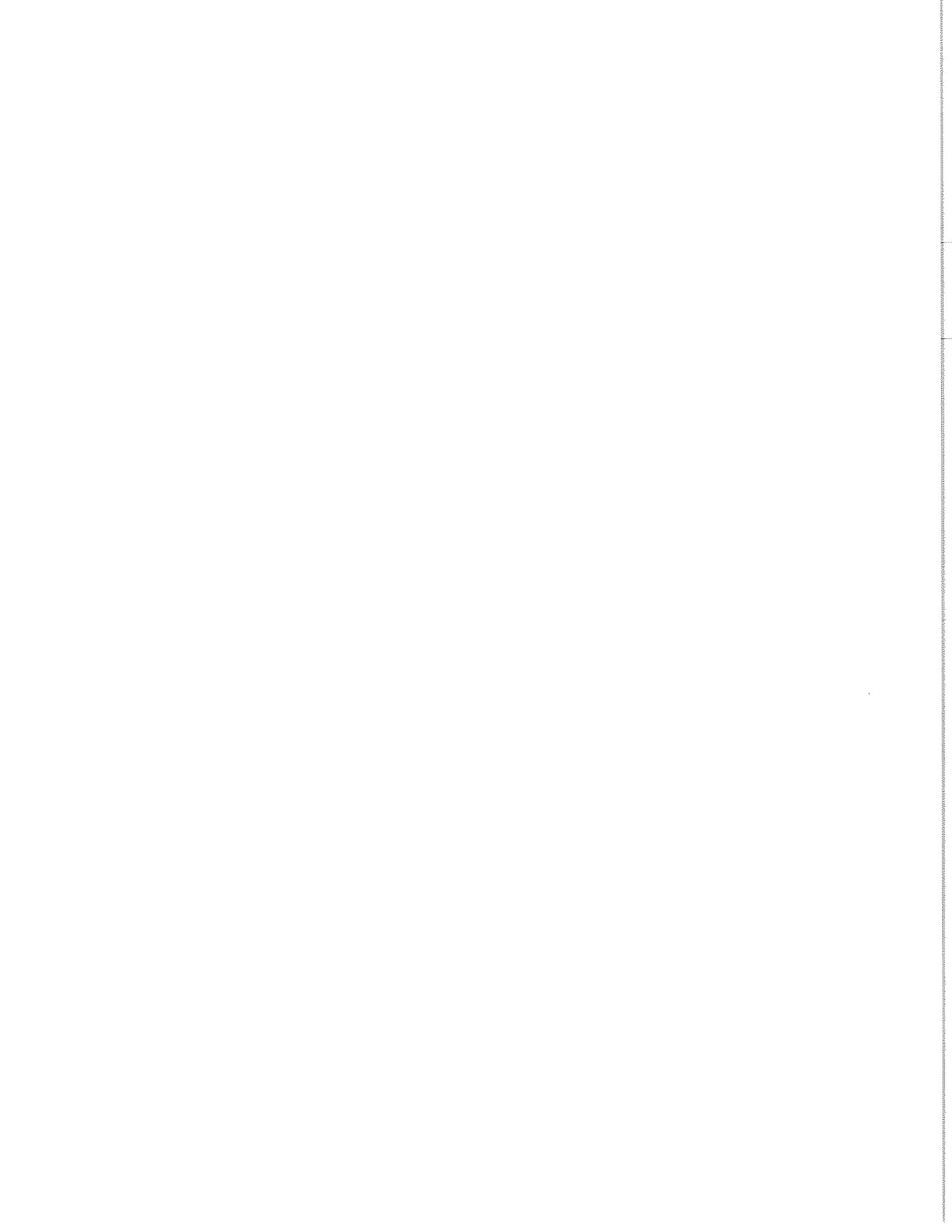


Exhibit 1





Interim Cases for OR

Records 1 to 13 of 13

Page 1 of 1

Case Number	City	State	Latitude	Longitude	Site Elevation	Structure Height	Total Height
2017-ANM-5386-OE	North Bend	OR	43° 25' 48.88" N	124° 16' 00.87" W	23	219	242
2017-ANM-5387-OE	North Bend	OR	43° 25' 53.61" N	124° 16' 01.16" W	23	219	242
2017-ANM-5388-OE	North Bend	OR	43° 25' 59.24" N	124° 16' 00.87" W	42	131	173
2017-ANM-5389-OE	North Bend	OR	43° 26' 01.57" N	124° 16' 03.43" W	42	126	168
2017-ANM-5418-OE	North Bend	OR	43° 25' 40.52" N	124° 15' 57.06" W	10	199	209
2018-ANM-4-OE	North Bend	OR	43° 23' 49.37" N	124° 16' 56.55" W	12	199	211
2018-ANM-5-OE	North Bend	OR	43° 24' 07.84" N	124° 16' 41.25" W	12	199	211
2018-ANM-6-OE	North Bend	OR	43° 24' 32.44" N	124° 16' 38.26" W	12	199	211
2018-ANM-7-OE	North Bend	OR	43° 24' 55.79" N	124° 16' 29.14" W	12	199	211
2018-ANM-8-OE	North Bend	OR	43° 25' 07.71" N	124° 16' 17.62" W	12	199	211
2018-ANM-718-OE	North Bend	OR	43° 23' 36.85" N	124° 17' 04.51" W	12	199	211
2018-ANM-719-OE	North Bend	OR	43° 25' 20.59" N	124° 15' 48.27" W	12	199	211
2018-ANM-720-OE	North Bend	OR	43° 25' 13.85" N	124° 16' 09.31" W	12	199	211

Rows per Page: ▼

Records 1 to 13 of 13

Page: 1

Page 1 of 1

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-ANM-720-OE

Issued Date: 05/07/2018

Drew Jackson
Jordan Cove LNG
5615 Kirby Dr
Houston, TX 77005

**** NOTICE OF PRESUMED HAZARD ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	LNG Carrier Vessel - Stack, Transit Point 6
Location:	North Bend, OR
Latitude:	43-25-13.85N NAD 83
Longitude:	124-16-09.31W
Heights:	12 feet site elevation (SE) 199 feet above ground level (AGL) 211 feet above mean sea level (AMSL)

Initial findings of this study indicate that the structure as described exceeds obstruction standards and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities. Pending resolution of the issues described below, the structure is presumed to be a hazard to air navigation.

If the structure were reduced in height so as not to exceed 155 feet above ground level (167 feet above mean sea level), it would not create a substantial adverse effect and a favorable determination could subsequently be issued.

Any height exceeding 155 feet above ground level (167 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

See Attachment for Additional information.

NOTE: PENDING RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE, THE STRUCTURE IS PRESUMED TO BE A HAZARD TO AIR NAVIGATION. THIS LETTER DOES NOT AUTHORIZE CONSTRUCTION OF THE STRUCTURE EVEN AT A REDUCED HEIGHT. ANY RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE MUST BE COMMUNICATED TO THE FAA SO THAT A FAVORABLE DETERMINATION CAN SUBSEQUENTLY BE ISSUED.

IF MORE THAN 60 DAYS FROM THE DATE OF THIS LETTER HAS ELAPSED WITHOUT ATTEMPTED RESOLUTION, IT WILL BE NECESSARY FOR YOU TO REACTIVATE THE STUDY BY FILING A NEW FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-ANM-720-OE.

Signature Control No: 357210193-364494235

(NPH)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-ANM-720-OE

ASN 2018-ANM-720-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

Our aeronautical study has disclosed that the proposed 199-foot AGL (211-foot AMSL) liquid natural gas carrier vessel (ship stack) shipping channel transit point location associated with the proposed Jordan Cove Liquid Natural Gas Terminal penetrates 14 CFR Part 77 protected airspace surfaces at Southwest Oregon Regional Airport (OTH) in North Bend, OR. The OTH airport elevation is 17 feet AMSL.

The proposed structure would exceed the following Part 77 surfaces:

Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. The proposed structure would exceed the OTH Horizontal Surface by 44 feet.

Additionally, the proposed structure would exceed the OTH VFR traffic pattern airspace in the Part 77 VFR Horizontal Surface feet as defined in FAA JO 7400.2L, 6-3-8, Evaluating Effect on VFR Operations.

This proposed structure would exceed the OTH VFR Traffic Pattern Horizontal Surface by 44 feet. The not-to-exceed height of 155 feet AGL (167 AMSL) will avoid penetrating the Horizontal Surface.

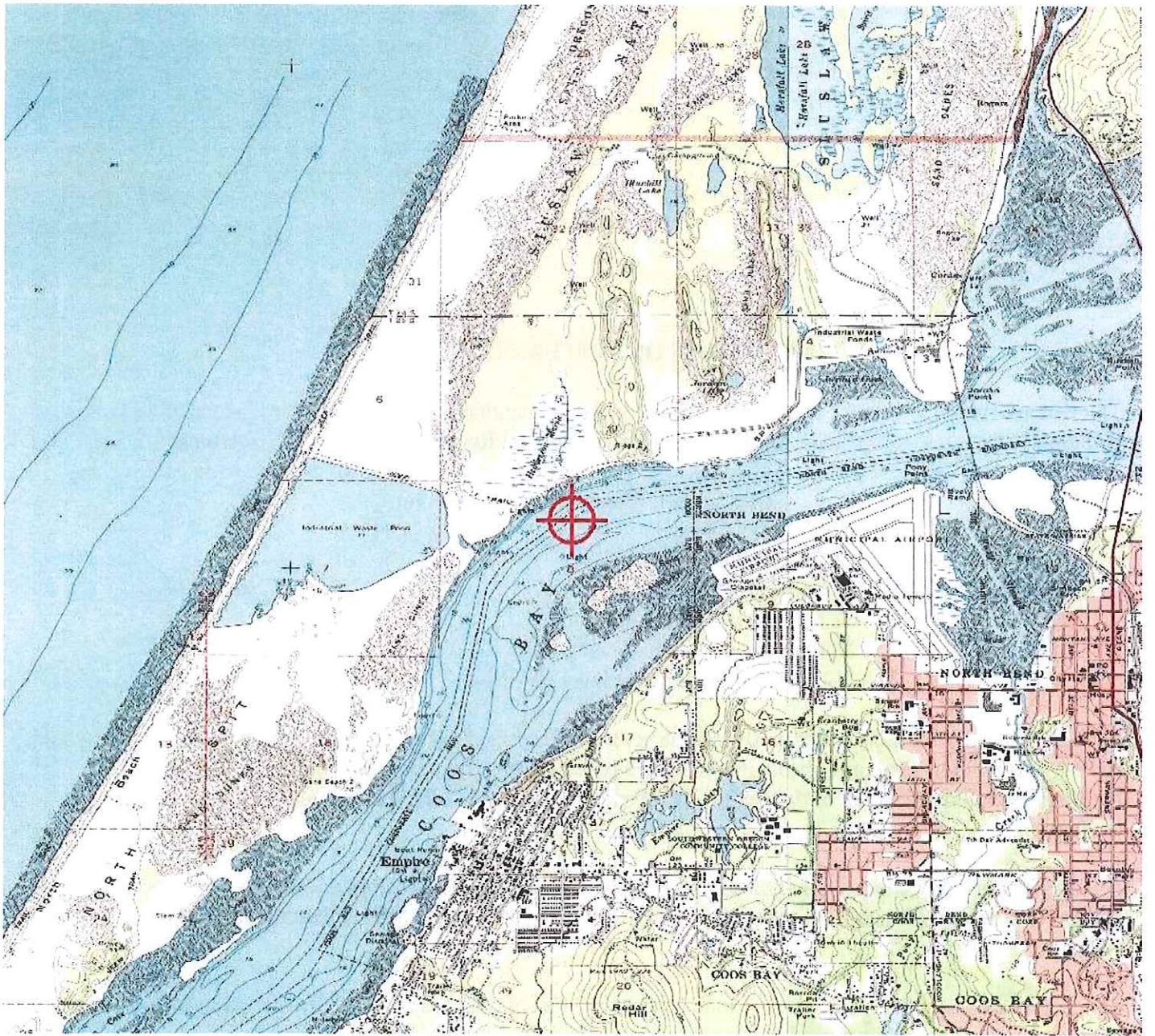
The OTH Airport Master Record, <http://www.gcr1.com/5010web/airport.cfm?Site=OTH>, states there are 36 single engine, eight (8) multi-engine, one (1) jet, and six (6) helicopter aircraft based there with 18,277 total operations for the 12 months ending 31 December 2013 (latest information). RWY 31 is designated Right Traffic.

Your options and conditions for this proposal are as follows:

1. You must resolve the 44 foot VFR Traffic Pattern Airspace penetration by lowering the structure height, with all appurtenances, to a maximum height at 155 feet AGL (167 AMSL). If you agree to limit the structure height to 155 feet AGL (167 AMSL), the FAA can then withdraw this objection to the proposed structure as it would not exceed obstruction standards and a favorable determination could be subsequently issued.
2. You can terminate the proposal at this location.

Please email me within 60 days of the date of this letter at Paul.Holmquist@faa.gov with your intentions and any questions you might have regarding this aeronautical study.

Close Print



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-ANM-719-OE

Issued Date: 05/07/2018

Drew Jackson
Jordan Cove LNG
5615 Kirby Dr
Houston, TX 77005

**** NOTICE OF PRESUMED HAZARD ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	LNG Carrier Vessel - Stack, Transit East Point
Location:	North Bend, OR
Latitude:	43-25-20.59N NAD 83
Longitude:	124-15-48.27W
Heights:	12 feet site elevation (SE) 199 feet above ground level (AGL) 211 feet above mean sea level (AMSL)

Initial findings of this study indicate that the structure as described exceeds obstruction standards and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities. Pending resolution of the issues described below, the structure is presumed to be a hazard to air navigation.

If the structure were reduced in height so as not to exceed 155 feet above ground level (167 feet above mean sea level), it would not create a substantial adverse effect and a favorable determination could subsequently be issued.

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IF MORE THAN 60 DAYS FROM THE DATE OF THIS LETTER HAS ELAPSED WITHOUT ATTEMPTED RESOLUTION, IT WILL BE NECESSARY FOR YOU TO REACTIVATE THE STUDY BY FILING A NEW FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-ANM-719-OE.

Signature Control No: 357209466-364496207

(NPH)

Paul Holmquist

Specialist

Attachment(s)

Additional Information

Additional information for ASN 2018-ANM-719-OE

ASN 2018-ANM-719-OE

Abbreviations

AGL - above ground level

AMSL - above mean sea level

RWY - runway

VFR - visual flight rules

IFR - instrument flight rules

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CAT - category aircraft

MDA - minimum descent altitude

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Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

Our aeronautical study has disclosed that the proposed 199-foot AGL (211-foot AMSL) liquid natural gas carrier vessel (ship stack) shipping channel transit point location associated with the proposed Jordan Cove Liquid Natural Gas Terminal penetrates 14 CFR Part 77 protected airspace surfaces at Southwest Oregon Regional Airport (OTH) in North Bend, OR. The OTH airport elevation is 17 feet AMSL.

The proposed structure would exceed the following Part 77 surface:

Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. The proposed structure would exceed the OTH Horizontal Surface by 44 feet.

Additionally, the proposed structure would exceed the OTH VFR traffic pattern airspace in the Part 77 VFR Horizontal Surface feet as defined in FAA JO 7400.2L, 6-3-8, Evaluating Effect on VFR Operations.

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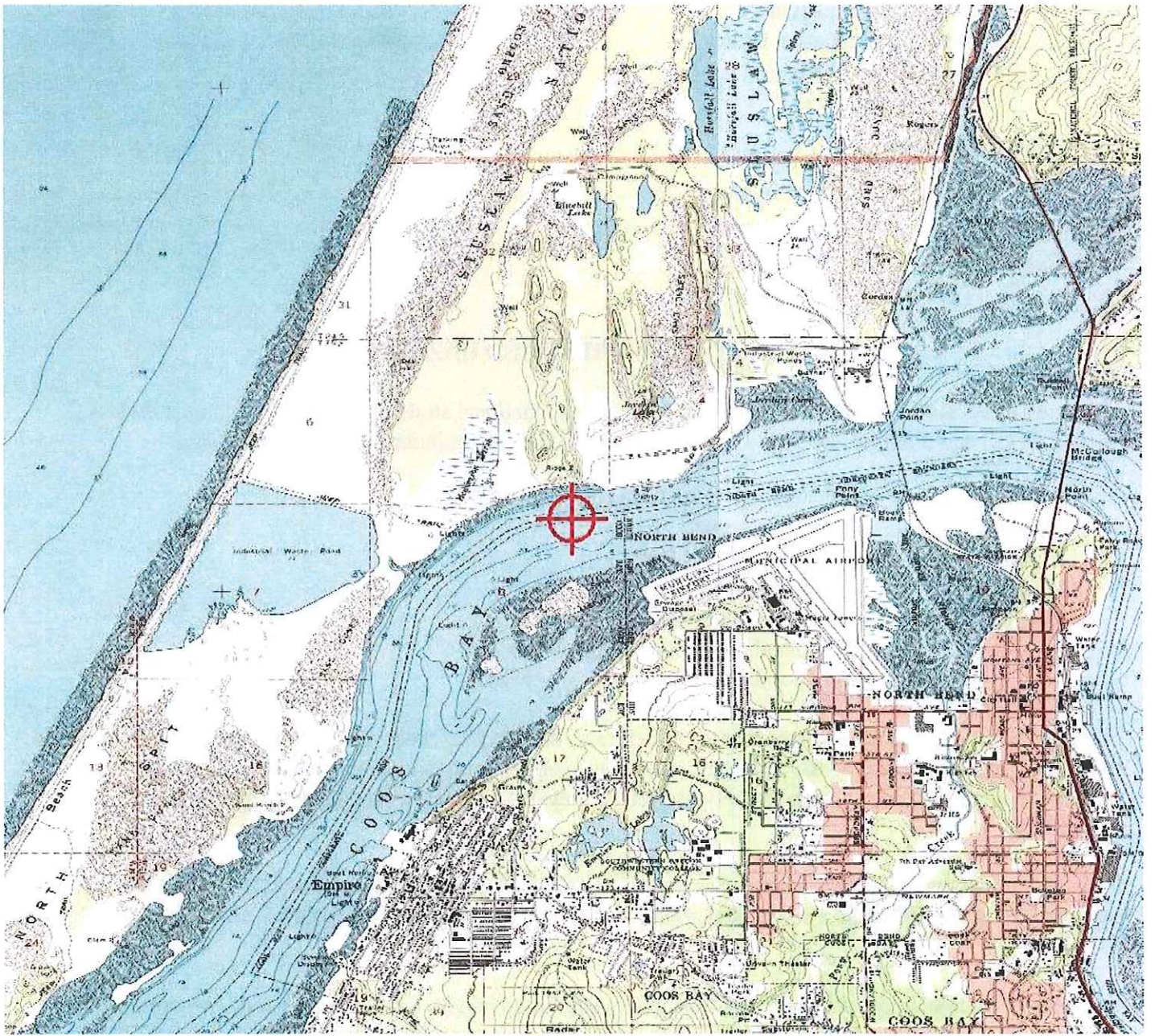
The OTH Airport Master Record, <http://www.gcr1.com/5010web/airport.cfm?Site=OTH>, states there are 36 single engine, eight (8) multi-engine, one (1) jet, and six (6) helicopter aircraft based there with 18,277 total operations for the 12 months ending 31 December 2013 (latest information). RWY 31 is designated Right Traffic.

Your options and conditions for this proposal are as follows:

1. You must resolve the 44 foot VFR Traffic Pattern Airspace penetration by lowering the structure height, with all appurtenances, to a maximum height at 155 feet AGL (167 AMSL). If you agree to limit the structure height to 155 feet AGL (167 AMSL), the FAA can then withdraw this objection to the proposed structure as it would not exceed obstruction standards and a favorable determination could be subsequently issued. Further FAA study for any height greater than 155 AGL / 167 AMSL is not an option.
2. You can terminate the proposal at this location.

Please email me within 60 days of the date of this letter at Paul.Holmquist@faa.gov with your intentions and any questions you might have regarding this aeronautical study.

Close Print



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-ANM-718-OE

Issued Date: 05/07/2018

Drew Jackson
Jordan Cove LNG
5615 Kirby Dr
Houston, TX 77005

**** NOTICE OF PRESUMED HAZARD ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	LNG Carrier Vessel - Stack, Transit West Point
Location:	North Bend, OR
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If the structure were reduced in height so as not to exceed 155 feet above ground level (167 feet above mean sea level), it would not create a substantial adverse effect and a favorable determination could subsequently be issued.

To pursue a favorable determination at the originally submitted height, further study would be necessary. Further study entails distribution to the public for comment, and may extend the study period up to 120 days. The outcome cannot be predicted prior to public circularization.

If you would like the FAA to conduct further study, you must make the request within 60 days from the date of issuance of this letter.

See Attachment for Additional information.

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If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-ANM-718-OE.

