



**REVIEW OF APPLICATION FOR LIHI CERTIFICATION
OF THE
MONROE DROP HYDROELECTRIC PROJECT**

**FERC Project No. P-14430 (Conduit Exemption)
North Unit Irrigation District Main Canal**

Jefferson County, OR



May 1, 2023

Maryalice Fischer, Certification Program Director

Table of Contents

I. INTRODUCTION	1
Figure 1. Project Locus and Deschutes River Watershed	2
II. PROJECT LOCATION, AND SITE CHARACTERISTICS	3
Figure 2. Monroe Drop Structure looking upstream showing chute and wing walls.....	3
Figure 3. Project Layout	4
Figure 4. Powerhouse, tailrace, and draft tube	5
Figure 5. Natal Restoration Turbine.....	5
III. REGULATORY AND COMPLIANCE STATUS	6
IV. PUBLIC COMMENTS RECEIVED BY LIHI	6
V. ZONES OF EFFECT AND STANDARDS SELECTED	7
Figure 6. Zones of Effect	8
Table 1. LIHI Standards Selected.....	8
VI. DETAILED CRITERIA REVIEW	8
A: Ecological Flow Regimes	8
B: Water Quality.....	9
C: Upstream Fish Passage	9
D: Downstream Fish Passage	10
Figure 7. District Fish Screen.....	11
E: Shoreline and Watershed Protection	13
F: Threatened and Endangered Species	13
G: Cultural and Historic Resources Protection	14
H: Recreational Resources	15
VII. CERTIFICATION RECOMMENDATION.....	15
APPENDIX A	

FINAL REVIEW OF APPLICATION FOR LIHI CERTIFICATION OF THE MONROE DROP HYDROELECTRIC PROJECT

This report provides final review findings and recommendations related to the certification application submitted to the Low Impact Hydropower Institute (LIHI) by Natal Energy (Applicant) for certification of the Monroe Drop Hydroelectric Project (Project). The complete certification application package was received on February 9, 2023 and is subject to review under the current 2nd edition LIHI Handbook (Revision 2.05, January 1, 2022).

I. INTRODUCTION

The Monroe Drop Project is a 0.30 MW conduit facility located at Station 2052+75, near milepost 37 in the Town of Culver, in Jefferson County, OR. The Project is located within the Deschutes River Basin on the U.S. Bureau of Reclamation's (USBR) North Unit Irrigation District Main Canal (NUMC). Construction of the North Unit Irrigation project began in 1938 and was completed in 1949. The NUMC and the Monroe Drop structure are irrigation facilities operated by the North Unit Irrigation District (District) with a primary purpose to deliver irrigation water to nearly 59,000 acres of farmland in Jefferson County (Figure 1).

The NUMC is one of three irrigation canals that originate at the North Canal Diversion Dam at RM 164.8 on the Deschutes River. Water for the irrigation project comes from both the Deschutes and Crooked rivers. Water travels out of Wickiup Reservoir into the Deschutes River, where it is diverted to the NUMC in Bend, Oregon. From there, the water reaches users via the District's 65 miles of main canal and 235 miles of laterals.

The Crooked River Pumping Plant is located where the NUMC crosses the Crooked River at about RM 27.6. The canal diverts water from the Deschutes and Crooked rivers, approximately 37 miles, and 11 miles south (upstream) of the hydro project, respectively, through a series of canals and drop structures that serve to irrigate the surrounding farm land.

