APPENDIX R

Comments on the Draft EIS and Responses

(continued)

would eliminate most impacts (e.g. riparian veg destruction, turbidity, streambank damage) to streams.

Onsite evaluations are relevant to alternative selection (route selection and technique for pipe installation) and impact analysis (minimization vs. elimination of impacts) but the DEIS fails to indicate that obtaining the onsite information involves "exorbitant costs"(see 40 CFR §1502.22 (a)). Each wetland and stream crossings where access has been denied and where onsite evaluations have not been made is not listed or evaluated as per 40 CFR §1502.22. Even if the proponents assert "exorbitant costs' preclude onsite evaluations, the DEIS fails to fully comply with 40 CFR §1502.22 b (1)(2)(3)(4) for an undisclosed but significant number of wetland and stream crossings. CO28-225 cont.

(1) The DEIS fails to state that lack of onsite evaluations results in incomplete information
(2) The DEIS fails to make a statement of the relevance of the incomplete or unavailable [onsite] information to evaluating reasonably foreseeable significant adverse impacts on the human environment
(3) The DEIS fails to provide a summary of existing credible scientific evidence for each wetland and stream crossing (for each location with no onsite evaluation) which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment.
(4) The DEIS fails to provide evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. We assert that "desktop analysis" for wetland and stream crossings are not generally acceptable for placement of a 36" diameter pipe in highly variable and unstable mountainous terrain in SW Oregon.

40 CFR §1502.22(b) states: "For the purposes of this section, "reasonably foreseeable" includes impacts which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason." We assert that the DEIS failed to state that the risk for "catastrophic consequences" is higher for pipeline crossings with no onsite evaluation.

PCGP has identified over 660 miles of existing access roads that it would use to access the pipeline during construction. These include roads on federal, municipal and private lands. PCGP identifies numerous miles of these existing access roads as gravel, dirt, rock, and pit run surfaced roads. PCGP has not provided a field inventory of these roads to ensure a realistic understanding of upgrades and/or best management practices that would be needed to prevent sediment runoff to receiving streams. The DEIS fails to indicate that obtaining the road inventory information involves "exorbitant costs"(see 40 CFR §1502.22 (a)). Even if PCGP asserts that "exorbitant costs' preclude a road inventory, the DEIS fails to fully comply with 40 CFR §1502.22 b (1)(2)(3)(4) for 660 miles of access roads.. CO28-226

(1) The DEIS fails to state that lack of access road inventory results in incomplete information

180

CO28 continued, page 180 of 302

CO28-226 Existing access roads, new temporary access roads, and new permanent access roads are described in section 2. Environmental impacts from the road network are discussed in section 4 with roads used for construction discussed in section 4.10. Access road construction is shown on the pipeline facility maps in appendix C. Areas where road modifications would be needed to existing access roads within a likely distance to possibly affect streams are indicated. Impacts to waterways are evaluated in sections 4.3.2 and 4.5.

Pacific Connector filed a *Transportation Management Plan* (TMP) for federal lands as Appendix Z of its Plan of Development, and *Transportation Management Plan for Non-Federal Land* (TMPNFL) as Appendix F.8 to Resource Report 8. The TMP and TMPNFL supply details of the general measures, standards, and stipulations to be employed in the use, improvement, and maintenance of roads. All maintenance would conform to BLM, Forest Service, State, county and landowner requirements and include erosion controls. These actions would provide protection of road resources and minimize potential for adverse effects to other resources. Full inventory of all existing access roads is not required to indicate that these procedures would be adequate. Also see response to comment CO28-164

(2) The DEIS fails to make a statement of the relevance of the incomplete or unavailable road inventory information to evaluating reasonably foreseeable significant adverse impacts on the human environment (i.e. sediment laden water from roads entering the stream system)
(3) The DEIS fails to provide a summary of existing credible scientific evidence for each uninventoried road segment which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment.
(4) The DEIS fails to provide evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. We assert that each road segment will have a variety of sediment causing features that will require specific treatments to prevent sediment laden water from the entering the stream system.

CO28-226 cont.

X. Impaired Waterbodies

According to the DEIS, the pipeline would cross 31 Category 4 and 5 water quality impaired waterbodies. The applicant proposes to use dry/diverted open-cut crossing techniques to cross 26 impaired waterbodies. Conventional boring, DP, or HDD would be used to cross 5 impaired waterbodies.[379] Both Coos Bay and the Coos River are water quality impaired for different pollutants, including but not limited to temperature, sedimentation, and toxics such as lead.[380] The applicant proposes to cross multiple streams within the Coquille Subbasin that are already impaired for multiple water quality parameters, including but not limited to dissolved oxygen, temperature, biological criteria, and sedimentation.[381] Within the South Umpqua Subbasin, there are at least 13 different waterways that are 303(d) listed for temperature, sedimentation, biological criteria, habitat modification, and dissolved oxygen.[382] Within the Upper Rogue watershed, the following crossings do not meet water quality standards for dissolved oxygen, temperature, and sedimentation: Big Butte Creek, Indian Creek, Lick Creek, Little Butte Creek, Trail Creek, and the Rogue River. Additionally, Little Butte Creek and the Rogue River are also impaired for multiple toxics, including but not limited to cadmium, selenium, mercury, nickel, silver, and zinc.[383] Multiple streams crossed by the pipeline within the Upper Klamath subbasin are impaired for dissolved oxygen, temperature, habitat modification, biological criteria, sedimentation, and toxics.[384]

The DEIS fails to comprehensively analyze the direct, indirect, and cumulative effects of increased pollution to impaired waterbodies. Specifically, the applicant has not demonstrated and the DEIS fails to assess whether there is sufficient reserve capacity in existing TMDLs for

CO28-227

[379] 2019 DEIS at 4-95.
[380] Oregon's 2012 Integrated Report Assessment Database and 303(d) list. Oregon DEQ. https://www.deq.state.or.us/wq/assessment/rpt2012/search.asp.
[381] Oregon's 2012 Integrated Report Assessment Database and 303(d) list. Oregon DEQ. https://www.deq.state.or.us/wq/assessment/rpt2012/search.asp.
[382] Oregon's 2012 Integrated Report Assessment Database and 303(d) list. Oregon DEQ. https://www.deq.state.or.us/wq/assessment/rpt2012/search.asp.
[383] Oregon's 2012 Integrated Report Assessment Database and 303(d) list. Oregon DEQ. https://www.deq.state.or.us/wq/assessment/rpt2012/search.asp.
[384] Oregon's 2012 Integrated Report Assessment Database and 303(d) list. Oregon DEQ. https://www.deq.state.or.us/wq/assessment/rpt2012/search.asp.

CO28 continued, page 181 of 302

CO28-227 The water quality effects to surface water are presented in section 4.3.2. It is not the role or scope of the federal EIS to assess the Project's compliance with State regulations. We assume that the State would determine if the Project is in compliance with the State requirements during their review of the Applicant's State permit applications. As disclosed in section 5 of the EIS, any authorization from the Commission would be conditional on the Applicant acquiring all applicable federal and federally delegated permits. Cumulative impacts of this project actions added to other reasonably foreseeable projects are addressed in section 4.14.

increased pollution as a result of the proposed activities. The Rogue Basin TMDL was completed in 2008, the Coquille Subbasin TMDL was completed in 1996, and the Umpqua TMDL was completed in 2007.

For example, the 2008 Rogue TMDL covers temperature and bacteria. The Rogue TMDL allocates reserve capacity to accommodate future growth as well as to provide an allocation to any existing source that may not have been identified during the development of the TMDL. The applicants have not demonstrated that there is sufficient reserve capacity in the Rogue TMDL for increased temperatures to accommodate this project and allow for anticipated growth and development of the Rogue Valley, one of the fastest growing areas in the state. The DEIS fails to adequately disclose and analyze compliance with TMDL allocations for temperature in the Rogue Basin.

CO28-227 cont.

Additionally, in 303(d) listed waterbodies where no TMDL has yet been adopted, DEQ states clearly in its denial of the 401 certification for the project that:

> In water bodies that are on the 303(d) list, where no TMDL has yet been adopted, new discharges may be allowed only if it is demonstrated that they would not increase the applicable pollutant load or that any such increase is mitigated.[385]

The Upper Klamath and Lost River TMDL for nutrients was issued in 2010, but the temperature component of the TMDL was not approved by the U.S. Environmental Protection Agency. DEQ issued a draft temperature TMDL for the Upper Klamath and Lost subbasins on May 15, 2019.[386] The Coos subbasin TMDL has been initiated, but is not completed.

Additionally, DEQ intends to develop sedimentation TMDLs for 303(d) listed waters. For example, the 2008 Rogue TMDL states:

At the time of the writing of this TMDL, DEQ is in the process of developing a sedimentation assessment methodology that could be used for implementing the narrative sedimentation standard. When the methodology and associated guidance is completed, the agency will establish sedimentation TMDLs for those waterways on the 303(d) list. DEQ also intends to re-visit the Rogue River Basin sedimentation impairments when the temperature and bacteria TMDLs are reviewed, on a 5-year basis.

In its denial of the 401 certification for the project, DEQ specifically identifies the lack of reasonable assurances that the project will comply with state water quality standards for turbidity. Specifically, DEQ consistently points out the inadequate information and lack of site-specific analysis provided for BMPs to address sediment discharges to impacted waterbodies. DEQ states:

[385] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 14.
[386] Klamath Basin. Oregon Department of Environmental Quality. https://www.oregon.gov/deq/wq/tmdls/Pages/TMDLs-Klamath-Basin.aspx.

CO28 continued, page 183 of 302

Based on its proposed conceptual approach for operating the ROW, the permanent ROW has the potential to discharge sediment at stream crossings. Ongoing increases in sediment loading to a waterbody that is listed on the 303(d) list for sediment in not allowed without either a TMDL allocation, or an implementation plan showing that there will be no increase in loading. OAR 340-41-0004(7)("Water quality limited waters may not be further degraded except in accordance with paragraphs (9)(a)(B), (C) and (D) of this rule." JCEP has not provided the analyses for the discharges that would occur at each slope breaker for each stream crossing.

CO28-227 cont.

Further, DEQ provides specific examples of impacted waterbodies that are already 303(d) listed as impaired for sediment where a TMDL does not exist. Specifically, DEQ identifies the proposed stream crossing of Lick Creek near MP 140.27, stating:

> Lick Creek is listed on the 303(d) List for biocriteria. Sediment discharge from pipeline construction and debris flows from landslides initiated by the construction of the right-of-way could affect aquatic life in Lick Creek and the attainment of the biocriteria standard in this impaired waterbody. As noted earlier in this report, for a 303(d) listed waterbody, without a TMDL, no ongoing detrimental impact is authorized. Although natural landslides are an integral part of stream form and function, human-caused debris torrents and sedimentation impact water quality by changing the natural cycles of sediment delivery to systems, which impacts the aquatic environment; thus, affecting aquatic life (Castro and Reckendorf 1995).[387]

In its denial of the 401 certification for the project, DEQ identifies multiple waterbodies where stream crossings are proposed that are 303(d) listed for temperature: North Fork Coquille River at Milepost 23.06, Middle Creek at Milepost 27.04, East Fork Coquille River at Milepost 29.85, Elk Creek at Milepost 32.40, Upper Rock Creek at Milepost 44.21, Middle Fork Coquille River at Milepost 50.28, Spencer Creek at Milepost 171.07, and Lost River at Milepost 212.07. Specifically, DEQ states:

> For streams listed as impaired for temperature on the 303(d) list but not under temperature TMDL, Pacific Connector may not increase thermal loading leading to higher stream temperatures without effective mitigation. In Oregon's 2012 Integrated Report Assessment Database and 303(d) list, these streams are assigned an assessment category of five indicating a TMDL is needed to ensure these streams achieve the water quality standard. The lack of a temperature TMDL for Category 5 streams means DEQ has not established a human use allowance and reserve capacity for these streams. The reserve capacity in a TMDL ensures that loading capacity has been set aside for a safety margin and is otherwise unallocated. Moreover, the human use allowance in the temperature standard does not permit a source to cause more warming than allowed under this allowance as stated in OAR 340- 041-0028(12)(b).[388]

[387] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 46.
[388] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 65.

183

The DEIS fails to comprehensively assess the direct, indirect, and cumulative effects of proposed activities on impaired waterbodies. CO28-227 cont.

Y. Peak Flows

The DEIS fails to comprehensively analyze impacts to peak flows due to forest clearing disturbance within the transient snow zone. In comparison, the 2015 DEIS provided some quantitative analysis of impacts to peak flows as a result of proposed activities. For example, the 2015 DEIS analyzed peak flows and increased impacts to 303(d) listed streams. Specifically, the 2015 DEIS stated:

> The greatest forest clearing disturbance within the transient snow zone on a percentage basis would occur within the Spencer Creek Watershed. The pipeline would disturb a total of about 126 acres of forest within the 21,913-acre transient snow zone within the 54,242-acre watershed....
>
> When considering forest vegetation disturbance within the transient snow zone, the pipeline would also have the highest percentage of forested disturbance within the Trail Creek Watershed, disturbing about 107 acres of forested vegetation types within the 30,107-acre transient snow zone in the 35,343-acre Trail Creek Watershed. The Little Butte Creek fifth-field watershed would have the largest area disturbance by the Project that is located within the transient snow zone with about 434 acres ...[389]

CO28-228

All three streams discussed in the 2015 DEIS would be crossed in the current proposal. Trail Creek and Little Butte Creek within the Rogue Basin are both impaired for dissolved oxygen, temperature, and sedimentation. Spencer Creek in the Klamath Basin, which is also listed as a Tier 1 Key Watershed, is impaired for habitat modification, temperature, biological criteria, and sedimentation.[390] However, the DEIS fails to comprehensively analyze the direct, indirect, and cumulative effects to peak flows due to forest clearing disturbance within the transient snow zone.

Z. Unstable Slopes

The DEIS fails to disclose and analyze the direct, indirect, and cumulative effects to affected waterbodies from proposed activities on or near unstable slopes. Specifically, the DEIS fails to identify and comprehensively assess the location of discharge points for concentrated stormwater flow from swales and channels collecting runoff from the pipeline ROW. Discharging stormwater to landslide prone slopes or placing fill or spoils on unstable slopes will likely result in water quality impacts. The analysis in the DEIS relies upon generic BMPs listed by the applicant, such as trench breakers and slope breakers, rather than conducting a site-specific analysis for each location.[391]

CO28-229

[389] 2015 DEIS at 4-398.
[390] Oregon's 2012 Integrated Report Assessment Database and 303(d) list. Oregon DEQ. https://www.deq.state.or.us/wq/assessment/rpt2012/search.asp.
[391] 2019 DEIS at 4-23.

184

CO28 continued, page 184 of 302

CO28-228 The analysis in the draft EIS did consider the impact the Pacific Connector project would have on flow regime and peak flows within the watersheds subject to the ACS (see the tables addressing compliance with the ACS objectives for each watershed in section 4.7.3.5 and in appendix F.4 of the draft EIS).

CO28-229 See response to comment CO28-190.

CO28 continued, page 185 of 302

In its denial of the 401 certification for the project, DEQ raises significant concerns regarding the applicant's analysis of slope stability and BMPs, stating:

> JCEP has not demonstrated that the proposed pipeline construction, access road construction and maintenance, and pipeline right-of-way activities would employ state-of-practice methods to identify landslide susceptibility zones and mitigate landslide risks to control discharge of organic or inorganic debris, as required by OAR 340- 041-0007(11)…[392]

And further that the applicant has not provided reasonable assurances that the project complies with the state biocriteria water quality standard (OAR 340-041-0011), stating:

CO28-229 cont.

> JCEP has not demonstrated that the proposed pipeline construction, access road construction and maintenance, and pipeline right-of-way activities would identify and avoid or mitigate increases in landslide frequency that would result in detrimental changes in the resident biological communities…[393]

DEQ specifically identifies the lack of information regarding slope stability along the ROW and the potential for pipeline ROW construction and stormwater discharge from the pipeline ROW to initiate landslides. In its December 20, 2018 information request, DEQ specifically asked that the applicant use one of three slope stability models to objectively identify landslide risk areas and guide the siting of stormwater discharge points from slope breakers, siting of grading and trench spoil storage, and design of fill on landslide susceptibility zones within or adjacent to the ROW.[394]

Further, DEQ demonstrates that the use of LiDAR, 10-meter DEM, and aerial photography by the applicant to identify moderate and high rapidly moving landslide (RML) sites was not sufficient to identify potential RML sites. DEQ acknowledges that this type of analysis can be useful as a screening tool, the agency specifically points to recommendations from DOGAMI that site-specific landslide evaluations be used in areas of high potential risk.[395]

The DEIS should comprehensively evaluate and require identification of each dewater structure and the number of structures for each stream crossing. DEQ in its denial of the 401 certification for the project states:

> Discharging water to upland areas can locally saturate shallow soils causing slope failure and mass movement. DEQ identified several crossing locations where existing terrain and soil conditions may cause slope instability. For example, the pipeline alignment crosses Steinnon Creek at two locations, at MP 20.02BR, and 24.32BR. Steinnon Creek is a

[392] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 44.
[393] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 53.
[394] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 25.
[395] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 28.

Level 0 stream and is upstream of spawning and rearing habitat for Endangered Species Act (ESA) listed Coho salmon. In Table B.3-4, JCEP notes steep topographic conditions for this reach near Milepost 20.20BR. Roering et al. (2005) and JCEP's Geologic Hazard Map (see Figure 5 of 47) identify contrasting steep and dissected terrain and a bench-like, low gradient form adjacent to this reach suggesting remnants of a deep- seated landslide and therefore an unstable slope. Steinnon Creek is crossed again at MP 24.32BR using a dry open cut procedure. The slopes adjacent to this crossing are landslides 126 and 127 identified from the Department of Geology and Mineral Industries Open File Report. JCEP has not provided DEQ with the proposed location of each dewater structure and the number of these structures for each crossing. JCEP has not presented the maintenance schedule for these dewater structure. DEQ noted additional crossing locations characterized by aquatic habitat value and steep, potentially unstable hillsides.[396]

CO28-229 cont.

The DEIS should analyze the pipeline ROW as effectively a permanent road alignment, as identified by DEQ. Additionally, the DEIS fails to comprehensively analyze the direct, indirect, and cumulative impacts of new road construction and increased use of existing roads on unstable slopes. The DEIS fails to conduct an inventory of existing access roads to identify road segments that are hydrologically connected to streams, which is critical to developing a maintenance and improvement plan for existing access roads to prevent and minimize sediment discharge to streams.[397]

CO28-230

In conclusion, the DEIS should evaluate the direct, indirect, and cumulative impacts of construction, operation, and maintenance of the pipeline ROW on unstable slopes. The DEIS fails to disclose and analyze the direct, indirect, and cumulative effects to affected waterbodies from proposed activities on or near unstable slopes.

AA. Sedimentation and Turbidity from Stream Crossings

The DEIS is not based on the best available science because it fails to adequately disclose, analyze or monitor fine sediment deposition subsequent to stream crossings. The DEIS fails to assess how pipeline construction and operation will persistently and significantly elevate sediment delivery to affected streams in numerous and additive ways. There is a considerable body of information indicating that ground-disturbing activities that occur within several hundred feet upslope of streams and water bodies have numerous negative and enduring sediment-related impacts on those water bodies and streams.

CO28-231

The DEIS is not based on best available science because it has not established baseline physical and biological conditions at and below stream crossings. The DEIS cannot assert "minor" impacts if it has not established baseline conditions. A project of this size must establish baseline stream conditions for "miles" of stream habitat because of the numerous and variable stream conditions along the pipeline route.

[396] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 31.
[397] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 55.

186

CO28 continued, page 186 of 302

CO28-230 See response to comments CO28-190, CO28-164, and CO28-226.

CO28-231 The assessment of sediment to streams from pipeline crossing used models and background literature from other stream crossings to determine effects. These are adequate to determine effects level as presented in section 4.3.2 and 4.5.2. It is not the role or scope of the federal EIS to assess the Project's compliance with State regulations or OARs. We assume that the State would determine if the Project is in compliance with the State requirements and OARs during their review of the Applicant's State permit applications. If the State chooses it could make the requested requirements contingent for permit approval. As disclosed in section 5 of the EIS, any authorization from the Commission would be conditional on the Applicant acquiring all applicable federal and federally delegated permits. Also see response to comment CO28-166 concerning site-specific crossing plans and risks at stream crossings.

The model estimates of suspended sediment are inadequate to assess potential impacts from sedimentation and compliance with the state water quality standard for turbidity. The DEIS should conduct site-specific analysis rather than relying upon models of "representative crossings."[398] The DEIS at 4-279 states:

> Estimates were made for 9 to 99 stream crossings per fifth-field watershed (average 51 per fifth- field watershed) for which sufficient data were available to conduct the analysis. These crossings were representative of the Project regions and ranges of stream width/gradient that would have normal dry open-cut crossings. Streams not modeled included the Upper Klamath River (except Spence Creek) and Lost River subbasins crossings, other HDD or boring sites, and bedrock stream crossings that would have low sediment during crossings. Due to the dynamic nature of sediment movement in streams, however, some bedrock crossings may have other substrate at the time of crossing.[399]

CO28-231
cont.

The applicant proposes dry open-cut methods, including both flume and dam and pump methods, for the stream crossings where HDD or Direct Pipe technology is not proposed. HDD is proposed for Coos Bay, the Coos River, the Rogue River, and the Klamath River and Direct Pipe technology is proposed for the South Umpqua. In the Stream Crossing Risk Analysis 2017 report, GeoEngineers reviewed 173 crossings that will be trenched out of 330 total crossings.[400] The Channel Migration and Scour Analysis 2017 report identified 10 Level 2 crossings that have a high potential for migration, avulsion, and/or scour and 44 Level 1 crossings with a moderate potential for migration, avulsion, and/or scour.[401] Channel migration and streambed scour not only increases sediment pollution and potential violations of the turbidity standard, but increases the potential for complete or partial exposure of the pipeline within the channel or floodplain.

The applicant acknowledges in Pacific Connector Pipeline Resource Report 2: Water Use and Quality that "some turbidity will result during instream activities and when the water is diverted to the backfilled areas."[402] The DEIS 4-107 states "Constructing the pipeline would modify streambanks, resulting in an increase in the rates of erosion, turbidity, and sedimentation into the crossed waterbody." Further, the DEIS at 4-106 states:

> The *Turbidity-Nutrients-Metals Water Quality Impact Analysis* (GeoEngineers 2017e) concluded that turbidity may exceed Oregon numerical water quality standards for short distances and short durations downstream from each crossing, either during and shortly after construction (in perennial waterbodies) or after fall rains begin (for intermittent and ephemeral streams). Such exceedances are allowed as part of the narrative turbidity standard if recognized in a CWA Section 401 water quality certification if every practicable means to control turbidity has been used.