Signature Control No: 357209465-364496843
Paul Holmquist
Specialist

(NPH)

Attachment(s)
Additional Information

Additional information for ASN 2018-ANM-718-OE

ASN 2018-ANM-718-OE

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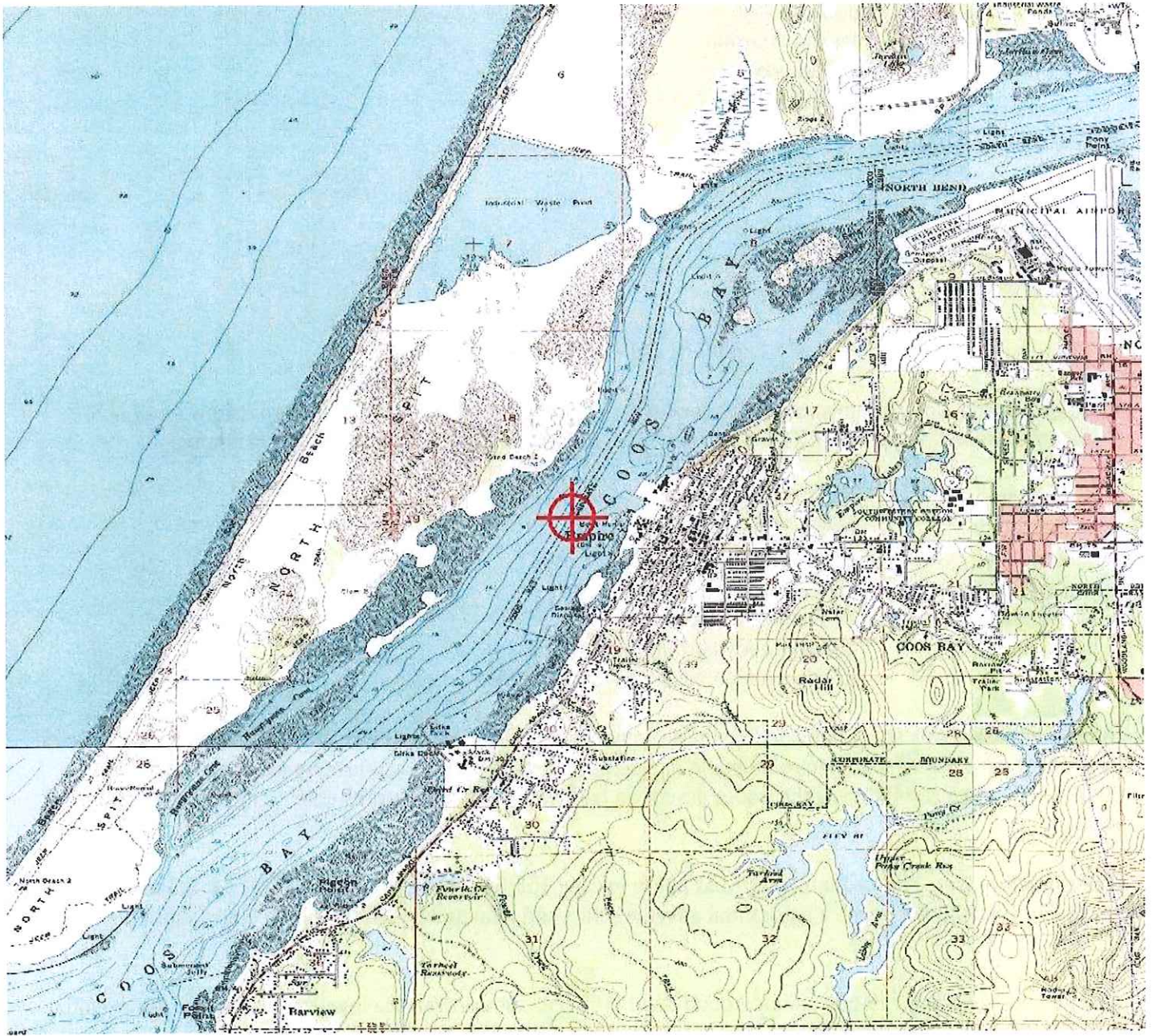
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Your options for this proposal are as follows:

1. If you agree to limit the structure height to 155 feet AGL (167 AMSL), the FAA can then withdraw this objection to the proposed structure as it would not exceed obstruction standards and a favorable determination could be subsequently issued.
2. You can terminate the proposal at this location.
3. You can request further FAA study of the structure at the originally requested height. Further study will include a public notice circularization and 37-day comment period where the outcome cannot be predicted.

Please email me within 60 days of the date of this letter at Paul.Holmquist@faa.gov with your intentions and any questions you might have regarding this aeronautical study.

Close Print



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-ANM-8-OE

Issued Date: 05/07/2018

Drew Jackson
Jordan Cove LNG
5615 Kirby Dr
Houston, TX 77005

**** NOTICE OF PRESUMED HAZARD ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	LNG Carrier Vessel - Stack, Transit Point 5
Location:	North Bend, OR
Latitude:	43-25-07.71N NAD 83
Longitude:	124-16-17.62W
Heights:	12 feet site elevation (SE) 199 feet above ground level (AGL) 211 feet above mean sea level (AMSL)

Initial findings of this study indicate that the structure as described exceeds obstruction standards and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities. Pending resolution of the issues described below, the structure is presumed to be a hazard to air navigation.

If the structure were reduced in height so as not to exceed 155 feet above ground level (167 feet above mean sea level), it would not create a substantial adverse effect and a favorable determination could subsequently be issued.

Any height exceeding 155 feet above ground level (167 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

See Attachment for Additional information.

NOTE: PENDING RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE, THE STRUCTURE IS PRESUMED TO BE A HAZARD TO AIR NAVIGATION. THIS LETTER DOES NOT AUTHORIZE CONSTRUCTION OF THE STRUCTURE EVEN AT A REDUCED HEIGHT. ANY RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE MUST BE COMMUNICATED TO THE FAA SO THAT A FAVORABLE DETERMINATION CAN SUBSEQUENTLY BE ISSUED.

IF MORE THAN 60 DAYS FROM THE DATE OF THIS LETTER HAS ELAPSED WITHOUT ATTEMPTED RESOLUTION, IT WILL BE NECESSARY FOR YOU TO REACTIVATE THE STUDY BY FILING A NEW FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-ANM-8-OE.

Signature Control No: 352163129-364497466

(NPH)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-ANM-8-OE

ASN 2018-ANM-8-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace		

Our aeronautical study has disclosed that the proposed 199-foot AGL (211-foot AMSL) liquid natural gas carrier vessel (ship stack) shipping channel transit point location associated with the proposed Jordan Cove Liquid Natural Gas Terminal penetrates 14 CFR Part 77 protected airspace surfaces at Southwest Oregon Regional Airport (OTH) in North Bend, OR. The OTH airport elevation is 17 feet AMSL.

The proposed structure would exceed the following Part 77 surface:

Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. The proposed structure would exceed the OTH Horizontal Surface by 44 feet.

Additionally, the proposed structure would exceed the OTH VFR traffic pattern airspace in the Part 77 VFR Horizontal Surface feet as defined in FAA JO 7400.2L, 6-3-8, Evaluating Effect on VFR Operations.

This proposed structure would exceed the OTH VFR Traffic Pattern Horizontal Surface by 44 feet. The not-to-exceed height of 155 feet AGL (167 AMSL) will avoid penetrating the Horizontal Surface.

The OTH Airport Master Record, <http://www.gcr1.com/5010web/airport.cfm?Site=OTH>, states there are 36 single engine, eight (8) multi-engine, one (1) jet, and six (6) helicopter aircraft based there with 18,277 total operations for the 12 months ending 31 December 2013 (latest information). RWY 31 is designated Right Traffic.

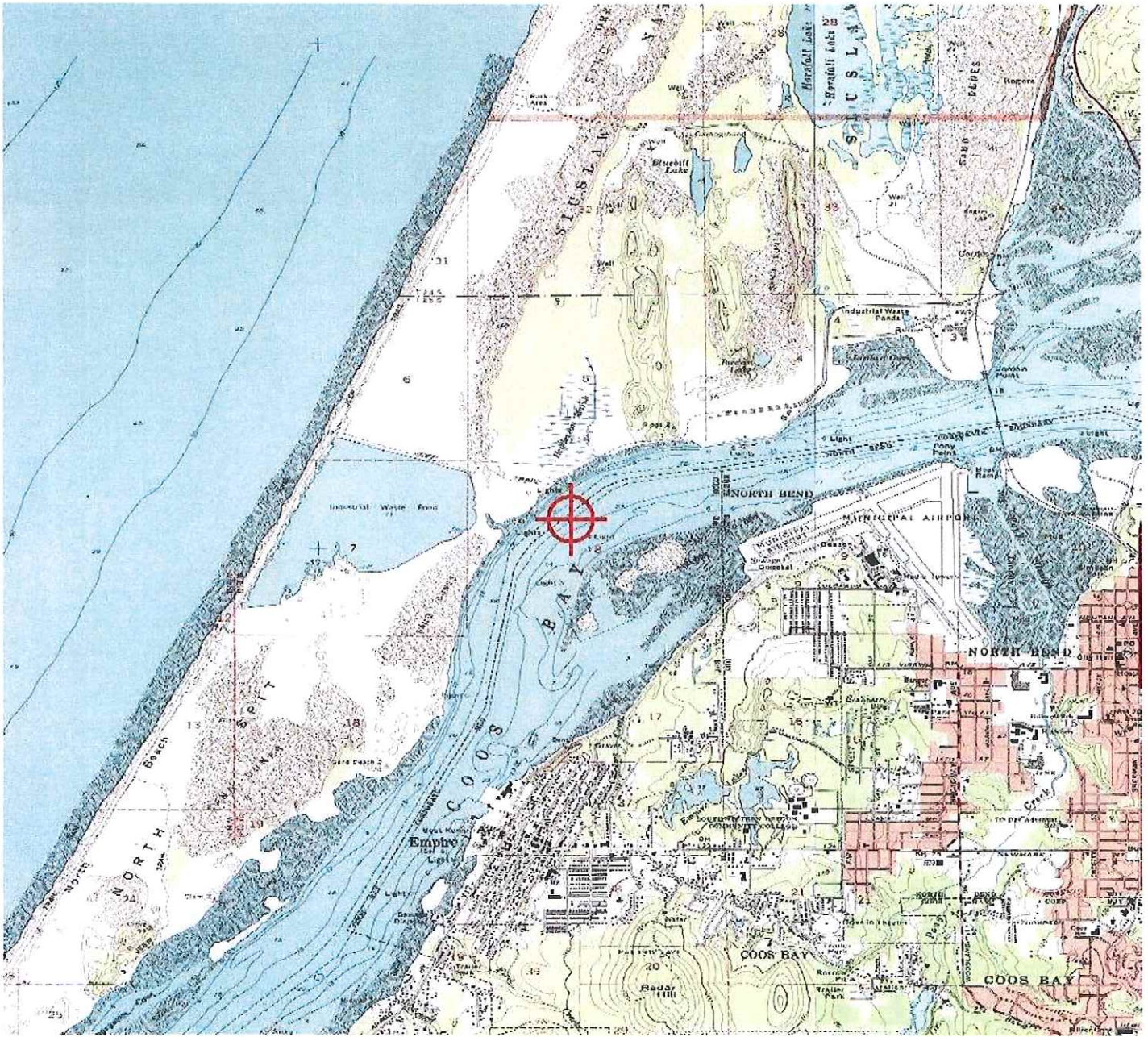
Your options and conditions for this proposal are as follows:

1. You must resolve the 44 foot VFR Traffic Pattern Airspace penetration by lowering the structure height, with all appurtenances, to a maximum height at 155 feet AGL (167 AMSL). If you agree to limit the structure height to 155 feet AGL (167 AMSL), the FAA can then withdraw this objection to the proposed structure as it would not exceed obstruction standards and a favorable determination could be subsequently issued. Further FAA study for any height greater than 155 AGL / 167 AMSL is not an option.
2. You can terminate the proposal at this location.

Please email me within 60 days of the date of this letter at Paul.Holmquist@faa.gov with your intentions and any questions you might have regarding this aeronautical study.

Close

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Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-ANM-7-OE

Issued Date: 05/07/2018

Drew Jackson
Jordan Cove LNG
5615 Kirby Dr
Houston, TX 77005

**** NOTICE OF PRESUMED HAZARD ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	LNG Carrier Vessel - Stack, Transit Point 4
Location:	North Bend, OR
Latitude:	43-24-55.79N NAD 83
Longitude:	124-16-29.14W
Heights:	12 feet site elevation (SE) 199 feet above ground level (AGL) 211 feet above mean sea level (AMSL)

Initial findings of this study indicate that the structure as described exceeds obstruction standards and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities. Pending resolution of the issues described below, the structure is presumed to be a hazard to air navigation.

If the structure were reduced in height so as not to exceed 155 feet above ground level (167 feet above mean sea level), it would not create a substantial adverse effect and a favorable determination could subsequently be issued.

Any height exceeding 155 feet above ground level (167 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

See Attachment for Additional information.

NOTE: PENDING RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE, THE STRUCTURE IS PRESUMED TO BE A HAZARD TO AIR NAVIGATION. THIS LETTER DOES NOT AUTHORIZE CONSTRUCTION OF THE STRUCTURE EVEN AT A REDUCED HEIGHT. ANY RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE MUST BE COMMUNICATED TO THE FAA SO THAT A FAVORABLE DETERMINATION CAN SUBSEQUENTLY BE ISSUED.

IF MORE THAN 60 DAYS FROM THE DATE OF THIS LETTER HAS ELAPSED WITHOUT ATTEMPTED RESOLUTION, IT WILL BE NECESSARY FOR YOU TO REACTIVATE THE STUDY BY FILING A NEW FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-ANM-7-OE.

Signature Control No: 352163128-364497902
Paul Holmquist
Specialist

(NPH)

Attachment(s)
Additional Information

Additional information for ASN 2018-ANM-7-OE

ASN 2018-ANM-7-OE

Abbreviations

AGL - above ground level

AMSL - above mean sea level

RWY - runway

VFR - visual flight rules

IFR - instrument flight rules

NM - nautical mile

ASN- Aeronautical Study Number

CAT - category aircraft

MDA - minimum descent altitude

DA - decision altitude

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

Our aeronautical study has disclosed that the proposed 199-foot AGL (211-foot AMSL) liquid natural gas carrier vessel (ship stack) shipping channel transit point location associated with the proposed Jordan Cove Liquid Natural Gas Terminal penetrates 14 CFR Part 77 protected airspace surfaces at Southwest Oregon Regional Airport (OTH) in North Bend, OR. The OTH airport elevation is 17 feet AMSL.

The proposed structure would exceed the following Part 77 surface:

Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. The proposed structure would exceed the OTH Horizontal Surface by 44 feet.

Additionally, the proposed structure would exceed the OTH VFR traffic pattern airspace in the Part 77 VFR Horizontal Surface feet as defined in FAA JO 7400.2L, 6-3-8, Evaluating Effect on VFR Operations.

This proposed structure would exceed the OTH VFR Traffic Pattern Horizontal Surface by 44 feet. The not-to-exceed height of 155 feet AGL (167 AMSL) will avoid penetrating the Horizontal Surface.

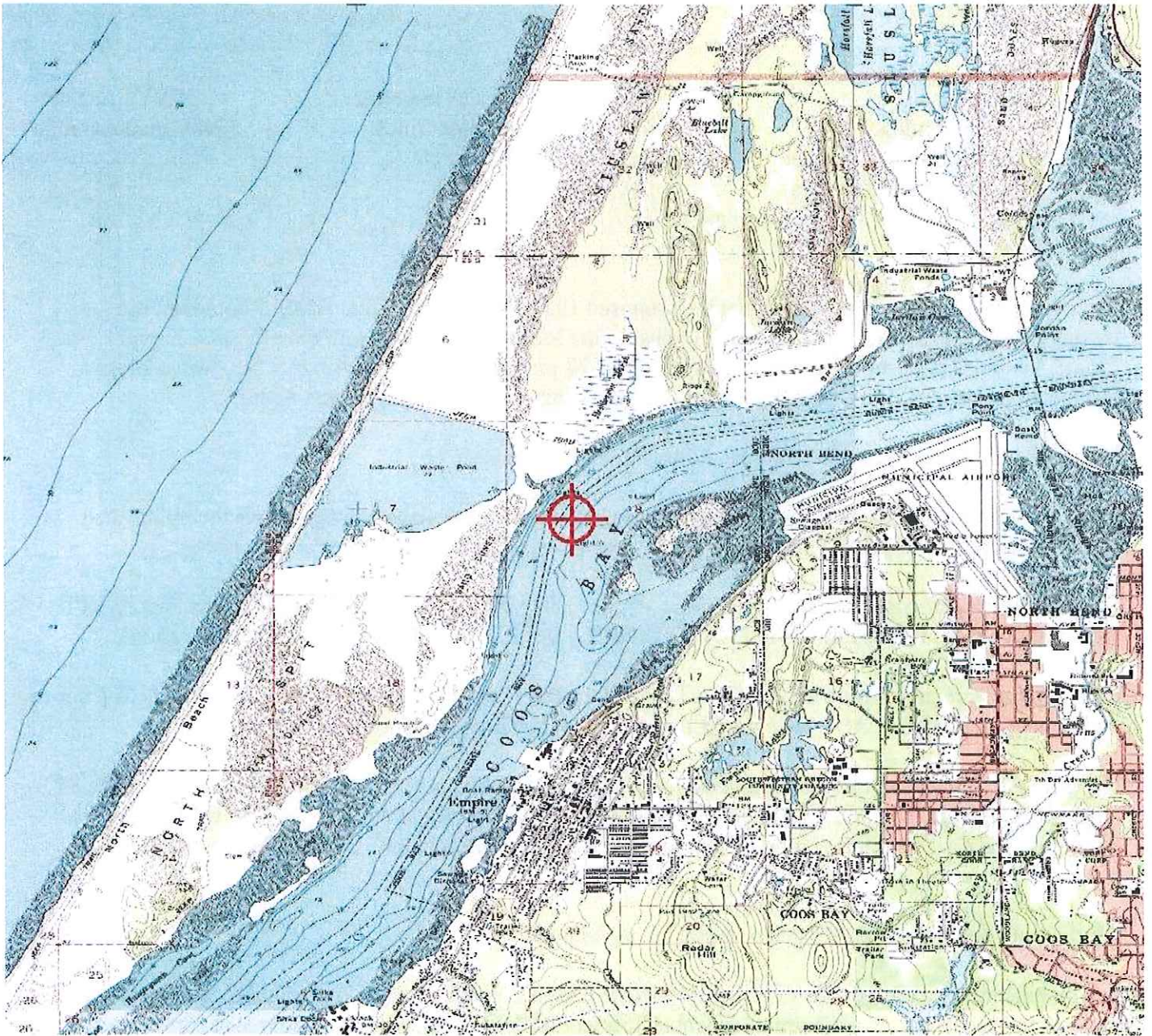
The OTH Airport Master Record, <http://www.gcr1.com/5010web/airport.cfm?Site=OTH>, states there are 36 single engine, eight (8) multi-engine, one (1) jet, and six (6) helicopter aircraft based there with 18,277 total operations for the 12 months ending 31 December 2013 (latest information). RWY 31 is designated Right Traffic.

Your options and conditions for this proposal are as follows:

1. You must resolve the 44 foot VFR Traffic Pattern Airspace penetration by lowering the structure height, with all appurtenances, to a maximum height at 155 feet AGL (167 AMSL). If you agree to limit the structure height to 155 feet AGL (167 AMSL), the FAA can then withdraw this objection to the proposed structure as it would not exceed obstruction standards and a favorable determination could be subsequently issued. Further FAA study for any height greater than 155 AGL / 167 AMSL is not an option.
2. You can terminate the proposal at this location.

Please email me within 60 days of the date of this letter at Paul.Holmquist@faa.gov with your intentions and any questions you might have regarding this aeronautical study.

Close Print



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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-ANM-6-OE

Issued Date: 05/07/2018

Drew Jackson
Jordan Cove LNG
5615 Kirby Dr
Houston, TX 77005

**** NOTICE OF PRESUMED HAZARD ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	LNG Carrier Vessel - Stack, Transit Point 3
Location:	North Bend, OR
Latitude:	43-24-32.44N NAD 83
Longitude:	124-16-38.26W
Heights:	12 feet site elevation (SE) 199 feet above ground level (AGL) 211 feet above mean sea level (AMSL)

Initial findings of this study indicate that the structure as described exceeds obstruction standards and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities. Pending resolution of the issues described below, the structure is presumed to be a hazard to air navigation.

If the structure were reduced in height so as not to exceed 125 feet above ground level (137 feet above mean sea level), it would not create a substantial adverse effect and a favorable determination could subsequently be issued.

Any height exceeding 125 feet above ground level (137 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

See Attachment for Additional information.

NOTE: PENDING RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE, THE STRUCTURE IS PRESUMED TO BE A HAZARD TO AIR NAVIGATION. THIS LETTER DOES NOT AUTHORIZE CONSTRUCTION OF THE STRUCTURE EVEN AT A REDUCED HEIGHT. ANY RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE MUST BE COMMUNICATED TO THE FAA SO THAT A FAVORABLE DETERMINATION CAN SUBSEQUENTLY BE ISSUED.