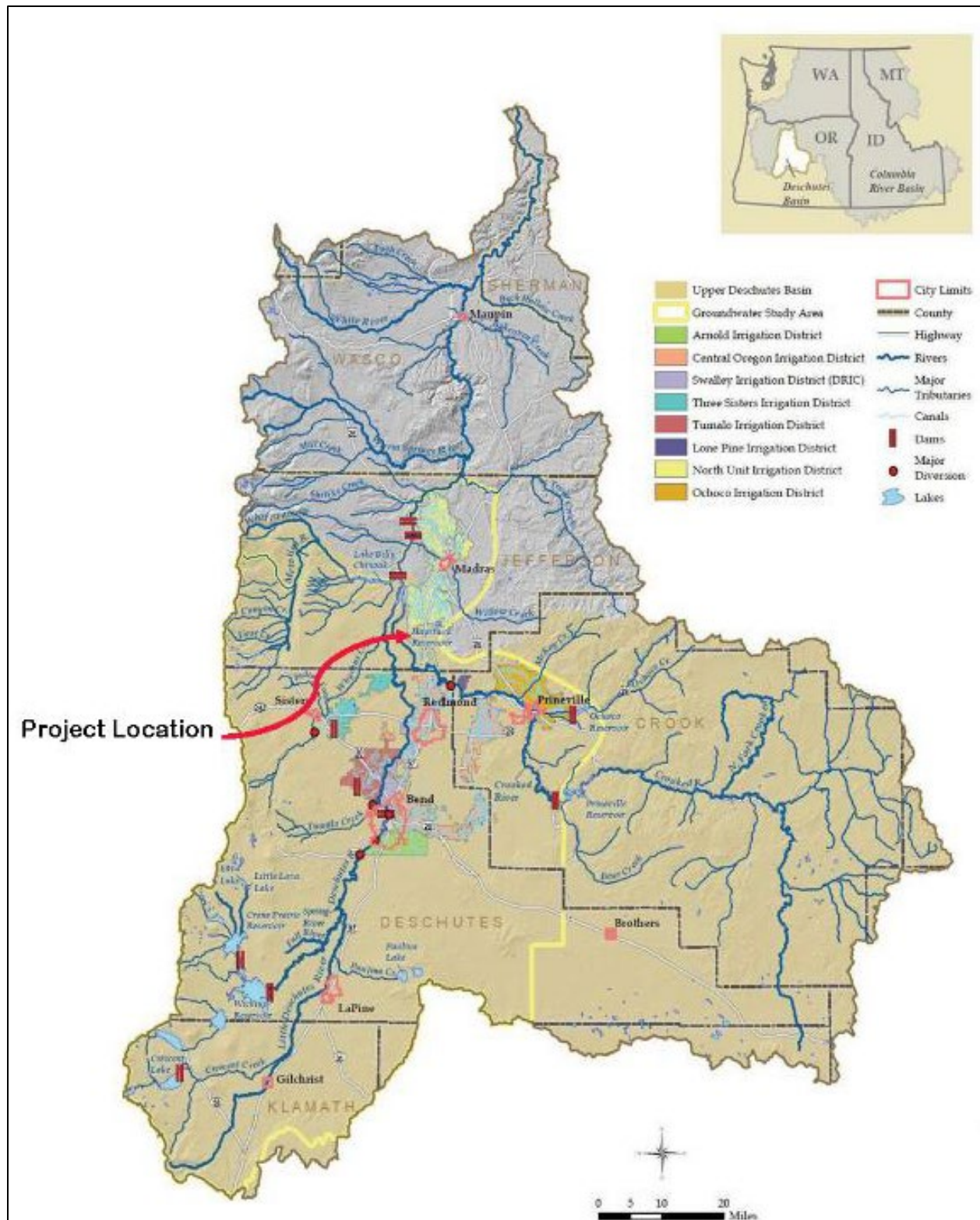


Figure 1. Project Locus and Deschutes River Watershed

II. PROJECT LOCATION, AND SITE CHARACTERISTICS

The Main Canal's Monroe Drop structure consists of a 35-foot-long, 15-foot-high concrete open irrigation drop with concrete winged transition sections upstream and downstream (Figure 2). Water falls between 13.5 feet to 16.5 feet at this structure, depending on the flow. The drop structure contains an automated gate that controls the normal flow of irrigation water through the Main Canal.