[398] 2019 DEIS at 4-279.
[399] 2019 DEIS at 4-279.
[400] Stream Crossing Risk Analysis. 29 August 2017. Resource Report 2 Appendix O.2. P. 3. PCP A-B P. 505.
[401] Channel Migration and Scour Analysis. 29 August 2017. Resource Report 2. Appendix T.2. PCP A-B P. 253.
[402] Pacific Connector Pipeline Resource Report 2: Water Use and Quality. P. 22. PCP A-B part 6 p. 233.

In May 2019, the Oregon Department of Environmental Quality (DEQ) denied 401 certification of the Jordon Cove project.[403] Thus there is no legal allowance for exceedances for short durations or short distances because Jordon Cove has been denied 401 certification.

Regarding stream crossings and turbidity, DEQ in its 401 certification denial states that:

> 1. JCEP's proposed activities do not employ the highest and best treatment to control turbid discharges by failing to:
> a. Demonstrate the deployment of effective BMPs during pipeline construction and operation.
> b. Demonstrate the use of effective BMPs during road maintenance.
> c. Provide a site-specific waterbody crossing and restoration plans to minimize turbid discharges and restore stream form and function supporting water quality.[404]

DEQ further states that:

> 5. JCEP's proposed activity would likely violate the Turbidity water quality standard for the following reasons:
> a. JCEP has not provide an NDPDES 1200-C required Erosion and Sediment Control Plan demonstrating sediment and erosion controls with installation techniques have been properly deployed during the construction of the Terminal and Off-Site Project Areas to control turbidity from construction activities. [405]

CO28-231 cont.

DEQ concludes that:

> Based upon these findings, violations of the turbidity water quality standard are likely to occur and DEQ concludes that it lacks a reasonable assurance that the proposed activities will be conducted in a manner that will not violate the Turbidity water quality standard.[406]

The DEIS fails to adequately assess the concerns raised by DEQ and does not comprehensively assess the direct, indirect, and cumulative effects of increased sediment delivery to streams related to proposed stream crossings. The DEIS should evaluate site-specific construction procedures that the applicant will utilize at each stream crossing. The DEIS should fully analyze site-specific waterbody crossing plans that identify proposed crossing methodology, dewatering procedures dewatering discharge sites, spoils placement locations, mobilization and demobilization, and monitoring procedures. The DEIS should also 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.

[403] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019.
[404] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 76
[405] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 76
[406] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 76

188

BB. The DEIS fails to adequately address sediment impacts from riparian vegetation removal

The DEIS does not adequately assess increased sediment delivery to streams from riparian vegetation removal related to stream crossings.

The DEIS at 4-107 states:

> Constructing the pipeline would modify streambanks, resulting in an increase in the rates of erosion, turbidity, and sedimentation into the crossed waterbody. An increase in soil compaction and vegetation clearing could also potentially increase runoff and subsequent streamflow or peak flows. The extent of these impacts would depend on streambank composition and vegetation stream type, velocity, and sediment particle size.

CO28-232

The DEIS does not analyze or require site-specific waterbody crossing plans specifically related to riparian vegetation removal. In the DEIS, NMFS expressed concerns regarding the potential use of riprap or barb/flow deflectors to address sediment delivery to streams as a result of riparian vegetation removal.[407]

Increased sedimentation can impact interactions between surface water and groundwater by decreasing porosity in the hyporheic zone, resulting in reduced cool water inputs to streams.[408] Further, as stream temperature increases, dissolved oxygen levels decrease. Removing riparian vegetation also decreases Large Woody Debris that is an important component of stream morphology and habitat for aquatic species. Not only is riparian vegetation critical for water quality, but removing riparian vegetation has direct, indirect, and cumulative impacts on threatened salmonids. The DEIS does not evaluate compliance with riparian protection rules adopted by the Oregon Department of Forestry (ODF) that require retention of all trees within specific distances of streams with salmon, steelhead, and bull trout under OAR 629-642-0105.

CO28-233

Further, the DEIS does not address discrepancies raised by DEQ regarding the proposed "necking down," or narrowing" of the construction right-of-way from 95-feet to 75-feet through wetlands and waterbody crossings. Specifically, DEQ points out that the applicant's Environmental Alignment Sheets do not actually show this proposed narrowing of the construction ROW at any of the steam crossings.[409] The DEIS should evaluate this proposed "neck down" and further comprehensively assess riparian vegetation removal related to pipeline alignment when it runs parallel to waterbodies, such as in the case of Spencer Creek.

CO28-234

CC. The DEIS fails to comply with requirements in 40 CFR §1502.14

The DEIS fails to identify and analyze known alternative methods to install the pipe at each medium and large perennial stream that would eliminate impacts from proposed dry open- cut

CO28-235

[407] DEIS at 4-107.
[408] "Chapter 2: Temperature." Rogue River Basin TMDL. Oregon DEQ. December 2008. P. 2-20.
[409] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 62.

189

CO28 continued, page 189 of 302

CO28-232 See response to comment CO28-190.

CO28-233 It is not the role or scope of the federal EIS to assess the Project's compliance with State regulations. We assume that the State would determine if the Project is in compliance with the State requirements during their review of the Applicant's State permit applications. As disclosed in section 5 of the EIS, any authorization from the Commission would be conditional on the Applicant acquiring all applicable federal and federally delegated permits.

CO28-234 See our response to the similar comment from the ODEQ.

CO28-235 As described in the EIS, Pacific Connector would implement the Commission's Procedures for waterbody crossings. Because use of the Procedures would result in an acceptable level of impact, we do not evaluate alternative crossing methods for each waterbody. However, other agencies can require an assessment of alternative crossing methods if appropriate as part of their respective review of other permits.

CO28 continued, page 190 of 302

method (e.g. ,HDD, DP or conventional bore methods). The DEIS 2-62 states "Pacific Connector proposes to use the HDD method to cross under the Coos Bay Estuary (MPs 0.3–1.0 and 1.5–3.0) and three major waterbodies (Coos River at MP 11.1R; Rogue River at MP 122.7; and Klamath River at MP 199.4). The DEIS 2-63 states : "Pacific Connector proposes to use DP technology to install its pipeline under the western crossing of the South Umpqua River at about MP 71.3 and the associated crossings under I-5, Dole Road, and the Central Oregon & Pacific Railroad. These construction methods will be utilized in an attempt to **avoid impacts** to these riverine systems and the aquatic resources that they support.(emphasis added)" For example DEIS 4- 106 states "Contribution of turbidity or sediment from other crossing methods, including DP, bore, and HDD, would be unlikely. DPs and bores would go under waterbodies and avoid contact with flowing streams."

The DEIS proposes to avoid impacts with HDD and DP at only 4 of 66 perennial stream crossings. For example, proposed HDD beneath the Rogue River would avoid having to mitigate/minimize streambed disturbance, loss of riparian vegetation, and elevated turbidity caused by removal and fill in the wetted channel. However, the PCGP proposes removal and fill on 62 perennial crossings. In most instances the rationale for using dry open-cut does not even consider avoiding impacts with HDD, conventional bore, direct pipe or some other subsurface drilling method (see Table B.3-4). On 62 perennial stream crossings the PCGP proposed action has chosen to ignore the possibility to avoid stream crossing impacts via HDD, DP or conventional bore design in the DEIS. In some instances PCGP has simply not chosen HDD as an alternative when they admit it's technically feasible. FERC makes no further analysis requirements for PCGP preferences to adversely impact streams with dry-cut methods when other techniques are available that would completely avoid most stream related impacts.

CO28-235 cont.

Numerous impacts and risks would be would be completely **avoided** with HDD, DP or conventional bore for perennial stream crossings as compared to dry open-cut method but the DEIS fails to make a side by side comparison of construction methods. The dry open-cut method would require blasting on 34 fish streams that would likely kill and injure some fish despite mitigations. The dry open-cut method would destroy riparian vegetation that shades and cools streams and provides a permanent supply of large wood for fish habitat. The dry open-cut method would destabilize stream banks and put the pipe at risk of exposure due to channel migration. The dry open-cut method would increase turbidity and violate state water quality standards. Visual quality of our forested streams would be degraded. Some fish would die during salvage removal with the dry open cut method. Conversely, HDD, DP or conventional bore would provide for retention of streamside shade, future large wood inputs, stable stream banks, no turbidity, no stream temperature increases, no fish mortality, no visual impacts and no possibility for pipe exposure during channel migrations.

For example, the Lost River is a major perennial stream with endangered fish species and has an orange rating for the stream crossing. PCGP admits HDD or conventional bore is possible but instead they propose the environmentally damaging dry open-cut method that has high risk at this site. We assert that the each and every waterway crossing must be considered for "project design" subsurface drilling that would avoid most impacts to waterways and wetlands. PCGP typically claims that conventional bore at specific waterway crossings is not possible due to topographic constraints. This is true for some but not all waterways. PCGP has failed to provide

a valley cross section for each waterway crossing to demonstrate that topographic limitations prevent subsurface drilling. Topographic constraints may be relevant for many but not all waterway crossings. Many waterway crossings are in broad alluvial valleys, several hundred ft wide, where conventional bore appears to be technically possible but is not being considered as an "alternative design" to avoid impacts. Many of these waterways (streams) are habitat for anadromous fishes including the federally listed coho salmon.

We assert that the FERC must not approve dry open- cut with mitigation (minimization) of adverse impacts when these adverse impacts to wetlands and waterways can be completely avoided with conventional bore or some other subsurface drilling method. The DEIS discusses alternative alignments (sites) in great detail but fails to adequately or objectively discuss alternative pipeline construction methods at perennial stream crossings that could avoid most removal/fill impacts with HDD, DP or conventional bore.

CO28-235 cont.

By failing to consider and propose alternative designs for waterways and wetland crossings the FERC is denied the opportunity to require implementing the environmentally preferable methods for crossing perennial streams. The DEIS failed to consider design such as HDD, conventional bore or DP to eliminate the need for mitigating or minimizing impacts associated with dry open-cut on numerous perennial streams and diverted wet open-cut method for the South Umpqua (east).

We identified 21 perennial stream crossing sites from DEIS Appendix I. Table I-2. (Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the Proposed Route [revised April 2018]) where alternative construction methods appear feasible for alternative analysis in the DEIS (Steinnon Cr., North Fork .Coquille River, Middle Cr., East Fork Coquille River, Deep Cr. , Middle Fork Coquille River, Olalla Cr., Rice Cr, North Myrtle Cr, South Myrtle Cr, Fate Cr, Days Cr, South Umpqua River[east] MP 94.73, West Fork Trail Cr., Deer Cr., Indian Cr. , Neil Cr., Salt Cr. N.F. Little Butte Cr., S.F. Little Butte Cr. and Lost River)

1. Steinnon Creek (MP 24)

Pacific Connector proposes dry open-cut method for crossing Steinnon Creek (BR-S-63) on BLM land (Table I-2.4). Steinnon Creek is an intermediate perennial stream providing habitat for coho salmon, Chinook salmon, winter steelhead and Pacific lamprey. Conventional bore that would avoid impacts to the stream channel was rejected: "A conventional bore (geotechnical conditions unknown) would require additional riparian impacts because TEWAs to accommodate the bore pits would be required closer to the waterbody in forested riparian areas.." We contend that the DEIS violated the NEPA process by failing to analyze alternative methods to cross Steinnon Creek by comparing impacts from conventional bore vs. dry open cut in the DEIS. The DEIS is inadequate because it failed to analyze design that would avoid impacts to the waterway (e.g. conventional bore). The admission that "geotechnical conditions unknown" was not followed up with statements to comply with 40CFR 1502.22 "Incomplete or unavailable information". The DEIS single proposed action of dry open-cut for Stiennon Creek lacks information from regulating agencies (e.g. ODFW, NMFS,DEQ, DSL) to concur with the use of dry open-cut method when impacts to the waterway could be avoided with conventional bore. In

CO28 continued, page 192 of 302

addition, Pacific Connector failed to propose HDD as an alternative that could avoid all impacts to the stream and riparian forests entirely. The single alternative in the DEIS undermines subsequent discussions with regulating/permitting agencies about the crossing of Steinnon Creek because discussion would be about minimizing impacts and not impact avoidance. This is contrary to pursuing avoidance (if possible) through project design (i.e. environmentally preferable alternative).

2. North Fork Coquille River (MP 23.06)

Pacific Connector proposes dry open-cut method for crossing the North Fork Coquille River (BSP-207) on private land (Table I.2-4). The N.F. Coquille is an intermediate perennial stream providing habitat for coho salmon, Chinook salmon, winter steelhead and Pacific lamprey. HDD that would avoid impacts to the stream channel was rejected because Pacific Connector state that "topographic conditions on east side of the crossing prevent HDD crossing methods because of elevation differences between entry/exit and necessary workspace grading requirements." The DEIS/application provides no data to support these assertions. We note that elevation differences of 80 ft did not prevent Pacific Connector from proposing HDD for the Rogue River. The application to FERC contains no HDD feasibility report for crossing the N.F. Coquille. Access is noted as being denied and no onsite data is available. The DEIS failed to make statements to comply with 40 CFR 1502.22 "Incomplete or unavailable information". The DEIS failed to analyze project design that avoids impacts to the North Fork Coquille River and/or failed to provide technical information in the application to justify rejecting HDD technique. HDD, DP, Conventional bore or other subsurface drilling techniques to avoid stream channel impacts were not considered in the DEIS.

CO28-235 cont.

3. Middle Creek (MP 27.04)

Pacific Connector proposes dry open-cut method for crossing Middle Creek (BSP-207; MP 27.04) on Coos Bay BLM land (Table I.2-5). Middle Creek is an intermediate perennial stream providing habitat for coho salmon, Chinook salmon, winter steelhead and Pacific lamprey. Both HDD and conventional bore that would avoid impacts to the stream channel were rejected as alternative methods for crossing the stream. Pacific Connector states "A conventional bore crossing is not feasible because of topographic constraints on west side of creek because of grading/excavation requirements for bore pit. An HDD is not feasible because of topographic/geometry conditions." The application provides no data to support these assertions. The application contains no HDD and/or conventional bore feasibility report for crossing Middle Creek. The DEIS failed to analyze project design that avoids impacts to Middle Creek and/or failed to provide technical information in the application to justify rejecting HDD, DP or conventional bore techniques.

4. East Fork Coquille River (MP 29.85)

Pacific Connector proposes dry open-cut method for crossing the East Fork of the Coquille River (BSP-71) on private land (Table I.2-6). The E.F. Coquille is an intermediate perennial stream providing habitat for coho salmon, fall Chinook salmon, spring Chinook salmon, winter

steelhead and Pacific lamprey. HDD that would avoid impacts to the stream channel (e.g. bank erosion, loss of riparian vegetation, turbidity) was rejected. Pacific Connector states:

"An HDD is probable at the approximate crossing location based on the topography, geometry and expected geotechnical conditions. Significant HDD costs, HDD time requirements and the need for a crossing bridge were the determinants for the proposed dry-open cut crossing method."

CO28-235 cont.

The application provides no data to support these assertions. The application contains no HDD and/or conventional bore feasibility report for the crossing. The DEIS is defective because it failed to analyze HDD that would avoid impacts to the E.F. Coquille. Pacific Connector cannot use their time schedule or lack of planning to circumvent the NEPA to consider alternatives that avoid impacts with HDD. Pacific Connector has not provided comparisons of costs for dry open- cut versus HDD. Whatever the increased cost, it is certain to be negligible when compared to the cost of the project as a whole. Pacific Connector via the DEIS proposed action is saying that they could avoid impacts to the E.F Coquille with HDD but they are not going to propose HDD as a NEPA alternative because it takes too much time and money. Disregard to the intent of the NEPA to propose and analyze alternatives that avoid impacts violates NEPA. We are not saying HDD must be the proposed action. We are saying that HDD must be analyzed in the DEIS as an alternative to proposed dry open-cut method.

5. Deep Creek (MP 48.27)

Pacific Connector proposes dry open-cut method for crossing Deep Creek (BSP-257) on Roseburg BLM land (Table I.2-13). Deep Creek is an intermediate perennial stream with resident cutthroat trout. PCGP state: "Dry open-cut methods feasible/practical on broad stream and associated wetlands." PCGP failed to even consider HDD or conventional bore that would avoid impacts of removal/fill with dry open-cut method. We assert that PCGP knows these alternative methods are technically feasible at this site but chose not to even consider them as an alternative to the proposed action. This omission is contrary to the intent of the NEPA to analyze alternatives that avoid impacts.

6. Middle Fork Coquille River (MP 50.28)

Pacific Connector proposes dry open-cut method for crossing Middle Fork Coquille River (BSP-30) on private land (Table I.2-14). Middle Fork Coquille is an intermediate perennial stream with resident cutthroat trout. PCGP state: "Dry open-cut methods feasible/practical on broad stream during low flows within ODFW in water work windows." Pacific Connector failed to even consider HDD or conventional bore that would avoid impacts of removal/fill and blasting inherent with dry open-cut method. We assert that PCGP knows that alternative methods (HDD, DP, conventional bore) methods are technically feasible at this site but chose not to even consider them as alternatives for the DEIS. This omission is contrary to the intent of the NEPA to analyze alternatives that avoid impacts.

193

CO28 continued, page 194 of 302

7. Olalla Creek (MP 58.78)

Pacific Connector proposes dry open-cut method for crossing Olalla Creek (BSP-155) on private land (Table I.2-16). Olalla Creek is an intermediate perennial stream providing habitat for coho salmon, winter steelhead, Pacific lamprey and resident cutthroat trout. PCGP state: "Dry open-cut methods feasible/practical on broad stream during low flows within ODFW in water work windows." We assert that Pacific Connector knows that alternative methods (HDD, DP, conventional bore) methods are technically feasible at this site but chose not to even consider them as alternatives for the DEIS. This omission is contrary to the intent of the NEPA to analyze alternatives that avoid impacts.

8. Rice Creek (MP 65.76)

CO28-235 cont.

Pacific Connector proposes dry open-cut method for crossing Rice Creek (S2-04;BSP-227) on private land (Table I.2-17). Rice Creek is an intermediate perennial stream providing habitat for coho salmon, winter steelhead and resident cutthroat trout. Pacific Connector states: "Dry open-cut methods feasible/practical during low flows periods within ODFW in- water work windows. Alignment is defined by residential development in immediate area." We assert that PCGP knows that alternative methods (HDD, DP, conventional bore) methods are technically feasible at this site but chose not to even consider them as alternatives for the DEIS. This omission is contrary to the intent of the NEPA to analyze alternatives that avoid impacts.

9. North Myrtle Creek MP79.12 (No Access no onsite data)

Pacific Connector proposes dry open-cut method for crossing North Myrtle Creek (NSP-37) on private land (Table I.2-21). North Myrtle Creek is an intermediate perennial stream providing habitat for coho salmon, winter steelhead and resident cutthroat trout. PCGP states: "Dry open-cut methods feasible/practical during low flow periods within ODFW in- water work window." Apparently this determination was made without access to the site and no onsite data. The DEIS fails to make statements to comply with 1502.22 "Incomplete or Unavailable Information". We assert that PCGP knows that alternative methods (HDD, DP, conventional bore) methods may be technically feasible at this site but chose not to even consider them as alternatives for the DEIS. This omission is contrary to the intent of the NEPA to analyze alternatives that avoid impacts.

10. South Myrtle Creek MP 81.19 (No Access no onsite data)

Pacific Connector proposes dry open-cut method for crossing South Myrtle Creek (S-T02-003;BSP-172) on private land (TableI.2-21). South Myrtle Creek is an intermediate perennial stream providing habitat for coho salmon, winter steelhead and resident cutthroat trout. PCGP states: "Dry open-cut methods feasible/practical during low flow periods within ODFW in- water work window." And further state that "Conventional bore not feasible/practical because of grading/excavation requirements on north side of stream." Apparently this determination was made without access to the site and is based on incomplete information. The DEIS fails to make statements to comply with 1502.22 "Incomplete or Unavailable Information". The PCGP application has no supporting data for choosing dry open-cut instead of conventional bore. PCGP failed to even consider HDD and failed to provide adequate (onsite) information about the

CO28 continued, page 195 of 302

feasibility to use conventional bore. We assert that PCGP knows that alternative methods (HDD, DP, conventional bore) methods may be technically feasible at this site but chose not to even consider them as alternatives for the DEIS. This omission is contrary to the intent of the NEPA to analyze alternatives that avoid impacts.

11. Fate Creek (MP 88.48)

CO28-235 cont.

Pacific Connector proposes dry open-cut method for crossing Fate Creek (BSP-232)) on private land (Table I.2-24). Fate Creek is an intermediate perennial stream providing habitat for coho salmon, winter steelhead, and resident cutthroat trout. Conventional bore that would avoid impacts to the stream channel was rejected as an alternative construction method. PCGP states:

"A conventional bore is probable based on topography and geometry but geotechnical investigations have not been completed to confirm. A bridge is required at the crossing which would require bank grading for access. Significant costs, time requirements and the need for a bridge were the determinants for the proposed dry open-cut crossing method. Significant cultural resource sites occur in the area and a dry open-cut crossing will minimize excavation/grading disturbance compared to conventional bore."

PCGP provides no supporting data to support these assertions. Apparently the dry open-cut determination and rejection of conventional bore was made without access to the site. >>). The DEIS fails to make statements to comply with 1502.22 "Incomplete or Unavailable Information" for the Fate Creek crossing. The PCGP has not provided comparisons of costs for dry cut versus conventional bore. Whatever the increased cost, it is certain to be negligible when compared to the cost of the project as a whole. In addition the application contains no HDD and/or conventional bore feasibility report for the crossing. Pacific Connector is saying that they could avoid impacts to Fate Creek with conventional bore but they are not going to choose conventional bore as an alternative because it takes too much time and money. We assert these unsupported assertions are not adequate for dismissing less damaging alternative methods for pipeline construction across Fate Creek which would be analyzed in the DEIS.

12. Days Creek (MP 88.60)

Pacific Connector proposes dry open-cut method for crossing Days Creek (BSP-233)) on private land (Table I.2-25). Days Creek is an intermediate perennial stream providing habitat for coho salmon, winter steelhead and resident cutthroat trout. Conventional bore that would avoid impacts to the stream channel and consistent with NEPA alternative direction was rejected. PCGP states:

"A conventional bore is probable based on topography and geometry but geotechnical investigations have not been completed to confirm. A bridge is required at the crossing which would require bank grading for access. Significant costs, time requirements and the need for a bridge were the determinants for the proposed dry open-cut crossing method. Significant cultural resource sites occur in the area and a dry open-cut crossing will minimize excavation/grading disturbance compared to conventional bore."