IF MORE THAN 60 DAYS FROM THE DATE OF THIS LETTER HAS ELAPSED WITHOUT ATTEMPTED RESOLUTION, IT WILL BE NECESSARY FOR YOU TO REACTIVATE THE STUDY BY FILING A NEW FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-ANM-6-OE.

Signature Control No: 352163127-364500875
Paul Holmquist
Specialist

(NPH)

Attachment(s)
Additional Information

Additional information for ASN 2018-ANM-6-OE

ASN 2018-ANM-6-OE

Abbreviations

AGL - above ground level

AMSL - above mean sea level

RWY - runway

VFR - visual flight rules

IFR - instrument flight rules

NM - nautical mile

ASN- Aeronautical Study Number

CAT - category aircraft

MDA - minimum descent altitude

DA - decision altitude

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

Our aeronautical study has disclosed that the proposed 199-foot AGL (211-foot AMSL) liquid natural gas carrier vessel (ship stack) shipping channel transit point location associated with the proposed Jordan Cove Liquid Natural Gas Terminal penetrates 14 CFR Part 77 protected airspace surfaces at Southwest Oregon Regional Airport (OTH) in North Bend, OR. The OTH airport elevation is 17 feet AMSL.

The proposed structure would exceed the following Part 77 surfaces:

a. Section 77.17(a)(3) -- A structure that causes less than the required obstacle clearance within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area resulting in increases to an IFR terminal minimum altitude. The high point on the LNG carrier vessel (stack) would have the following effects on IFR operations at OTH:

Obstacle penetrates OTH RWY 22 40:1 departure surface in the Initial Climb Area (ICA) 73 feet, increases climb gradient from standard and 200 feet per NM to 300-1 or standard with 423 feet per NM to 400 then as published. The height at or below that avoids this effect: 138 AMSL (126 AGL).

OTH RWY 4 ILS or LOC: ILS or LOC RWY 4, S-ILS 4* not authorized (NA). Obstacle penetrates Vertical Guidance Surface (VGS) 23 feet. The height at or below that avoids this effect: 188 AMSL (176 AGL).

At 188 AMSL, increase S-ILS 4* DA from 216 AMSL to 473 AMSL. The height at or below that avoids this effect: 153 AMSL (141 AGL).

OTH RWY 4 ILS or LOC RWY, S-ILS NA. Obstacle penetrates Vertical Guidance Surface (VGS) 23 feet. The height at or below that avoids this effect: 188 AMSL (176 AGL).

At 188 AMSL, increase S-ILS 4 DA from 278 AMSL to 473 AMSL. The height at or below that avoids this effect: 153 AMSL (141 AGL).

Increases S-LOC 4 MDA from 400 AMSL to 520 AMSL. The height at or below that avoids this effect: 139 AMSL (127 AGL).

Penetrates 34:1 Visual Area Surface 56 feet, increase visibility from 1/2 to 3/4 mile. The height at or below that avoids this effect: 155 AMSL (143 AGL)

OTH RWY 4 COPTER ILS or LOC NA, obstacle penetrates Vertical Guidance Surface (VGS) 23 feet. The height at or below that avoids this effect: 188 AMSL (176 AGL).

At 188 AMSL, increase H-ILS 4 DA from 216 AMSL to 473 AMSL. The height at or below that avoids this effect: 153 AMSL (141 AGL).

Increases H-LOC 4 MDA from 400 AMSL to 520 AMSL. The height at or below that avoids this effect: 139 AMSL (127 AGL).

Penetrates 34:1 Visual Area Surface 56 feet, increase visibility from 1/2 to 3/4 mile. The height at or below that avoids this effect: 155 AMSL (133 AGL).

OTH RWY 4 RNAV (GPS) Y, LPV DA NA, obstacle penetrates Vertical Guidance Surface (VGS) 23 feet. The height at or below that avoids this effect: 188 AMSL (176 AGL).

At 188 AMSL, increases LPV DA from 319 AMSL to 513 AMSL. The height at or below that avoids this effect: 154 AMSL (142 AGL).

Penetrates 34:1 Visual Area Surface 56 feet, increase visibility from 1/2 to 3/4 mile. The height at or below that avoids this effect: 155 AMSL (143 AGL).

LNAV/VNAV NA, obstacle penetrates the VGS 24 feet. The height at or below that avoids this effect: 187 AMSL (175 AGL).

At 187 AMSL, no IFR effect.

LNAV, penetrates 34:1 Visual Area Surface 56 feet, increase visibility from 1/2 to 3/4 mile. The height at or below that avoids this effect: 155 AMSL (143 AGL) .

OTH RWY 4 RNAV (RNP) Z, RNP 0.11 DA* NA, obstacle penetrates the VGS 27 feet. The height at or below that avoids this effect: 184 AMSL (172 AGL).

At 184 AMSL, increases RNP 0.11 DA* from 309 to 444. The height at or below that avoids this effect: 137 AMSL (125 AGL).

Penetrates 34:1 Visual Area Surface 56 feet, increase visibility from 1/2 to 3/4 mile, The height at or below that avoids this effect: 155 AMSL (133 AGL).

RNP 0.30 DA# NA, obstacle penetrates the VGS 27 feet. The height at or below that avoids this effect: 184 AMSL (172 AGL).

At 184 AMSL, increases RNP 0.30 DA# from 477 AMSL to 489 AMSL. The height at or below that avoids this effect: 168 AMSL (156 AGL).

RNP 0.30 NA, obstacle penetrates the VGS 27 feet. The height at or below that avoids this effect: 184 AMSL (172 AGL).

The MDA/DA is the minimum altitudes to which an aircraft may descend while on the instrument approach to the airport during periods when reduced visibility and/or low cloud ceiling conditions exist. If the pilot cannot achieve visual reference to the ground upon reaching the MDA/DA, the approach must be abandoned. This results in the aircraft having to proceed to an alternate airport or waiting in a holding pattern for improved weather conditions. Any increase in the MDA/DA would have a significant adverse effect on the benefits derived from the instrument procedures.

b. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. The proposed structure would exceed the OTH Horizontal Surface by 44 feet.

c. Section 77.19(d) -- Approach Surface - an area designated to protect aircraft during the final approach phase of flight at an airport: The proposed structure would exceed the existing OTH Approach Surface by 102 feet and would exceed the OTH Approach Surface plan on file by 122 feet.

Additionally, the proposed structure would exceed the OTH VFR traffic pattern airspace in the Part 77 VFR Horizontal Surface and the Approach Surface (plan on file) as defined in FAA JO 7400.2L, 6-3-8, Evaluating Effect on VFR Operations.

This proposed structure would exceed the OTH VFR Traffic Pattern Horizontal Surface by 44 feet. The not-to-exceed height of 157 feet AGL (167 AMSL) will avoid penetrating the Horizontal Surface. This proposed

structure would exceed the OTH VFR Traffic Pattern Approach Surface (plan on file) by 11 feet. The not-to-exceed height of 188 feet AGL (200 AMSL) will avoid penetrating the Approach Surface (plan on file).

The FAA Technical Operations Branch found the proposal has a physical and/or an electromagnetic radiation effect upon the Visual Approach Slope Indicator (VASI) serving OTH RWY 04 as it penetrates the surface given in the siting standard, Order 6850.2. The proposal will affect the quality and/or availability of the VASI visual guidance signal (service). The effect can be eliminated by lowering the proposal to 145 ft AMSL (132 AGL).

The OTH Airport Master Record, <http://www.gcr1.com/5010web/airport.cfm?Site=OTH>, states there are 36 single engine, eight (8) multi-engine, one (1) jet, and six (6) helicopter aircraft based there with 18,277 total operations for the 12 months ending 31 December 2013 (latest information). RWY 31 is designated Right Traffic.

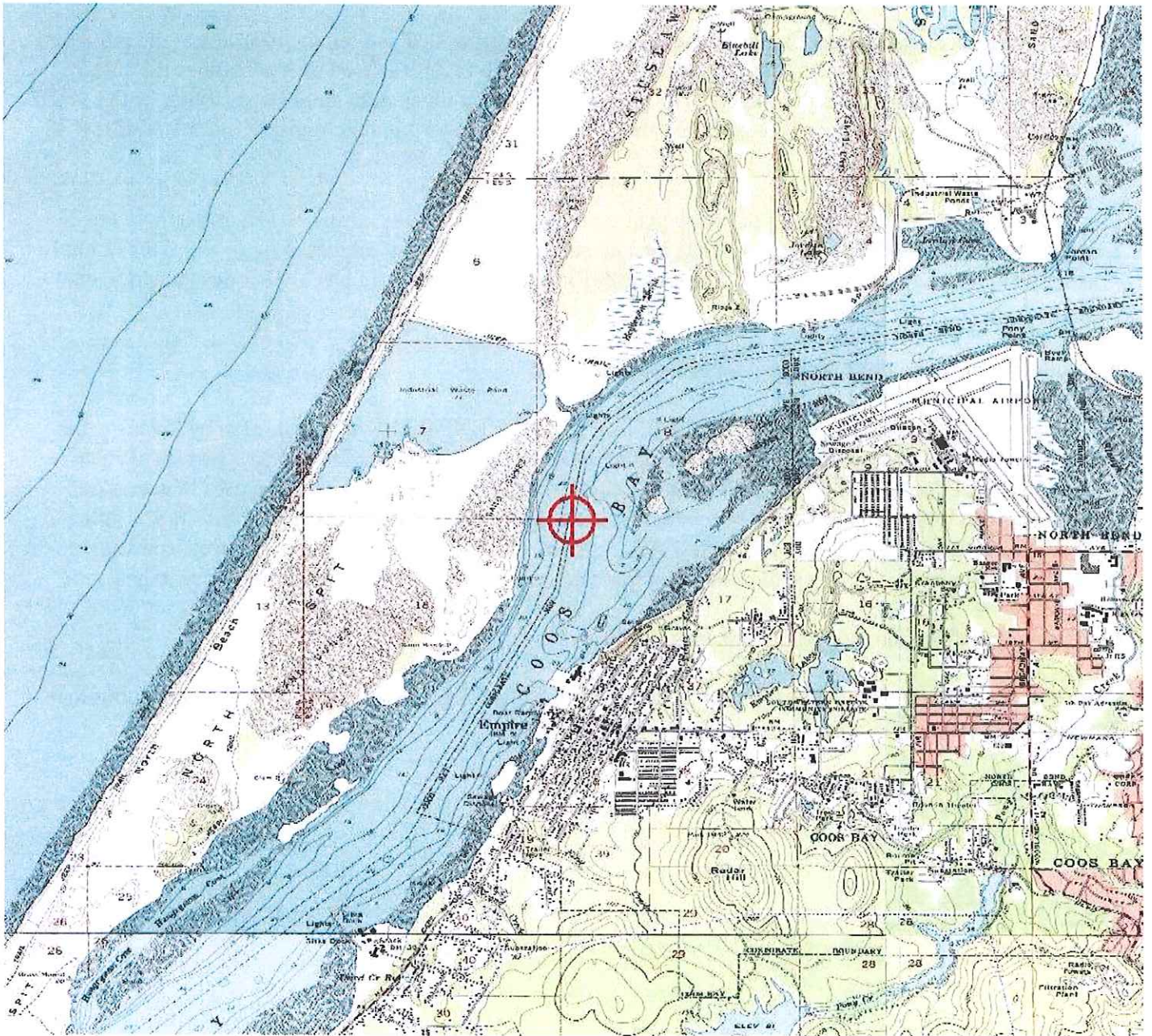
Your options and conditions for this proposal are as follows:

1. You must resolve the 74 foot OTH RWY 4 RNAV (RNP) Z, RNP 0.11 DA* penetration by lowering the structure height, with all appurtenances, to a maximum height at 125 AGL (137 AMSL). This would also resolve our objection to the 44 foot VFR Traffic Pattern Airspace penetration which requires lowering the structure height, with all appurtenances, to a maximum height at 167 feet AGL (179 AMSL). If you agree to lower the maximum height to 125 AGL, the FAA can then withdraw this objection to the proposed structure as it would not exceed obstruction standards and a favorable determination could be subsequently issued.
2. You can terminate the proposal at this location.

Please email me within 60 days of the date of this letter at Paul.Holmquist@faa.gov with your intentions and any questions you might have regarding this aeronautical study.

Close

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Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-ANM-5-OE

Issued Date: 05/07/2018

Drew Jackson
Jordan Cove LNG
5615 Kirby Dr
Houston, TX 77005

**** NOTICE OF PRESUMED HAZARD ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	LNG Carrier Vessel - Stack, Transit Point 2
Location:	North Bend, OR
Latitude:	43-24-07.84N NAD 83
Longitude:	124-16-41.25W
Heights:	12 feet site elevation (SE) 199 feet above ground level (AGL) 211 feet above mean sea level (AMSL)

Initial findings of this study indicate that the structure as described exceeds obstruction standards and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities. Pending resolution of the issues described below, the structure is presumed to be a hazard to air navigation.

If the structure were reduced in height so as not to exceed 124 feet above ground level (136 feet above mean sea level), it would not create a substantial adverse effect and a favorable determination could subsequently be issued.

Any height exceeding 124 feet above ground level (136 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

See Attachment for Additional information.

NOTE: PENDING RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE, THE STRUCTURE IS PRESUMED TO BE A HAZARD TO AIR NAVIGATION. THIS LETTER DOES NOT AUTHORIZE CONSTRUCTION OF THE STRUCTURE EVEN AT A REDUCED HEIGHT. ANY RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE MUST BE COMMUNICATED TO THE FAA SO THAT A FAVORABLE DETERMINATION CAN SUBSEQUENTLY BE ISSUED.

IF MORE THAN 60 DAYS FROM THE DATE OF THIS LETTER HAS ELAPSED WITHOUT ATTEMPTED RESOLUTION, IT WILL BE NECESSARY FOR YOU TO REACTIVATE THE STUDY BY FILING A NEW FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-ANM-5-OE.

Signature Control No: 352163126-364502142
Paul Holmquist
Specialist

(NPH)

Attachment(s)
Additional Information

Additional information for ASN 2018-ANM-5-OE

ASN 2018-ANM-5-OE

Abbreviations

AGL - above ground level

AMSL - above mean sea level

RWY - runway

VFR - visual flight rules

IFR - instrument flight rules

NM - nautical mile

ASN- Aeronautical Study Number

CAT - category aircraft

MDA - minimum descent altitude

DA - decision altitude

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

Our aeronautical study has disclosed that the proposed 199-foot AGL (211-foot AMSL) liquid natural gas carrier vessel (ship stack) shipping channel transit point location associated with the proposed Jordan Cove Liquid Natural Gas Terminal penetrates 14 CFR Part 77 protected airspace surfaces at Southwest Oregon Regional Airport (OTH) in North Bend, OR. The OTH airport elevation is 17 feet AMSL.

The proposed structure would exceed the following Part 77 surfaces:

a. Section 77.17(a)(3) -- A structure that causes less than the required obstacle clearance within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area resulting in increases to an IFR terminal minimum altitude. The LNG carrier vessel stack high point would have the following effects on IFR operations at OTH:

Obstacle penetrates OTH RWY 22 40:1 departure surface in the Initial Climb Area (ICA) 38 feet, increases climb gradient from standard and 200 feet per NM to 200-1- 1/4 or standard with 324 feet per NM to 400 then as published. The height at or below that avoids this effect: 173 AMSL (161 AGL).

OTH RWY 4 ILS or LOC: increases S-LOC 4 MDA from 400 AMSL to 480 AMSL. The height at or below that avoids this effect: 188 AMSL (176 AGL).

OTH RWY 4 RNAV (RNP) Z: increases RNP 0.30 DA# from 477 AMSL to 526 AMSL. The height at or below that avoids this effect: 136 AMSL (124 AGL).

OTH RWY 4 COPTER ILS or LOC: increases H-LOC 4 MDA from 400 AMSL to 480 AMSL. The height at or below that avoids this effect: 188 AMSL (176 AGL)

The MDA/DA is the minimum altitudes to which an aircraft may descend while on the instrument approach to the airport during periods when reduced visibility and/or low cloud ceiling conditions exist. If the pilot cannot achieve visual reference to the ground upon reaching the MDA/DA, the approach must be abandoned. This results in the aircraft having to proceed to an alternate airport or waiting in a holding pattern for improved weather conditions. Any increase in the MDA/DA would have a significant adverse effect on the benefits derived from the instrument procedures.

b. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. The proposed structure would exceed the OTH Horizontal Surface by 44 feet.

Additionally, this proposed structure would exceed the OTH VFR traffic pattern airspace in the Part 77 Conical Surface as defined in FAA JO 7400.2L, 6-3-8, Evaluating Effect on VFR Operations. The VFR Conical

Surface is defined in Part 77 Section 77.19(b) as a surface extending outward and upward from the periphery of the VFR Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet .

This proposed structure would exceed the OTH VFR Traffic Pattern Conical Surface by 25 feet. The not-to-exceed height of 186 feet AGL (198 AMSL) will avoid penetrating the Conical Surface.

The FAA Technical Operations Branch found that while the proposal is laterally beyond the standard 10° visual slope approach indicator (VASI) obstacle clearance surface (OCS), however, it is within 15° of the extended runway centerline and above the VASI OCS. The proposal may be within the lateral limits of the visible light beam of the VASI serving OTH RWY 04. The height at or below that avoids this effect is 187 AMSL

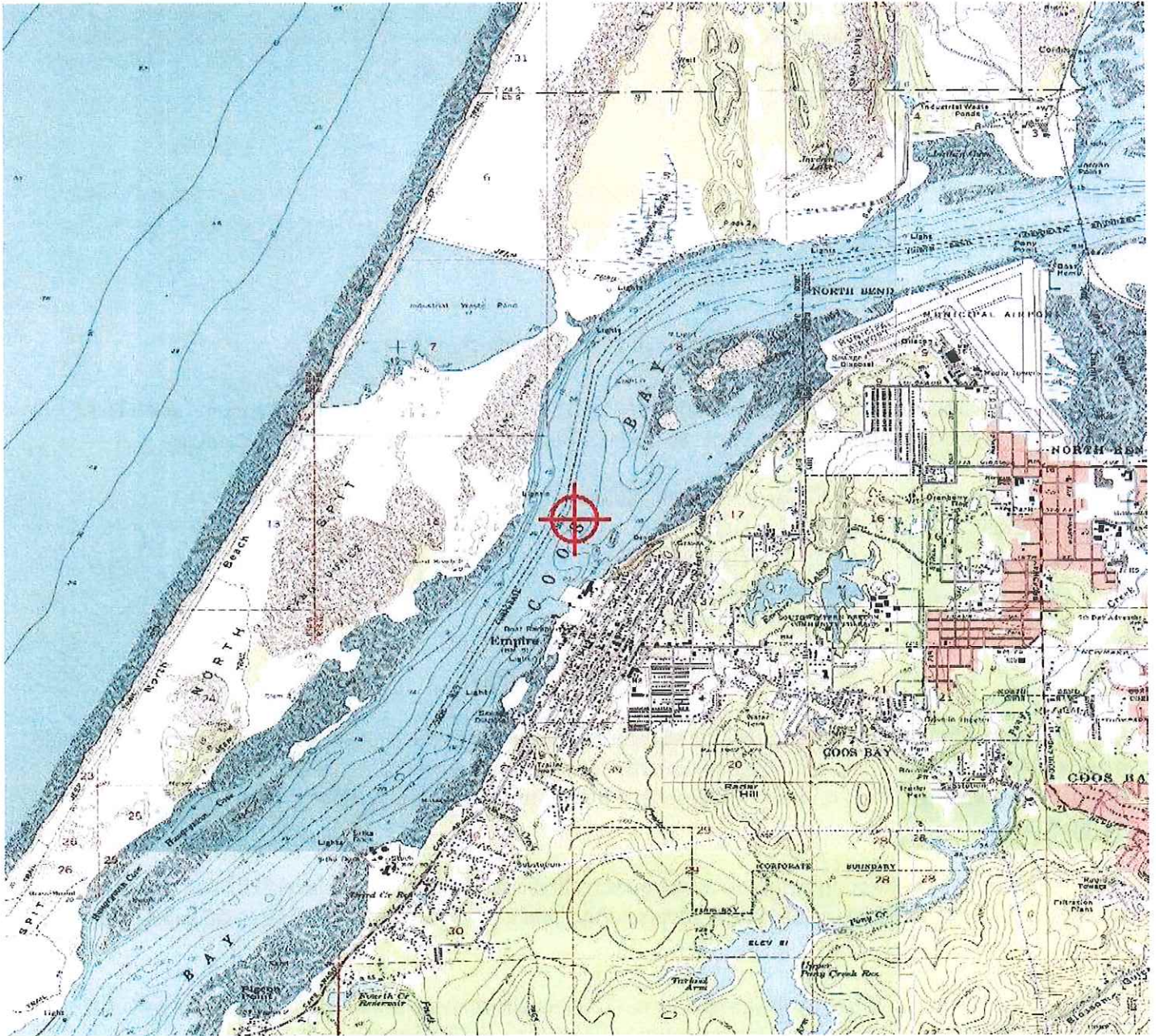
The OTH Airport Master Record, <http://www.gcr1.com/5010web/airport.cfm?Site=OTH>, states there are 36 single engine, eight (8) multi-engine, one (1) jet, and six (6) helicopter aircraft based there with 18,277 total operations for the 12 months ending 31 December 2013 (latest information). RWY 31 is designated Right Traffic.