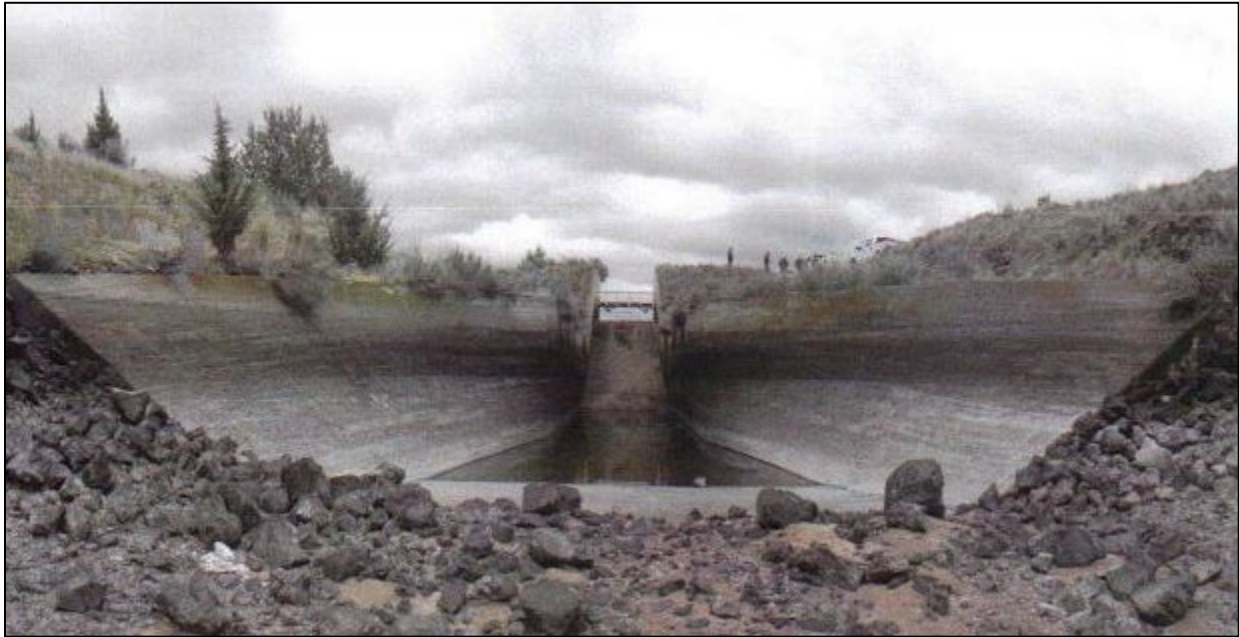


Figure 2. Monroe Drop Structure looking upstream showing chute and wing walls

The hydro facility was constructed in 2015 and consists of a 12-foot-wide by 61.5-foot-long concrete intake channel, a 63-foot-long, 84-inch-diameter penstock, a 25-foot-long by 44-foot-wide powerhouse containing a single turbine/generating unit, an approximately 50-foot-long rectangular-section draft tube¹ with inlet dimensions of 43 inches wide by 54 inches tall extends from the powerhouse to the bottom of the canal, and a 2,200-foot-long power line buried in conduit under the canal service road that interconnects with a 12.5-kV distribution line owned and operated by PacifiCorp.

An Obermeyer gate in the main canal spillway controls the head at the site and remains fully inflated during the irrigation season. The gate is lowered during canal weed flushing periods to allow for all canal debris to pass without causing blockages in the facilities. The gate is part of the canal operating system, not part of the hydro project.

The original 250-kW SLH turbine was replaced with a 300 kW Natel MS-D190 Restoration Hydro Turbine (RHT) in 2020. The RHT is a compact hydroelectric turbine that couples high

¹ Sources vary on the length of the draft tube, this value is from the most recent approved FERC Exhibit A <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01E09B51-66E2-5005-8110-C31FAFC91712>

performance with safe through-turbine fish passage. Its unique fish-safe blades are thickened and optimized for low head applications, eliminating the need for fine fish screens which reduces cost while increasing plant efficiency (Figure 5).

The Project operates in a “run-of-canal” mode in coordination with the normal irrigation season, April through October. The design head range averages 15.4 feet with a flow of 323 cfs through the powerhouse. Inflow fluctuates monthly based on available flows in the canal. The hydro operation does not change the timing or location of water delivered to irrigation users and after irrigation season the canal is drained. The Project generates approximately 1,078 MWh annually.