Apparently this determination was made without access to the site and apparently due to lack of access, the application provides no supporting data to support these assertions. The application contains no HDD and/or conventional bore feasibility report for the crossing. The DEIS fails to make statements to comply with 1502.22 "Incomplete or Unavailable Information" for the Days Creek crossing. The PCGP has not provided comparisons of costs for dry cut versus conventional bore. Whatever the increased cost, it is certain to be negligible when compared to the cost of the project as a whole. In addition the application contains no HDD and/or conventional bore feasibility report for the crossing. PCGP is saying that they could avoid impacts to Days Creek with conventional bore but they are not going to choose conventional bore as an alternative because it takes too much time and money. We assert these unsupported assertions are not adequate for dismissing less damaging alternative methods for pipeline construction across Days Creek which would be analyzed in the DEIS.

CO28-235 cont.

13. South Umpqua River (MP 94.73; easternmost crossing #2)

Pacific Connector proposes diverted open-cut method for crossing the South Umpqua River (ASP-196) on private land (I.2-26). The South Umpqua River is major perennial stream providing habitat for coho salmon, fall Chinook salmon, spring Chinook salmon, winter steelhead, Pacific lamprey and resident cutthroat trout. Assuming the PCGP rejection of HDD is appropriate, we assert that PCGP could have identified an alternative location for this second crossing of the South Umpqua where HDD or DP would be technically feasible. We note that PCGP found an alternative location for implementing DP for crossing the South Umpqua River at MP 71.27 (Table I.2-1)

Conventional bore that would avoid impacts to the stream channel and consistent with NEPA direction to develop less damaging alternatives was rejected. PCGP states:

"A conventional bore is feasible based on topography and geometry but geotechnical investigations have not been completed to confirm. If subsoils are similar as surface conditions (cobbles), a bore would be infeasible. Because a bridge is required at the crossing which would require bank grading for access the diverted open cut crossing method was selected as most appropriate crossing method based on feasibility/practicality and the method with the least risk."

The application provides no supporting data to support the assertions for rejecting conventional bore. The application contains no conventional bore feasibility report for the crossing. The application contains no risk analysis for crossing the South Umpqua River. The DEIS fails to make statements to comply with 1502.22 "Incomplete or Unavailable Information" for the South Umpqua River crossing. The PCGP has not provided comparisons of costs for dry open- cut versus conventional bore. Whatever the increased cost, it is certain to be negligible when compared to the cost of the project as a whole. In addition the application contains no HDD, DP or conventional bore feasibility report for the crossing. The unsupported assertions are not adequate for dismissing less damaging alternative methods for pipeline construction across the South Umpqua River which would be analyzed in the DEIS. We are not asserting that the less damaging methods must be used, only that they be analyzed in the DEIS.

CO28 continued, page 197 of 302

14. West Fork Trail Creek (MP 118.80)

Pacific Connector proposes dry open-cut method for crossing West Fork Trail Creek (SS-100-032) on private land (Table I.2-28). West Fork Trail Creek is an intermediate perennial stream providing habitat for coho salmon, winter steelhead and resident cutthroat trout. PCGP states: "Dry open-cut methods practical/feasible during low flow periods during ODFW in-water work window. " PCGP failed to even consider HDD or conventional bore that would avoid impacts of removal/fill inherent with dry open-cut method. We assert that PCGP knows that alternative methods (HDD, DP, conventional bore) methods may be technically feasible for West Fork Trail Creek site but chose not to even consider them as alternatives for the DEIS. This omission is contrary to the intent of the NEPA to analyze alternatives that avoid impacts.

CO28-235 cont.

15. Deer Creek (MP 128.49)

Pacific Connector proposes dry open-cut method for crossing Deer Creek (ASP-307) on private land (Table I.2-30). Deer Creek is an intermediate perennial stream with unknown fish species. PCGP waterbody crossing rationale states: "Dry open-cut methods feasible/practical during low flow periods within ODFW in- water work window. No additional workspace required. Coho spawn 950 feet below crossing." " PCGP failed to even consider HDD or conventional bore that would avoid impacts of removal/fill inherent with dry open-cut method. We assert that PCGP knows that alternative methods (HDD, DP, conventional bore) may be technically feasible for Deer Creek site but chose not to even consider them as alternatives for the DEIS. This omission is contrary to the intent of the NEPA to analyze alternatives that avoid impacts.

16. Indian Creek (MP 128.61)

Pacific Connector proposes dry open-cut method for crossing Indian Creek (ASP-278) on private land (Table I.2-31). Indian Creek is a minor perennial stream assumed to provide habitat for coho salmon. PCGP waterbody crossing rationale states: "Dry open-cut methods feasible/practical small < 10' wide stream low flow periods within ODFW in-water work window. Stream located in heavily grazed irrigated pasture and riparian vegetation consists of emergent pasture species. Coho spawn 600 feet below crossing." We assert that PCGP knows that alternative methods (HDD, DP, conventional bore) are technically feasible for Indian Creek site but chose not to even consider them as alternatives for the DEIS. This omission is contrary to the intent of the NEPA to analyze alternatives that avoid impacts.

17. Neil Creek (MP 132.12)

Pacific Connector proposes dry open-cut method for crossing Neil Creek (ASP-252) on private land (Table I.2-32). Neil Creek is a minor perennial stream that provides habitat for coho salmon, summer steelhead and resident trout. PCGP waterbody crossing rationale states: "Dry open-cut methods feasible/practical during low flow within ODFW in-water work window. ROW narrowed to 75 feet and TEWAs placed in pasture to minimize riparian impacts." We assert that PCGP knows that alternative methods (HDD, DP, conventional bore) are technically feasible for

Neil Creek site but chose not to even consider them as alternatives for the DEIS. This omission is contrary to the intent of the NEPA to analyze alternatives that avoid impacts.

18. Salt Creek (MP 142.57)

Pacific Connector proposes dry open-cut method for crossing Salt Creek (ASP-ESP-34) on private land (Table I.2-35). Salt Creek is an intermediate perennial stream that provides habitat for coho salmon, summer steelhead, winter steelhead and resident trout. PCGP waterbody crossing rationale states:

CO28-235 cont.

"Dry open-cut methods feasible/practical on creek during low flow period within ODFW in water work window. ROW necked down to 75' and TEWAs located in existing disturbed pasture to minimize riparian impacts. Bore not practical because both bore pits would be located in wetland likely requiring significant dewatering efforts to access bore pits."

The statement about bore pits requiring significant dewatering are speculative and not verified with field testing. We assert that PCGP know that alternative methods (HDD, DP, conventional bore) may be technically feasible for Salt Creek site but chose not to consider them as alternatives for the DEIS. This omission is contrary to the intent of the NEPA to analyze alternatives that avoid impacts.

19. N.F. Little Butte Cr. (MP 145.69)

Pacific Connector proposes dry open-cut method for crossing N.F.Little Butte Creek (ESP-66) on private land (Table I.2-37). N.F. Little Butte Cr. is an intermediate perennial stream that provides habitat for coho salmon, all Chinook, summer steelhead, winter steelhead and resident trout. PCGP waterbody crossing rationale states:

"Dry open-cut methods feasible/practical on stream during ODFW in-water work window. USGS Gage Station 1434300 reports that mean monthly flow are 89, 111, 105 and 67 for Jun, Jul, Aug and Sep, respectively. Flows in Jul and Aug are highest yearly flow periods for creek TEWA set back and located primarily in previously disturbed (pastures) areas to minimize riparian impacts."

We assert that PCGP/FERC know that alternative methods (HDD, DP, conventional bore) may be technically feasible for N.F. Little Butte Creek site, but chose not to consider them as alternatives for the DEIS. This omission is contrary to the intent of the NEPA to analyze alternatives that avoid impacts.

20. S.F. Little Butte Cr. (MP162.45)

Pacific Connector proposes dry open-cut method for crossing S.F.Little Butte Creek (ASP-165). On Rogue River-Siskiyou N.F (Table I.2-37). S.F. Little Butte Cr. is an intermediate perennial stream that provides habitat for native trout species. PCGP waterbody crossing rationale states:

CO28 continued, page 199 of 302

Dry-open cut feasible and practical on creek. ODFW fish passage barrier data (RecordID 51163) indicates that downstream irrigation diversion dam/barrier (~ 0.5 miles): is unladdered and impassible. USGS Gage Station 14339500 – located below diversion reports monthly mean flow of 14, 12 and 11 cfs respectively for Jul, Aug & Sep ROW necked down to 75 feet and TEWAs set back to minimize riparian impacts.

We assert that PCGP know that alternative methods (HDD, DP, conventional bore) may be technically feasible for S.F. Little Butte Creek site, but chose not to consider them as alternatives for the DEIS. This omission is contrary to the intent of the NEPA to analyze alternatives that avoid impacts.

21. Lost River (MP 212.07; landowner restricted access)

CO28-235 cont.

Pacific Connector proposes Dry Open-Cut method for crossing the Lost River (NSP-001) on private land (Table I.2-44). Lost River is a **major perennial** stream that provides habitat for feudally listed Lost River Sucker, Short Nose Sucker, and sensitive species redband trout. PCGP waterbody crossing rationale states:

"Dry open-cut methods feasible/practical during low flow periods during ODFW in-water work window. An HDD and conventional bore are likely probable at the approximate crossing location based on the topography, geometry and expected geotechnical conditions. Landowner restricted access for geotechnical investigations. Significant costs, time requirements were the determinants for the proposed dry open-cut method."

PCGP provides no supporting data to support the assertions for rejecting HDD or conventional bore. Lost River has an orange rating for risk. PCGP failed to obtain access to conduct geotechnical investigations for HDD or conventional bore at this site. PCGP has had at least 10 years to plan for using HDD or conventional bore at this site. Whatever the unstated increased cost for HDD or conventional bore, the increased cost is insignificant when compared to the total cost of the project. PCGP via the DEIS proposed action is saying that impacts to Lost River could be avoided with HDD but they are not going to propose HDD because it takes too much time and money. Purposeful disregard to the intent of the NEPA to propose and analyze alternatives that avoid impacts violates NEPA. We are not saying HDD must be the proposed action. We are asserting that HDD must be analyzed in the DEIS as an alternative to dry open-cut method. In addition the DEIS fails to make required statements to comply with 40 CFR §1502.22" Incomplete or unavailable Information'.

The DEIS I-6 states

> In addition to complying with NEPA, our purposes for preparing this EIS include:
> - identify and assess potential impacts on the human environment that would result from the implementation of the proposed action;
> - identify and assess reasonable alternatives to the proposed action that would avoid or
> - minimize adverse impacts on the human environment;

199

- identify and recommend specific mitigation measures to minimize environmental impacts; and
- facilitate public involvement in identifying significant environmental impacts on specific resources." (emphasis added)

PCGP and FERC fail to comply with NEPA and the purpose of the EIS by failing to analyze alternative perennial stream crossing methods such as HDD, DP and conventional bore in the DEIS. CO28-235 cont.

The DEIS fails to adequately inform FERC and the public about state water quality violations for turbidity by implementing dry open- cut methods for crossing perennial streams when alternative methods such as HDD are available that would cause no turbidity. The DEIS 4-106 states:

> The *Turbidity-Nutrients-Metals Water Quality Impact Analysis* (GeoEngineers 2017e) concluded that turbidity may exceed Oregon numerical water quality standards for short distances and short durations downstream from each crossing, either during and shortly after construction (in perennial waterbodies) or after fall rains begin (for intermittent and ephemeral streams). Such exceedances are allowed as part of the narrative turbidity standard if recognized in a CWA Section 401 water quality certification if every practicable means to control turbidity has been used.

The DEQ has denied 401 certification of the Jordon Cove project. https://www.oregon.gov/deq/Programs/Pages/Jordan-Cove.aspx Thus there is no legal allowance for exceedances for short durations or short distances because Jordon Cove has been denied 401 certification.

Road construction and use of roads would cause sediment laden water from road surfaces to enter numerous streams and violate state standards during and after intense winter rainfall that is expected along the pipeline route every year.

The DEIS 4-103 states "Given the locations of these roads, a total of 4 TARs, 3 PARs, and 21 EAR road segments related to the Project could potentially deliver sediment to streams, either from directly crossing streams or being with 200 feet upslope of them. Such sediment delivery would increase turbidity and fine sediment deposits, especially if BMPs were not properly instituted in these areas." The DEIS and ECRP fail to identify which BMPs will be used for each road segment to prevent sediment laden water from entering the waters of the state. The DEIS and ECRP fail to identify which streams would be polluted by access roads. CO28-236

The DEIS 4-104 states that "Turbidity and sedimentation resulting from dry open-cut methods are generally minor and temporary.." The DEIS 4-105 states "There would be short-term turbidity increases for short distances, lasting for several hours during portions of the installation and removal of the diversion structures for the proposed diverted open cut crossing [of the South Umpqua River].". Although minor and temporary the turbidity caused by pipeline construction at flowing streams would violate state standards because it would persist for 1 hr or longer and CO28-237

200

CO28 continued, page 200 of 302

CO28-236 The types of streams (those in the range of listed coho salmon) were identified. Specific stream identification is not essential for the evaluation of effects. See response to comment CO28-164.

CO28-237 Comment noted.

exceed the 10% standard. Unlike road related sediment delivered during winter rains, pipe construction would muddy streams that are normally clear during summer low flows. CO28-237 cont.

The DEIS 4-107 states "Constructing the pipeline would modify streambanks, resulting in an increase in the rates of erosion, turbidity, and sedimentation into the crossed waterbody." The DEIS fails to admit that despite restoration efforts streambanks disturbed by pipeline construction may bleed sediment into streams for years following construction during winter rains. Since NMFS will not allow for rip rap of disturbed streambanks, the tradeoff will be increased risk of sediment delivery and resulting turbidity. CO28-238

The DEIS: 4- 334 states that "Blasting at 22 streams (12 known or assumed to have Coho salmon at the crossing) could cause mortality to fish by rupturing swim bladders but active fish removal from the area prior to blasting would reduce risk of occurrence." Besides killing coho salmon the blasting would increase subsequent turbidity due to creation fines and subsequent mobilization of fines when streamflows are returned. Increased turbidity from blasting will likely violate state standards. CO28-239

DD. Impacts, Risks, and Contingencies for Horizontal Directional Drilling

HDD crossings, when successful, have impacts in areas adjacent to rivers where staging and construction areas occur. HDDs also require the disposal of materials extracted from the drill hole. HDD attempts frequently fail, causing drastic impacts to water quality and fish habitat. According to Williams' own experience, large-diameter HDDs frequently fail. In recent history, many HDD attempts along the 12-inch Coos County pipeline failed, resulting in "frac-outs," situations in which large amounts of sediment and bentonite clay (used as a drilling lubricant) were released into streams. Bentonite clay and sediment released through frac-outs can disrupt fish spawning habitat, increase turbidity, and potentially introduce other contaminants to impacted waterways.

The 2009 FEIS states at 2-97:

> ...there are two problems that may occur during the use of an HDD. First, there may be an unintentional release of drilling mud, forcing its way to the surface through underground fissures. This situation is termed a 'frac-out.' Second, the drill may be blocked by unexpected substrata soils or geological conditions (such as gravel boulders).

The DEIS should fully evaluate the feasibility of proposed HDD for Coos Bay; evaluate and disclose HDD additives; and comprehensively analyze the direct, indirect, and cumulative effects of frac-out. Further the DEIS does not sufficiently mitigate the high risk of hydraulic facture and drilling fluid surface release at Kentuck Slough; does not comprehensively evaluate the Coos Bay estuary variations, does not adequately model effects of suspended sediment; does not adequately evaluate the direct, indirect, and cumulative noise effects of HDD on fish; and does not sufficiently analyze the impacts of HDD on hyporheic zones. CO28-240

201

CO28 continued, page 201 of 302

CO28-238 Bank areas directly affected at each stream crossing are small. There are multiple BMPs that would be implemented to aid in minimizing or eliminating effects from bank disruption and restoring stream banks (e.g., adding LWD, planting short-term vegetation to hold soil, replanting natural riparian vegetation, and restoring existing bank substrate) to stabilize stream banks besides riprap, as noted in response to comment CO28-166.

CO28-239 The main source of instream sediment from stream crossing is the percent of fines in the substrate being disturbed. Areas where blasting is most likely to occur are areas of bedrock, which by definition would be areas low in fines. Also removal of the area disturbed from blasting would be done primarily in the dry with water diverted around the area during construction. These factors would reduce input of fines to streams from areas where blasting occurs. It is not the role or scope of the federal EIS to assess the Project's compliance with State regulations or OARs including water quality standards.

CO28-240 Section 2 and section 4.1 address HDD. These sections have been revised to include additional analysis.

1. The DEIS should evaluate and disclose HDD additives

HDD technology is proposed for Coos Bay, the Coos River, the Rogue River, and the Klamath River. Bentonite clay is highly detrimental to salmon spawning habitat. In addition, the prior DEIS states that drilling mud "can include additional additives specific to each drilling operation" and "Pacific Connector would approve any additive compounds" but does not disclose what these additives might include.[410] The State of Oregon has specifically requested a list of the additives used in drilling fluids and their potential effects on the aquatic environment.[411]

HDD crossings, even when successful, have impacts in areas adjacent to waters where staging and construction areas occur. HDDs also require the disposal of materials extracted from the drill hole. HDD attempts frequently fail, causing drastic impacts to water quality and fish habitat. In recent history, many HDD attempts along the 12-inch Coos County pipeline failed, resulting in "frac-outs," situations in which large amounts of sediment and bentonite clay (used as a drilling lubricant) were released into streams. Bentonite clay and sediment released through frac-outs can disrupt fish spawning habitat, increase turbidity, and potentially introduce other contaminants to impacted waterways. In addition, the prior DEIS states that drilling mud "can include additional additives specific to each drilling operation" and "Pacific Connector would approve any additive compounds" but does not disclose what these additives might include.[412] The State of Oregon has specifically requested a list of the additives used in drilling fluids and their potential effects on the aquatic environment.[413] The state re-iterated these comments yet again in its 2017 scoping comments to FERC.[414]

[410] 2014 DEIS at 4-387.
[411] 2017 State of Oregon Scoping comments at 18.
[412] 2014 DEIS at 4-387.
[413] 2017 State of Oregon Scoping comments at 18.
[414] State of Oregon 2017 Scoping comments at 18.

202

CO28-241

CO28 continued, page 202 of 302

CO28-241 HDD crossings as well as potential impacts that could occur from these activities are addressed throughout the EIS.

The photographs above document a frac-out that led to sedimentation and a huge release of bentonite clay into the Coquille River during construction of the 12-inch Coos County pipeline. A similar HDD failure on the Rogue River would severely impact water quality and salmon habitat. Bentonite clay is highly detrimental to salmon spawning habitat. In addition, the DEIS states that drilling mud "can include additional additives specific to each drilling operation" and "Pacific Connector would approve any additive compounds" but does not disclose what these additives might include. DEIS at 4-387.

CO28-241 cont.

2. The DEIS should comprehensively analyze the direct, indirect, and cumulative effects of frac-out

Horizontal directional drilling requires the use of drilling mud (bentonite) as a lubricant. This fluid is under pressure and there is a possibility of an inadvertent release of drilling mud through a substrata fracture, allowing it to rise to the surface.[415] The 2019 DEIS repeatedly concludes that environmental impacts would not result "unless a frac-out were to occur." Bentonite clay and sediment released through frac-outs can disrupt fish spawning habitat, increase turbidity, and potentially introduce other contaminants to impacted waterways. The DEIS also states a frac-out would likely affect sensitive fish populations, including the Endangered species the Lost River Sucker and the Shortnose Sucker, the Threatened North American Green Sturgeon, the Marbled Murrelet, a Federal Threatened Species with Critical Habitat, and benthic organisms, such commercial oyster beds located in South Slough, Haynes Inlet, and Upper Coos Bay.[416] Despite the significant impact a frac-out would have on aquatic life in region, the DEIS fails to disclose and analyze the likelihood and frequency of frac-out events. Without this information in the current application, FERC cannot evaluate whether the project is likely to have significant

CO28-242

[415] 2019 DEIS, 4-284
[416] 2019 DEIS, 4-268, 284, 324, 337, 339, 341, 616

203

CO28 continued, page 203 of 302

CO28-242 The EIS acknowledges that the inadvertent release of drilling fluids (i.e., "frac-outs") could occur; however, there is no complete data on the likelihood or frequency of frac-outs, and such an assessment would be speculative.

impacts on the environment.

Williams pipeline company's own data show that HDDs for 36-inch pipelines fail unacceptably often.[417] In its own experience, recent HDDs for this size of pipeline have failed one out of every three attempts – a full 33% of the time.[418]

CO28-242 cont.

The DEIS also fails to address past frac-out events. In the region, many HDD attempts along the 12-inch Coos County pipeline failed, resulting in frac-outs and release of sediment and bentonite clay into the Coquille River. More recently, the Rover LNG Pipeline in Ohio released 50,000 gallons of drilling fluid from HDD operation into a wetland in Richland County, Ohio in April 2017. A second spill as a result of HDD operation for the Rover Pipeline released an estimated 2 million gallons of drilling fluid into the Tuscarawas River.[419]

The Oregon Department of Fish & Wildlife ("ODFW") has also described some of their concerns regarding frac-outs several times, first in 2008:

"Between August and October of 2003, MasTec North America Inc. was cited by DEQ for a series of water-quality violations which occurred between August and October of 2003. The violations were a result of frac-outs during the horizontal drilling work for the construction of a natural gas pipeline under the North Fork of the Coquille River in Coos County. If similar frac-out related turbidity discharge impacts were to occur at the proposed Rogue River crossing, they would likely impact last known significant spawning habitat for Spring-run Chinook salmon in the Rogue River Basin. This EIS should include analysis of the potential environmental impacts of a frac-out related turbidity discharge due to the proposed action and alternatives."[420]

And again in 2015:

"Pipeline crossings using HDD or other subsurface methodologies can be expected to cause frac-outs in Coos County geology and possibly throughout the project. The Applicant should be prepared for construction stoppages, cleanup, and remediation of damages caused by frac-outs. HDD and other subsurface boring or drilling crossing design locations should pro-actively address the risks associated with the potential for a "Frac out" or inadvertent loss of drilling fluid..."[421]

The DEIS should fully evaluate the direct, indirect, and cumulative impacts of frac-out.