Your options and conditions for this proposal are as follows:

1. You must resolve the 75 foot OTH RWY 4 RNAV (RNP) Z DA penetration by lowering the structure height, with all appurtenances, to a maximum height at 124 AGL (136 AMSL). This would also resolve our objection to the 25 foot VFR Traffic Pattern Airspace penetration which requires lowering the structure height, with all appurtenances, to a maximum height at 174 feet AGL (186 AMSL). If you agree to limit the structure height to 124 feet AGL (136 feet AMSL), the FAA can then withdraw this objection to the proposed structure as it would not exceed obstruction standards and a favorable determination could be subsequently issued. Further FAA study for any height greater than 124 AGL/ 136 AMSL is not an option.
2. You can terminate the proposal at this location.

Please email me within 60 days of the date of this letter at Paul.Holmquist@faa.gov with your intentions and any questions you might have regarding this aeronautical study.

Close Print



Mail Processing Center
Federal Aviation Administration
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Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-ANM-4-OE

Issued Date: 05/07/2018

Drew Jackson
Jordan Cove LNG
5615 Kirby Dr
Houston, TX 77005

**** NOTICE OF PRESUMED HAZARD ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	LNG Carrier Vessel - Stack, Transit Point 1
Location:	North Bend, OR
Latitude:	43-23-49.37N NAD 83
Longitude:	124-16-56.55W
Heights:	12 feet site elevation (SE) 199 feet above ground level (AGL) 211 feet above mean sea level (AMSL)

Initial findings of this study indicate that the structure as described exceeds obstruction standards and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities. Pending resolution of the issues described below, the structure is presumed to be a hazard to air navigation.

If the structure were reduced in height so as not to exceed 155 feet above ground level (167 feet above mean sea level), it would not create a substantial adverse effect and a favorable determination could subsequently be issued.

Any height exceeding 167 feet above ground level (179 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

See Attachment for Additional information.

NOTE: PENDING RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE, THE STRUCTURE IS PRESUMED TO BE A HAZARD TO AIR NAVIGATION. THIS LETTER DOES NOT AUTHORIZE CONSTRUCTION OF THE STRUCTURE EVEN AT A REDUCED HEIGHT. ANY RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE MUST BE COMMUNICATED TO THE FAA SO THAT A FAVORABLE DETERMINATION CAN SUBSEQUENTLY BE ISSUED.

IF MORE THAN 60 DAYS FROM THE DATE OF THIS LETTER HAS ELAPSED WITHOUT ATTEMPTED RESOLUTION, IT WILL BE NECESSARY FOR YOU TO REACTIVATE THE STUDY BY FILING A NEW FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-ANM-4-OE.

Signature Control No: 352163125-364503672

(NPH)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2018-ANM-4-OE

ASN 2018-ANM-4-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace		

Our aeronautical study has disclosed that the proposed 199-foot AGL (211-foot AMSL) liquid natural gas carrier vessel (ship stack) shipping channel transit point location associated with the proposed Jordan Cove Liquid Natural Gas Terminal penetrates 14 CFR Part 77 protected airspace surfaces at Southwest Oregon Regional Airport (OTH) in North Bend, OR. The OTH airport elevation is 17 feet AMSL.

The proposed structure would exceed the following Part 77 surfaces:

- a. Section 77.17(a)(3) -- A structure that causes less than the required obstacle clearance within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area resulting in increases to an IFR terminal minimum altitude. The LNG carrier vessel stack high point would have the following effects on IFR operations at OTH:

OTH RWY 4 RNAV (RNP) Z: increases RNP 0.30 DAs from 477 AMSL / 569 AMSL to 584 AMSL. The height at or below that avoids this effect is: 179 AMSL (167 AGL)

The MDA/DA is the minimum altitudes to which an aircraft may descend while on the instrument approach to the airport during periods when reduced visibility and/or low cloud ceiling conditions exist. If the pilot cannot achieve visual reference to the ground upon reaching the MDA/DA, the approach must be abandoned. This results in the aircraft having to proceed to an alternate airport or waiting in a holding pattern for improved weather conditions. Any increase in the MDA/DA would have a significant adverse effect on the benefits derived from the instrument procedures.

- b. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. The proposed structure would exceed the OTH Horizontal Surface by 44 feet.

The OTH Airport Master Record, <http://www.gcr1.com/5010web/airport.cfm?Site=OTH>, states there are 36 single engine, eight (8) multi-engine, one (1) jet, and six (6) helicopter aircraft based there with 18,277 total operations for the 12 months ending 31 December 2013 (latest information). RWY 31 is designated Right Traffic.

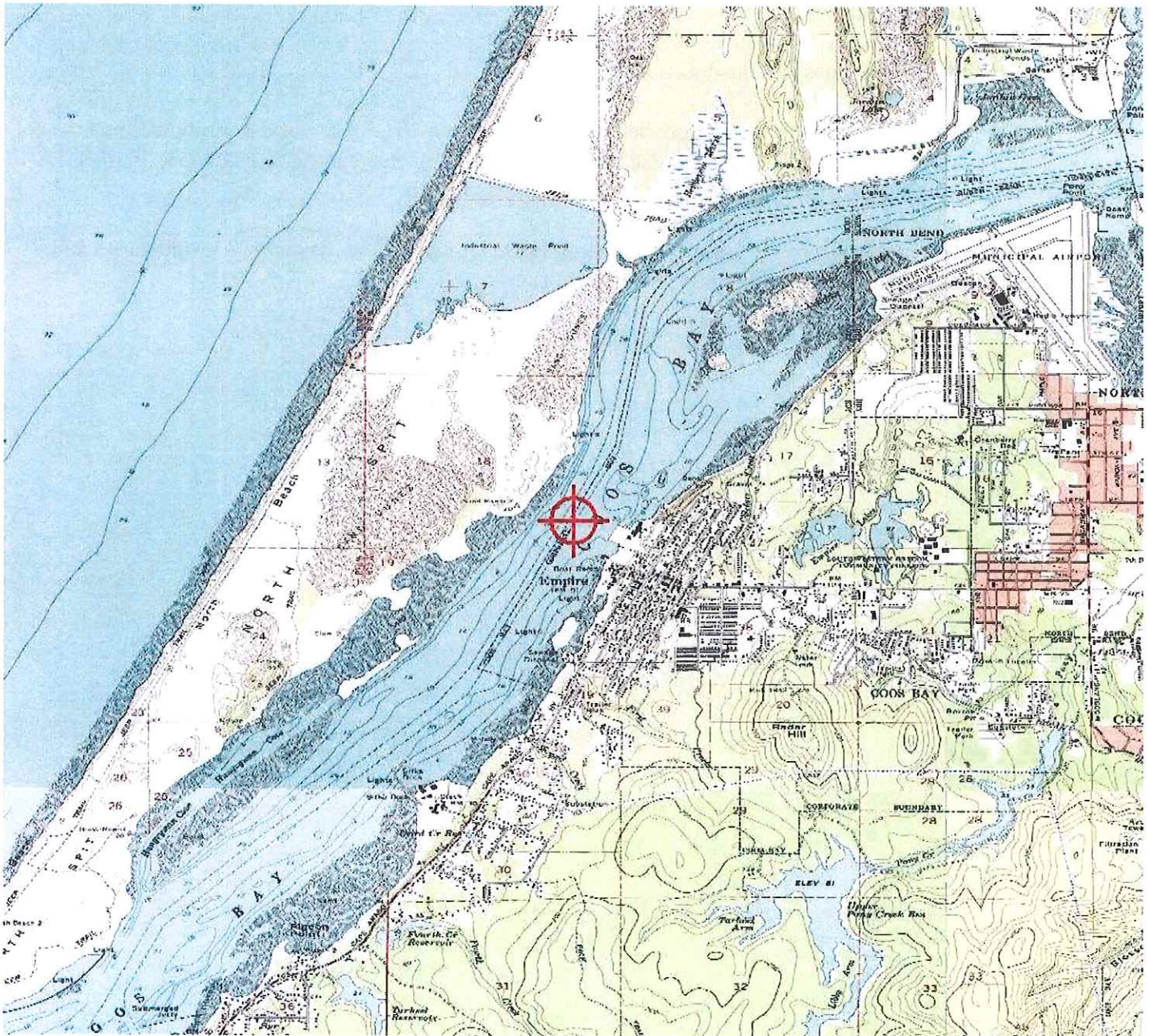
Your options and conditions for this proposal are as follows:

1. You must resolve the 32 foot OTH RWY 4 RNAV (RNP) Z penetration by lowering the structure height, with all appurtenances, to a maximum height at 167 AGL (179 AMSL)

2. If you agree to limit the structure height to 155 feet AGL (167 AMSL), the FAA can then withdraw this objection to the proposed structure as it would not exceed obstruction standards and a favorable determination could be subsequently issued.
3. You can terminate the proposal at this location.
3. You can request further study for any height between 155 AGL and 167 AGL. Further study will include a public notice circularization and 37-day comment period where the outcome cannot be predicted. Further FAA study for any height greater than 167 AGL (179 AMSL) is not an option.

Please email me within 60 days of the date of this letter at Paul.Holmquist@faa.gov with your intentions and any questions you might have regarding this aeronautical study.

Close Print



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2017-ANM-5418-OE

Issued Date: 05/07/2018

Drew Jackson
Jordan Cove LNG
5615 Kirby Dr
Houston, TX 77005

**** NOTICE OF PRESUMED HAZARD ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	LNG Carrier Vessel - Stack
Location:	North Bend, OR
Latitude:	43-25-40.52N NAD 83
Longitude:	124-15-57.06W
Heights:	10 feet site elevation (SE) 199 feet above ground level (AGL) 209 feet above mean sea level (AMSL)

Initial findings of this study indicate that the structure as described exceeds obstruction standards and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities. Pending resolution of the issues described below, the structure is presumed to be a hazard to air navigation.

If the structure were reduced in height so as not to exceed 157 feet above ground level (167 feet above mean sea level), it would not create a substantial adverse effect and a favorable determination could subsequently be issued.

Any height exceeding 157 feet above ground level (167 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

See Attachment for Additional information.

NOTE: PENDING RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE, THE STRUCTURE IS PRESUMED TO BE A HAZARD TO AIR NAVIGATION. THIS LETTER DOES NOT AUTHORIZE CONSTRUCTION OF THE STRUCTURE EVEN AT A REDUCED HEIGHT. ANY RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE MUST BE COMMUNICATED TO THE FAA SO THAT A FAVORABLE DETERMINATION CAN SUBSEQUENTLY BE ISSUED.

IF MORE THAN 60 DAYS FROM THE DATE OF THIS LETTER HAS ELAPSED WITHOUT ATTEMPTED RESOLUTION, IT WILL BE NECESSARY FOR YOU TO REACTIVATE THE STUDY BY FILING A NEW FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-ANM-5418-OE.

Signature Control No: 350680505-364504065
Paul Holmquist
Specialist

(NPH)

Attachment(s)
Additional Information

Additional information for ASN 2017-ANM-5418-OE

ASN 2017-ANM-5418-OE

Abbreviations

AGL - above ground level

AMSL - above mean sea level

RWY - runway

VFR - visual flight rules

IFR - instrument flight rules

NM - nautical mile

ASN- Aeronautical Study Number

CAT - category aircraft

MDA - minimum descent altitude

DA - decision altitude

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

Our aeronautical study has disclosed that the proposed 199-foot AGL (209-foot AMSL) liquid natural gas carrier vessel (ship stack) docking location associated with the proposed Jordan Cove Liquid Natural Gas Terminal penetrates 14 CFR Part 77 protected airspace surfaces at Southwest Oregon Regional Airport (OTH) in North Bend, OR. The OTH airport elevation is 17 feet AMSL.

The proposed structure would exceed the following Part 77 surface:

Section 77.19(a): Horizontal Surface—a height exceeding a horizontal plane 150 feet above the established airport elevation. The proposed structure would exceed the OTH Horizontal Surface by 42 feet.

Additionally, the proposed structure would exceed the OTH VFR traffic pattern airspace in the Part 77 VFR Horizontal Surface feet as defined in FAA JO 7400.2L, 6-3-8, Evaluating Effect on VFR Operations.

This proposed structure would exceed the OTH VFR Traffic Pattern Horizontal Surface by 42 feet. The not-to-exceed height of 157 feet AGL (167 AMSL) will avoid penetrating the Horizontal Surface.

The OTH Airport Master Record, <http://www.gcr1.com/5010web/airport.cfm?Site=OTH>, states there are 36 single engine, eight (8) multi-engine, one (1) jet, and six (6) helicopter aircraft based there with 18,277 total operations for the 12 months ending 31 December 2013 (latest information). RWY 31 is designated Right Traffic.

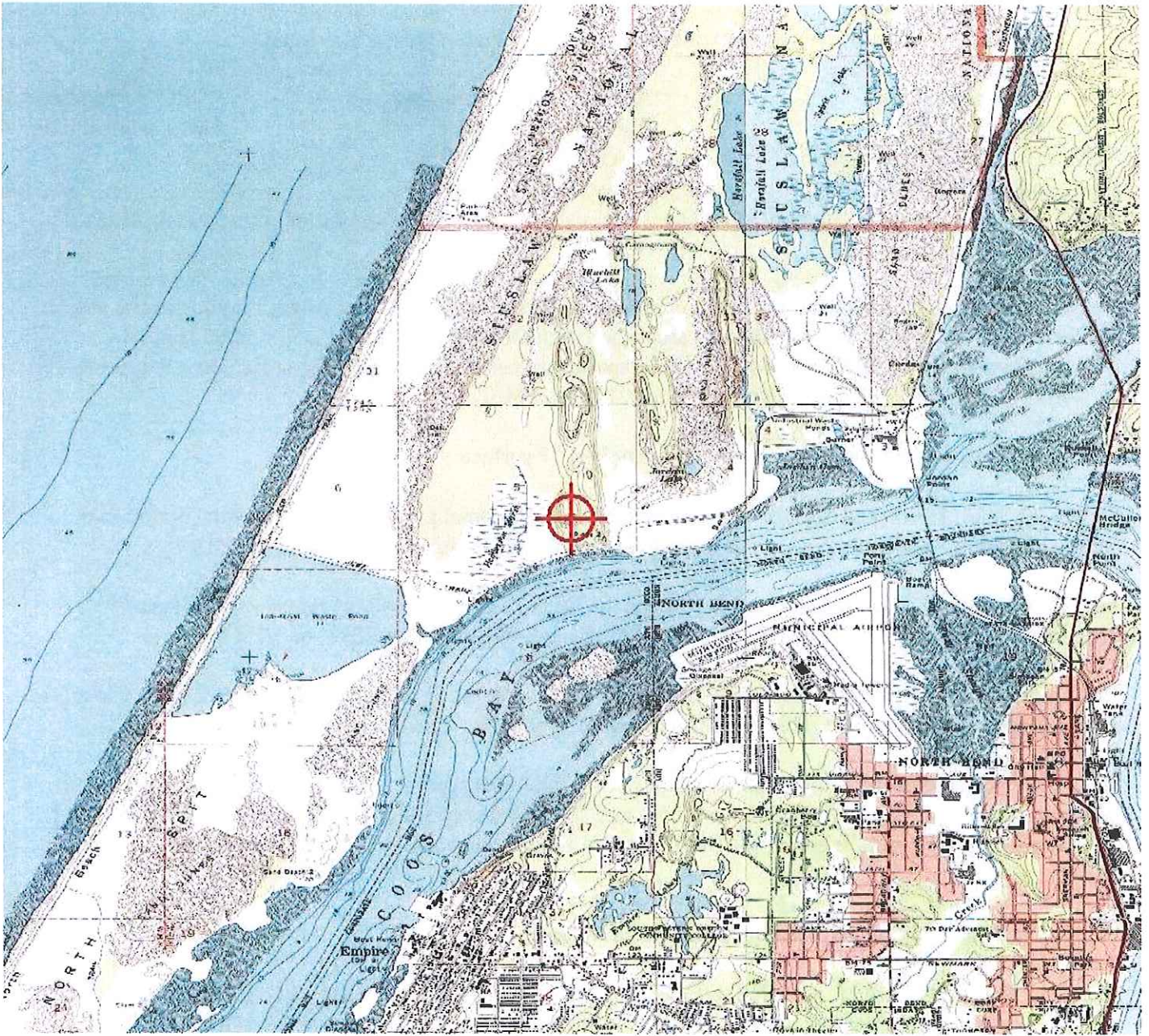
Your options and conditions for this proposal are as follows:

1. You must resolve the 42 foot VFR Traffic Pattern Airspace penetration by lowering the structure height, with all appurtenances, to a maximum height at 157 feet AGL (167 AMSL). The FAA can then withdraw this objection to the proposed structure as it would not exceed obstruction standards and a favorable determination could be subsequently issued.
2. You can terminate the proposal at this location.

Further FAA study for any height greater than 157 feet AGL (167 AMSL) is not an option.

Please email me within 60 days of the date of this letter at Paul.Holmquist@faa.gov with your intentions and any questions you might have regarding this aeronautical study.

Close Print



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2017-ANM-5389-OE

Issued Date: 05/07/2018

Drew Jackson
Jordan Cove LNG
5615 Kirby Dr
Houston, TX 77005

**** NOTICE OF PRESUMED HAZARD ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Amine Regenerator
Location:	North Bend, OR
Latitude:	43-26-01.57N NAD 83
Longitude:	124-16-03.43W
Heights:	42 feet site elevation (SE) 126 feet above ground level (AGL) 168 feet above mean sea level (AMSL)

Initial findings of this study indicate that the structure as described exceeds obstruction standards and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities. Pending resolution of the issues described below, the structure is presumed to be a hazard to air navigation.

If the structure were reduced in height so as not to exceed 125 feet above ground level (167 feet above mean sea level), it would not create a substantial adverse effect and a favorable determination could subsequently be issued.

See Attachment for Additional information.

NOTE: PENDING RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE, THE STRUCTURE IS PRESUMED TO BE A HAZARD TO AIR NAVIGATION. THIS LETTER DOES NOT AUTHORIZE CONSTRUCTION OF THE STRUCTURE EVEN AT A REDUCED HEIGHT. ANY RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE MUST BE COMMUNICATED TO THE FAA SO THAT A FAVORABLE DETERMINATION CAN SUBSEQUENTLY BE ISSUED.

IF MORE THAN 60 DAYS FROM THE DATE OF THIS LETTER HAS ELAPSED WITHOUT ATTEMPTED RESOLUTION, IT WILL BE NECESSARY FOR YOU TO REACTIVATE THE STUDY BY FILING A NEW FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-ANM-5389-OE.

Signature Control No: 350680447-364504785

(NPH)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2017-ANM-5389-OE

ASN 2017-ANM-5389-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

Our aeronautical study has disclosed that the proposed 126-foot AGL (168-foot AMSL) amine regenerator structure associated with the proposed Jordan Cove Liquid Natural Gas Terminal penetrates 14 CFR Part 77 protected airspace surfaces at Southwest Oregon Regional Airport (OTH) in North Bend, OR. The OTH airport elevation is 17 feet AMSL.