[417] See FLOW 2008 DEIS Comments at 102-103.
[418] *See* Williams Sept. 2007 Presentation, Williams Sept. 2007 documentation of its HDD Experience.
[419] Letter from Buffy Thomason to Aaron Wolfe and Kurt Kollar, Ohio EPA. (April 17, 2017), https://www.scribd.com/document/345647356/Notice-of-Violation-Rover-Pipeline-LLC.
[420] STATE OF OREGON, Jordan Cove Draft Environmental Impact Statement 24 (2008)
[421] STATE OF OREGON, Jordan Cove Draft Environmental Impact Statement 102 (2015)

3. The DEIS does not sufficiently mitigate the high risk of hydraulic fracture and drilling fluid surface release at Kentuck Slough

The 2017 GeoEngineers Memo concluded there is a high risk of hydraulic fracture and drilling fluid surface release at the east end of the crossing approaching Kentuck Slough.[422] The evaluation identifies potential mitigation for this risk, such as large-diameter casing, but it is unclear from the DEIS and supporting documents what specific mitigation measures JCEP is currently proposing. Any measures designed to mitigate the potential for hydraulic fracture during HDD are applied broadly to all HDD sites. The DEIS also fails to include the memo's finding of high risk of hydraulic facture and drilling fluid surface release at the Kentuck Slough crossing. Without specific discussion and mitigation measures of this risk, FERC cannot conclude that the HDD crossing of Kentuck Slough presents no significant impact.

CO28-243

4. The DEIS does not adequately model effects of suspended sediment

The applicant incorporated site data, regional data, and available literature-based models to provide an estimate of both suspended sediment level and extent of effects on aquatic resources from pipeline stream crossing construction based on their estimates of sediment concentration and exposure duration. Streams not modeled included the Upper Klamath River and Lost River subbasins crossings, other HDD or boring sites, and bedrock stream crossings that would have low sediment during crossings.[423] The DEIS unjustifiably excludes HDD sites from sedimentation modeling based on the presumption that low sedimentation would occur during the crossing, particularly in light of the known sedimentation increases that result from frac-out. Without data that indicates the probability of a frac-out event, the DEIS cannot conclude the likelihood of sedimentation is negligible enough as to avoid modeling effects of suspended sediment for HDD crossings. Therefore, FERC cannot conclude that no significant impact will result from the Project if the DEIS fails to include modeling of sedimentation of waterbodies crossed using HDD.

CO28-244

5. The DEIS does not adequately evaluate the direct, indirect, and cumulative noise effects of HDD on fish

Increased noise from HDD operations creates conditions that are deleterious to fish or other aquatic life. The average time a given point along the pipeline would be disturbed by construction noise is approximately 8 weeks. This would vary, as the speed at which a crew would be able to work would be affected by terrain, construction methods, weather, and environmental windows. HDD operations may occur 24 hours per day, seven days a week. HDD operations are estimated to last from 20 to 100 days depending on the location.[424]

Pacific Connector proposes to cross the Coos, Rogue, and Klamath Rivers, and Coos Bay at two separate locations, and a BPA powerline corridor using HDD technology. Noise studies conducted for the HDD of each proposed crossing determined that, with the use of mitigation measures (such as special vinyl fabric acoustic tents or other barriers), noise levels at the seven

[422] GeoEngineers Memorandum, Coos Bay West HDD Crossing (Sept. 14, 2017) at 9.
[423] 2019 DEIS, 4-278
[424] 2019 DEIS, 4-212

205

CO28 continued, page 205 of 302

CO28-243 The use of large-diameter casing is a typical mitigation measure to prevent inadvertent returns surfacing near entry and exit points for a HDD, such as within the Kentuck Slough. Contractors are equipped for deploying large diameter surface casing during drilling operations, and its use would effectively seal off near surface IRs from occurring. Other typical mitigation measures that Pacific Connector may employ include the use of lost circulation materials down-hole or down-hole grouting to seal off fluid losses.

CO28-244 See response to comment CO28-173. Also, considering actions that would be taken to prevent frac-outs, diminish the quantity and magnitude of a frac-out occurrence, and potentially remove spilled material, the conclusions in sections 4.3.2 and 4.5.2 stated if HDD frac-out occurred they would have minor short-term adverse effects. Modeling of stream crossing turbidity acknowledges that turbidity would occur even with the proposed procedures and mitigative actions in place while HDD sediment to streams would only occur under unlikely accidental frac-out. We do not agree that modeling is needed to make an assessment under these conditions.

crossings are not expected to exceed the Oregon State noise regulations of 55 dBA during the day and 50 dBA at night within 25 feet of an NSA. A comparable HDD project in Whatcom County, Washington, experienced noise levels between 47 and 52 dBA at the study area.[425]

The DEIS includes findings from a study of behavioral and physiological reactions of animals to known noise levels, stating "fish demonstrate reduced viability, survival, and/or growth (20 dB for 11 to 12 days)."[426] Despite the DEIS's estimated noise level for the HDD area of 47 to 52 dBA, a level significantly higher than that found to reduce viability, survival, and/or growth in fish populations, the DEIS concludes that "noise effects on wildlife from the operation of the drilling equipment from the HDD crossings at Coos, South Umpqua, Rogue, and Klamath Rivers should be negligible."[427]

CO28-245

Given the contradictory data provided in the DEIS, the FERC should consider whether these potential impacts can be adequately addressed.

6. The DEIS does not sufficiently analyze the impacts of HDD on hyporheic zones

The hyporheic zone is the region of sediment and porous space beneath and alongside a stream bed, where there is mixing of shallow groundwater and surface water. The flow dynamics and behavior in this zone is important for surface water/groundwater interactions, as well as fish spawning, among other processes.

GeoEngineers (2017) developed weighting factors to assign criteria of high, moderate, and low sensitivity to the crossing locations based on qualitative observations of bed and bank material, stream gradient, location within a watershed, and morphological features. The analysis used these qualitative parameters to rank how sensitive a stream crossing may be to potential hyporheic zone alteration.[428]

Water quality parameters, including water temperature and intragravel dissolved oxygen, might potentially be affected at crossings where hyporheic exchange is extensive and active. Thus, streams with a "high" and "moderate" sensitivity would be the streams where water quality could potentially be compromised due to alteration of the hyporheic zone.

Fifteen stream crossings were categorized as having a high sensitivity to hyporheic zone alteration. 'High' sensitivity hyporheic zones are associated with coarse textured sediment that allows for greater hydraulic conductivity.[429] Two of the 'high' sensitivity crossings, including the Coos River crossing at MP 11.13R and the Rogue River crossing at MP 122.65, would be crossed by horizontal directional drilling.[430]

CO28-246

Not only are the Coos River and Rogue River HDD crossings identified as 'high' sensitivity

[425] 2019 DEIS, 4-214
[426] 2019 DEIS, 4-212
[427] 2019 DEIS, 4-214
[428] 2019 DEIS, 4-116
[429] Wondzell, S. M. (2011). The role of the hyporheic zone across stream networks. *Hydrological Processes, 25*(22), 3525-3532.
[430] 2019 DEIS, 4-217

206

CO28 continued, page 206 of 302

CO28-245 The effects of noise are based on documents that addressed primarily short term effects. Fish are not static in their location and estimates of effect of long duration are not a reasonable metric for assessing effects of project actions. As discussed in section 4.5.2 substantial effects occur at levels over about 183dB although some behavioral effect occur at slightly lower levels.

CO28-246 Plans have been developed (as described in section 4.3) for conducting successful HDD crossings of these stream channels, as explained in the HDD Feasibility Analysis (Appendix G.2 of Pacific Connector's Resource Report 2). This analysis determined there is a low risk of frac-out occurring into the crossed waterbodies based on available information including site area borings that took into consideration substrate.

crossings regarding the hyporheic zone, but both crossings also have coarse sands and gravel units with low percentages of silt and clay that have the highest susceptibility for drilling fluid loss and frac-out, which most often occurs near entry and exit points.[431] Therefore, the Rogue and Coos rivers' 'high' sensitivity hyporheic zones seem to suggest the viability of HDD crossings is limited. Additionally, a frac-out occurring at the entry or exit points of the drill at either of these streams could have magnified consequences due to the greater hydraulic conductivity associated with their 'high' hyporheic sensitivity. The DEIS fails to adequately analyze possible impacts related to the hyporheic zone from HDD crossings.

CO28-246 cont.

7. The DEIS fails to analyze effects of HDD crossings on pH of Butte Creek, and Rogue and Klamath Rivers

Surface waters are susceptible to changes in pH caused by several factors including chemical releases, elevation, temperature, and biological processes such as photosynthesis and algal respiration. Surface water pH varies regionally throughout Oregon.

Butte Creek, Rogue River, and Klamath River are all water quality limited for pH during the summer. HDD boring is proposed for the crossing of all three of these waterbodies. Despite the possibility of a frac-out during the HDD process, which releases chemicals into the surrounding waterbodies, thus potentially affecting the stream's pH, the DEIS fails to include any analysis of the impacts a frac-out event may have on the pH of these already water quality limited streams. Without data that indicates the probability of a frac-out, the DEIS cannot ignore the potential for such an event to alter the waterbodies' pH. Therefore, FERC cannot conclude that no significant impact will result from the Project if the DEIS fails to include analysis of pH on waterbodies crossed using HDD.

CO28-247

Further, DEQ in its denial of the 401 certification for the project specifically states that violation of the state water quality standard for pH may occur as a result of the proposed activities. In its denial findings, DEQ states:

Based upon these findings, violations of the pH standard may occur in a few locations where the standard is not currently being met. JCEP has not identified methods to assure that no additional loading will occur in these areas whether the pipeline would cross a waterbody that is limited for pH. DEQ concludes that it does not have a reasonable assurance that the proposed activities will be conducted in a manner that will not violate the pH water quality standard at OAR 340-41-0021.[432]

Particularly in light of DEQ's denial of the 401 certification, FERC cannot conclude that no significant impact will result from the Project if the DEIS fails to include analysis of pH on waterbodies crossed using HDD.

[431] GeoEngineers Memorandum. Coos Bay West HDD Crossing (Sept. 14, 2017) at 4.
[432] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 57.

207

CO28 continued, page 207 of 302

CO28-247 See response to comment CO28-247. Also, drilling fluid consists primarily of fine bentonite clays in water slurry, which would be generally inert. Any pH levels of the mud would be diluted or buffered by the vast amount of water that it would mix with under any potential spill.

EE. Hydraulic Alteration at Each Pipeline Stream Crossing

The pipeline will cross tributaries and mainstream rivers within the Coos, Coquille, South Umpqua, Rogue and Klamath basins, most of which are impaired for several water quality parameters. The dry open cut crossings proposed for many of these stream crossings may result in increased erosion, channel migration, avulsion, and/or scour. Channel modifications that increase sedimentation can decrease the depth and frequency of pools, which decreases the assimilative capacity for thermal loading of a stream.[433] Proposed activities to conduct dry open cut technology have the potential to increase sedimentation, modify habitat, decrease dissolved oxygen, and impair the aquatic habitat. In addition to comprehensively reviewing hydraulic alterations at proposed stream crossings related to state water quality standards for parameters including but not limited to sediment, dissolved oxygen, and temperature, the DEIS should also fully evaluate the impacts to threatened salmonids.

CO28-248

Oregon DEQ in its denial of the 401 certification for the project points to the potential for proposed waterbody crossings to "cause short- and long-term alterations of stream habitat and hydrology."[434] Specifically, DEQ expressed concerns regarding compliance with the state biocriteria water quality standard in its rationale for the denial.

The DEIS should specifically review at the minimum the five stream segments listed as impaired for the biocriteria water quality standard regarding hydraulic alterations at proposed stream crossings. DEQ specifically identifies Olalla Creek (MP 58.78) and North Myrtle Creek (MP 79.12) as impaired for biocriteria and including spawning and rearing habitat for Oregon Coast coho, listed under the Endangered Species Act. Both of these crossings have been identified by the applicant as Level 2 with a high potential for migration, avulsion, and/or scour. Additionally, the DEIS should assess the direct, indirect, and cumulative impacts to stream crossings proposed to headwater streams that are hydrologically connected to upper watershed habitat networks. The DEIS acknowledges potential hydraulic alterations, stating at 4-107 that:

> Constructing the pipeline would modify streambanks, resulting in an increase in the rates of erosion, turbidity, and sedimentation into the crossed waterbody. An increase in soil compaction and vegetation clearing could also potentially increase runoff and subsequent streamflow or peak flows. The extent of these impacts would depend on streambank composition and vegetation stream type, velocity, and sediment particle size.[435]

Further, the DEIS specifically identifies fluvial erosion as a potential hazard, stating:

> Fluvial erosion represents a potential hazard to the pipeline where streams can expose the pipe as a result of channel migration, avulsion, widening, and/or streambed scour.[436]

[433] "Chapter 2: Temperature." Rogue River Basin TMDL. Oregon DEQ. December 2008. P. 2-20.
[434] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 48.
[435] 2019 DEIS at 4-107.
[436] 2019 DEIS at 4-108.

CO28 continued, page 208 of 302

CO28-248 The effects of stream crossing on these parameters and streams are addressed in section 4.5.2. Details regarding the effects on listed fish are addressed in section 4.6 and the BA. See response to comment SA28-190, which discusses how state water quality regulations are addressed. Also see response to comment CO28-166 for how stream crossings are addressed to reduce potential effects to habitat and water quality.

The DEIS must conduct a comprehensive environmental review and require detailed and site-specific plans for each stream crossing, particularly for those identified as at a high or moderate risk of scour, channel migration, and/or avulsion. The DEIS should comprehensively review the potential risk for hydraulic and geomorphic alteration upstream and downstream from the impact areas.

CO28-248 cont.

In addition, the DEIS should fully evaluate temporary and permanent displacement of native soils that may alter in-situ characteristics, including intrinsic permeability. According to DEQ:

> Zones of higher permeability can cause local infiltration, partial stream capture, and create a fish passage barrier. Project-related actions that reduce streamflow may limit habitat availability, alter channel hydrology, and modify hyporheic exchange in riparian areas.[437]

Further, DEQ finds that in places where blasting, rock-sawing, or jackhammering are required, open-cut trenches may be needed that can alter stream geomorphology and create fish passage barriers. Specifically, DEQ states:

> Open cut trenches in bedrock-dominated stream channels are susceptible to upstream propagation of knickpoints created by fractures and joints in the stream's bedrock created during the excavation process. Knickpoint propagation in bedrock-dominated streams can alter stream geomorphology and potentially develop into barriers to fish migration.[438]

The DEIS should comprehensively review construction practices related to flume installation and removal, site restoration, and other proposed activities that can increase sediment releases that may impact substrate characteristics, oxygen availability, and habitat complexity.

CO28-249

Additionally, the DEIS should comprehensively evaluate the direct, indirect, and cumulative effects of altering in-stream flow as a result of the proposed activities. The DEIS identifies hydrostatic testing and dust control as sources of water withdrawals. The applicant estimates that 31 million to 65 million gallons of water would be required for hydrostatic testing.[439] The DEIS states:

CO28-250

> Potential effects on stream flow associated with hydrostatic testing include reduced downstream flows, erosion and scouring at release points, and the transfer of aquatic nuisance species through the test water from one water basin to another. Estimates of potential water intake amounts from streams indicate flows below intake would be reduced by less than 10 percent of typical monthly instantaneous flow rates during the month of withdrawal for all but one (at 35 percent of flow) potential locations during withdrawal (duration about 6 to 11 days at each potential location; Ambrose 2018, see also table 4.5.2.3-6 in section 4.5 for withdrawal amounts by stream). Final selection of

[437] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 48.
[438] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 48.
[439] 2019 DEIS at 4-109.

209

CO28 continued, page 209 of 302

CO28-249 The effects of the various methods of stream crossing are adequately addressed in sections 4.3.2 and 4.5.2. As noted in the EIS, there are various plans and procedures in place to reduce, eliminate, or mitigate effects to sediment, substrate, and habitat from construction and operation.

CO28-250 We have included a limitation on water withdrawal to no more than 10 percent of the flow at the time of withdrawal. This flow reduction, even in low-flow events, would be adequate to protect water resources. The flow restrictions process is handled through the State permitting. The State through this process can implement additional requirements deemed needed to meet their permit requirements. Additionally, see response to comments SA2-221 and CO28-187 concerning water rights and consideration of beneficial use requirements relating to state permitting.

intake rates and sites would be reviewed by ODFW and OWRD prior to testing, so that potential effects from flow reductions would be unlikely.[440]

CO28-250 cont.

The DEIS should thoroughly evaluate the direct, indirect, and cumulative impacts on water quality of proposed water withdrawals for hydrostatic testing. The applicant provides minimal information regarding the source and discharge of hydrostatic testing water. Not only would these water withdrawal impact existing water rights, but reducing flows can also impair water quality, in violation of water quality standards.[441]

Further, the DEIS does not evaluate the impacts of water withdrawals for dust control, instead stating that "it is not possible to know how much water would be needed for dust suppression on the pipeline construction right-of-way, during dry seasons."[442] The applicant estimates that approximately 75,000 gallons for 25 water trucks per day would be needed. The DEIS does not comprehensively evaluate the impacts of water withdrawals related to dust control. If, as the DEIS states, the "total amount of water needed is unknown,"[443] then FERC cannot conclude as the DEIS states that "the overall change in any specific reduction in streamflow from this water use would likely be unsubstantial."[444]

CO28-251

FF. Potential Interference of Subsurface Flow Regimes from Pipeline Construction

The DEIS fails to comprehensively analyze the direct, indirect, and cumulative effects of the proposed activities on subsurface flow regimes. The DEIS acknowledges that pipeline construction can affect surface waters, stating:

> Surface waters could be affected due to alteration of groundwater flow where the pipeline intersects waterbodies. The hyporheic zone is a region beneath and alongside a stream bed where there is mixing of shallow groundwater and surface water. The flow dynamics and behavior in this zone is recognized to be important for surface water and groundwater interactions, as well as fish spawning, among other processes.[445]

CO28-252

The DEIS specifically states that detailed site-specific analysis is necessary to analyze potential interference with subsurface flow regimes. However, the DEIS only relies upon qualitative analysis provided by the applicant. Specifically, the DEIS states:

> It is difficult to measure hyporheic exchange without detailed site-specific study, but qualitative observations of bed and bank material, stream gradient, location within a watershed, and morphological features can help indicate whether a stream has an active and functional hyporheic zone. GeoEngineers (2017g) developed weighting factors to assign criteria of high, moderate, and low sensitivity to the crossing locations. The

[440] 2019 DEIS at 4-111.
[441] PUD No. 1 of Jefferson Cty v. Washington Dept. of Ecology. 511 U.S. 700 (1994). https://www.law.cornell.edu/supct/html/92-1911.ZO.html.
[442] 2019 DEIS at 4-111.
[443] 2019 DEIS at 4-111.
[444] 2019 DEIS at 4-111.
[445] 2019 DEIS at 4-112.

CO28 continued, page 210 of 302

CO28-251 See response to comments SA2-225 and SA2-227.

CO28-252 Additional text has been added to the EIS to address potential effects to hyporheic flow. The area potentially affected would be limited to the region disrupted by trenching. As noted in section 4.3.2, various procedures would be in place to return the substrate to the former conditions after trenching, which would aid in maintaining hyporheic flow. Effects of trenching would therefore be limited in the total trench excavated area affected if at all. HDD crossing would be set well back from stream banks (over 150 feet away) and travel a substantial depth (over 50 feet) below the river bed. If the hyporheic zone is large in the HDD crossing, the portion of this hyporheic zone that would be potentially affected would be very small (about the diameter of the drilling route and likely not a significant factor affecting hyporheic flow or exchange). The result would be that any potential effects to hyporheic flow would be slight. As discussed in section 4.5.2, sediment levels resulting from stream crossings and clearing would not reach levels that would substantially affect pore spaces in gravel that could potential affect this exchange of water.

CO28 continued, page 211 of 302

> analysis used these qualitative parameters to rank how sensitive a stream crossing may be to potential hyporheic zone alteration.[446]

The DEIS identifies fifteen stream crossings that the GeoEngineers report categorized as having a high sensitivity to hyporheic zone alteration.[447] However, although these crossings may be identified in the GeoEngineers report, the DEIS provides no additional analysis of the sensitivity of these crossings or the direct, indirect, or cumulative effects of pipeline construction on the hyporheic zone for these sensitive sites.

The DEIS does provide some additional analysis for one stream crossing at South Fork Little Butte Creek in the Rogue Basin. Specifically, the DEIS states:

CO28-252 cont.

> The Forest Service has expressed concern that the crossing of South Fork Little Butte Creek would go through basalt and andesite bedrock, and therefore a site-specific crossing would need to address the potential for groundwater interception and flow at and near the crossing. A site-specific drawing for Little Butte Creek located on NFS land was included in Appendix 2E of Resource Report 2 with Pacific Connector's September 2017 application to the FERC. The crossing would need to address the potential for groundwater interception and flow at and near the crossing since it is a critical coho stream which flows through andesite and basalt. The *Stream Crossing Hyporheic Analysis* (GeoEngineers 2013c; 2017g) determined that South Fork Little Butte Creek crossing had high hyporheic sensitivity. Therefore, BMPs would be implemented to mitigate for this possible effect.[448]

However, the DEIS does not provide additional analysis for the South Fork Little Butte crossing nor does it provide comprehensive analysis of the direct, indirect, and cumulative effects of hyporheic zone alterations at the other stream crossings identified as highly sensitive.

Additionally, the DEIS fails to comprehensively evaluate the direct, indirect, and cumulative effects of stream crossings proposed for 303(d) listed waterbodies and hyporheic zone alterations. DEQ in its denial of the 401 certification for the project notes that the applicant proposes stream crossings in many waterbodies that are impaired for temperature. Regarding impacts to the hyporheic zone as a result of proposed activities, DEQ states:

> Dewatering actions proposed by JCEP would reduce the volume of cold groundwater available for hyporheic exchange in the reach below each waterbody crossing. This reduction in groundwater exchange below crossings would reduce the assimilative capacity for thermal loading. JCEP proposes to alter groundwater flow at numerous stream to construct its pipeline. Many of these streams are currently impaired for temperature. For example, at pipeline stream crossing at Milepost 58.78, Ollala Creek is limited for temperature year round and is under an approved TMDL. Similarly, DEQ has placed Rice Creek (Milepost 65.76), South Umpqua River (Milepost 71.27), North Myrtle Creek (Milepost 79.12), South Myrtle Creek (Milepost 81.19), and many others

[446] 2019 DEIS at 4-112.
[447] 2019 DEIS at 4-113.
[448] 2019 DEIS at 4-140.

> on the 303(d) list for temperature. These streams are under an approved temperature TMDL.[449]

The DEIS does not adequately assess the potential impacts to the hyporheic zone, such as reduced groundwater exchange and decreased assimilative capacity for thermal loading, from the proposed stream crossings that are already impaired for temperature.

CO28-252 cont.

Further, DEQ states that the proposed activities, including but not limited to dry open-cut trenching, backfill placement, and restoration actions could temporarily displace native soils that might alter intrinsic permeability. The DEIS should comprehensively evaluate the direct, indirect, and cumulative effects of proposed activities that would displace native soils and alter permeability.