The proposed structure would exceed the following Part 77 surface:

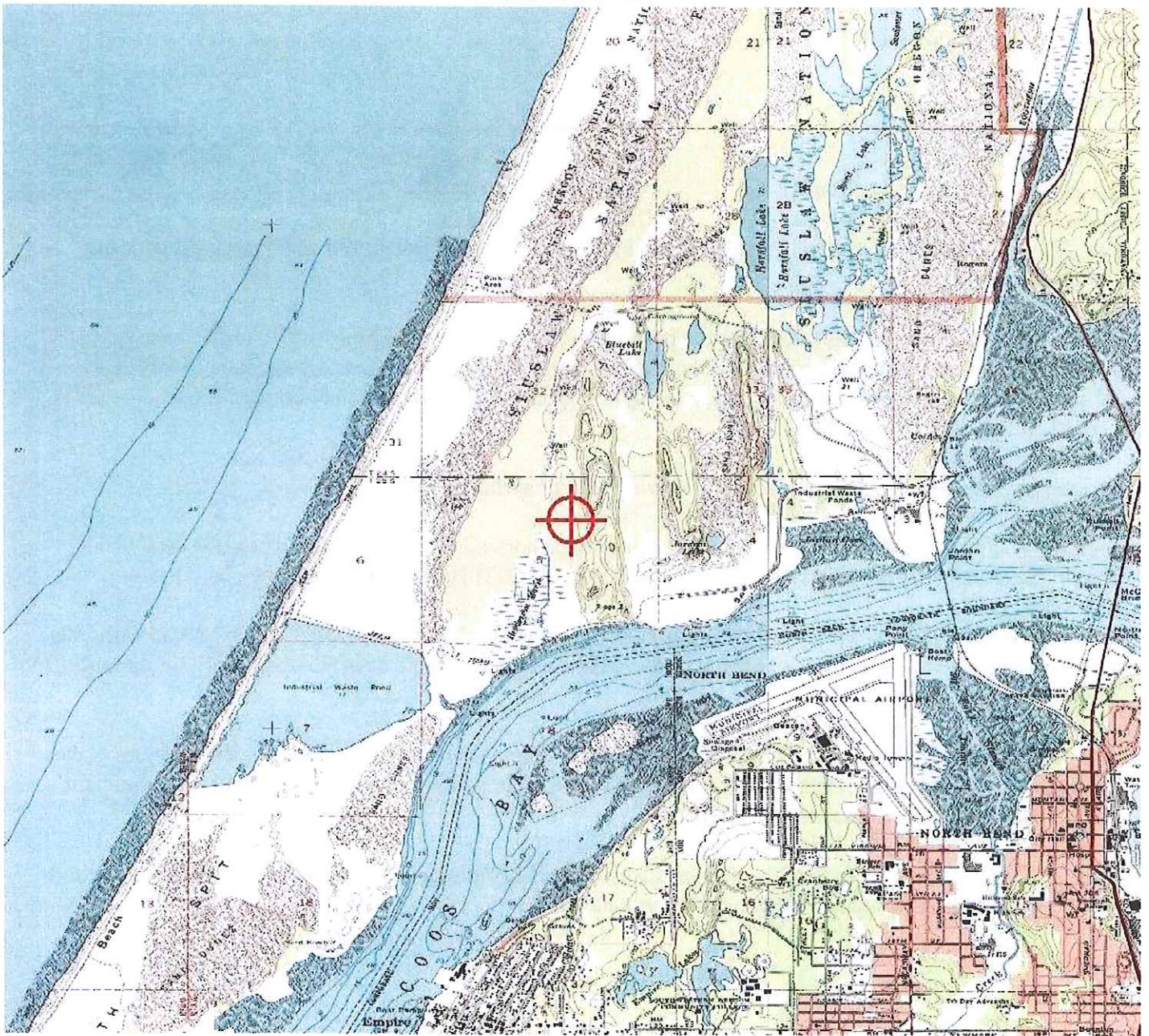
Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. The proposed structure would exceed the OTH Horizontal Surface by one (1) foot.

If you agree to limit the proposed structure height to 125 feet AGL (167 feet AMSL), the FAA can withdraw its objection as it would not exceed obstruction standards and a favorable determination could be subsequently issued.

You also have the option to either terminate the proposal or request further FAA study of the structure at the originally requested height. Further study will include a public notice circularization and 37-day comment period where the outcome cannot be predicted.

Please email me within 60 days of the date of this letter at Paul.Holmquist@faa.gov with your intentions and any questions you might have regarding this aeronautical study.

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Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2017-ANM-5388-OE

Issued Date: 05/07/2018

Drew Jackson
Jordan Cove LNG
5615 Kirby Dr
Houston, TX 77005

**** NOTICE OF PRESUMED HAZARD ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Oxidizer
Location:	North Bend, OR
Latitude:	43-25-59.24N NAD 83
Longitude:	124-16-00.87W
Heights:	42 feet site elevation (SE) 131 feet above ground level (AGL) 173 feet above mean sea level (AMSL)

Initial findings of this study indicate that the structure as described exceeds obstruction standards and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities. Pending resolution of the issues described below, the structure is presumed to be a hazard to air navigation.

If the structure were reduced in height so as not to exceed 125 feet above ground level (167 feet above mean sea level), it would not create a substantial adverse effect and a favorable determination could subsequently be issued.

See Attachment for Additional information.

NOTE: PENDING RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE, THE STRUCTURE IS PRESUMED TO BE A HAZARD TO AIR NAVIGATION. THIS LETTER DOES NOT AUTHORIZE CONSTRUCTION OF THE STRUCTURE EVEN AT A REDUCED HEIGHT. ANY RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE MUST BE COMMUNICATED TO THE FAA SO THAT A FAVORABLE DETERMINATION CAN SUBSEQUENTLY BE ISSUED.

IF MORE THAN 60 DAYS FROM THE DATE OF THIS LETTER HAS ELAPSED WITHOUT ATTEMPTED RESOLUTION, IT WILL BE NECESSARY FOR YOU TO REACTIVATE THE STUDY BY FILING A NEW FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-ANM-5388-OE.

Signature Control No: 350680446-364505031
Paul Holmquist
Specialist

(NPH)

Attachment(s)
Additional Information

Additional information for ASN 2017-ANM-5388-OE

ASN 2017-ANM-5388-OE

Abbreviations

AGL - above ground level

AMSL - above mean sea level

RWY - runway

VFR - visual flight rules

IFR - instrument flight rules

NM - nautical mile

ASN- Aeronautical Study Number

CAT - category aircraft

MDA - minimum descent altitude

DA - decision altitude

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

Our aeronautical study has disclosed that the proposed 131-foot AGL (173-foot AMSL) oxidizer structure associated with the proposed Jordan Cove Liquid Natural Gas Terminal penetrates 14 CFR Part 77 protected airspace surfaces at Southwest Oregon Regional Airport (OTH) in North Bend, OR. The OTH airport elevation is 17 feet AMSL.

The proposed structure would exceed the following Part 77 surface:

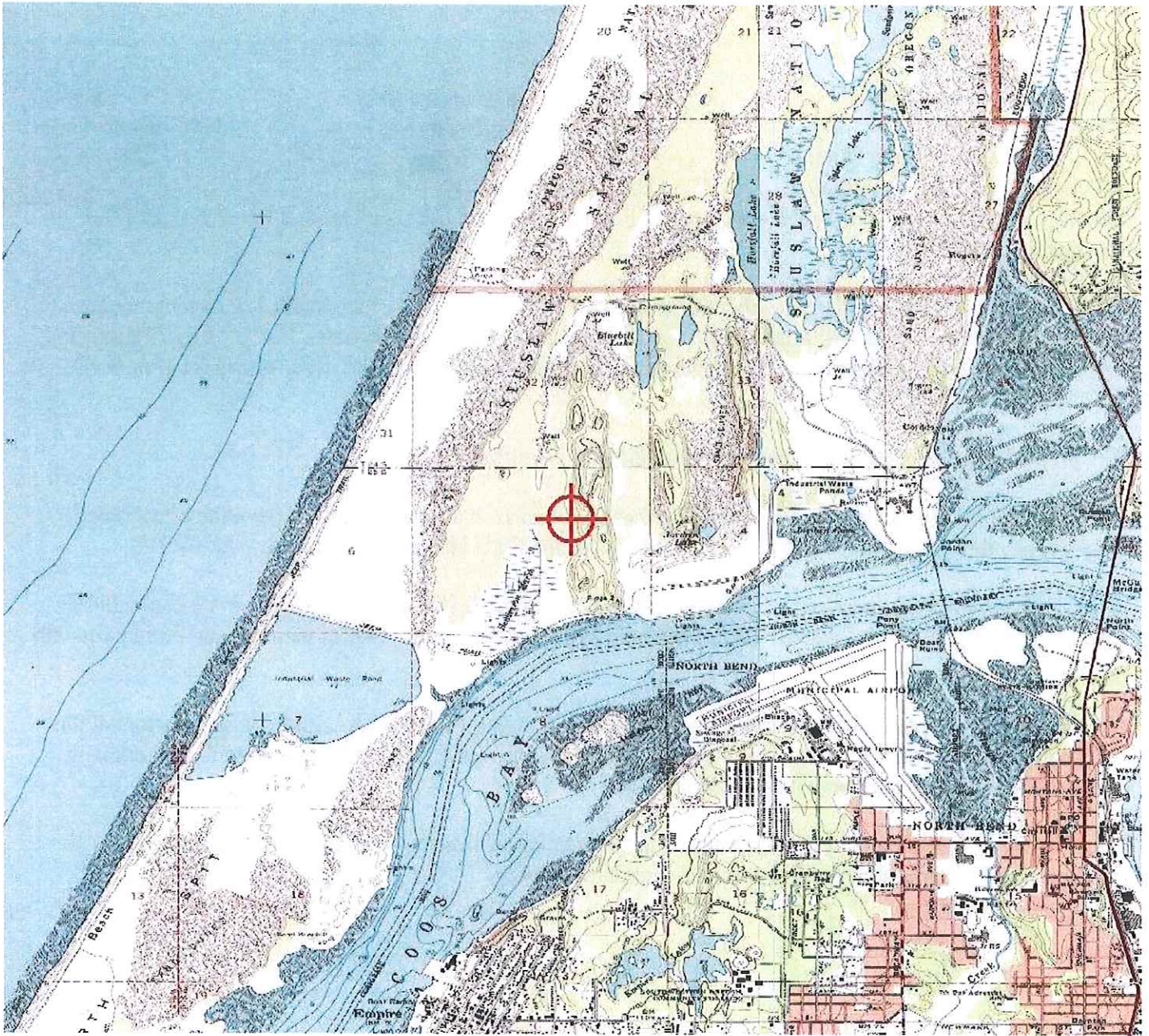
Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. The proposed structure would exceed the OTH Horizontal Surface by six (6) feet.

If you agree to limit the proposed structure height to 125 feet AGL (167 feet AMSL), the FAA can withdraw its objection as it would not exceed obstruction standards and a favorable determination could be subsequently issued.

You also have the option to either terminate the proposal or request further FAA study of the structure at the originally requested height. Further study will include a public notice circularization and 37-day comment period where the outcome cannot be predicted.

Please email me within 60 days of the date of this letter at Paul.Holmquist@faa.gov with your intentions and any questions you might have regarding this aeronautical study.

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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2017-ANM-5387-OE

Issued Date: 05/07/2018

Drew Jackson
Jordan Cove LNG
5615 Kirby Dr
Houston, TX 77005

**** NOTICE OF PRESUMED HAZARD ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	LNG Tank North
Location:	North Bend, OR
Latitude:	43-25-53.61N NAD 83
Longitude:	124-16-01.16W
Heights:	23 feet site elevation (SE) 219 feet above ground level (AGL) 242 feet above mean sea level (AMSL)

Initial findings of this study indicate that the structure as described exceeds obstruction standards and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities. Pending resolution of the issues described below, the structure is presumed to be a hazard to air navigation.

If the structure were reduced in height so as not to exceed 144 feet above ground level (167 feet above mean sea level), it would not create a substantial adverse effect and a favorable determination could subsequently be issued.

Any height exceeding 203 feet above ground level (226 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

See Attachment for Additional information.

NOTE: PENDING RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE, THE STRUCTURE IS PRESUMED TO BE A HAZARD TO AIR NAVIGATION. THIS LETTER DOES NOT AUTHORIZE CONSTRUCTION OF THE STRUCTURE EVEN AT A REDUCED HEIGHT. ANY RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE MUST BE COMMUNICATED TO THE FAA SO THAT A FAVORABLE DETERMINATION CAN SUBSEQUENTLY BE ISSUED.

IF MORE THAN 60 DAYS FROM THE DATE OF THIS LETTER HAS ELAPSED WITHOUT ATTEMPTED RESOLUTION, IT WILL BE NECESSARY FOR YOU TO REACTIVATE THE STUDY BY FILING A NEW FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION.

If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-ANM-5387-OE.

Signature Control No: 350680445-364508370
Paul Holmquist
Specialist

(NPH)

Attachment(s)
Additional Information

Additional information for ASN 2017-ANM-5387-OE

ASN 2017-ANM-5387-OE

Abbreviations

AGL - above ground level

AMSL - above mean sea level

RWY - runway

VFR - visual flight rules

IFR - instrument flight rules

NM - nautical mile

ASN- Aeronautical Study Number

CAT - category aircraft

MDA - minimum descent altitude

DA - decision altitude

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

Our aeronautical study has disclosed that the proposed 219-foot AGL (242-foot AMSL) north liquid natural gas tank structure associated with the proposed Jordan Cove Liquid Natural Gas Terminal penetrates 14 CFR Part 77 protected airspace surfaces at Southwest Oregon Regional Airport (OTH) in North Bend, OR. The OTH airport elevation is 17 feet AMSL.

The proposed structure would exceed the following Part 77 surfaces:

- a. Section 77.17(a)(2): A height that is 200 feet above ground level or above the established airport elevation, whichever is higher, within three nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile of distance from the airport up to a maximum of 500 feet. This proposed structure would exceed the OTH Part 77.17(a)(2) surface by 19 feet.
- b. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. The proposed structure would exceed the OTH Horizontal Surface by 75 feet.

Additionally, this proposed structure would exceed the OTH VFR traffic pattern airspace in the Part 77 Conical Surface as defined in FAA JO 7400.2L, 6-3-8, Evaluating Effect on VFR Operations. The VFR Conical Surface is defined in Part 77 Section 77.19(b) as a surface extending outward and upward from the periphery of the VFR Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet .

This proposed structure would exceed the OTH VFR Traffic Pattern Conical Surface by 16 feet. The not-to-exceed height of 203 feet AGL (226 AMSL) will avoid penetrating the Conical Surface.

The OTH Airport Master Record, <http://www.gcr1.com/5010web/airport.cfm?Site=OTH>, states there are 36 single engine, eight (8) multi-engine, one (1) jet, and six (6) helicopter aircraft based there with 18,277 total operations for the 12 months ending 31 December 2013 (latest information). RWY 31 is designated Right Traffic.

Your options and conditions for this proposal are as follows:

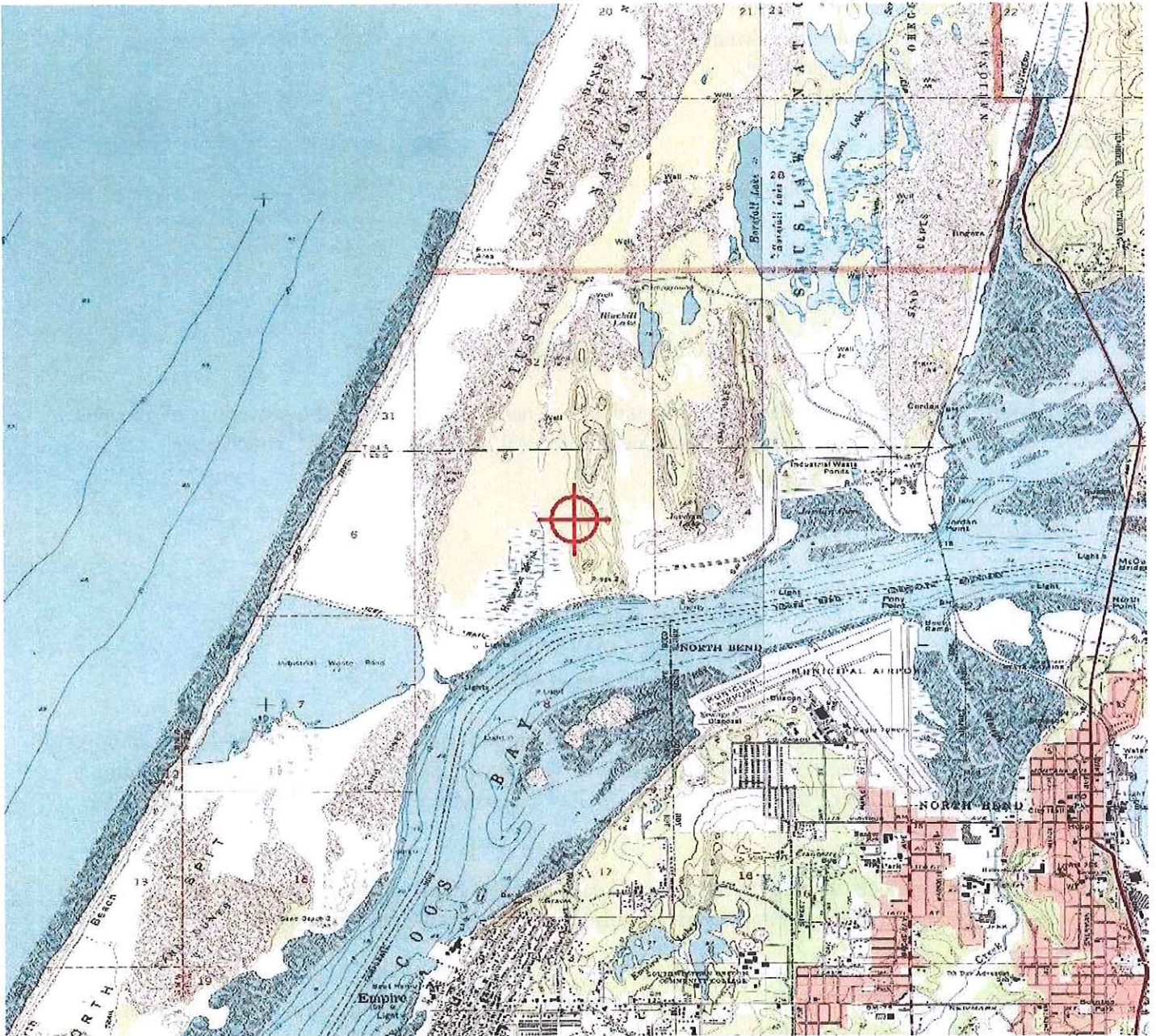
1. You must resolve the 16 foot VFR Traffic Pattern Airspace penetration by lowering the structure height, with all appurtenances, to a maximum height at 203 feet AGL (226 AMSL).
2. You can agree to limit the structure height to 144 feet AGL (167 feet AMSL). The FAA can then withdraw this objection to the proposed structure as it would not exceed obstruction standards and a favorable determination could be subsequently issued.

3. You can terminate the proposal at this location.

4. You can request further study for any height between 144 AGL and 203 AGL. Further study will include a public notice circularization and 37-day comment period where the outcome cannot be predicted. Further FAA study for any height greater than 203 AGL/ 226 AMSL is not an option.

Please email me within 60 days of the date of this letter at Paul.Holmquist@faa.gov with your intentions and any questions you might have regarding this aeronautical study.

Close Print



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2017-ANM-5386-OE

Issued Date: 05/07/2018

Drew Jackson
Jordan Cove LNG
5615 Kirby Dr
Houston, TX 77005

**** NOTICE OF PRESUMED HAZARD ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	LNG Tank South
Location:	North Bend, OR
Latitude:	43-25-48.88N NAD 83
Longitude:	124-16-00.87W
Heights:	23 feet site elevation (SE) 219 feet above ground level (AGL) 242 feet above mean sea level (AMSL)

Initial findings of this study indicate that the structure as described exceeds obstruction standards and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities. Pending resolution of the issues described below, the structure is presumed to be a hazard to air navigation.

If the structure were reduced in height so as not to exceed 144 feet above ground level (167 feet above mean sea level), it would not create a substantial adverse effect and a favorable determination could subsequently be issued.

Any height exceeding 181 feet above ground level (204 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

See Attachment for Additional information.

NOTE: PENDING RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE, THE STRUCTURE IS PRESUMED TO BE A HAZARD TO AIR NAVIGATION. THIS LETTER DOES NOT AUTHORIZE CONSTRUCTION OF THE STRUCTURE EVEN AT A REDUCED HEIGHT. ANY RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE MUST BE COMMUNICATED TO THE FAA SO THAT A FAVORABLE DETERMINATION CAN SUBSEQUENTLY BE ISSUED.

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If we can be of further assistance, please contact our office at (206) 231-2990, or paul.holmquist@faa.gov.
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-ANM-5386-OE.

Signature Control No: 350680444-364508838

(NPH)

Paul Holmquist
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2017-ANM-5386-OE

ASN 2017-ANM-5386-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace		

Our aeronautical study has disclosed that the proposed 219-foot AGL (242-foot AMSL) south liquid natural gas tank structure associated with the proposed Jordan Cove Liquid Natural Gas Terminal penetrates 14 CFR Part 77 protected airspace surfaces at Southwest Oregon Regional Airport (OTH) in North Bend, OR. The OTH airport elevation is 17 feet AMSL.

The proposed structure would exceed the following Part 77 surfaces:

- a. Section 77.17(a)(2): A height that is 200 feet above ground level or above the established airport elevation, whichever is higher, within three nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile of distance from the airport up to a maximum of 500 feet. This proposed structure would exceed this surface by 19 feet.
- b. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. The proposed structure would exceed the OTH Horizontal Surface by 75 feet.

Additionally, this proposed structure would exceed the OTH VFR traffic pattern airspace in the Part 77 Conical Surface as defined in FAA JO 7400.2L, 6-3-8, Evaluating Effect on VFR Operations. The VFR Conical Surface is defined in Part 77 Section 77.19(b) as a surface extending outward and upward from the periphery of the VFR Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet .

This proposed structure would exceed the OTH VFR Traffic Pattern Altitude (TPA) Conical Surface by 37 feet and the OTH VFR TPA Conical Surface plan on file by 38 feet. . The not-to-exceed height of 181 AGL / 204 AMSL will avoid penetrating the Conical Surface (plan on file).

The OTH Airport Master Record, <http://www.gcr1.com/5010web/airport.cfm?Site=OTH>, states there are 36 single engine, eight (8) multi-engine, one (1) jet, and six (6) helicopter aircraft based there with 18,277 total operations for the 12 months ending 31 December 2013 (latest information). RWY 31 is designated Right Traffic.

Your options and conditions for this proposal are as follows:

1. You must resolve the 38 foot VFR Traffic Pattern Airspace penetration by lowering the structure height, with all appurtenances, to a maximum height at 181 AGL / 204 AMSL.

2. You can agree to limit the structure height to 144 feet AGL (167 feet AMSL). The FAA can then withdraw this objection to the proposed structure as it would not exceed obstruction standards and a favorable determination could be subsequently issued.
3. You can terminate the proposal at this location.
4. You can request further study for any height between 144 AGL and 181 AGL. Further study will include a public notice circularization and 37-day comment period where the outcome cannot be predicted. Further FAA study for any height greater than 181 AGL/ 204 AMSL is not an option.

Please email me within 60 days of the date of this letter at Paul.Holmquist@faa.gov with your intentions and any questions you might have regarding this aeronautical study.

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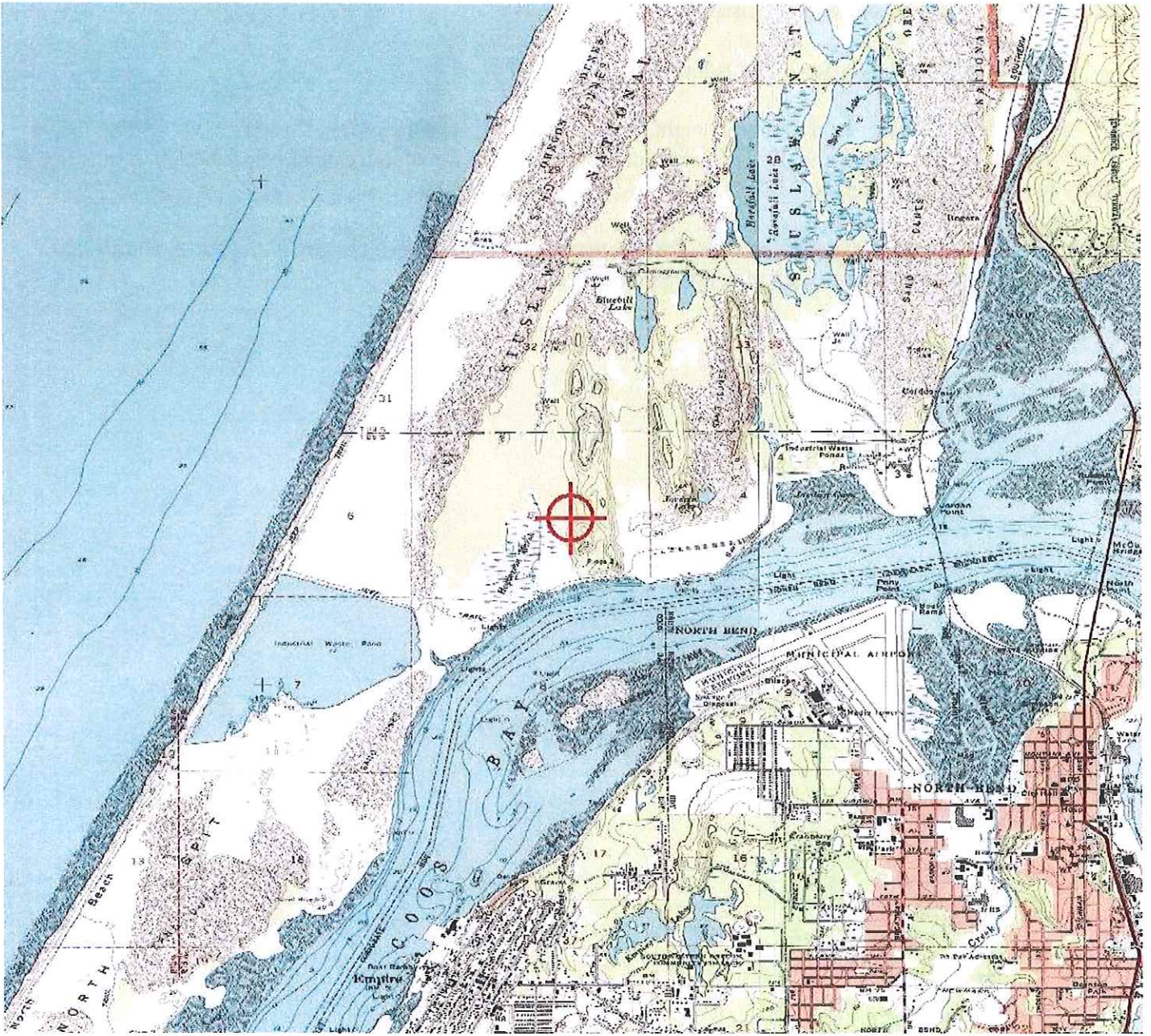


Exhibit 2

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Jordan Cove Update: March 5, 2019

Removal-fill permit decision deadline extended to September 20, 2019

The permit decision deadline for the Jordan Cove Energy Project removal-fill application has been extended to September 20, 2019. A decision may be made sooner if the Oregon Department of State Lands (DSL) is in possession of all necessary information to make a permit decision.

Why is an extension needed?

There are several remaining steps in the removal-fill permitting process. Due to robust participation in the review and comment period for the Jordan Cove removal-fill permit application, additional time is needed for these remaining steps:

Current Step: Final Technical Review. This step includes:

- **DSL Review of Comments.** Approximately 49,000 to 57,000 comments were received (*please see FAQ for more info about the approximate number*). DSL staff is currently in the process of reading all comments received. Extension of the permit decision deadline allows DSL staff to complete review of comments in order to identify substantive issues relevant to the removal-fill law. DSL will ask the applicant to address those issues along with any other unresolved technical issues identified by the Department.
- **Applicant Response.** The final technical review step also includes time for the applicant to address relevant comments and unresolved technical issues. These may be addressed by the applicant in written response,

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applicant is asked to respond.

Final Step: Permit Decision. DSL evaluates the entire application record against the criteria for permit issuance and makes a decision to either approve or deny the permit application. The extension also allows DSL the time necessary to thoroughly evaluate the record and make a decision.

FAQs

Who makes the permit decision?

Oregon laws and rules assign DSL responsibility for overseeing the removal-fill permitting process, and for making permit decisions. An overview of the state's removal-fill jurisdiction and the Department's role is here:

<https://www.oregon.gov/dsl/WWW/Documents/JordanCoveEnergyProjectApplicationMemoJune-11-2018-DSL.pdf>

Why is the number of comments received approximate?

The number of comments received is approximate because as many as 8,000 comments received may have been an exact copy of the same comment from the same person. This occurred, for example, when someone emailed copies of their comment to multiple DSL staff.

If the same person submitted two different comments, that is included in the estimate as two comments. If different people submitted the same comment, via a web form or form letter, each person's comment is included in the estimate.

Is the number of comments received, or whether comments supported or opposed the project, factored into the permit decision?

The number of comments received indicates that many people had information they wanted the Department to consider. The number itself does not factor into the Department's decision-making.

In reviewing comments, the Department does not tally the number of comments that support or oppose a project. Regardless of whether a commenter supports or opposes a project, if the comment raises an issue that relates specifically to the state's removal-fill law DSL will ask the applicant to address that issue.

Will comments be posted online?

Yes, all comments received will be posted on the DSL website here:

<https://www.oregon.gov/dsl/WWW/Pages/jordancove.aspx>.

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now. Comments received in writing will be posted as soon as possible.

Will the notice to the applicant regarding remaining issues, and the applicant's response, be posted online?

Yes, as soon as they are available.

ADDITIONAL FAQs AND INFORMATION

Additional FAQs, as well as answers to questions submitted during public hearings, are available on the DSL website:

<https://www.oregon.gov/dsl/WWW/Pages/jordancove.aspx>

Additional answers and information about the application will be added to this website on an ongoing basis. Please check back frequently for information. Be sure to sign up for email updates as well:

<https://www.oregon.gov/DSL/News/Pages/Subscribe.aspx>, check the Jordan Cove Energy Project box.



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Exhibit 2 (Part 2)



Oregon

Kate Brown, Governor

Department of State Lands

775 Summer Street NE, Suite 100

Salem, OR 97301-1279

(503) 986-5200

FAX (503) 378-4844

www.oregon.gov/dsl

April 10, 2019

RL600/60697

JORDAN COVE ENERGY PROJECT, L.P.

ATTN DERIK VOWELS

111 SW 5TH AVE, STE. 1100

PORTLAND OR 97204

Re: DSL Removal-Fill Permit Application No. 60697-RF
Jordan Cove Energy Project, Multiple Counties

Dear Mr. Vowels:

The Oregon Department of State Lands' (Department) 60-day public review period has closed for the above-referenced permit application. Public comments submitted and other investigative work by the Department have raised various issues for which the Department needs additional information.

Overview of Decision Process and Need for Additional Information

Specific applicable portions of the Department's Oregon Administrative Rules (OAR) in the narrative below in order to help Jordan Cove Energy Project, L.P. (Jordan Cove) understand the Department's permit decision process and why the additional information is needed.

OAR 141-085-0550 addresses the level of documentation used by the Department to make decisions:

- Section (4) provides that "The applicant is responsible for providing sufficient detail in the application to enable the Department to render the necessary determinations and decisions. The level of documentation may vary depending upon the degree of adverse impacts, level of public interest and other factors that increase the complexity of the project."
- Section (7) provides that "The Department may request additional information necessary to make an informed decision on whether or not to issue the authorization."

The Department analyzes a proposed project using the factors and determination criteria set forth in Oregon Revised Statute (ORS) 196.825 and OAR 141-085-0565. The applicant bears the burden of providing the Department with all information necessary for the Department to consider the factors and make the determinations.

- Section (1) of the OAR provides that "The Department will evaluate the information provided in the application, conduct its own investigation, and consider the comments submitted during the public review process to determine whether or not to issue an individual removal-fill permit."
- Section (2) of the OAR provides that "The Department may consider only standards and criteria in effect on the date the Department receives the complete application or renewal request." This application was deemed complete for public review and comment on

State Land Board

Kate Brown

Governor

Bev Clarno

Secretary of State

Tobias Read

State Treasurer

December 6, 2018. OAR 141 Division 85 contains the standards and criteria that will be considered throughout the review of this application.

- Section (3) of the OAR provides that "The Department will issue a permit if it determines the project described in the application:
 - (a) Has independent utility;
 - (b) Is consistent with the protection, conservation and best use of the water resources of this state as specified in ORS 196.600 to 196.990, and
 - (c) Would not unreasonably interfere with the paramount policy of this state to preserve the use of its waters for navigation, fishing and public recreation."

- Section (4) of the OAR provides that "In determining whether to issue a permit, the Department will consider all of the following:
 - (a) The public need for the proposed fill or removal and the social, economic or other public benefits likely to result from the proposed fill or removal. When the applicant for a permit is a public body, the Department may accept and rely upon the public body's findings as to local public need and local public benefit;
 - (b) The economic cost to the public if the proposed fill or removal is not accomplished;
 - (c) The availability of alternatives to the project for which the fill or removal is proposed;
 - (d) The availability of alternative sites for the proposed fill or removal;
 - (e) Whether the proposed fill or removal conforms to sound policies of conservation and would not interfere with public health and safety;
 - (f) Whether the proposed fill or removal is in conformance with existing public uses of the waters and with uses designated for adjacent land in an acknowledged comprehensive plan and land use regulations;
 - (g) Whether the proposed fill or removal is compatible with the acknowledged comprehensive plan and land use regulations for the area where the proposed fill or removal is to take place or can be conditioned on a future local approval to meet this criterion;
 - (h) Whether the proposed fill or removal is for stream bank protection; and
 - (i) Whether the applicant has provided all practicable mitigation to reduce the adverse effects of the proposed fill or removal in the manner set forth in ORS 196.600."

- Section (5) of the OAR provides that "The Department will issue a permit only upon the Department's determination that a fill or removal project is consistent with the protection, conservation and best use of the water resources of this state and would not unreasonably interfere with the preservation of the use of the waters of this state for navigation, fishing and public recreation. The Department will analyze a proposed project using the criteria set forth in the determinations and considerations in sections (3) and (4) above (OAR 141-085-0565). The applicant bears the burden of providing the Department with all information necessary to make this determination."

Summary of Substantive Public Comments

DSL has reviewed all the comments received concerning Jordan Cove application for a removal-fill permit. The Department's summary of the substantive comments (below) is not exhaustive. Jordan Cove should review and address the substantive comments that relate directly to the proposed removal and fill or that relate to the potential impacts of the proposed removal and fill. All substantive comments received are provided [here](#).

Jordan Cove failed to demonstrate the project is in the public interest, Jordan Cove failed to demonstrate a public need. (ORS 196.825(3)(a)): Comments received on this topic

stressed that the Department must affirmatively determine that the project would address a public need consistent with *Citizens for Resp. Devel. In the Dalles v. Walmart* 295 Or App 310 (2018). With a privately-sponsored project of this scale and complexity, the Department must consider public need in a transparent and comprehensive analysis that weighs all the relevant impacts and alleged benefits of the project.

Jordan Cove failed to demonstrate the project is consistent with the protection, conservation, and best use of Oregon's waters. (ORS 196.825(1)(a)): Commenters are concerned that the project would likely do unnecessary harm and damage to water quality in Oregon and suggest the applicants have failed to demonstrate that the project is consistent with the protection, conservation and best use of the water resources of this state. The proposed project will likely impair designated beneficial uses, threatening drinking water supplies and fish habitat. It will also likely further degrade stream segments in which water quality is already impaired for temperature, dissolved oxygen, pH, turbidity, mercury, and sedimentation.

The project does not conform to sound policies of conservation and will likely interfere with public health and safety (ORS 196.825(3)(e)): The Department received comments with concerns that the applicant has failed to demonstrate that the project will not interfere with public health and safety. Potential risks to public health and safety include natural hazards, such as floods, tsunamis, wildfires, landslides, and earthquakes, identified under Statewide Planning Goal 7. The potential for high-flow events that expose the pipeline or inadvertent drilling fluid releases (frac-outs) during construction at proposed stream crossings may result in increased risks to public health and safety. Failure at any of the major waterbody crossings claiming avoidance by using either Hydraulic Directional Drill (HDD) method, conventional bore or direct pipe method would have detrimental impacts to waters of the state and potentially contaminate state waters. Several risks to public health and safety were raised during public review that need to be addressed by the applicant, such as the list provided below. Please address these adverse impacts of this project:

- An accidental explosion of a fully loaded Liquefied Natural Gas (LNG) ship or at the terminal, including the worst-case scenario for the immediate area;
- How are the Federal Aviation Administration (FAA) presumed hazard determinations being addressed by Jordan Cove;
- Tsunami risks increasing from the project dredging activities;
- Improper facility siting, Society for International Gas Tanker and Terminal Operators (SIGTTO) standards not followed (i.e., on the outside bend of the navigation channel, near other terminal users, near population centers);
- Impacts on municipal drinking water sources, private wells, irrigation sources and agricultural uses;
- Increased wildfire risks as construction season coincides with the in-water work period which also coincides with fire season; and
- Impacts of massive scale clearing and grubbing with pipeline installation on water quality, land stability, erosion and turbidity of doing these activities during the rainy winter seasons, all water flows downhill.

The project would interfere with navigation, fishing, and public recreation: Comments received on this topic addressed that the Department must conduct a weighing of the public benefits of the project against interference with factors including navigation, fishing, and public recreation (See *Citizens for Resp. Devel. In the Dalles v. Walmart*, 295 Or App 310 (2018)). As part of this weighing of public benefits, the Oregon Legislature has clearly demonstrated that it

is the State's "paramount policy" to preserve Oregon waters for navigation, fishing, and public recreation. ORS 196.825(1).

The comments indicate that the applicant has failed to demonstrate that the project will not unreasonably interfere with navigation, fishing, and public recreation in this application.

Potential conflicts include but are not limited to:

- Crabbing, fishing and all types of recreational uses in and around Coos Bay;
- Safe bar passage issues/LNG tanker bar crossings only at high tides conflict with recreational fishers and the commercial fleets that also cross the bar at high slack tides for safety reasons should be evaluated;
- Exclusion zones required around LNG tankers while the LNG tanker is in transit will impact the recreating public crabbing via the ring method. This is reportedly the most common recreational crabbing method in Coos Bay. High slack tides are optimum for crabbing and if an LNG tanker must transit only at high tides, given the security and exclusion zones, there is interference with existing recreational uses within Coos Bay; and
- Impacts on the commercial fisheries uses of Coos Bay and adjacent ocean resources.

Jordan Cove failed to demonstrate independent utility (OAR 141-085-0565(3)(a)):

Commenters assert that the project is connected to the Coos Bay Channel Modification (CBCM) Project. The applicant would be the primary benefactor from the proposed widening and deepening of the federal navigation channel as part of the CBCM project or similar efforts to expand the navigation channel. Further, there are serious questions about the feasibility of LNG vessels transiting the federal navigation channel under the dredging currently proposed as part of this application. Oregon Department of Fish and Wildlife (ODFW) contends that the Jordan Cove Energy Project and Port of Coos Bay Channel Modification project are connected actions and should be evaluated that way. The applicant has failed to demonstrate that the project has independent utility as required under OAR 141-085-0565(3)(a).

Jordan Cove failed to demonstrate a comprehensive analysis of alternatives to the project (OAR 141-085-0550(5), ORS 196.825(3)(c) and (d)): Commenters outline that the applicant has failed to demonstrate a comprehensive analysis of alternatives to the project, and therefore, the Department does not have the information to consider the availability of alternatives both for the project and for proposed fill and removal sites. Also, the Department was not able to determine that the project is the practicable alternative with the least adverse impacts on state water resources. Comments detail that through a flawed, overly-narrow purpose and need statement, the resulting biased alternative analysis prevents the Department from considering a reasonable range of alternatives to the project.

Navigation Reliability Improvements (NRI) Dredging: Comments indicate that there is no documented need for the 590,000 cubic yards to dredge the four corners outside the existing Federal Navigation Channel (FNC). Comments also state that Jordan Cove can export 99.5% of the anticipated annual output of the LNG facility (7.8 million tons) without the NRI dredging, which leaves the question, is there a 'need' to excavate 590,000 cubic yards of material for a nominal gain in transport capacity to allow Jordan Cove to travel at higher wind speeds than the current channel configuration could safely allow. Comments further suggest this minor economic benefit to only Jordan Cove does not equate to a 'need' to impact trust resources of the State of Oregon. The adverse impacts are understated or not explained in terms of the salinity impacts and hydrologic changes that will result from widening the existing navigational channel. The potential tsunami run-up impacts are not well explained either, nor are any hydrodynamic changes that would likely result or any analysis on potential increases to bank erosion adjacent to the proposed NRI channel improvements. The need should be substantiated, and a robust alternatives analysis prepared to address these issues and justify

the dimensions and depths needed with supporting documentation in the form of simulation modelling showing that the current channel is insufficient for Jordan Cove.

Pile Dike-Rock Apron: Comments raised concerns that no alternatives were presented regarding the proposed 6,500 cubic yards (cy) of rock riprap proposed to protect the existing pile dike against erosion from the slip and access channel location, depth and dimensions. With no alternatives presented on the dimensions or design alignment of the slip and access channel, no reasonable range of alternatives can be considered. There is no discussion on impact avoidance, minimization, and/or mitigation to offset any adverse impacts to waters of the state. Please address:

- Why 6,500 cy?
- Why not more?
- Why not less?
- Why any at all?

Dredged Material Disposal (DMD) transfer of materials to APCO 1 & 2 from the NRI dredging: Comments received raised the following questions, please answer:

- How will the rock be excavated and transferred to the DMD site? Vague alternatives analysis presented, leaves more questions than answers.
- What types of equipment will be used to excavate the NRI's?
- Which works best in what type of materials (bedrock, rock, sand or silts), which has least environmental impacts depending on the material encountered?
- How will the rock be dredged? Different equipment?
- Can rock be transferred to a DMD site via slurry line as the application states? Inadequate discussion on alternatives, leaving the details to the contractor is insufficient.