Additionally, the DEIS fails to adequately assess the direct, indirect, and cumulative effects of temporary and permanent access roads in shallow groundwater areas on subsurface flow regimes.

The DEIS also does not comprehensively evaluate the potential impacts to groundwater as a result of HDD. The September 2017 GeoEngineers report states:

> During our borings, we were not able to measure groundwater levels due to the presence of drilling fluid. However, based on the observed relative moisture content of the samples, and the locations and elevations of the borings relative to the Coos River, we estimate that groundwater was at or near the ground surface at the time of drilling. We anticipate that groundwater levels will fluctuate with precipitation, site utilization and other factors. During heavy prolonged precipitation, and probably during most of the winter months, we expect that groundwater will be near or at the surface of the site…[450]

> We did not measure groundwater levels upon completion of the borings because of the presence of drilling fluid in the holes at the time of drilling. We anticipate that groundwater levels will mimic the elevation of the Rogue River around 1,410 feet mean sea level (MSL). We anticipate that groundwater levels will fluctuate with precipitation, site utilization and other factors. During heavy prolonged precipitation, and probably during most of the winter months, we expect that groundwater will be near or at the surface of the site on the east side of the Rogue River.[451]

In its denial of the 401 certification for the project, DEQ specifically identifies the lack of

[449] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 66.
[450] Coos River HDD Pacific Connector Gas Pipeline Project. GeoEngineers. 1 September 2017. P. 5. PCP Part 2 Appendix B. P. 1476.
[451] Rogue River HDD Pacific Connector Pipeline Project Jackson County, Oregon. 1 September 2017. P. 6. Pacific Connector Pipeline Part 2 Appendix B. P. 1577.

subsurface data for the Coos Bay HDD, stating:

> JCEP prepared a HDD Feasibility Report that includes geotechnical engineering, recommendations, and HDD design criteria for the three proposed HDD river crossings. The report also includes a feasibility analysis of completing a HDD crossing beneath Coos Bay estuary. However, JCEP's consultant states that the "* * *feasibility evaluation of the proposed Coos Bay East HDD is based on limited subsurface data. Our conclusions should be considered preliminary pending completion of a subsurface exploration program. Resource Report 2, Appendix G.2. The feasibility analysis generally finds a low risk of drilling fluid releases. However, at the east end of the crossing approaching Kentuck Slough there is a high risk of hydraulic facture and drilling fluid surface release. Resource Report 2, Appendix G.2., at 9. The evaluation identifies potential mitigation for this risk, but it is unclear what specific mitigation measures JCEP is currently proposing.

CO28-252 cont.

The DEIS should fully evaluate the potential alterations to the subsurface flow regime as a result of HDD crossings.

Further, removal of riparian vegetation that results in increased sedimentation can impact interactions between surface water and groundwater, further impairing streams for temperature. As stated in the Rogue Basin TMDL: "Excess fine sediment can also decrease permeability and porosity in the hyporheic zone, greatly reducing hyporheic flow, and resulting in less cool water inputs (Rehg et al. 2005)."[452]

Without information demonstrating the potential effects of pipeline construction, including streambed and bank disturbance and placement of pipe and backfill, on the hyporheic regimes of affected waterbodies, FERC does not have the requisite information to determine the environmental impacts of the Project.

GG. Post-Construction Restoration at Stream Crossings

The DEIS fails to comprehensively evaluate the direct, indirect, and cumulative effects of construction and post-construction restoration at stream crossings. For many stream crossings, the applicant proposes to use dry open-cut methods (dam and flume, or dam and pump). According to the DEIS, this effectively means "allowing trenching across streams in the dry."[453] The DEIS acknowledges that many of these dry open-cut stream crossings are proposed for waterbodies that support or are likely to support anadromous salmon and/or steelhead, coldwater resident fish, estuarine fish, or important endemic species.[454]

CO28-253

In its denial of the 401 certification for the project, DEQ identifies significant concerns with dry open-cut crossing methods, particularly for streams that are impaired for pollutants such as temperature and sediment. Specifically, DEQ states:

[452] "Chapter 2: Temperature." Rogue River Basin TMDL. Oregon DEQ. December 2008. P. 2-20.
[453] 2019 DEIS at 4-93.
[454] 2019 DEIS at 4-271.

213

CO28 continued, page 213 of 302

CO28-253 See response to comment CO28-166. Also, it is not the role or scope of the federal EIS to assess the Project's compliance with State regulations or OARs. We assume that the State would determine if the Project is in compliance with the State requirements and OARs during their review of the Applicant's State permit applications. If the State chooses, it could make the requested requirements contingent for permit approval. As disclosed in section 5 of the EIS, any authorization from the Commission would be conditional on the Applicant acquiring all applicable federal and federally delegated permits.

> To reduce impacts, JCEP proposes to complete these stream crossings in dewatered areas isolated from normal streamflow using temporary dams. JCEP's Stream Fluming Procedures and Dam and Pump Procedures describe the method for removing the flume upon completion. Upon removal, JCEP expects that short-term turbidity "could increase considerably" as the "streambed flushed clean of sediments left over from construction". DEQ has identified three waterbody crossings that are listed on the DEQ's 2012 303(d) list as impaired for sedimentation (S. Fork Little Butte Cr., MP 162.45; Spencer Cr. MP 171.07; Clover Cr. MP 177.76). In these particular areas, any increase in sediment loading is prohibited, at least until completion of a Total Maximum Daily Load that includes an allocation for the proposed activity, or until completion of an implementation plan that demonstrates that increased loading would be avoided. Under a Clean Water Act Section 404 Permit, DEQ would allow limited duration turbid discharges, but only if the project applies all practicable turbidity controls to minimize these discharges. JCEP's proposed methodologies include dewatering of construction areas, and dewatering and removal of temporary dams. JCEP has not presented how it would minimize sediment and turbid discharges during these activities.[455]

CO28-253 cont.

Further, DEQ specifically requested site-specific construction and restoration plans for dry open-cut stream crossings. DEQ states:

> The importance of careful, detailed, site-specific planning for pipeline crossing construction and stream restoration is well-documented in the construction of the Ruby Pipeline. In the Ruby Pipeline project, a team of experts developed an approach to minimize impacts at 849 stream crossings. DEQ's March 11, 2019 information request is consistent with the approach used in the Ruby Pipeline project.[456]

DEQ identifies specific concerns with the construction, operation, and maintenance of pipeline stream crossings and their potential to discharge sediment and other pollutants to streams. In fact, the agency determines that the permanent pipeline ROW will function as a primitive road and is likely to discharge sediment to streams at a rate equivalent to a gravel road with ruts. Further, the slope breakers that the applicant proposes to install within 200 feet of streams would also likely deliver sediment to those streams during and following construction.[457] The DEIS fails to require and analyze site-specific waterbody crossing and restoration plans to minimize pollution.

HH. The Pipeline, and Pipeline Stream Crossings in Particular, Will Violate Oregon's Antidegradation Policy.

The Jordan Cove pipeline must comply with Oregon's antidegradation policy, which ensures the full protection of all existing and beneficial uses by preventing unnecessary degradation of water quality from new sources of pollution and protecting, maintaining and enhancing existing surface

[455] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 30.
[456] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 30.
[457] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P. 50.

water quality. For all waters, the "[e]xisting in stream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected."[458] This level of protection is the absolute floor of water quality.[459] Oregon's antidegradation policy mirrors the federal language, requiring the protection of "all existing beneficial uses" from "point and nonpoint sources of pollution."[460]

In its denial of the 401 certification for the project, DEQ clearly states that the proposed activities would not meet the minimum requirements of Oregon's antidegradation policy. Specifically, DEQ states:

> The preceding sections of this Evaluation and Findings report conclude that proposed activity would affect certain water quality standards and result in a lowering of water quality. Oregon's antidegradation policy requires DEQ to undertake a review of these actions in accordance with procedures established in the Antidegradation Internal Management Directive. ***The construction and operation of the Pacific Connector Pipeline would not meet the minimum requirements of Oregon's antidegradation policy*** because the applicant has not fully considered feasible alternatives to avoid, minimize, or mitigate for impacts to waters of the state. Absent an evaluation of feasible alternatives DEQ is prevented from considering the economic and social benefits of the proposed action against the environmental impacts of lowered water quality.[461]

DEQ continues its analysis to find that the applicant did not provide the information necessary to find that the project is in compliance with Oregon's antidegradation policy, particularly regarding temperature, sediment and turbidity, and biocriteria. DEQ further states:

> JCEP failed to provide information necessary to complete such a review. Absent plans that demonstrate JCEP considered methods to avoid and minimize water quality impacts to temperature, turbidity, sedimentation, and biocriteria, DEQ finds the project does not meet the requirements of DEQ's antidegradation policy.

The DEIS fails to disclose the DEQ's finding that the project is not in compliance with Oregon's antidegradation policy and further fails to comprehensively evaluate the direct, indirect, and cumulative effects of the proposed activities in light of the project's failure to comply with the state's policy.

CO28-254

II. Wildlife Issues.

1. Marbled Murrelets (*Brachyramphus marmoratus*)

[458] 40 C.F.R. § 131.12(a)(1); 40 C.F.R. § 131.3(e) ("Existing uses are those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards.").
[459] Questions and Answers on: Antidegradation, EPA Office of Water Regulations and Standards, August 1985, at 4.
[460] OAR 340-041-0004(1).
[461] Evaluation and Findings Report: Section 401 Water Quality Certification for the Jordan Cove Energy Project. Oregon Department of Environmental Quality. May 2019. P 78. Emphasis added.

215

CO28 continued, page 215 of 302

CO28-254 We assume that the State would determine if the Project is in compliance with the State requirements and OARs during their review of the Applicant's State permit applications.

The pipeline right-of-way runs through prime old-growth marbled murrelet habitat, some of the last of the murrelets Coast Range habitat.

Marbled murrelet populations have declined over much of their range, mostly due to current and historic loss and fragmentation of older-aged forest breeding habitat. Primarily because of logging, populations have been plummeting by 3.7% per year[462]. The primary reason for declines continues to be sustained low recruitment from the loss of quality nesting sites and increases in predation in nesting habitat. In Oregon, nest success has been estimated at only 36%.[463] In fact, the Oregon Department of Fish and Wildlife recognizes that emerging anthropogenic threats to murrelets are "energy development projects"[464] such as the Jordan Cove project.

The Jordan Cove Project will further reduce murrelets in their prime habitat. Construction of the Project would remove a total of about 806 acres of Marbled murrelet habitat (suitable, recruitment, capable), including about 78 acres of suitable habitat removed from 37 occupied stands. There is the potential that effects could extend over a total of 7,145 acres of suitable nesting habitat in the terrestrial nesting analysis area where Project-related noise may affect murrelet behavior, including breeding activities. (DEIS 4-323-324)

The DEIS (4-323-324) also discloses there are 175 occupied and presumed occupied MAMU stands within 0.25 mile of the proposed action, or within 0.5 mile of federally-designated critical habitat that would be affected by the proposed action.

Concerning the effects to murrelets extending over 7,145 acres of suitable nesting habitat in the "terrestrial nesting analysis area" (DEIS 4-324), it is unclear in the DEIS if the "terrestrial nesting analysis area" (not defined in the DEIS) includes the edge effects that would harm murrelet reproduction. While the 2019 DEIS is unclear, the 2015 DEIS told us (4-469) that 2,264 acres of murrelet habitat would be within 300 feet of newly created edges. Thousands more acres will have edge-impacts within 700 feet of clearcuts. CO28-255

The 2019 DEIS failed to fully consider edge effects to murrelets even though the Pacific Connector Pipeline right-of-way would create miles of new edge habitat. Marbled murrelets currently have low fecundity levels in Oregon caused mostly by nest predation because of edges caused by forest fragmentation. The vast majority of murrelet nest failure is due to predation from corvids who otherwise cannot penetrate interior forest habitat. The DEIS failed to fully consider this impact on murrelets.

The right-of-way corridor, plus the Temporary Extra Work Areas (TEWA) to be clearcut, will essentially cause all the murrelets in nearby stands to be unsuccessful in nesting, and allow predators unprecedented access to what was murrelet-secure interior forest habitat.

[462] Oregon Department of Fish and Wildlife. Status Review of the Marbled Murrelet. January 2018. https://www.dfw.state.or.us/agency/commission/minutes/18/02_Feb/Exhibit_D/2%20ODFW%20Marbled%20Murrelet%20Status%20Review%201.18.18.pdf
[463] id. Page iii
[464] id. Page iv

216

CO28 continued, page 216 of 302

CO28-255 Comment is incorrect. The terrestrial nesting analysis area is defined in the draft EIS (i.e., the extent of disturbance/disruption of MAMU during the breeding season), and the acreage of MAMU habitat indirectly affected by increases in edge habitat and loss of interior forest habitat, including increased predation, is quantified.

CO28 continued, page 217 of 302

The Oregon Department of Fish and Wildlife finds that "Forest fragmentation and "edge effects" can increase predation rates [of murrelets] and may result in other adverse effects to remaining patches (e.g., greater windthrow damage, micro-climates less suitable to epiphyte growth)."[465]

The DEIS (4-166) points out that studies show edge effects in "old-growth Douglas-fir forests in the Pacific Northwest" can extend to more than 785 feet past the pipeline corridor. However the DEIS never quantified how many acres in murrelet habitat this would be. The DEIS (4-166) did disclose that 1,449 acres of late successional old growth forests would be impacted by being within 100 meters of newly created edges. However, 100 meters is not inclusive of edge impacts to murrelet habitat, as edge effects penetrate further into forests.

CO28-255 cont.

The DEIS also failed to consider the impacts of the Uncleared Storage Areas (UCSAs) running for 100' on either side of the clearcut in murrelet habitat. This could push some impacts of edges out an additional 100'. UCSAs will impact ground vegetation and understory trees, opening up the canopy and degrading adjacent interior forests. UCSAs will put noise disturbance another 100 feet into edges.

On page 4-518-519 of the DEIS there is a discussion of edge effects on LSRs on National Forest Service lands. This same analysis should have been considered for Marbled murrelet impacts on BLM and private lands. The DEIS simply failed to do the same analysis for impacts BLM lands. Only on Forest Service lands does the DEIS consider that "effects are considered to extend for 100 meters from the created edge in LSOG forest", and, "effects extend out approximately two times the average tree height" on Forest Service lands. In the Coast Range, home of the Marbled murrelet, the average tree height of a 200-year-old tree (site-potential tree height) is 220 feet tall[466]. Therefore, impacts for Marbled murrelets could have been considered further than 440 feet on either side of the pipeline corridor. Jordan Cove never analyzed how many acres of this would be impacting murrelets.

Windthrow especially can result from the clearcutting areas on ridges exposed to high winds, exactly where the pipeline is located in the coast range. Studies found that sites at clearcut edges had less moss than interior murrelet nest sites and natural edge sites (stream corridors) due to stronger winds, higher temperatures, and lower moisture retention when compared with interior sites. Maintaining microclimate is critical to maintaining moisture in murrelet habitat to help moss development and aid in proper thermo regulation of marbled murrelet adults and chicks. The worst forest-type combination for murrelets is suitable murrelet habitat adjacent to clearcuts and regenerating forests with berry producing plants, which is optimal habitat for predators. This is exactly what the Pacific Connector Pipeline does, clearcuts next to suitable habitat (unoccupied or occupied) with plans to plant berry producing plants in the outer parts of the clearcut[467]. This attracts known predators at active murrelet nests, such as Common Ravens (Corvus corax), Steller's Jays (Cyanocitta stelleri), and American Crows (Corvus brachyrhynchos).

The DEIS (4-325) for the proposed action admits that the Project is likely to adversely affect

[465] Oregon Department of Fish and Wildlife. Status Review of the Marbled Murrelet. January 2018. page iii
[466] Coos Bay BLM watershed analysis.
[467] POD Appendix I. Erosion Control and Revegetation Plan. Table 10.12-1. Page 39.

CO28 continued, page 218 of 302

Marbled murrelets because:

- 82 MAMU stands are within 0.25 mile of the pipeline that could be constructed during the breeding season.
- 168 MAMU stands are within 0.25 mile of access roads that could be used during pipeline construction in the breeding season.
- The Pacific Connector Pipeline Project would remove approximately 78 acres of suitable nesting habitat within the range of the MAMU; or approximately 0.5 percent of the 14,310 acres of suitable habitat available in the terrestrial nesting analysis area.
- The Pacific Connector Pipeline Project would modify approximately 656 acres of suitable, 2,058 acres of recruitment, and 2,449 acres of capable habitat.
- Turbidity generated during HDD if a frac-out occurred could affect local major prey species for chicks such as anchovy, sand lance, and smelt.
- LNG carrier traffic in the estuarine analysis area to the Jordan Cove terminal would cause potential behavioral effects on foraging MAMU, and fuel and lubricant spills from LNG carriers would cause injury or mortality to foraging MAMUs.

Additionally, the quality of the remaining habitat would be reduced due to habitat fragmentation and the addition of edge along the pipeline corridor. Removal of suitable nesting habitat by harvest of old-growth timber has been cited as the primary reason for the species' decline (FWS 1992a). Suitable MAMU nesting habitat takes a long time to develop (more than 250 years on average); therefore, any removal of suitable habitat may affect the recovery of the MAMU. Jordan Cove has not proposed compensatory mitigation. In the absence of mitigation the Project would result in long-term negative effects on this this threatened species.

Project related noise above ambient levels will disturb or disrupt Marbled murrelets and interfere with essential nesting behaviors. Blasting for the pipeline trench may occur within 0.25 mile of 11 MAMU stands between April 1 and September 30. Helicopter use within 0.25 mile of eight occupied MAMU stands during the breeding period (between April 1 and September 15) could occur and disturb MAMU adults and nestlings. In fact, little nestling murrelets could be blown out of the nest tree in at least six occupied MAMU stands from rotor wash due to blasting. (2019 DEIS 4-325)

Blasting for the pipeline trench may occur within 0.25 of Marbled murrelet stands between April 1 and September 30. Helicopter use for removal of timber during pipeline construction within 0.25 mile of 9 Marbled murrelet stands during breeding season and potentially disturb adults and nestlings and blow another 7 little nestlings out of nest trees within seven Marbled murrelet stands due to rotor wash for logging. (2019 DEIS 4-325)

Construction of the pipeline (including clearing of timber, access road use, helicopter use, and blasting), as well as pipeline operation and maintenance, would occur within the MAMU breeding season and within 0.25 mile of known MAMU stands. These activities will disturb or disrupt MAMUs and interfere with essential nesting behaviors during the breeding season. (2019 DEIS 4-325)

Jordan Cove has not proposed compensatory mitigation, and the BLM is not allowed to ask for

it. In the absence of mitigation the Project would result in long-term negative effects on this threatened species. (DEIS 4-326)

DEIS 4-197, table 4.5.1.2-3 lists Birds of Conservation Concern with 50 miles of pipeline. For some reason, the Marbled Murrelet is listed has having "no analysis", and insufficient or no data, even on confirmed breeding dates! Jordan Cove should look again. There is abundant analysis and data on the Marbled murrelet. CO28-256

Critical Habitat: The proposed action would also jeopardize the continued existence of the Marbled murrelet and critical habit supporting this species. A likely to adversely affect determination is warranted for Marbled murrelet critical habitat because the project may remove or damage trees with potential nesting platforms, or the nest platforms, decreasing the value of the trees for future nesting use as well as damage to trees adjacent to nesting platforms that provide habitat elements essential to the suitability of the potential nest tree or platform. CO28-257

Ten occupied and 24 presumed occupied MAMU stands occur within CHU OR-06 (b, c, and d) within the proposed terrestrial nesting analysis area. Overall, construction of the Pacific Connector Pipeline Project would remove about 4 acres of suitable MAMU nesting habitat (PBF- 1) and about 12 acres of recruitment habitat and 15 acres of capable habitat (both of which make up PBF-2) within CHU OR-06-d. (DEIS 4-324)

Pacific Connector claims (4-324) to implement measures to reduce effects on MAMU habitat, by using UCSAs, and replanting conifer trees outside of the 30-foot-wide maintenance corridor on certain federal lands and non-federal lands. These measures are completely inadequate. Trees planted in the 30-foot-wide maintenance corridor won't mitigate edge effects for decades, maybe centuries, at which time any impacted murrelet nests will be long gone. And it is unclear how Uncleared Storage Areas (UCSAs) will reduce effects on murrelet habitat. In fact, UCSAs will bring some impacts further into murrelet habitat, like reduced canopy covers, increased noise, and increased slash and fire danger. CO28-258

Elsewhere the 2019 DEIS claims (4-166) to minimize fragmentation, and thus impacts to murrelets, by trees that would be planted in the outer half of clearcut right-of-way. As stated above, this will not minimize fragmentation for many decades, so any wildlife impacted by fragmentation will already be dead before this kicks in. The DEIS also claims (4-167) that in 50 years those planted trees could be 120 feet tall. That is a stretch. The DEIS fails to offer any data to back up this exaggerated growth claim.

Finally, Marbled murrelet nests are notoriously difficult to locate because of their cryptic nesting behavior and the fact that nests occur high up in trees in the Coast Range and are often in rugged terrain. Therefore, when the pipeline clearcuts near occupied stands, it is impossible to tell if the actual nest tree is being cut down.

2. Northern Spotted Owl (*Strix occidentalis caurina*).

2008 is apparently the last survey done for Northern Spotted Owls (NSO) along the pipeline route. At that time, over a decade ago, surveys found NSO pairs at 20 locations. Six sites had

219

CO28 continued, page 219 of 302

CO28-256 Marbled murrelet was removed from the table as better information is available as presented in section 4.6 and our BA.

CO28-257 The draft EIS makes a **likely to adversely affect** determination for MAMU critical habitat, consistent with our BA. The FWS would make a determination in their Biological Opinion whether the proposed action would jeopardize the continued existence of MAMU and/or adversely modify critical habitat.

CO28-258 The draft EIS acknowledges the limited benefit of replanting conifer trees outside the 30-foot-wide maintenance corridor. The final EIS clarifies the anticipated benefit of using uncleared storage areas (UCSAs).

CO28 continued, page 220 of 302

resident single owls. (DEIS 4-327)

Direct effects on NSOs would include the removal of nest trees during the breeding season and noise disturbance due to road and pipeline construction during the breeding period. Noise includes blasting and helicopter use during construction. (DEIS 4-327).

The Project would affect habitat within 97 NSO home ranges and 9 nest patches. 37 miles of the pipeline route would cross 7 designated critical habitat sub-units. Construction would remove 517 acres of nesting, roosting, or foraging (NRF) habitat for the spotted owl. Additionally, 214 acres of nesting roosting foraging (NRF) habitat would be used as Uncleared Storage Areas (UCSAs) where equipment would be parked, and used as disposal for forest slash. (DEIS 4-327

Additionally 1,158 acres of dispersal habitat would be clearcut. 919 acres of spotted owl capable habitat would be clearcut. Edge impacts include 13,294 acres of spotted owl habitat occur within 328 feet of the clearcut. 4,326 acres of interior spotted owl habitat would be affected by these edge effects. (2019 DEIS 4-327).