Slip and Access Channel: Comments raised the concern of a lack of discernable alternative analysis for the precise dimensions and location of the slip and access channel. The slip and access channel are designed for a ship class of 217,000 cubic meters, yet the Coast Guard Waterway Suitability Analysis recommends allowing ships no larger than 148,000 cubic meters. Please answer the following questions and concerns:

- Why design a slip to accommodate a ship class that is not currently allowed nor physically capable of navigating into Coos Bay given the constraints of the Coos Bay bar and currently authorized limitations of the federal navigation channel?
- The application claims the stated depth needed for the slip and access channel is to maintain 'underkeel clearance' while an LNG ship is at dock. This is misleading as an LNG ship can only safely navigate the current channel at a high tide advantage, above 6ft tides to get through the channel to the slip before the tide recedes which would strand the vessel if it is not safely docked in the slip. Any LNG ship, 148,000 cubic meter class ship, would not be able to transit Coos Bay except periods of high tide, there would be no way for a ship to exit the slip at any lower tidal elevation as the ships draft would exceed navigational depth of the channel which could pose huge safety concern in the event of a tsunami.
- Water quality concerns from the 'sump effect' of having the proposed 45ft Mean Low Low Water (MLLW) deep slip and access adjacent to and on the outside bend of the 37ft MLLW navigation channel need to be addressed.
- What are the sedimentation impacts, salinity impacts, temperature and dissolved oxygen impacts that would likely result from a deep-water pocket created for the slip?

Questions were raised over whether the access channel dimensions can change, as no alternatives discussion exists, it is just one option, take it or leave it. Any reduction in the size of the slip or access channel would reduce water impacts and reduce the required mitigation. Any reduction in size or depth would also reduce adverse impacts associated with this project. The

need should be substantiated, and a robust alternatives analysis prepared to address these issues.

DMD Alternatives: Commenters would also like to know why Jordan Cove will move 300,000 cubic yards of sand to the Kentuck site when other alternatives exist that would have less impact than transferring a line all the way across Coos Bay to Kentuck slough. The log spiral bay could accommodate more than 300,000 cubic yards, it is much closer to the dredge sites and would have significantly less impacts than the Kentuck proposal, yet it is dismissed. Please explain more thoroughly the alternatives that were considered and why those alternatives were dismissed within the greater DMD plan.

APCO DMD Site: Commenters have concerns over the capacity of the APCO site. Does this site have the capacity for the initial dredging and maintenance dredging over the lifespan of this project? Commenters also have site stabilization and liquefaction concerns over a mountain of sand piled up adjacent to Coos Bay in an earthquake and tsunami zone. There is safety, engineering, project feasibility, and water resources concerns that must all be addressed.

The project does not conform with existing land use laws (ORS 196.825(3)(g)): Commenters indicate that the applicant has failed to demonstrate that the project conforms with existing land uses designated in the applicable comprehensive plan and land use regulations. They also mentioned that the applicant has failed to provide the Department with the information necessary to make the determinations required by ORS 196.825(3)(g) that the applicant's proposed fill or removal is compatible with the requirements of the comprehensive plan and land use regulations for the area in which it will take place. Current, up-to-date Land Use Consistency Statements are required for all parts of this project in all jurisdictions with an explanation of the current status, pending or resolved local issues, processes, or appeals status.

Further, commenters are concerned the applicant has failed to obtain land use permits for the project in Coos Bay. Because of the reasons adopted by the Land Use Board of Appeals (LUBA) in remanding the prior land use application are directly related to the inconsistency of the proposed dredge and fill in wetlands and in the Coos Bay Estuary with the Coos Bay Estuary Management Plan, the project cannot be conditioned on a future land use approval to meet this criterion.

In January 2019, the Douglas County Circuit Court Judge reversed the Douglas County extensions from December 2016 and 2017 that approved the Pacific Connector Gas Pipeline as a conditional use. Because the pipeline will require a new application for conditional use permit and utility facility necessary for public service, the applicant has not met its burden to demonstrate to the Department that the project conforms to Douglas County's acknowledged comprehensive plan and land use regulations.

The comments received indicate that the applicant has not met their burden to demonstrate to the Department that the project conforms to Jackson County's acknowledged comprehensive plan and land use regulations.

Insufficient Mitigation-Kentuck Compensatory Wetland Mitigation (CWM) Site: Concerns were raised about the lack of a discernable alternative analysis on many components of the Kentuck mitigation proposal to see what alternatives were considered and on what basis were

rejected. The mitigation proposal itself is the largest wetland impact in this project proposal. Please answer the following questions:

- Why import 300,000 cubic yards of sand?
- Why not more or less materials?
- Why not use more suitable materials native to the area?
- Why sand vs. native cohesive clay soils for use as fill?
- What are the alternatives to move the sand to the site?
- Why were upland routes dismissed without reasonable justification?
 - Trucking the materials is a viable option with no impact to waters of the state.
- What other mitigation sites or options have you looked at addressing the following concern?
- The Kentucky site is already a freshwater wetland and has increased its functions in the past 10 years to the point that the current mitigation strategy might be inappropriate to offset functional losses. Please answer these questions as well:
 - Why is the dike so big, long, and wide?
 - Why is there no justification given to support dimensions of the proposed dike?
 - Why are there no alternatives presented to evaluate the adverse effects of the dike and mitigation strategy?
 - Address the landowner concerns regarding the Kentucky Mitigation proposal and the Saltwater Intrusion impacts on adjacent lands.
 - Further address the concerns of flooding and impacting agricultural activities and existing farm uses.
 - Why is the pipeline proposed under a proposed mitigation site?
 - Where is the avoidance and/or impact minimization, especially given that each impact reduces the overall size of the mitigation project, therefore diminishing its potential function and values? Concerns were raised about the suitability of having a pipeline under the mitigation site that is supposed to be protected in perpetuity.

Insufficient Mitigation-Eelgrass CWM Site: Comments raised concerns about the lack of a discernable alternative analysis on many components of the eelgrass mitigation proposal. The CWM citing was found not to be in-kind or in proximity mitigation which would replace similar lost functions and values of the impact site. Disturbing existing mudflats and adjacent eelgrass beds is likely to have additional adverse impacts from construction. The proposal is inconsistent with ODFW Habitat Mitigation Policy. Alternatives should be considered, in consultation with ODFW, that favor impact avoidance to adjacent high value habitats (mudflats and adjacent eelgrass beds) and seek out appropriate in-kind, in proximity mitigation. The project impacts are to eelgrass beds adjacent to deep water habitats, while the proposed mitigation is near the airport runway and in shallow water habitats a considerable distance from deep water habitats. There are likely unforeseen FAA issues with the proximity of the mitigation site to the airport runway, this should be explored in detail with the FAA. The location of the eelgrass CWM site is situated in a portion of the Coos Bay Estuary classified as "52-Natural Aquatic" in the Coos Bay Estuary Management Plan where dredging is not allowed. This issue needs to be clarified by Coos County with respect to land use consistency.

Insufficient Mitigation-Stream Impacts: Comments assert that the project will impact many waterways' beneficial uses, water quantity and quality will be further impaired from construction of this project. Potential impacts include but are not limited to increased water temperatures, dissolved water oxygen, turbidity, etc. from riparian shade removal in 303(d) listed waterways and other waters. Disruption of fluvial processes, increased erosion and downstream

sedimentation and turbidity from construction activities, impacts on spawning and rearing habitats, impacts on fish migration and passage.

Many people have raised concerns that Federal Energy Regulatory Commission (FERC) procedures are vague and will not provide assurances that water quality/quantity standards will be protected. Stream risk analysis, alternative ways to avoid and minimize impacts for each water crossing are not possible on properties with denied access. How are any reasonable alternatives considered if access is denied and unattainable without a FERC Order granting condemnation authority? Alternatives are not fully explored or explained to avoid and minimize impacts at every opportunity.

ODFW Habitat Mitigation Policy Inconsistencies: Commenters expressed that the applicants should work with ODFW to appropriately categorize each wetland and waterway impact from start to end along the proposed pipeline route. Once the appropriate habitat category has been assigned in agreement with ODFW, appropriate mitigation can be discussed based on resources impacted. Currently, temporary impacts mitigation is insufficient and inconsistent with the ODFW Habitat Mitigation Policy for streams and wetlands crossed by the pipeline.

Fish Passage-Coastal Zone Management Act (CZMA) and Non-CZMA Streams: Comments expressed concern that fish passage has not been addressed by the applicant. According to ODFW, applications for fish passage have not been submitted and this is critical to the Department for impact analysis determinations yet to be made. Fish passage applications may need to include a contingency method for crossing each waterway. For instance, if any of the HDD's fail, what is next, certainly not open trench, wet cut methods that are not currently being evaluated as alternative crossing methods under consideration.

Wetland Delineations/Concurrence: Public comments point out that some of the wetland delineation reports have either expired or are about to expire, see C4, C5, C9 and C10 of the application.

Additional Information Requested by the Department

Delineation-status for JCEP/PCGP: To allow adequate review time of the wetland delineation report in order to meet the decision deadline, please submit the following data requests by the dates requested.

- 1) By April 17, 2019: GIS shape files of the new routes and re-routes so DSL can finish the initial review and provide any additional review comments in time to address this summer (involving additional field work, if needed);
- 2) End of April 2019: Responses to the initial delineation review questions and delineation maps (prototype subset of each map series for completeness review);
- 3) June 7, 2019: Responses to GIS review questions;
- 4) Last week of June 2019: Site visits (possible); and
- 5) August 9, 2019: Everything due: responses to all remaining requests for information based on site visits, GIS review responses and follow-up review requests, all final delineation maps, and all supporting materials for the concurrence.

Bonding Requirements: Prior to any permit issuance, a performance bond should be negotiated and put in place for the Eelgrass and Kentuck CWM projects. Bonds are required for non-public agencies that have permanent impacts greater than 0.2 acre. Proposed financial instruments need to demonstrate consistency with OAR 141-085-0700.

Administrative Protections Required for Eelgrass and Kentuck CWM projects:

Administrative protection instruments need to demonstrate consistency with OAR 141-085-0695.

Oregon Department of State Lands, Land Management Issues: Any proposed uses or activities on, over, or under state owned lands requires Department proprietary authorizations.

Extensive Comments-Detailed response requested. The Department requests that the applicant respond to all substantive comments. Certain commenters provided extensive, detailed comments. The Department would like to call these comments to the applicant's attention to ensure that the applicant has time to sufficiently address them.

- Mike Graybill;
- Jan Hodder;
- Rich Nawa, KS Wild;
- Stacey Detwiler, Rogue Riverkeepers;
- Jared Margolis, Center for Biological Diversity;
- Jodi McCaffree, Citizens Against LNG;
- Walsh and Weathers, League of Womens Voters;
- Wim De Vriend;
- The Klamath Tribes, Dawn Winalski;
- Tonia Moro, Atty for McLaughlin, Deb Evans and Ron Schaaf;
- Regna Merritt, Oregon Physicians for Societal Responsibility;
- Oregon Women's Land Trust;
- Sarah Reif, ODFW;
- Margaret Corvi, CTLUSI;
- Deb Evans and Ron Schaaf;
- Maya Watts; and
- Steve Miller.

All comments received during the public review of this application were previously provided to Jordan Cove by the Department via [Dropbox](#) and should be responded to as well. Please submit any responses to the Department and copy the commenting party if contact information was provided.

The Department asks that any responses be submitted in writing within 25 days of the date of this letter to allow adequate time for review prior to making a permit decision. If Jordan Cove wishes to provide a response that will take more than 25 days to prepare, please inform me as soon as possible of the anticipated submittal date.

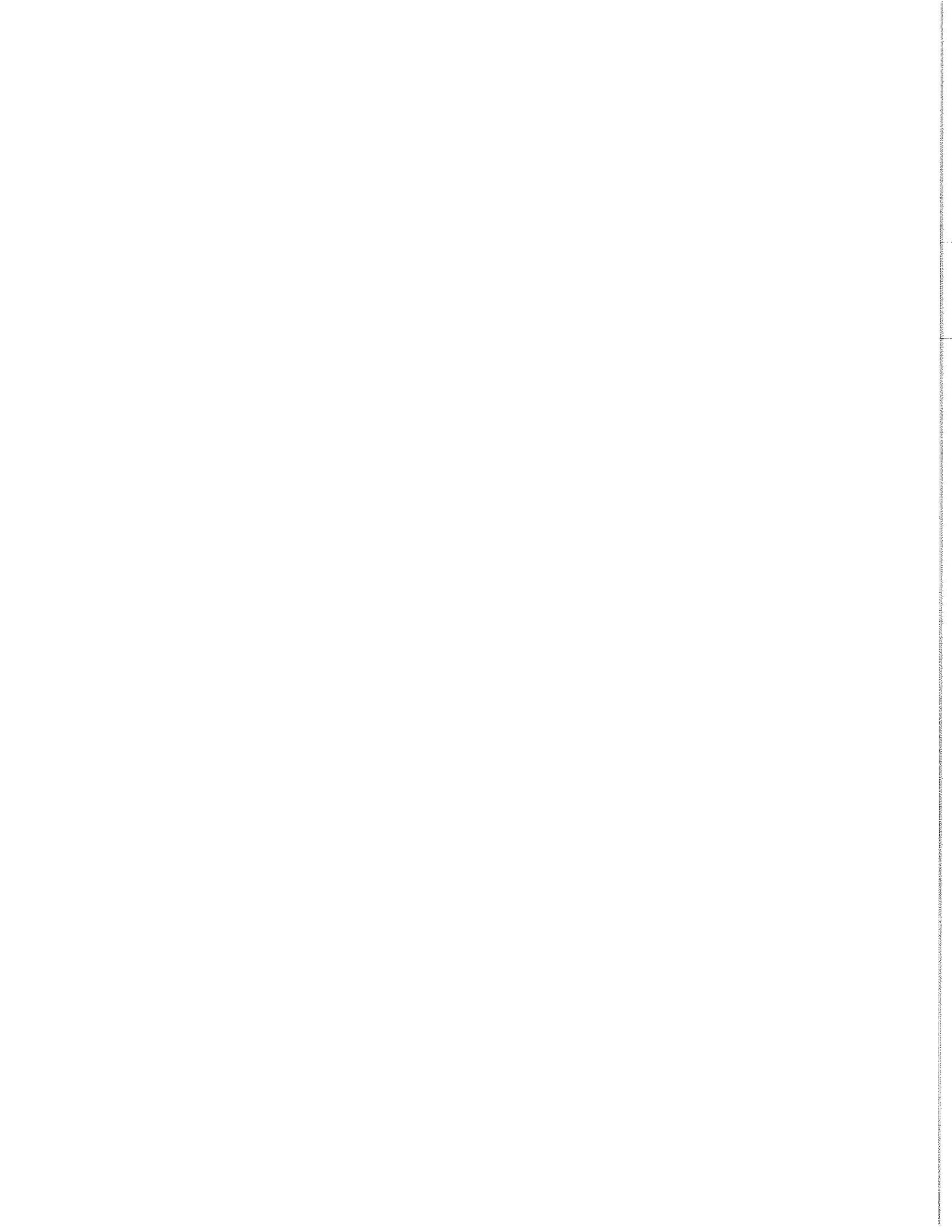
The Department will make a permit decision on your application by September 20, 2019, unless Jordan Cove requests to extend that deadline. Please call me at (503) 986-5282 if you have any questions.

Sincerely,



Robert Lobdell
Aquatic Resource Coordinator
Aquatic Resource Management

Exhibit 3





Kate Brown, Governor

Oregon

Department of Environmental Quality

Western Region Eugene Office

165 East 7th Avenue, Suite 100

Eugene, OR 97401

(541) 686-7838

FAX (541) 686-7551

OTRS 1-800-735-2900

March 11, 2019

Derik Vowels
Jordan Cove LNG, LLC
Consultant, Lead Environmental Advisor
111 SW 5th Ave.,
Suite 1100,
Portland OR 97204

Re: Additional Information Request – Waterbody Crossings
Jordan Cove Energy Project (FERC Project No. CP17-494)
Pacific Connector Gas Pipeline (FERC Project No. CP17-495)
U.S. Army Corps of Engineers (Project No. NWP-2017-41)

Dear Mr. Vowels:

The Oregon Department of Environmental Quality is currently reviewing an application from Jordan Cove LNG, LLC for Clean Water Act Section 401 water quality certification for a Section 404 permit from the U.S. Army Corps of Engineers necessary for construction of the Jordan Cove Energy Project and Pacific Connector Gas Pipeline.

Section 401 of the Clean Water Act bars federal agencies from issuing a license or permit for an action that may result in a discharge to Oregon waters without first obtaining water quality certification from DEQ. DEQ anticipates Jordan Cove's construction and operation will require authorizations from multiple federal agencies, including but not limited to a Section 404 permit from the U.S. Army Corps of Engineers and authorizations from the Federal Energy Regulatory Commission pursuant to the Natural Gas Act. DEQ is conducting a comprehensive section 401 evaluation of the project's direct, indirect and cumulative effects on water quality. DEQ expects to develop a single certification decision based on this comprehensive evaluation of the project that will apply to the Corps and FERC decisions on the project.

DEQ is processing the applications pursuant to Section 401 of the Clean Water Act, 33 United States Code §1341, Oregon Revised Statutes 468B.035 through 468B.047, and DEQ's certification rules found in Oregon Administrative Rules 340, Division 048. To certify the project, DEQ must have a reasonable assurance that the proposed project, as conditioned, will comply with Sections 301, 302, 303, 306 and 307 of the Clean Water Act, Oregon water quality standards, and any other appropriate requirements of state law.

DEQ is reviewing the application submitted Feb. 6, 2018, by David Evans and Associates, Inc. on behalf of Jordan Cove. The information described in the attachments to this correspondence is necessary to complete DEQ's analysis of the project's compliance with applicable standards. Please provide a schedule for a complete response to this additional information request. Please forward your responses to:

Christopher Stine
Oregon Department of Environmental Quality 165
East 7th Avenue, Suite 100
Eugene, Oregon 97401

You may reference previously submitted documents to support your responses to the requests in Attachment A.

DEQ may request additional information as necessary to complete its analysis and fulfill its obligations under state and federal law.

If you have any questions, please contact me directly at 541-686-7810, or via email at stine.chris@deq.state.or.us.



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FERC Dockets: CP17-494-000, CP17-495-000

ATTACHMENT A

Jordan Cove Energy Project / Pacific Connector Gas Pipeline Additional Information Request

Horizontal Directional Drilling

1. In September 2017, Pacific Connector submitted Horizontal Directional Drilling Feasibility Analysis reports for the proposed Coos Bay East Crossing and Coos Bay West Crossing. According to the reports, the “conclusions should be considered preliminary pending completion of a subsurface exploration program.” Please provide a status update on geotechnical drilling and a schedule for finalizing the reports.
2. Pacific Connector describes two options (i.e., single Horizontal Directional Drilling Option and a Dual Horizontal Directional Drilling Option) to accomplish the Coos Bay East Horizontal Directional Drilling crossing. DEQ expects the design criteria supporting the selected procedure will be presented in the final design report. DEQ requests Pacific Connector address the following considerations in determining their proposed methodology.

Single Horizontal Directional Drilling Option

- a) The single option places the bottom tangent at elevation -190 feet mean sea level. Pacific Connector expects the underlying geology at this depth will consist of competent bedrock, which is deemed critical to the feasibility of the single option. Please describe whether alternate design measures would allow use of the single option if the geotechnical investigation concludes the underlying geology does not consist of competent bedrock.

Dual Horizontal Directional Drilling Option

A final Horizontal Directional Drilling design report that proposes the Dual Horizontal Directional Drilling Option should address the following issues.

- b) The dual option relies on a shared tie-in workspace located in a tidal flat area south of Glasgow Point. Describe how the workspace will be isolated from open water during Horizontal Directional Drilling installation.
- c) The likelihood of inadvertent surface returns of drilling fluid is highest near entry points where drilling pressures can exceed the shear strength and pressure from overburden soils. Describe what special contingency measures will be employed to contain drilling fluids in this inter-tidal environment.
- d) What is the proposed final depth below surface of the installation at the tie-in location? What measures, if any, are proposed to ensure the pipeline remains buried for the life of the project?
- e) Describe the scope of open-water activities such as inter-tidal dredging for barge access to the shared tie-in workspace.
- f) Describe what procedures Pacific Connector will employ to avoid, minimize, or

mitigate the effects of this option on water quality.

3. The Horizontal Directional Drilling Mud Contingency Plan states a berm may be built around the drilling site and hay bales or silt fences may be placed on the river side of the drilling area. Because inadvertent surface returns may reasonably be expected near entry locations, Pacific Connector should identify measures that will be employed and maintained to contain fluids during installation.
4. Inadvertent fluid returns to surface waters are unacceptable. Pacific Connector must develop and implement an Horizontal Directional Drilling plan to continuously monitor engineering conditions during installation and provide for a rapid response in the event fluid loss is confirmed or suspected. The plan should establish procedures to monitor drilling pressure, fluid circulation, pilot hole location, axial loads, visual monitoring or other parameters deemed appropriate to interpret formation or surface loss of drilling fluid.

Waterbody Crossing Plans

The effects of pipeline construction across waterbodies can affect the physical, biological and chemical integrity of the aquatic environment. Pacific Connector will utilize dry open cut methods (fluming, dam and pump, or diverted open cut) on most of the proposed 326 waterbody crossings. Open cutting of streambeds can have direct, indirect and cumulative effects on water quality, habitat and stream hydrology. Changes to channel geometry may cause streams to reestablish equilibrium. These actions can increase sedimentation, reduce water quality, decrease habitat complexity and modify channel hydrology. Because, the effects of open trench waterbody crossings can propagate upstream, downstream, and laterally these impacts, may not be confined to the project area.