These are significant long term impacts to the northern spotted owl. DEIS, 4-327. The DEIS offers insignificant mitigation for these impacts, especially on BLM lands and impacts during the late breeding season for the owl.

Activities from pipeline construction during the late breeding period (July 16 through September 30) could disrupt or disturb spotted owls at 10 activity centers within 0.25 mile of the pipeline ROW. Construction activities off the ROW would occur during the entire breeding season and could disturb spotted owls at two known activity centers located within 0.25 mile of the pipeline project. Noise from blasting during pipeline construction within 0.25 mile of NSO sites during the late breeding season would occur and could increase the risk of predation to fledglings that are not able to escape during the latter part of the breeding season. (DEIS 4-328)

The removal of 517-acres of high quality NRF habitat would result in effects on nest patches, core areas, and home ranges of spotted owls, *some of which are currently below thresholds needed to sustain NSOs*. Once suitable NRF habitat is reduced in the spotted owl's home ranges, there is an increased likelihood that spotted owls remaining in the Project area would be subject to displacement from nesting areas, decreased survival, increased predation and diminished reproductive success for nesting pairs (DEIS 4-328, 329).

Considering the current poor status of the spotted owl, this amount of clearcutting and other impacts to their habitat would be difficult, if not impossible, to recover from. The impacts to 97 spotted owl home ranges includes 58 which are below sustainable threshold levels of suitable habitat for continued persistence in their home range and/or core area. (DEIS 4-329).

The project would impact designated critical habitat for the Northern Spotted Owl. The DEIS admits that a likely to adversely affect determination is warranted for Northern Spotted Owl critical habitat. (DEIS 3-111). The proposed action would remove or downgrade the physical and biological features (PBFs) in critical habitat subunits ORC-6, KLE-1, KLE-2, KLE-3, KLE-4, KLE-5, and ECS-1. (DEIS 4-329).

No mitigation or "best management practices" will fix these problems. The quality of the remaining habitat would be reduced due to habitat fragmentation and the addition of miles of edge along the pipeline corridor. Habitat loss due to forest clear-cutting has been the primary factor causing declines of the spotted owl (FWS 1992c) and will affect survival and reproduction of the owls. (DEIS 4-329)

Jordan Cove has not proposed compensatory mitigation, therefore the Project would result in long-term negative effects on the Northern Spotted Owl. (DEIS 4-326)

442 acres would be clearcut from designated spotted owl sanctuaries, Late Successional Reserves (LSRs). (DEIS 4-327) Over half of that is on BLM lands (DEIS 4-443), where 268 acres of LSRs would be clearcut, plus riparian reserves, impacting the spotted owl and marled murrelet habitat on Roseburg and Coos Bay BLM lands.

DEIS page 4-517 says there are no "unmapped" reserves on national forest lands impacted by the pipeline. However, TABLE 4.7.3.3-2 describes an acre of unmapped reserve impacted in the Rogue River National Forest. CO28-259

The DEIS describes on page 4-517 how clearcutting LSRs are mitigated on Forest Service lands, but fails to offer any mitigation for BLM lands, where LSRs and Riparian Reserves, designed to protect Northern Spotted Owls and Marbled Murrelet's, there is no mitigation offered. On Forest Service lands, one offered mitigation is to "protect" matrix lands by redesignating them as LSRs. However, the DEIS failed to determine if those matrix lands were ever threatened with logging. Just changing a designation is no mitigation for the spotted owl. Meaningful mitigation would have been to increase acres of public lands, or obtaining conservation easements on private land. CO28-260

2. Mitigation of Impacts to Marbled Murrelets and Northern Spotted Owls Is insufficient.

The pipeline would impact over 750 acres of late stage old-growth forest that provides habitat to marbled murrelet, northern spotted owl, and other federally-listed threatened and endangered species. (DEIS ES-4). Up to 3,504 acres of forest would be affected by being within 100 meters of newly created edges. Including 1,449 acres of LSOG forests. (DEIS 4-166). Therefore, the Project is likely to adversely affect 13 federally listed threatened and endangered species including the marbled murrelet, northern spotted owl, and coho salmon (ES-5). These significant impacts on federal resources are in addition to the loss of LSOG forests since 1850 in the Coast Range, West Cascades, and Klamath Mountains ecoregions of Oregon, which is estimated to be almost 90 percent (ODFW 2016a). (DEIS 4-158)

In order to compensate for significant adverse impacts to federal public land resources, the DEIS proposes a series of planned mitigation measures on and off National Forest lands (DEIS 2.1.5 and appendix F.2). The BLM is proposing no compensatory mitigation measures. Forest Service "mitigation" includes planned timber harvest, road reconstruction, fire suppression activities, thinning, land reallocation, hazardous fuels reduction, snag creation and other measures. The DEIS states that this "mitigation" is required to account for adverse effects from forest plan CO28-261

221

CO28 continued, page 221 of 302

CO28-259 The draft EIS on page 4-517 stated, "As presently configured the Pacific Connector pipeline would not cross any unmapped reserves." This was referring to the construction footprint of the pipeline which does not cross any unmapped LSRs. Table 4.7.3.3-2 of the draft EIS disclosed that approximately 1 acre of road improvements on existing roads would occur in unmapped LSR. However, those road improvements are within LSR 227 and are therefore not in an unmapped LSR. Table 4.7.3.2 has been corrected in the final EIS.

CO28-260 The Applicant has proposed, consistent with the BLM mitigation policy, compensatory mitigation actions on BLM lands. Additional description of these actions is included in sections 2.1.4 and appendix F.12 of the final EIS. The matrix lands proposed for reallocation to LSR are not currently planned for harvest, but the Forest Service is presently managing these acres as matrix. When and if any of these acres would be proposed for timber harvest or other management activities consistent with the matrix designation is speculative. The reallocations are designed to form larger blocks of habitat over time. Managing younger stands to develop into LSOG would benefit species dependent on late-succession habitat in the future. In addition, the Applicant has also proposed land acquisitions as mitigation for impacts to marbled murrelets and northern spotted owls as part of their *Comprehensive Mitigation Plan.*

CO28-261 The Forest Service proposed compensatory mitigation actions are not mere listings of mitigation actions, or broad generalizations and vague references. The mitigation actions are evaluated programmatically in the draft EIS including site specific project descriptions with locations and size, and the analysis also discusses short term adverse impacts and long-term beneficial impacts (see section 2.1.5 and appendix F.2 of the draft EIS). The proposed mitigation actions are consistent with recommendations in the watershed analysis and LSR assessments and have been shown to be effective. Further site-specific environmental analysis that may be necessary for these actions would further refine the details of the actions and comply with any needed surveys and/or consultations. Additional analysis could result in modifications to the proposed mitigation actions through public comment, additional surveys, and consultations with other agencies. However, it would be expected that those changes would result in improvements to the action and accomplishment of the stated objectives. The Applicant, consistent with BLM mitigation policies, has proposed compensatory mitigation actions on BLM lands. Additional discussion of these proposals has been included in section 2.1.4 and appendix F.12 of the final EIS.

amendments that permit the violation of forest plan requirements.

Notably, however, the DEIS does not analyze the environmental consequences of undertaking this "mitigation" on Forest Service lands, or the lack of mitigation on BLM lands. If the mitigation is required as part of FERC's (or the land management agencies') authorization of the proposed project, then the DEIS is required to assess the environmental consequences of those actions. 40 C.F.R. §§ 1508.25, 1508.25(a)(1) (connected actions); *Robertson v. Methow Valley*, 490 U.S. at 352 ("mitigation [must] be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated"); *Neighbors of Cuddy Mountain v. United States Forest Service*, 137 F.3d 1372, 1381 (9th Cir. 1998) ("mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by NEPA") (setting aside EIS in part on grounds that the USFS's mitigation analysis contained only "broad generalizations and vague references"); *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1151 (9th Cir. 1998) ("Without analytical detail to support the proposed mitigation measures, we are not persuaded that they amount to anything more than a 'mere listing' of good management practices").

CO28-261 cont.

If the mitigation is not required, then the adverse effects of violating several Forest Service forest plans are not accounted for in the DEIS, in violation of NEPA. *Southwest Ctr. for Biological Div. v. Bartel*, 470 F. Supp. 2d 1118 (S.D. Cal. 2006); *Sierra Club v. Marsh*, 816 F.2d 1376, 1386 (9th Cir. 1987); *Sierra Club v. Babbitt*, 15 F.Supp.2d 1274, 1282 (S.D. Ala. 1998); *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 935-36 (9th Cir. 2008).

Moreover, it appears impossible that FERC can guarantee that the proposed mitigation on Forest Service lands occurs. While the DEIS assumes that Jordan Cove will provide funding to the land management agencies to support the suite of mitigation, there is no estimation of the cost of such mitigation, or guarantee that it will occur. For example, mitigation projects will require additional NEPA analysis (DEIS 1-10) and public involvement, which by definition may – and in fact should – result in change to the action. Those changes may not fully compensate for the adverse effects from the Jordan Cove pipeline that required an obviation of forest plan requirements. Furthermore, there is no guarantee that the mitigation projects will survive legal scrutiny, which would result in an unmitigated effect stemming from the implementation of the Jordan Cove pipeline project.

CO28-262

Given that FERC and the applicant cannot guarantee that any of the mitigation proposed to compensate for the violation of forest plan requirements, the DEIS conclusion that amending the various forest plans is arbitrary and capricious. 5 U.S.C. § 706(2)(A).

CO28-263

a. Marbled Murrelet and NSO mitigation on BLM lands.

The DEIS mitigation offers no new habitat for murrelets. In fact, the DEIS offers no mitigation at all for the significant impact on Marbled murrelet habitat on BLM lands.

CO28-264

The proposed Right-of-Way on BLM-managed lands would not conform to the Southwestern Oregon RMP and the Northwestern and Coastal RMP (RMPs for Western Oregon), which allow for the construction of linear rights-of-way within the LSR "as long as northern Spotted Owl (NSO) nesting-roosting habitat continues to support nesting and roosting at the stand level, and

222

CO28 continued, page 222 of 302

CO28-262 These projects are enforceable as they would be included in the MLA Right-of-Way Grant. Therefore, the Applicant would be bound by law to fund Forest Service projects identified in the CMP. Additional NEPA analysis could result in modifications to the proposed mitigation actions through public comment, additional surveys, and consultations with other agencies. However, it would be expected that those changes would result in improvements to the action and accomplishment of the stated objectives.

CO28-263 The *Compensatory Mitigation Plan* has been developed to be responsive to residual project impacts that cannot be remediated in the permanent right-of-way corridor. Appendix F.2 provides the rationale for mitigation groups and project details. The Forest Service has provided site-specific details on the actions that would be taken to mitigate impacts to NFS lands and resources as a consequence of the right-of-way construction and operation. These projects are enforceable as they would be included in the BLM Right-of-Way Grant. Therefore, the Applicant would be bound by law to fund FS projects identified. However, there may be adjustments or "like kind" replacements where projects are no longer viable or other appropriate projects have been identified prior to implementation. Section 2.1.5 of the draft EIS at and Appendix F.2 provides details of the projects and rationale.

CO28-264 The Applicant, consistent with BLM mitigation policies, has proposed compensatory mitigation actions on BLM lands. Additional discussion of these proposals has been included in section 2.1.4 and appendix F.12 of the final EIS. The *Comprehensive Mitigation Plan* submitted by the Applicant on September 3, 2019 does contain acquisition of habitat for marbled murrelets.

The draft EIS did address the impacts of creating a District Designated Reserve (draft EIS sections 3.7.3 and 3.7.4). The impacts to these wildlife species are addressed in section 4.6 of the draft EIS and in the Biological Evaluation.

The comment is correct that District Designated Reserves are reserved from sustained yield production. However, the proposed plan amendment does not change the classification of these lands as O&C lands.

The District Designated Reserve values that would be maintained are the resource conditions necessary for operation, maintenance and decommissioning of the proposed pipeline. Incompatible uses would not be authorized. BLM has determined that the Applicant is an entity qualified to hold a federal right-of-way.

CO28 continued, page 223 of 302

NSO dispersal habitat continues to support movement and survival at the landscape level," and construction of linear rights-of-way "as long as the occupied stand continues to support marbled murrelet nesting" (BLM 2016b: 71; BLM 2016a: 65).

BLM evaluated that the proposed right-of-way would cross approximately 268 acres of LSR and approximately 116 acres of known or presumed occupied Marbled murrelet habitat and/or NSO nesting roosting habitat within LSR, plus hundreds of additional acres of edge impact. The BLM concluded that the clearing and removal of vegetation required within the LSR for the proposed Project would likely result in some NSO habitat no longer continuing to support nesting and roosting at the stand level, and some MAMU habitat no longer continuing to support nesting at the stand level. (DEIS 2-22).

CO28-264 cont.

Other impacts to the Murrelet will occur in the ocean due to the increased ship traffic, as well as impacts on BLM lands from motorized recreation on the pipeline right-of-way and access roads. The DEIS failed to consider the impacts of off-road recreation in the right-of-way as an additional threat to owls and murrelets. Pipeline right-of-ways in Oregon attract abundant offroad recreation. This human activity has the potential to increase impacts to murrelets by leaving food trash, attracting more corvids. Sound from Off Highway Vehicles (OHVs) on the right-of-way will also impact nest initiation and nest success. The DEIS failed to consider these impacts, as required by NEPA.

Due to these impacts, as well as the clearcutting of Late Successional Reserves and Riparian Reserves, significant impacts to the spotted owl and Marbled murrelet will occur on BLM lands.

The July 24, 2018 BLM Instruction Memorandum No. 2018-093[468], forbids the BLM from requesting compensatory mitigation for any of these impacts. The BLM can accept offered mitigation, but Jordan Cove has not offered any. "In the absence of mitigation other than avoidance and minimization, the Project would result in long-term negative effects" on endangered species (DEIS 4-326 and 329-330).

BLM management direction in the RMPs for Western Oregon specific to wildlife prohibits activities that "disrupt marbled murrelet nesting at occupied sites ... within all land use allocations within 35 miles of the Pacific Coast and... within reserved land use allocation between 35-50 miles of the Pacific Coast" (BLM 2016b:118; BLM 2016a: 98). Construction of the Project would likely result in disruption of Marbled murrelet nesting at some occupied sites within these two discrete geographic ranges. (DEIS 2-22).

To address these inconsistencies, other than forbidden mitigation projects, the BLM proposes to amend their RMPs to re-allocate all lands within the proposed temporary use area and right-of-way to a District-Designated Reserve, with management direction to manage the lands for the purposes of the Pacific Connector Gas Pipeline Right-of-Way. Approximately 885 acres would be reallocated. The BLM failed to analyze the impacts of loosing hundreds of acres of our local wildlife reserves, changing them into a reserve for the benefit of a foreign corporation instead.

[468] "Except where the law specifically requires, the BLM must not require compensatory mitigation from public land users. While the BLM, under limited circumstances, will consider voluntary proposals for compensatory mitigation, the BLM will not accept any monetary payment to mitigate the impacts of a proposed action."

223

Also, the DEIS does not have a map of the 885 acres of the Pipeline Reserve. If this EIS is the NEPA for creating this reserve, a map must be made available for the public to comment on.

District-Designated Reserves are reserved from sustained-yield timber production. Because no-net-reduction in O&C lands is allowed, all O&C lands allocated to the Pipeline Reserve would have to be replaced. The DEIS failed to consider this impact.

The 885-acre Pipeline Reserve would be to "maintain the values and resources necessary for construction, operation, maintenance, and decommissioning of the proposed Project" (DEIS 2-22, 2-23). While the DEIS tells us these reserves would be to "maintain the values" of the pipeline, the DEIS doesn't list the "values" that must be maintained. The EIS should spell out if the "value" of the reserve we must maintain is to provide profits to foreign corporations.

CO28-264 cont.

This project should be denied as long a Jordan Cove offers no mitigation for impacts to Marbled murrelets and the spotted owl. While the BLM cannot ask for mitigation, they can accept offered mitigation. The best mitigation for murrelets would be to buy up private land in the BLM checkerboard of Zone 1, where private land borders productive murrelet habitat. This would allow the murrelet to recover in the future without the threat of future forest fragmentation.

b. Mitigation for spotted owls on National Forest lands

Mitigation for spotted owls on National Forest lands includes converting some matrix lands to LSRs. 585 acres on the Umpqua National Forest would be changed from Matrix to LSR and 522 acres would be changed on the Rogue River National Forest. (DEIS 2-27 and 2-30). This is insufficient mitigation for a number of reasons. For example, occupied owl sites in the matrix are automatically converted to an LSR anyway, so there is no extra benefit to endangered birds for this being done as mitigation.

The DEIS implies that spotted owl occupied habitat in the matrix would become LSR. This is wrong. Occupied habitat in the Matrix is considered an LSR as soon as it is determined to be occupied. This mitigation gives us no additional protected lands. If the matrix land slated to be converted to LSR contains unoccupied owl nesting habitat, the Forest Service couldn't log it anyway because the Spotted Owl Recovery Plan (RA 32) requires that this habitat cannot be degraded. So habitat on matrix lands (and unmapped LSRs) being converted to LSR is no mitigation for clearcutting habitat.

CO28-265

Proposed mitigation that converts matrix to LSR in young forests, especially managed plantations, is also no help to the spotted owls because the endangered birds need the quality of habitat being clearcut, not future habitat they cannot use until after they go extinct.

Fire suppression should not be used as mitigation. Tools for fire suppression are the most common mitigation offered in the DEIS for the pipeline's impacts to spotted owls. This includes fuel reduction projects, commercial timber sales that thin forests, and fuel breaks.

CO28-266

The basic concept in the DEIS that fire-suppression is necessary to protect wildlife from wildland fire is flawed. The DEIS claims (4-450) that "Stand density fuel breaks would reduce

224

CO28 continued, page 224 of 302

CO28-265 The NWFP directed that all known northern spotted owl activity centers as of January 1, 1994 would be managed as LSR (NWFP page C-10). Northern spotted owl activity centers discovered after that date are not automatically converted to LSR. The reallocations are designed to form larger blocks of habitat over time. Managing younger stands to develop into LSOG would benefit species dependent on late-succession habitat in the future.

CO28-266 The draft EIS at page 2-33 establishes the intent of planned mitigation activities and the rationale and assumptions used in planning them (more detailed discussions are included in appendix F.2.) Table 2.1.5-1 lists and describes mitigation projects on NFS lands included in the proposed action. However, "fire suppression" is not listed or intended as a mitigation project. The purpose of integrated fuel treatments is to reduce the probability of large and high severity fire effects that would be anticipated to be more likely without these treatments. The project record makes no claim that wildfire is universally detrimental to NSO habitat. The analysis also does not claim that fuel breaks will be universally effective at reducing habitat loss. Additional discussions including the two publications cited in the comment have been added in section 2.1.5.1 and appendix F.3 of the final EIS

the threat of losing late-successional habitat to fire. High intensity fire has been identified as the single factor most impacting late successional and old growth forest habitats on federal lands in the area of the NWFP". No studies were cited to back up this claim, likely because this is unfounded. Studies disagree and come to a different conclusion. The DEIS failed to consider these other relevant studies.

For instance, FERC must consider the Baker Study[469]. Instead of claiming that fire harms spotted owl habitat, the Baker study finds the opposite. It uses records in dry forests where northern spotted owns are known to exist to demonstrate they were historically mixed-severity-fire adapted. Such fires actually maintained habitat for owls. They did not degrade habitat.

CO28-266 cont.

This is significant in terms of whether thinning to push these forests into lower fuel loads, as proposed in the DEIS, can be justified as ecologically restorative. The Baker study concludes: Mixed- and high-severity fires strongly shaped historical dry forests and produced important components of historical NSO habitat. Focus on short-term loss of nest sites and territories to these fires is mis-directed. Fuel treatments to reduce these natural fires, if successful, would reduce future habitat of the NSO in dry forests.

The Odion study[470] also shows that most fire systems in western North America were mixed severity systems and that thinning can be a bigger risk than the presumed fire risks to the northern spotted owl. If anything, we currently have a fire deficit in much of Oregon. The Odion study found that:

> … the future amount of spotted owl habitat that may be maintained with these rates of high-severity fire and ongoing forest regrowth rates with and without commercial thinning. Over 40 years, habitat loss would be far greater than with no thinning because, under a "best case" scenario, thinning reduced 3.4 and 6.0 times more dense, late successional forest than it prevented from burning in high-severity fire in the Klamath and dry Cascades, respectively. Even if rates of fire increase substantially, the requirement that the long-term benefits of commercial thinning clearly outweigh adverse impacts is not attainable with commercial thinning in spotted owl habitat. It is also becoming increasingly recognized that exclusion of high-severity fire may not benefit spotted owls in areas where owls evolved with reoccurring fires in the landscape.
>
> Therefore, the DEIS assumption that wildland fire is bad for owls is flawed, which has produced flawed mitigation proposals in the DEIS demanding further evaluation.

Thinning and fuel breaks should not be used as mitigation. Thinning can increase fire risks by drying out the forest with increased sunlight and logging slash. Fuel breaks are also ineffective because the landscape is "fuel rich" and the fuel breaks are relatively narrow. Wind driven embers can easily jump the pipeline clearance. Any fuel break that is over a few years old will be thick with small trees and brush, increasing the fire hazard. The DEIS offers no plan to maintain

CO28-267

[469] William L. Baker, Historical Northern Spotted Owl Habitat and old-growth dry forests maintained by mixedseverity wildfires (December 2014). Published in Landscape Ecology , December 2014. (Baker, 2014)
[470] Dennis C. Odion, et al., Effects of Fire and Commercial Thinning on Future Habitat of the Northern Spotted Owl (2014). Published in The Open Ecology Journal , 2014. (Odion, 2014).

225

CO28 continued, page 225 of 302

CO28-267 The draft EIS at page 2-33 (see also appendix F.2) indicates a mitigation fund would be established which would fund mitigation activities in a future phase, including associated planning costs.

these impractical firebreaks over time rendering them even more useless as a mitigation measure. CO28-267 cont.

The PCGP plans to replant the outer half of the right-of-way with trees. This replanting will occur between the fuel break and the permanently cleared right-of-way. Therefore, in just a few years, the fuel-break will not be directly connected to the cleared right-of-way, making it less effective. Mitigation projects should provide benefits beyond just a few short years.

Studies[471] have found fuel breaks ineffective:

> …fuel break performance and benefit is based on the questionable expectation that fire suppression will be capable of "stopping" fires after initial attack fails… Utilizing fuel breaks involves a large burnout operation, which may be of a size equal to the original wildfire, take place regardless of the fire behavior at its current location, and produce negative effects on wildland vegetation greater than the original wildfire. Maintenance costs of fuel breaks are often ignored by proponents but maintenance is a perpetual burden that is likely to divert efforts from managing fuels and vegetation on the remaining majority of the landscape.

The DEIS also fails to conclude that a wildland fire will only happen on Federal land and that the fuel reduction will be fresh enough that it can actually reduce the fire spread.

The commercial aspect of the mitigation is also problematic. Mitigation projects that are commercial, i.e., makes money and pays for itself with timber sales, is not helpful mitigation. Mitigation should be for projects that would otherwise not get done due to financial constraints. The DEIS failed to account for the timber sale receipts received from selling the logs. CO28-268

Using commercial logging as mitigation allows Pacific Connector to extract far more trees from an LSR than otherwise would be allowed.

c. Other mitigation.

Fire suppression should not be used as mitigation. Tools for fire suppression are the most common mitigation offered in the DEIS for the pipeline's impacts to spotted owls and marbled murrelets. This includes fuel reduction projects, commercial timber sales that thin forests, and heli-ponds.

CO28-269

Pacific Connector would fund various projects on federal lands that would improve forest structure and health, and reduce the effects of wildfires. The DEIS erroneously considers fire-suppression to have caused a problem in the stand structure of moist forests in the Coast Range. Scientists have refuted this. Moist forests in the western half of the proposed pipeline do not suffer the effects of fire-suppression because the natural fire-return interval is hundreds of years. Any DEIS reference to problems caused by fire suppression in the first 70 miles of the pipeline must be corrected.

[471] Mark Finney and Jack Cohen, Expectation and Evaluation of Fuel Management Objectives (2003). 364 USDA Forest Service Proceedings RMRS-P-29. 2003. (Finney & Cohen, 2003)

226

CO28 continued, page 226 of 302

CO28-268 The purpose of the proposed mitigation is to reduce the risk of stand-replacing fires and to enhance the development of late successional habitat in LSRs. Projects proposed to meet these objectives could result in some commercial size trees being removed. This removal of commercial size trees would be incidental to achieving these objectives. Pacific Connector would not perform the compensatory mitigation actions and would not receive any receipts from this work. All of the proposed actions would have costs that the Forest Service does not otherwise have funding for. Additional discussion has been included in section 2.1.5.1 and appendix F.3 of the final EIS.

CO28-269 The Forest Service has not proposed fire suppression as mitigation for the Pacific Connector Pipeline Project. The integrated stand density treatments are designed to reduce the risk of a high intensity stand replacement fire in LSOG forests. The treatments are focused on thinning from below, reducing ladder fuels, and any generated slash would also be treated. The proposed treatments are consistent with recommendations in the Late-Successional Reserve Assessments for LSR 223. Additional discussion has been added in section 2.1.5.1 and appendix F.3 of the final EIS.

Even in dry forests, the basic concept in the DEIS that fire-suppression is necessary to protect wildlife from wildland fire is flawed. Thinning can increase fire risks by drying out the forest with increased sunlight and logging slash. However, the DEIS claims: "Stand density reductions in riparian zones have the dual benefit of reducing the risk of stand replacing fire, while also accelerating the development of late successional stand conditions by accelerating growth of remaining trees." Riparian zones are especially sensitive to logging and are some of the areas least threatened with fire. Additionally, it does no good to accelerate the development of late successional stand condition by thinning in late successional stands.

CO28-269 cont.

Thinning and fuel breaks should not be used as mitigation. The thinning and fuel reduction is also ineffective on BLM lands for the alleged purpose of suppressing future wildland fires because it is in such short segments. The BLM land is checkerboarded, so the thinning occurs in lines under one-mile long, with sometimes dozens of miles of the pipeline route between the short thinning segments. This is the case with the proposed fuels reduction near Milo, Trail, the South Umpqua River and the Rogue River – it is broken up into little segments. The DEIS fails to conclude that a wildland fire will only happen on Federal land and that the fuel reduction will be fresh enough that it can actually reduce the fire spread.

Fuel breaks are also ineffective because the landscape is "fuel rich" and the fuel breaks are relatively narrow. Wind driven embers can easily jump the pipeline clearance. Any fuel break that is over a few years old will be thick with small trees and brush, increasing the fire hazard. The DEIS offers no plan to maintain these impractical firebreaks over time rendering them even more useless as a mitigation measure.

The PCGP plans to replant the outer half of the right-of-way with trees. This replanting will occur between the fuel break and the permanently cleared right-of-way. Therefore, in just a few years, the fuel-break will not be directly connected to the cleared right-of-way, making it less effective. Mitigation projects should provide benefits beyond just a few short years.

Studies[472] have found fuel breaks ineffective:

> …fuel break performance and benefit is based on the questionable expectation that fire suppression will be capable of "stopping" fires after initial attack fails… Utilizing fuel breaks involves a large burnout operation, which may be of a size equal to the original wildfire, take place regardless of the fire behavior at its current location, and produce negative effects on wildland vegetation greater than the original wildfire. Maintenance costs of fuel breaks are often ignored by proponents but maintenance is a perpetual burden that is likely to divert efforts from managing fuels and vegetation on the remaining majority of the landscape.

The commercial aspect of the mitigation is also problematic. Mitigation projects that are commercial, i.e., makes money and pays for itself with timber sales, is not helpful mitigation. Mitigation should be for projects that would otherwise not get done due to financial constraints.

CO28-270

[472] Mark Finney and Jack Cohen , *Expectation and Evaluation of Fuel Management Objectives* (2003), 364 USDA Forest Service Proceedings RMRS-P-29. 2003. (Finney & Cohen, 2003)

227

CO28 continued, page 227 of 302

CO28-270 The purpose of the proposed mitigation is to reduce the risk of stand-replacing fires and to enhance the development of late successional forest in LSRs. Projects proposed to meet these objectives could result in some commercial size trees being removed. This removal of commercial size trees would be incidental to achieving these objectives. Pacific Connector would not perform the compensatory mitigation actions and would not receive any receipts from this work. All of the proposed actions would have costs that the agencies do not otherwise have funding for. Also maintenance of the integrated stand density treatments is included in the mitigation. The Forest Service would plan these activities consistent with the standards in the NWFP and the recommendations in the LSR and watershed assessments. Additional discussion has been included in section 2.1.5.1 and appendix F.3 of the final EIS.

The DEIS published the million dollar cost to Pacific Connector for this mitigation, but failed to account for the timber sale receipts received from selling the logs. CO28-270 cont.

Using commercial logging as mitigation allows Pacific Connector and BLM to extract far more trees from an LSR than otherwise would be allowed.

3. Grey Wolf.

The DEIS determined the impacts to the wolf to be "not likely to adversely affect." Because of additional threats not considered in the DEIS, the assessment should be changed to LAA.

The Rogue Wolf Pack is in the vicinity of the proposed pipeline. According to the Oregon Department of Fish and Wildlife[473], the Rogue Pack area of known wolf activity centers on the Jackson County and Klamath County line, south of highway 62 and north of highway 140.

The DEIS discloses (4-312) that "As currently mapped", the Area of Known Wolf Activity "is less than 5 miles from the pipeline route in Jackson and Klamath Counties." Additionally, 2.48 miles of the proposed pipeline route would pass through a corridor for wolves moving between Oregon and California. (DEIS 4-312-313). CO28-271

Grey wolves are protected under the federal ESA in Oregon west of the Cascade Mountains. The "Rogue Pack" (OR-7 pack) currently occupies areas of the Rogue River-Siskiyou National Forest in Douglas and Klamath counties. The pipeline route would cross the area where OR-7 has become established. The DEIS acknowledges that the territory size of a wolf pack can range up to 1,500 square miles and that individual wolves are known to disperse from packs sometimes more than 600 miles from a home range. (DEIS 4-312).

The DEIS states that the pipeline would be located six miles from the OR-7 den location, but nevertheless concludes that its construction, clearcutting, and permanent right of way will not adversely affect the species. This analysis fails to acknowledge the impact of road development and clearing on grey wolf habitat suitability, the increase in accessibility that the pipeline route and maintenance roads could have, increasing possible human-caused mortality or harassment of wolves.

Human activity tends to create an avoidance response, which can interfere with necessary activities such as hunting and breeding. In addition, increased human presence also increases the risk of exposure to new diseases and parasites to wolf populations, such as heartworm, Parvo, and Lyme disease. Although the DEIS dismisses potential impacts to grey wolves resulting from the project, the FERC must engage in formal consultation regarding this species to ensure its recovery and survival under the ESA.

The DEIS (4-313) claims that "No active denning sites are known within 1 mile of the pipeline" condoning construction-related noise. However, denning sites are not always known, especially in future years of construction and operation. Noise could be a major problem to current and future wolf reproduction.

[473] https://www.dfw.state.or.us/Wolves/Packs/Rogue.asp

228

CO28 continued, page 228 of 302

CO28-271 The final EIS has been revised to include updates from the ODFW 2018 Annual Wolf Report. We continue to find a Not Likely to Adversely Affect determination appropriate for this species.

We submitted a Biological Assessment to the Services on July 29, 2019, with a request to initiate formal consultation under Section 7 of the federal Endangered Species Act.

CO28 continued, page 229 of 302

The DEIS lists impacts to the Grey Wolf on page 4-314, and includes noise and increased human presence. However, the DEIS failed to include the threat of being shot and killed because of increased human presence.

The DEIS claims that "3 percent" of wolf deaths "are due to accidental human interactions including vehicle collisions and capture mortality". The DEIS should have considered that 3 percent of Oregon wolf deaths could heavily impact the small numbers in this area of Oregon. Also, the DEIS failed to consider intentional human interactions instead of "accidental". Poaching is an issue that the DEIS failed to address. The presence of a pipeline route would allow greater intentional hunting, especially if the wolf is federally delisted in the future.

The DEIS (4-314) concludes that the project is not likely to adversely affect the gray wolf because a known den is 6 miles away from the pipeline. However, six miles for a wolf is not a great distance. Also, the DEIS (4-312) documents that the Rogue Pack is 5 miles away from the pipeline route, not 6 miles. And the DEIS documents that a wolf pack territory is up to 1,500 square miles. Impacts can also still occur on unknown den sites. CO28-271 cont.

The DEIS describes (4-314) the benefits to wolves from the "restored and revegetated pipeline corridor," which the DEIS claims will increase forage used by ungulates such as deer, which are prey for gray wolves. However, the 2019 DEIS also discloses (4-216) that "Few studies have evaluated the establishment of forage in pipeline corridors and utilization by big game." This is especially true since the permanent right-of-way will be kept free of most vegetation.

However, if there could be an advantage to the wolf with increased prey, the increased prey would be lineal following the pipeline route. If the wolf were to take advantage of this, they would follow the ungulates down the pipeline right-of-way, away from safer high-elevation forest habitat and directly into the ranches and farms in the valleys. The DEIS failed to consider the impact to livestock, and the increased chances of the wolf being shot.

Formal consultation with USFWS may reveal more specific impacts resulting in a "Likely to Adversely Affect" determination to protect the fragile wolf population in Oregon.

4. Pacific Fisher.

Fishers are forest-dwelling mammals related to weasels, mink, and martens. During the 1800s and early 1900s, hunting and habitat alteration dramatically reduced fisher populations in the West. This shy animal continues to be threatened by logging and development in the West Coast's mature and old-growth forests, which has decimated the large blocks of forest the species needs to thrive.

As the DEIS notes, linear infrastructure, such the proposed pipeline, can also affect fisher populations and their habitat, since they result in permanent removal or alteration of potential fisher habitat and can disrupt movement patterns. Approximately 657.9 acres of fisher habitat would be cleared for the construction of the pipeline. This has the potential to have devastating impacts on the local fisher population, and in turn the genetic viability of the species.

The U.S. Fish and Wildlife Service proposed to list the West Coast DPS of the Pacific fisher as threatened under the ESA on October 7, 2014 (79 FR 60,419). In April 2016, the FWS determined that the fisher does not warrant listing under the ESA (81 FR 22,710). However, on September 21, 2018, the decision to deny the fisher protected status was rescinded and the comment period for the proposed rule to list the West Coast DPS of the fisher was reopened (84 FR 644). At this time, no final determination has been issued, however as a candidate species, FERC must confer with FWS regarding the potential for the project to harm fishers.

As the DEIS notes, the fisher's historic range includes the area proposed for the pipeline, and fishers may be adversely affected by construction-related noise, human activities, vehicle collisions, and habitat loss and fragmentation; yet the DEIS fails to describe the potential amount of take that may occur (i.e. number of fishers that would be killed or otherwise harmed) in order to determine whether local populations would be potentially extirpated or reduced such that the population becomes genetically limited. Nor does it discuss how these impacts could cumulatively affect fishers regionally, especially in light of climate change, would will continue to reduce available habitat for this imperiled species. While the DEIS acknowledges that the species is likely to be adversely affected, the analysis provided simply does not provide the "hard look" that NEPA requires regarding the potential for the project to cause harm to this already imperiled species.

CO28-272

In fact, while the species is being considered for listing as "threatened," the harm associated with the project could push local populations to the brink, creating a genetic bottleneck that would render it "endangered," or even jeopardize its continued existence. FERC should therefore request a conference with the FWS, and fully analyze the impacts to fishers as part of the formal consultation for the project under the ESA.[474] If consultation reveals jeopardy to the species as a result of project activities, FERC cannot approve the permit. Furthermore, the results of the conference should be provided in a supplemental EIS, so that the public may review and provide comment on this important issue.

5. Salmonids

As we explain above, construction of the pipeline (including clearing the right of way and constructing stream crossings), as well as construction and use of associated roads, will have numerous severe environmental impacts. In this section, we summarize the effect of these

[474] According to the FWS Consultation Handbook at 1-6, "it is Service policy to consider candidate species when making natural resource decisions." Available at https://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf. Furthermore, the Handbook states (at 3-7) that:

> Service biologists should notify agencies of candidate species in the action area, and may recommend ways to reduce adverse effects and/or request studies as appropriate. These may be added as conservation recommendations. Legally, the action agency does not have to implement such recommendations. However, candidate species may later be proposed for listing, making conference necessary in the future if proposed actions are likely to jeopardize the continued existence of such species. Service biologists should urge other Federal agencies to address candidate species in their Federal programs. The Services are eager to work with other Federal agencies to conserve candidate species. Addressing candidate species at this stage of consultation provides a focus on the overall health of the local ecosystem and may avert potential future conflicts.

230

CO28 continued, page 230 of 302

CO28-272 The EIS provides an analysis adequate to meet the requirements of NEPA. The fisher was included in the Biological Assessment filed with the FWS on July 29, 2019 with a request to initiate formal consultation.

As disclosed in section 5 of the EIS, any authorization from the Commission would be conditional on the Applicant acquiring all applicable federal and federally designated authorizations.

CO28 continued, page 231 of 302

impacts on aquatic habitat in particular. Activities that create or incite impacts on aquatic resources, and salmonid viability in particular, include but are not limited to:

- Permanent loss of vegetative shading at corridors for pipeline stream crossings construction and operation
- Permanent loss of base flows from pipeline
- Stream width increases from sedimentation related to pipeline construction and operation
- Soil, vegetation, bank destabilization and increased sedimentation from pipeline construction and implementation
- Permanent degradation of riparian areas in pipeline corridors at stream crossings
- Permanent loss of Large Wooded Debris areas from degradation of riparian areas and increased sediment transport in stream and river channels
- Deforestation in pipeline corridors combined with wetlands damage and long-term soil compaction and new road creation and use, plus decreases in hydrologic connectivity due to all of the above
- Increased, prolonged sedimentation of waterways

These Project impacts affect the following elements or processes, many of which are critical "pathway indicators" used in NMFS' framework for assessing impacts on ESA-listed salmonids:

- Water temperature: will increase and degrade already degraded conditions
- Turbidity & suspended sediment: will increase and degrade already degraded conditions
- Substrate: quality and quantity will be degraded and lost
- Presence of Large Woody Debris: will decrease availability and degrade already degraded conditions
- Pool frequency & quality: will be lessened and existing, minimal conditions further degraded
- Off-channel habitat: will be lessened and existing conditions further degraded
- Refugia: will be degraded beyond existing, degraded condition
- Width/depth ratio: will be degraded beyond already degraded condition
- Streambank health: will degrade beyond already degraded condition
- Floodplain connectivity: will degrade beyond already degraded condition
- Peak flows/base flows: will fluctuate causing further degradation from existing degraded conditions
- Watershed disturbance level: will rise to significant levels given intensity and duration of Project actions and activities
- Wetland hydrology & health: will degrade already degraded conditions

The FEIS must rely on the final Coho Salmon Recovery Plan as the "best available" science and must review the recovery plan for possible recovery actions relevant to mitigation for pipeline and road construction. It is available at:
http://www.nmfs.noaa.gov/pr/recovery/plans/cohosalmon_soncc.pdf.

The DEIS failed to rely on the recovery plan as the "best available" science and failed to identify for possible recovery actions relevant to mitigation for pipeline and road construction. The DEIS failed to identify wetland mitigation for SONCC streams within the SONCC ESU area.

We suggest that Pacific Connector file with the Secretary a commitment to acquire conservation easements on a substantial number of private land stream miles that are occupied critical habitat fo SONCCr coho salmon. These conservation easements along coho salmon spawning streams would be assigned to FWS for administration.

CO28-273

We dispute the implied or stated assertion that sediment effects of the proposed action can be fully mitigated on-site. Once pipeline associated sediment is delivered to stream channels it cannot be mitigated. The use of log placement to mitigate increased sediment is not a proven technique because of the transient nature of sediment and the finite ability of log placement to retain very much sediment. We believe that conservation easements on private lands would best secure coho habitat well into the future and help compensate for despoiled stream reaches from pipeline construction.

The DEIS 4-104 falsely asserts that

> While some additional sediment may enter streams, several factors would minimize or eliminate these occurrences:
> - the relatively small area that would be disturbed from these actions,
> - the provisions in the *Transportation Management Plan* that would be followed, and
> - the ECRP and BMPs that would be implemented for Project roads, right-of-way clearing, and TEWAs. The result would be that noticeable adverse effects on stream sediment or water quality are unlikely to occur.

CO28-274

First, the use of qualitative and subjective descriptors (e.g. "noticeable") is not adequate technical analysis for a project of this size and variability. Corridor clearing on steep erosive slopes is certain to generate more sediment than the same action on stable flat ground. The DEIS is defective because it fails to estimate the amounts of sediment generated from clearing and construction. Sediment generated from forest clearing (i.e. logging) on steep topography is well documented even with the measures identified (DEIS 4-23). For example, the DEIS identifies the use of silt fences as an effective technique to reduce sediment to streams but fails to disclose silt fences actually allow considerable amount of fine sediment to pass by them and into streams. The DEIs fails to assess the effectiveness of BMPs (DEIS 4-23) as they relate to "minimizing" sediment impacts to streams and coho salmon. The DEIS failed to take a hard look at effectiveness of barriers in preventing sedimentation of streams. Forest Service researchers have compiled a literature review titled: "Effectiveness of Best Management Practices that have Application to Forest Roads: A Literature Synthesis" available at <https://www.nrs.fs.fed.us/pubs/53428>. The literature synthesis by Edwards et al. 2016:96 states:

232

CO28 continued, page 232 of 302

CO28-273 Our Plans and Procedures as well as BMPs and mitigation actions proposed or federally required are described, summarized, or referenced in the EIS. These, as described, would minimize potential adverse effects to fish resources. There is not a legal requirement under NEPA to mitigate for all impacts from a Project.

CO28-274 See response to comment CO28-190.

"Larger particles, particularly sands, dominate the settling process because settling velocities of smaller particles (silts and clays) are too low for deposition to occur during the time that water is ponded (Barrett et al. 1998a, Keener et al. 2007). Clays also are affected by Brownian forces that can keep them in suspension almost indefinitely (Smith 1920); thus, particles less than 0.02-mm diameter (i.e., medium-sized silt and smaller particles) are not removed effectively by ponding or by filtering/clogging with nonreactive barriers (Kouwen 1990). To illustrate, silt fence materials tend to remove 80 to 99 percent of sands compared to 50 to 80 percent of silt loams, and only up to 20 percent of silty clay loams (U.S. Environmental Protection Agency [EPA] 1993). Consequently, as the percentage of smaller particles in runoff increases, the trapping efficiency of nonreactive barriers decreases (Wishowski et al. 1998)

CO28-274 cont.

This scientific analysis means that barriers such as silt fences are least effective at trapping fines that are the most detrimental to coho salmon spawning habitat. The DEIS failed to disclose the inefficiency of barriers to retain fine sediment which will make its way past them and adversely affect coho critical habitat.

Methods and models are available for estimating volumes (i.e. cubic yards) of sediment generated from clearing (aka logging), road building, road use with heavy equipment, and large scale excavations. Quantitative analysis commensurate with the scale of disturbance (xxx acres of initial deforestation, xx miles of temporary road, millions of cubic yards excavated) would reveal a range of sediment amounts generated for each pipeline segment based on site characteristics (i.e. context as per NEPA). Some pipeline segments, but certainly not all, may warrant a "not noticeable" or minor descriptor . Segments in Tyee sandstone will generate substantial chronic sediment and possible episodic sediment pulses with the magnitude of disturbance proposed.

6. Oregon Spotted Frogs

Many of the waterbodies being crossed by the pipeline (e.g. Lost River) are historic habitat for Oregon spotted frogs and some frogs may continue to persist at low densities at these historic sites. The DEIS 4-652 cannot assume that because critical habitat has not been identified that Oregon spotted frogs are not present. New detections of Oregon spotted frogs is likely for Klamath County, especially on private lands. Accordingly, Pacific Connector must survey all perennial wetlands and streams east of Buck Lake into Klamath County for federally listed Oregon spotted frogs that could be affected by pipeline construction or road building.

CO28-275

Many of the waterbodies being crossed by the pipeline (e.g. Lost River) are historic habitat for Oregon spotted frogs and some frogs may continue to persist at low densities at these historic sites. The DEIS 4 342-344 cannot assume that because critical habitat has not been identified that Oregon spotted frogs are not present. Surveying is likely to find new detections of Oregon spotted frogs in Klamath County, especially on private lands.

233

CO28 continued, page 233 of 302

CO28-275 We have prepared a Biological Assessment and requested to initiate formal consultation with FWS. We defer to FWS on the presence, impacts, and any requirements related to this listed species.

7. Cumulative Effects to Wildlife Species.

40 C.F.R. § 1508.7 requires the FERC to consider the cumulative impacts of the proposal. FERC's analysis, therefore, is not limited to the region directly adjacent to the terminal and pipeline. Nor is the review limited to short-term impacts, but it must consider the long-term impacts on the estuary and the entire length of the pipeline. The terminal, along with the proposed pipeline and potential lateral pipelines, will have a tremendous adverse impact on each of the factors listed above.