Waterbody crossing plans must describe site-specific construction procedures that Pacific Connector will undertake at each proposed crossing. The plans should identify the proposed crossing methodology, dewatering procedures, dewatering discharge sites, spoils placement locations, mobilization and demobilization, and monitoring procedures. The plans should be developed in consideration of local characteristics such as anticipated flow, local, geology, gradient, sensitive environmental conditions, slope stability at dewatering discharge points or other environmental factors that may influence the design and implementation of waterbody crossings. Pacific Connector should describe procedures for crossings that may require unique or challenging procedures (e.g., blasting consolidated rock). Last, site-specific crossing plans must address the removal of dams, dewatering locations, temporary bridges, or other temporary construction elements and include procedures to avoid or minimize sediment mobilization or turbidity

Waterbody crossing plans must also describe site-specific plans to restore each of the proposed waterbody crossings. Each plan must include sufficient local-scale information to provide an accurate baseline assessment of pre-construction environmental and ecological conditions to guide the design of the post-construction restoration. Each stream restoration plan must contain

site-specific designs and specifications to ensure PCGP fully mitigates the impact of open cut trenching in each stream and protects the beneficial uses. The data generated from the information requested below will support the development of site-specific waterbody crossing plans.

To develop a waterbody crossing plan for each open trench cut stream crossing, Pacific Connector must document and use the site-specific field data described below.

Hydraulic Assessment

Pacific Connector must conduct a hydraulic analysis on each proposed waterbody crossing. Site-specific information of local discharge is required to demonstrate that proposed pumping and fluming designs can adequately bypass anticipated flows. Pre-development local hydrology must also be characterized to inform stream restoration actions.

Pacific Connector should conduct the analysis using one of the following methods:

- Rational Method (for drainages up to 200 acres)
- NRCS Peak Flow Method using HydroCAD (for drainages larger than 200 acres)
- USGS StreamStats for Oregon

The hydraulic analysis should provide the following information:

- Drainage area above each proposed crossing
- Peak flow estimate at the time of construction
- Bankfull width, stage, and corresponding discharge
- Average gradient within the temporary crossing easement
- Mean two-year, five-year and 10-year discharge and velocity at the proposed crossing

Based on the hydraulic conditions at each crossing, Pacific Connector should confirm the design pumping capacity of the proposed fluming or pumping bypass system can sufficiently transfer maximum anticipated flows around the work area. Pacific Connector should further describe alternate or contingency methods in the event field conditions prevent successful dewatering. Waterbody crossing plans must include engineering data to support design criteria of proposed conveyance structures based on gradient, bypass length and anticipated flow.

Pacific Connector must also measure bankfull width, stage, and corresponding discharge at each crossing. Recognizing the bankfull width at each crossing is critical in designing and implementing restoration plans that maintain the geomorphological function of the stream segment.

Topographic Survey of Stream Channel

Restoring a stream's natural form and function requires a topographic survey of the pre-construction stream channel and floodplain form.¹ Pacific Connector provided this information for the South Umpqua Number 2 River crossing. However, this information is lacking for other crossings involving open trench cutting. This survey information will assist in the reconstruction of the natural stream channel. At minimum, Pacific Connector should include in each topographic survey a longitudinal survey of the stream profile, top and bottom of banks, and the top and bottom floodplain slopes. This topographic information should also include geometric data downstream and upstream of the pipeline crossing to assist the restoration design and to identify potential interactions with adjacent reaches.

Stream Function Assessment

Trenched waterbody crossings can alter stream function in ways that negatively affect aquatic habitats and ecosystems. Potential effects may include modified stream channel geometry, reduced habitat complexity, reduced streambank stability, impaired benthic production and increased sedimentation.

Pacific Connector must conduct a pre-construction ecological assessment of each waterbody crossing using the methodology presented in Stream Function Assessment Method for Oregon Version 1.0.² SFAM was developed jointly by EPA and Oregon Department of State Lands. The method provides a scientifically supported rapid assessment tool for gathering information on the functions and values associated with wadeable streams that may be subject to regulatory jurisdiction under Section 404 of the Clean Water Act and Oregon's Removal-Fill Law.

The assessment is needed to establish a pre-development ecological baseline and to inform site-specific practices necessary to mitigate the environmental effects of the action. Pacific Connector can also use this assessment method for post-construction monitoring of Pacific Connector's stream restoration actions over time.

More information can be found at:

<https://www.oregon.gov/dsl/WW/Pages/Resources.aspx#assessment>.

Biological Assessment

Oregon water quality rules prevent discharges to waters of the state that may reduce support for beneficial uses or cause changes in residential biological communities. To establish pre-construction conditions, Pacific Connector must conduct a benthic macroinvertebrate assessment to comply with the Biocriteria water quality standard (Oregon Administrative Rule 340-0410-0011). Benthic communities form the basis for food webs that support aquatic life and are susceptible to changes in sedimentation. Oregon DEQ has developed procedures to characterize

¹ Yokum, S.E. 2018. [Guidance for Stream Restoration](#). Technical Note TN-102.4. National Stream Aquatic Ecology Center. USDA Forest Service

² Stream Function Assessment Method for Oregon Version 1.0. June 2018. U.S. Environmental Protection Agency and Oregon Department of State Lands. EPA 910-D-18-001.

the health of benthic communities to comply with this standard. Using procedures found in Methodology for Oregon's 2018 Water Quality Report and List of Water Quality Limited Waters,³ Pacific Connector must perform pre-development benthic surveys using the PREDictive Assessment Tool for Oregon (PREDATOR). The results of the PREDATOR surveys will enable DEQ to evaluate the direct, indirect, and cumulative effects of the action caused by stream channel modification, habitat loss, sedimentation or other potential project effects.

Streambed Material Assessment

Pacific Connector must characterize bed material composition at each trenched waterbody crossing. Substrate composition is critical to stream hydrology and provides interstitial refuge for egg incubation. Characteristics can vary considerably based on gradient, stream channel geometry, watershed hydrology and other factors. For this reason, site-specific knowledge of local bed material characteristics are necessary to inform restoration and mitigation actions following construction.

For streambeds characterized by unconsolidated substrates, Pacific Connector must conduct a pre-construction quantitative assessment of substrate material. The assessment should address the particle size, sorting, vertical variability and distribution of material.

Open cut trenches in bedrock-dominated stream channels are susceptible to upstream propagation of knickpoints created by joints in the stream's bedrock.⁴ Knickpoint propagation in bedrock-dominated streams can cause changes in stream geomorphology and, potentially, barriers to fish migration. Pacific Connector should describe in detail how bedrock-dominated stream channels will be restored to prevent the creation of a joint in the bedrock that leads to the formation and propagation of a knickpoint in these channels.

Habitat Assessment

Naturally occurring material such as large wood and boulders provide gravel recruitment, cover for juvenile fish, thermal refugia, and hydraulic control. Pacific Connector must conduct a detail inventory of aquatic habitat features within the project area of each proposed crossing. Habitat features identified during this predevelopment inventory should be used to ensure restoration efforts result in no net loss of habitat function or complexity. In its Stream Crossing Risk Analysis document, Pacific Connector provides only general descriptions to address, for example, the reinstallation of boulders to maintain an existing bed profile and cascade/pool morphology during the stream restoration process. However, Pacific Connector's habitat assessments must capture such habitat features as noted above in sufficient design detail so that the construction contractor has clear direction in site-specific drawings to restore these habitat

³ Methodology for Oregon's 2018 Water Quality Report and List of Water Quality Limited Waters, November 2018. Oregon Department of Environmental Quality: <https://www.oregon.gov/deq/FilterDocs/ir2018assessMethod.pdf>.

⁴ Selander, Jacob. 2004. Processes of Knickpoint Propagation and Bedrock Incision in the Oregon Coast Range. Department of Geologic Sciences. University of Oregon

features during the stream restoration process.

Water Quality

Site-specific water body crossing plans should address the following water quality issues at each crossing proposed:

- Oregon DEQ may issue a section 401 water quality certification that allows the numeric turbidity criteria to be exceeded provided all practicable turbidity control techniques have been applied. Please identify what engineering controls (e.g., settling, filtration, flocculation, etc.) are proposed to reduce turbidity in streams during mobilization and removal of construction equipment.
- Describe procedures to backfill trenches in a manner that maintains predevelopment streambed material and habitat function. For example, backfilling procedures must clearly address how Pacific Connector will prevent the restored stream flow from moving completely into the subsurface of restored streambed material and creating a fish passage barrier. Additionally, crossing plans should clearly describe how fill material will be placed to prevent streambed and bank scour, sedimentation, and channel modification.
- For trench dewatering structures, please identify how sediment and fines removed from the isolated work area will be permanently managed following work completion.

Comments

1. Appendices C.2 and D.2 (Stream Fluming Procedures, Dam and Pump Procedures) of Resource Report 2 state, "Turbidity sampling will be conducted during all . . . crossings in accordance with the Stormwater Pollution Prevention Plan." DEQ cannot find the Stormwater Pollution Prevention Plan in Pacific Connector's application submittal to evaluate the proposed turbidity sampling.
2. Fluming and dam and pump procedures rely on upstream and downstream dams to isolate temporarily work areas during construction activities. Oregon's fish passage requirements found in Oregon Revised Statute 509.585 prevent activities that impede the volitional movement of fish. Pacific Connector should describe how proposed fluming and dam and pump procedures will comply with Oregon fish passage law.
3. Stream Classifications in Table A.2-2 in Resource Report 2 reference methods established by Oregon Department of Forestry and the Northwest Forest Plan. DEQ's biologically based numeric criteria are based on fish distribution maps developed by Oregon Department of Fish and Wildlife. Please consult with ODFW to identify fish use and classifications at the proposed waterbody crossing locations.
4. Appendix C.2 of Resource Report 2 (Fluming Procedures) indicates that scrap metal pipe may be used to construct flumes and that pipes may be steam-cleaned to remove oil and grease. Please identify on the crossing plans where Pacific Connector will discharge this wash water. DEQ expects that Pacific Connector will apply for and obtain coverage under the appropriate permit (i.e., either Water Pollution Control Facility or National

Pollutant Discharge Elimination System) based on the proposed activity.

5. Figure 8 of Appendix C.2 of Resource Report 2 (Fluming Procedures) illustrates procedures to divert stormwater runoff from the construction easement into the isolated stream section. Please note that NPDES 1200-C General Permit does not authorize the discharge of stormwater to waterways. Pacific Connector must control runoff from upland work areas to prevent discharge to stream channels.

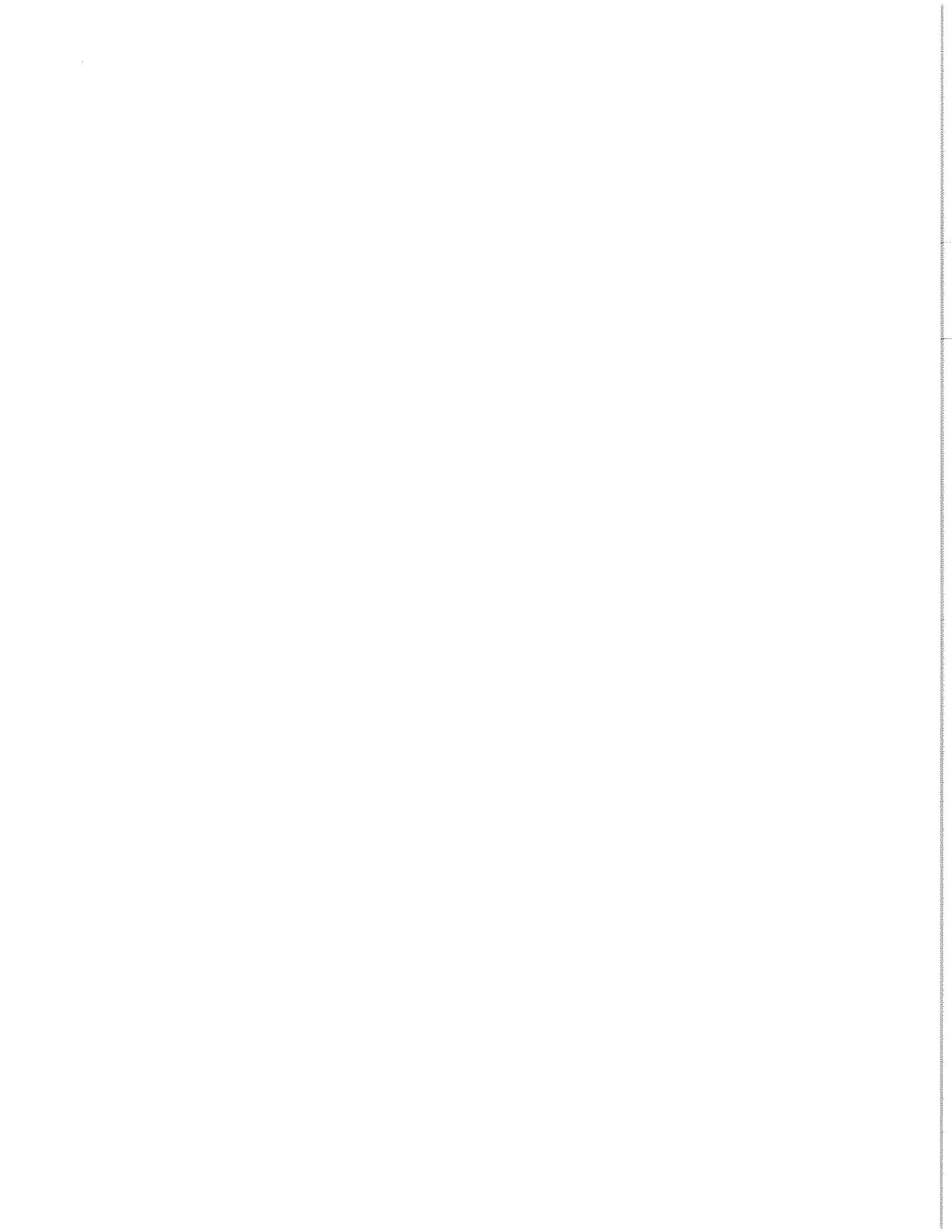
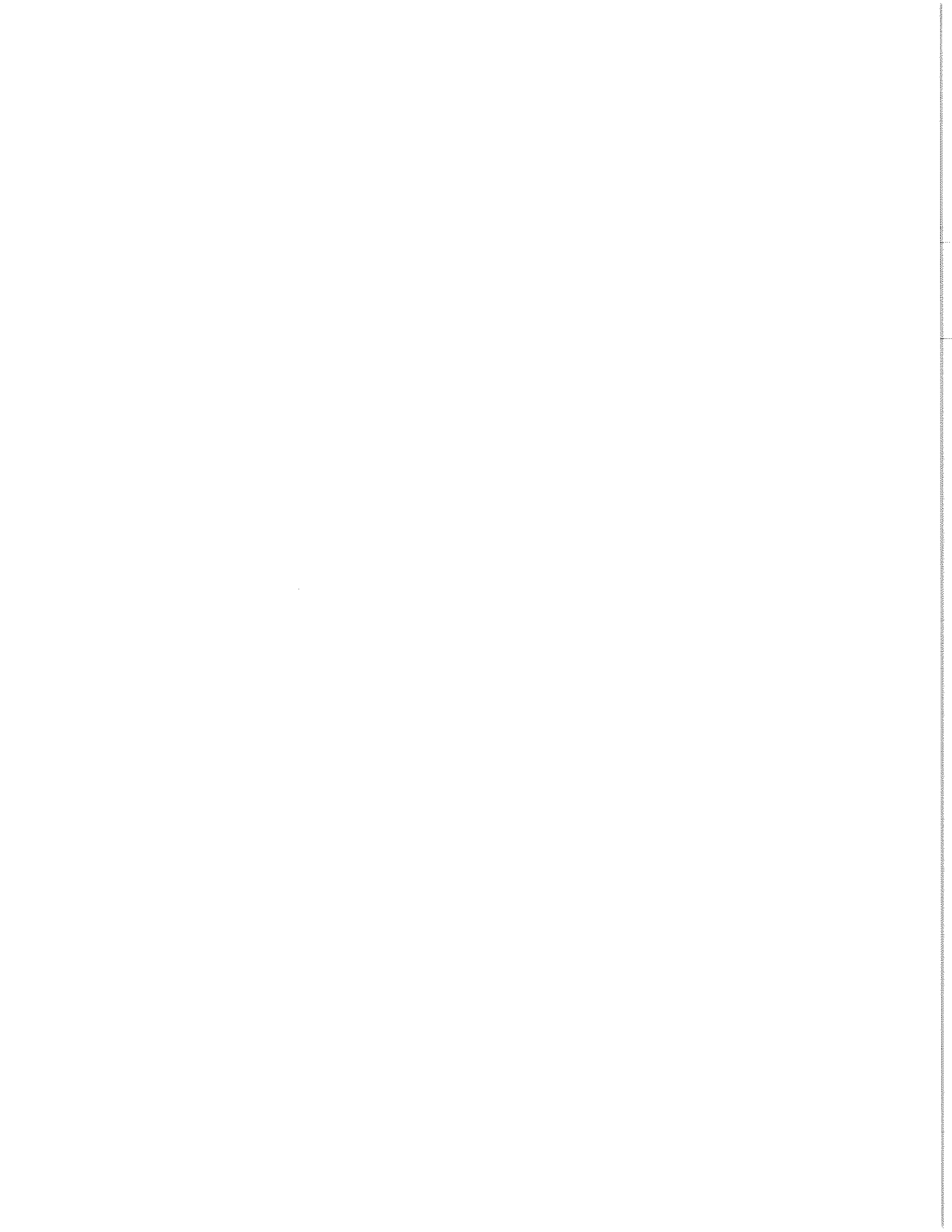


Exhibit 4





DEQ issues a decision on Jordan Cove's application for 401 Water Quality Certification

May 06, 2019

Statewide, OR—Today the Oregon Department of Environmental Quality issued a decision on Jordan Cove's application for a Section 401 Water Quality Certification. The certification is required for the U.S. Army Corps of Engineers to issue permits for the project.

DEQ's decision is to deny the requested certification at this time. However, DEQ's action is being made "without prejudice." This means that the applicant may reapply for the certification, and submit additional information that could result in a different decision.

If Jordan Cove resubmits an application along with information addressing DEQ's concerns, DEQ will work to keep the timing of its review in line with the overall federal schedule for the project, but this will depend on the applicant submitting the requested information in a timely manner.

DEQ had expected to make its decision on certification in September of this year. However, DEQ has accelerated the schedule and is making a decision now in order to ensure that we do not unintentionally waive Oregon's authority to review the water quality impacts of the proposed project. The U.S. Army Corps of Engineers initially instructed DEQ to complete its review by May 7, 2019. However, in fall 2018 the U.S. Army Corps of Engineers extended that date to Sept. 24, 2019 following the applicant's withdrawal and resubmittal of its application. Recent federal court and agency decisions have raised significant questions about whether this extension was valid. As a result, DEQ is making a decision by the date initially provided by the Corps – May 7, 2019.

DEQ is denying the requested water quality certification at this time because there is insufficient information to demonstrate compliance with water quality standards, and because the available information shows that some standards are more likely than not to be violated. Through further analysis, and possibly through project changes and mitigation, the applicant may be able to show the standards for certification will be met, but the current record does not allow DEQ to reach that conclusion today.

DEQ's specific concerns, among others, include:

- Expected effects of the construction and operation of the proposed pipeline and associated road and work areas on water temperature and sediment in streams and wetlands
- The risk of release of drilling materials from the construction of the proposed crossing of the Coos Bay estuary

DEQ requested additional information from Jordan Cove in September 2018, December 2018 and March 2019 relevant to the project's effect on water quality. Jordan Cove has provided some, but not all, of the information requested.

The proposed project calls for a liquefied natural gas export facility in Coos Bay and would include a 229-mile, 36-inch diameter pipeline from Malin in Klamath County to the facility in Coos Bay. Under Section 401 of the Clean Water Act, DEQ has the authority to certify whether

federally permitted activities that may result in a discharge to state waters comply with applicable water quality standards.

Visit <https://www.oregon.gov/deq/wq/wqpermits/Pages/Sect...> (<https://www.oregon.gov/deq/wq/wqpermits/Pages/Section-401.aspx>) to learn more about the 401 Water Quality Certification.

Visit <https://www.oregon.gov/deq/Programs/Pages/Jordan-C...> (<https://www.oregon.gov/deq/Programs/Pages/Jordan-Cove.aspx>) to view the denial letter, evaluation report and other information on Jordan Cove. Other documents, including previous information requests and Jordan Cove's responses are also available on this webpage.

Contacts: Katherine Benenati, DEQ, 541-600-6119, benenati.katherine@deq.state.or.us (<mailto:benenati.katherine@deq.state.or.us?subject=RE:%20>)

Attachments

Categories:

Environment & Energy