The FERC must adequately accord weight to important past, ongoing, and future actions that will create significant adverse impacts for local and regional ecosystems, as well as negatively affect the recovery of sensitive wildlife, fish, and their habitats. Further, the FERC must likewise accord weight to significant upstream disturbances, particularly road-building and the long-term use of access and logging roads, have and will have in National Forests. The proposed pipeline will also disturb upstream forestland; the FERC must consider the cumulative effects on headwater, riparian, and wetland areas within contemplated and reasonably foreseeable pipeline construction areas.

CO28-276

As part of the cumulative effects analysis, the FERC must specifically consider the project's degradation of fish habitat in light of the already tenuous state of salmon, sturgeon and groundfish in the Pacific Northwest. First, the wetland and shallow water habitat in Coos Bay has been significantly degraded over the last century. The remaining habitat, therefore, takes on added importance. The proposed massive channel deepening will fundamentally alter the Bay, further eroding and undermining the integrity of shallow water habitats. In addition, the FERC must consider the cumulative economic effect of the project on the fishing and oyster industry and communities dependent upon fishing and shellfish revenue. The direct harm to the Bay will harm the fishing and shellfish industries, as will the lack of access to traditional fishing areas. Finally, the FERC must consider the impacts of increased natural gas production that will result from this project.

Forests play an essential role in water purification.[475] Scientific literature clearly establishes the link between percent forest cover and water quality; for example, reductions in forest cover are directly correlated with negative changes in water chemistry, such as increased levels of nitrogen, phosphorus, sodium, chlorides, and sulfates as well as reduced levels of macroinvertebrate diversity.[476] Reducing forest cover decreases areas available for aquifer recharge, increases erosion, stormwater runoff, and flooding, and adversely affects aquatic habitats.[477] Already in Pennsylvania, researchers have correlated areas of high natural gas well

[475] Robert A. Smail & David J. Lewis, Forest Service, U.S. Dep't of Agric., Forest Land Conversion, Ecosystem Services, and Economic Issues for Policy: A Review 12 (2009), available at http://www.fs.fed.us/openspace/fote/pnw-gtr797.pdf

[476] Jackson, J.K. & Sweeney, B.W., "Expert Report on the Relationship Between Land Use and Stream Condition (as Measured by Water Chemistry and Aquatic Macroinvertebrates) in the Delaware River Basin," Stroud Water Research Center, Avondale, PA, available at http://www.state.nj.us/drbc/Sweeney-Jackson.pdf

[477] State of N.J. Highlands Water Prot. and Planning Council, Ecosystem Management Technical Report 39 (2008).

234

CO28 continued, page 234 of 302

CO28-276 The effects of the Project on fisheries and aquatic resources in marine, estuarine, and freshwater areas are addressed in section 4.5.2 and effects on listed species in section 4.6. Cumulative effects are addressed in section 4.14.

CO28 continued, page 235 of 302

density with decreased water quality, as indicated by lower macroinvertebrate density and higher levels of specific conductivity and total dissolved solids.[478]

Both deforestation and pipeline construction and operation lead to greatly increased levels of erosion, sedimentation, and stormwater runoff affecting surface water quality. Excess sedimentation is associated with a number of detrimental effects on water quality, stream morphology, and aquatic life, and has been identified by the EPA as one of the primary threats to US surface waters.[479] Furthermore, heavy truck traffic on rural roads, especially unpaved roads, that were not built to withstand hundreds or thousands of truck trips also leads to significant erosion and sedimentation problems.[480] The prospect of industrial equipment and trucks are required to not only construct necessary pipeline roads, but also to maintain such. Ditches and natural watercourses along rural roads are the primary pathways for the conveyance of polluted runoff bearing sediments and nutrients to streams, and increase runoff volume and energy as well, contributing to flooding.[481] In addition, access roads constructed or modified to enter gas exploration or extraction facilities contribute significantly to sedimentation and surface water quality degradation.

Pipeline construction and right-of-way maintenance creates significant land use impacts. Pipelines also create significant erosion and sedimentation problems during construction as well as over the decades-long maintenance of cleared rights-of-way. In joining well pads to transmission infrastructure, a single gathering line may cross numerous streams and rivers, especially in states such as Pennsylvania with a high density of stream mileage per unit of land. Stream and wetland pipeline crossings cause erosion and sedimentation whether implemented through dry ditch or wet ditch crossings.[482] Though erosion and sediment control permits may be required for stream crossings—indeed, in practice permit requirements are routinely violated.[483] Both dry and wet ditch crossings necessitate the clearing of area stream banks. Because riparian vegetation functions as a natural barrier along the stream edge, both removing sediment and other pollutants from surface runoff and stabilizing stream banks,[484] its clearing necessarily increases a stream's susceptibility to erosion events. Cumulatively, the construction of numerous crossings across a single watercourse may significantly degrade the quality and flow rate of the

[478] Academy of Natural Sciences of Drexel University, "A Preliminary Study of the Impact of Marcellus Shale Drilling on Headwater Streams," available at http://www.ansp.org/research/pcer/projects/marcellus-shale-prelim/index.php

[479] Entrekin, S. *et al*., "Rapid expansion of natural gas development poses a threat to surface waters," Frontiers in Ecology and Environment 2011, 9(9), 503-11 (Oct. 6, 2011), at 507, 509, available at http://www.esajournals.org/doi/abs/10.1890/110053

[480] *See* C.J. Randall, Hammer Down: A Guide to Protecting Local Roads Impacted by the Marcellus Shale (Dec. 2010), available at http://www.greenchoices.cornell.edu/downloads/development/marcellus/Marcellus_Randall.pdf

[481] Yen Hoang & Keith Porter, Stormwater Management in the Rural New York Headwater Areas of the Chesapeake Bay Watershed, Journal of Water Law 21:6 (2010) at 8.

[482] The Nature Conservancy, "Natural Gas Pipelines," Excerpt from Report 2 of the Pennsylvania Energy Impacts Assessment, December 16, 2011, at 7, available at http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/pennsylvania/ng-pipelines.pdf

[483] Beth Brelje, Pike Conservation Official Fed Up With Gas Company's Violations, Pocono Record, Sept. 20, 2011, http://www.poconorecord.com/apps/pbcs.dll/article?AID=/20110920/NEWS/109200330/-1/rss01 (noting numerous violations documented on Tennessee Gas Pipeline Company project).

[484] David J. Welsch, Forest Service, U.S. Dep't Agric., NA-PR-07-91, Riparian Forest Buffers: Function and Design for Protection and Enhancement of Water Resources (1991), available at http://na.fs.fed.us/spfo/pubs/n_resource/buffer/cover.htm

water body.[485] Erosion and sedimentation problems are often exacerbated by the staging of construction, during which soils are exposed for long periods and over long distances by clearing, grading, and trench cutting before final pipeline installation and revegetation.[486]

The FERC must also consider cumulative impacts to conservation, aesthetics, and environmental concerns. These include the cumulative impacts to wetlands, fish and wildlife values, flood hazards, floodplain values, water supply and conservation, and water quality. As discussed above, the proposed project will have significant and far-reaching impacts on all of these values, throughout southern Oregon and beyond. CO28-277

8. Plants and Invertebrates.

***a.* Kincaid's Lupin.**

Kincaid's lupine is found in upland prairie remnants and ecotones between grassland and forest. It usually occurs in heavy, well-drained soils at elevations below 838 m (2750 ft). Major threats to Kincaid's lupine include habitat loss due to urbanization, agriculture, forestry practices, and roadside maintenance; competition from non-native plants; and successional encroachment by woody plants due to changes in historic disturbance regimes. Importantly, Kincaid's lupine is the primary larval host plant of the federally endangered Fender's blue butterfly (*Icaricia icarioides fenderi*) and according to FWS recovery efforts for these species should be coordinated. It is therefore notable that the DEIS makes no mention whatsoever of Fender's blue butterfly. CO28-278

Kincaid's lupine is listed as threatened under both the federal ESA and Oregon ESA. While the DEIS notes that the Pacific Connecter pipeline is likely to adversely affect this imperiled plant species, it provides scant information on the actual level of take that would be anticipated, and does not provide sufficient information on plans for mitigation, noting that there will be a conservation plan, but failing to provide specifics on which the public can provide comment. DEIS at 4-348. The mitigation measures that *are* mentioned in the DEIS, including flagging, buffers and safety fences, may help reduce impacts, yet it is not clear whether route adjustments and neckdowns would be sufficient to avoid key lupine habitat. CO28-279

The pipeline is located within known or historical Kincaid's lupine range between MPs 46.8 and 99.3. According to the DEIS, multiple populations of lupine have been identified in the Project's botanical analysis area within Douglas County, including 11 sites within 2.5 miles of the pipeline. One of the largest populations of this plant is found between MP 57.84 and 57.92 of the pipeline route. Here, according to the 2015 DEIS (the current DEIS does not provide specific population counts) Pacific Connector found seven sub-populations, almost 200 plants, within a 5-acre area centered on the pipeline. The DEIS claims that "No direct impacts are anticipated to the population near MP 59.60, as plants are located at least 67 feet from pipeline facilities;" CO28-280

[485] Canadian Association of Petroleum Producers, Canadian Energy Pipeline Association, and Canadian Gas Association, "Pipeline Associated Watercourse Crossings," 1-4 (2005).
[486] Comments on Environmental Assessment of MARC I Hub Line Project, Exhibit G, FERC Docket No. CP10-480-000, Submittal 20110711-5189 (filed Jul. 22, 2011) (statement of Susan Beecher, Executive Director, Pike County PA Conservation District (Jul. 8, 2011)), available at http://elibrary.ferc.gov/idmws/docket_sheet.asp

236

CO28 continued, page 236 of 302

CO28-277 The EIS includes evaluation of cumulative effects on multiple environmental and social resources. See section 4.14 of the EIS, which is organized by resource topic.

CO28-278 The current and historic range of Fender's blue butterfly does not overlap with counties crossed by the Project. The Eugene Recovery Zone is the closest Recovery Zone to the Project, and is located over 30 miles from the Project (with the closest extant population located over 60 miles from the Project per the FWS 2010 Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington).

CO28-279 As noted in the EIS, Kincaid's lupine has been observed in three locations in the vicinity of the pipeline. As also noted in the EIS, the pipeline construction right-of-way has been modified to avoid direct impacts to observed individuals of Kincaid's lupine. Further details regarding impacts to Kincaid's lupine from the project and mitigation measures that would be implemented to minimize impacts on Kincaid's lupine are provided in the Biological Assessment prepared for the Project. As noted in the Biological Assessment, additional surveys for Kincaid's lupine would be conducted in areas where surveys have not been conducted due to lack of landowner permission. If Kincaid's lupine is observed in these unsurveyed areas, mitigation measures, such as minor alignment reroutes, necking down the construction right-of-way, excluding a portion of an identified TEWA or pipe storage yard, or erecting a protective fence to avoid impacts to plants from construction debris, would be implemented to the extent practicable to avoid impacts on Kincaid's lupine.

CO28-280 As noted in the EIS, Pacific Connector has modified the pipeline route to avoid the population that was located within the construction right-of-way between MP 57.84 and MP 57.92.

however, this ignores the fact that the 95'-wide right-of-way clearing width goes directly into this sub-population. CO28-280 cont.

Moreover, the DEIS states that "not all suitable habitats within the Project area have been surveyed to date, indicating that additional unknown populations may be present within areas that could be affected by the Project." DEIS at 4-357. In fact, "991.6 acres of potential suitable habitat that has not been surveyed." *Id.* The analysis is therefore admittedly incomplete for this species, and the impacts may be much greater than have been anticipated. The DEIS therefore does not provide the hard look that NEPA requires. CO28-281

Incredibly, Pacific Connector also appears to have placed Temporary Extra Work Areas (TEWA) and pipe storage yards immediately adjacent to populations of the plant. *Id.* The DEIS notes that these areas, as well as the pipeline ROW, may be moved if further surveys show that such mitigation measures are necessary, yet this suggests that the project has not fully analyzed the impacts or taken appropriate measures at this time to minimize and mitigate harm to listed species. Virtually every sub-population of lupine adjacent to the right-of-way clearing has a TEWA located nearby. This is an unnecessary impact to the plant, and the DEIS must fully account for these impacts. CO28-282

b. Rough Popcornflower

The DEIS notes that Rough Popcornflower, which is listed under both the Federal ESA and Oregon ESA as endangered, occurs in the project area and may be adversely affected by construction of the pipeline, as well as the Winchester pipe storage yard. The DEIS concludes that the species will not be adversely affected by the project; however, this conclusion is based on inadequate information, as "Pacific Connector has not been granted access to approximately 99.83 acres of potentially suitable rough popcornflower habitat within the analysis area, the majority of which is associated with the Winchester pipe storage yard." DEIS at 4-358. The potential for take of the species has therefore not been adequately analyzed.

While the DEIS states that surveys will be done "prior to ground disturbing activities" and that if any plants are identified, conservation measures would be developed to avoid or minimize effects on documented plants, this is insufficient. It remains unclear whether sufficient mitigation measures (i.e. alterations to the pipeline route) to avoid take of the species would even be possible. Further, the DEIS indicates that "consultation with the FWS would be reinitiated if this species is found to be present in the area and effects cannot be avoided," yet this consultation, and a full analysis of the actual impacts, must be included *before* FERC can make a determination on the project. Putting this analysis off until a later date is a clear violation of both NEPA and the ESA. CO28-283

c. Vernal Pool Species: Vernal Pool Fairy Shrimp, Large-Flowered Meadowfoam, Cook's Lomatium

These three endangered species all rely on vernal pools in the Rogue River Valley in Jackson County that will be adversely affected by the storage of pipes in, or adjacent to their habitat, CO28-284

237

CO28 continued, page 237 of 302

CO28-281 As noted in the BA prepared for the project, additional surveys for Kincaid's lupine would be conducted in areas where surveys have not been conducted due to lack of landowner permission. If Kincaid's lupine is observed in these unsurveyed areas, mitigation measures, such as minor alignment reroutes, necking down the construction right-of-way, excluding a portion of an identified TEWA or pipe storage yard, or erecting a protective fence to avoid impacts to plants from construction debris, would be implemented to the extent practicable to avoid impacts to Kincaid's lupine.

CO28-282 As noted in the EIS, Pacific Connector has modified the pipeline route, including the locations of TEWAs to avoid populations of Kincaid's that were located within the construction right-of-way during surveys. Additionally, as noted in the Biological Assessment prepared for the project, additional surveys for Kincaid's lupine would be conducted prior to construction in both previously surveyed and unsurveyed areas and avoidance measures including minor alignment reroutes, necking down the construction right-of-way, excluding a portion of an identified TEWA or pipe storage yard, or erecting a protective fence to avoid impacts to plants from construction debris, would be implemented to the extent practicable to avoid impacts to Kincaid's lupine.

CO28-283 As the EIS states, the majority (93.16 acres) of the 99.83 acres of potentially suitable rough popcornflower habitat that has not been surveyed is located within the proposed Winchester pipe storage yard. As the EIS states, if rough popcornflower is located within this pipe storage yard during pre-construction surveys, Pacific Connector would not use either the pipe storage yard or portions of the yard where plants are documented. Additionally, there is only a low potential for rough popcornflower to be located within the remaining 6.67 acres of unsurveyed potentially suitable habitat, because while unsurveyed, this area appears to be limited and of low quality. If rough popcornflower is observed in these areas during pre-construction surveys, conservation measures developed to avoid or minimize effects to this species would be implemented, and consultation with the FWS would be reinitiated if this species is found to be present in the area and effects cannot be avoided.

CO28-284 The EIS provides an analysis adequate to meet the requirements of NEPA, including rationale for the species and critical habitat determinations. Additional details beyond the scope of NEPA, including a detailed map and a summary of areas evaluated for potential vernal pool habitat are provided in our BA, which is publicly available.

including areas very close to designated critical habitat. Additional surveys are required to determine their presence in or near other pipe-storage areas.

CO28-284 cont.

The DEIS notes that vernal pools may be adversely affected by construction of the pipeline. DEIS at 4-133. However, the extent of the potential harm has not been adequately discussed, as no actual acreage, location or specific vernal pools have been identified in the DEIS. The DEIS, does, however, note that "Suitable vernal pool habitat occurs within and adjacent to Project facilities, some of which has not been surveyed." It is therefore readily apparent that the potential for harm to species that rely on vernal pools, particularly the federally endangered vernal pool fairy shrimp, has not been adequately analyzed.

Moreover, while the DEIS correctly found that vernal pool fairy shrimp are likely to be adversely affected by the project, it goes on to claim that critical habitat for the species would not be adversely affected, even though it acknowledges that "a proposed pipe storage yard is in the Burrill Lumber industrial yard adjacent to the vernal pool fairy shrimp critical habitat unit VERFS 3A." DEIS at 4-346. It is therefore entirely erroneous for the DEIS to determine that the project is not likely to adversely affect critical habitat for the species, especially given that it admits that "Potential effects on vernal pool fairy shrimp and critical habitat include possible disturbance to pools from **driving** or storing equipment or pipes near or on pools or wetlands, and alteration of hydrology." There is nothing provided in the DEIS to support this conclusion, other than the presence of Agate Road and the applicant's promise to "implement proper sedimentation control barriers to minimize potential effects on the species." *Id.* It remains entirely unclear whether sediment barriers would be sufficient to prevent harm, and even if such measures may reduce the effects of runoff, harm to critical habitat may still occur, regardless of the presence of the road, especially since dirt and debris may be blown across the road. Moreover, the DEIS clearly states that "driving" near the pools may cause adverse impacts, and therefore the presence of Agate road is a source of harm, rather than a barrier to prevent harm to the critical habitat.

The analysis of harm to vernal pools and the species that rely on them is therefore inadequate, and the effects determination for vernal pool fairy shrimp critical habitat is unsupported by sufficient information. As set forth above, FERC may not avoid the "hard look" that NEPA requires by stating that "More details will be provided in the pending BA." FERC has thereby failed to fulfill its NEPA duties.

d. Cox's Mariposa Lily

As with many of the other species considered in the DEIS, FERC has failed to provide a complete analysis of the potential for harm to the State endangered Cox's mariposa lily. The DEIS provides that:

Based on existing data, the Pacific Connector pipeline route would cross one population between MP 74.1 and 75.0 on lands administered by the BLM Roseburg District (ORBIC 2017a). In 2012, surveys conducted by the BLM documented approximately 1,300 plants within and adjacent (within 100 meters) to the Project, with approximately 300 plants occurring in the construction ROW (BLM 2017c). However, modifications have been made to

CO28-285

238

CO28 continued, page 238 of 302

CO28-285 Because of the narrow ridgeline alignment and to ensure worker safety, the construction right-of-way within the Cox's mariposa lily between MPs 74.08 and 75.02 could not be narrowed to minimize direct impacts to the plant populations. After the 2018 survey data hav been reviewed and finalized, Pacific Connector would determine if site-specific neck-downs could be incorporated into the construction right-of-way to minimize direct impacts to the population. For plants that can't be avoided, seeds would be collected, and bulbs would be salvaged. Collected seeds would be provided to the BLM for submittal to an approved seed bank or repository for conservation. Salvaged bulbs would be replanted on site in the areas where they were salvaged following construction, or, if directed by the BLM, transplanted immediately into suitable habitat off of the construction right-of-way. Additionally, seeds of native plant seeds in the vicinity of the affected Cox's mariposa lily population would be collected and used for restoration of the right-of-way in this area following construction. Pacific Connector would also monitor the revegetated areas, as well as the areas where transplanted Cox's mariposa lily bulbs were planted, annually for three years and an annual monitoring report would be submitted to the BLM. Control of noxious weeds in this area would also be conducted in consultation with the BLM.

the pipeline route subsequent to these surveys. In 2018, surveys for Cox's mariposa lily were conducted during the flowering season on approximately 65 acres between MPs 74 and 75 of the revised pipeline route. The 2018 survey data are currently under review by the BLM. Additionally, there are approximately 45.3 acres of potential suitable Cox's mariposa lily habitat on private lands within the pipeline route that have not been surveyed. CO28-285 cont.

DEIS at 4-365. The lack of surveys on private land, and the fact that BLM is still reviewing more recent data, suggests that the potential for harm remains unresolved. Yet, while the DEIS admits that "construction and operation of the Project would directly and indirectly affect this species and this species' habitat," it suggests that any harm would be addressed through a mitigation plan, which does not appear to have been provided for public comment. Furthermore, the proposal to protect the lily relies on the collection of bulbs and efforts to replant them after the pipeline is built. But there is no discussion regarding whether replanting lily bulbs will effectively mitigate the impacts of the pipeline construction. Moreover, the DEIS fails to consider that after the pipeline is built, OHV traffic will be abundant, especially on BLM land. BLM has acknowledged that controlling ORV use in the pipeline area will be extremely difficult, if not impossible. The DEIS does not resolve this issue, which may result in unexamined effects to the lily.

JJ. The Proposed Mitigation Is Inadequate

The DEIS often assumes BMP effectiveness, while science and practical experience has proven that BMPs have limits on effectiveness, particularly for streams in steeper terrain. Rather than assessing impacts resulting from the pipeline with the understanding that BMPs and mitigation will have limited effectiveness, the DEIS arbitrarily assumes impacts will be eliminated or significantly reduced. For example, construction mats will not wholly prevent or retard soil compaction, particularly in saturated and soft soils (where many pipeline related actions will occur). The DEIS does not account for the degree, extent, or persistence of inevitable compaction nor the long-term impacts it creates, such as infiltration rates, saturation capacity, runoff volume, and affected wetlands processes, including the ability to absorb, store, and slowly release water. Compaction thus has direct, indirect, and cumulative impacts such as erosion, sediment delivery, water quality, peak flows and low flows on aquatic resources and salmonids, yet these impacts – which affect salmonid survival and production – were not given a hard look. CO28-286

The same flawed analyses of impacts to salmonids are present in the context of pipeline construction and operation in riparian zones. The DEIS is replete with assumptions of BMP effectiveness in eliminating runoff and sediment impacts to waterways. Conversely, best available science indicates that such BMPs do not eliminate such impacts from vegetation removal and significant soil disturbance in close proximity to waterways, on steep slopes adjacent waterways, and/or in areas with high levels of precipitation and runoff like the Pacific Northwest. The same flawed assumption of BMP effectiveness applies to the DEIS' assumption that post-construction revegetation will be effective in mitigating sediment-related impacts from pipeline construction on aquatic resources. Scientific studies have documented that post-construction revegetation is largely ineffective at reducing erosion and sedimentation.

CO28 continued, page 239 of 302

CO28-286 Comment noted. The text in the final EIS has been clarified regarding minimization.