The Project occupies 2.09 acres of federal lands in the Crooked River National Grassland managed with the Ochoco National Forest (0.89 acres for the powerhouse and 1.2 acres for the transmission line). The Grassland is administered by the U.S. Department of Agriculture’s Forest Service (USFS) and the Project operates under a Special Use Permit issued by USFS in 2014.

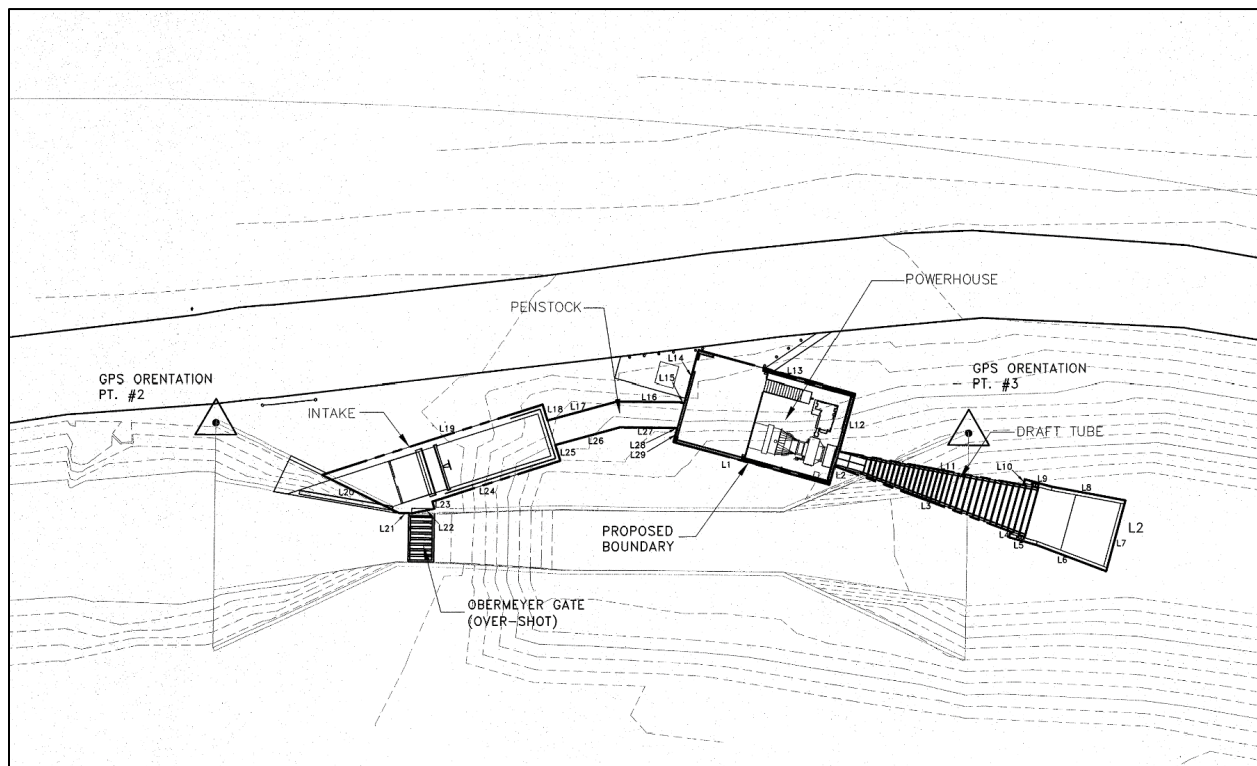


Figure 3. Project Layout



Figure 4. Powerhouse, tailrace, and draft tube



Figure 5. Natal Restoration Turbine

III. REGULATORY AND COMPLIANCE STATUS

The Project was granted Conduit Exemption No. P-14330 from the Federal Energy Regulatory Commission (FERC) on August 1, 2014² which was amended on October 2, 2014³ to correct errors in the original order. The exemption was amended again on January 17, 2020⁴ for installation of the new turbine. The original exemptee, Monroe Hydro, LLC transferred the exemption to Apple Inc. on January 9, 2015. On December 11, 2020, Apple transferred the exemption back to Monroe Hydro, LLC which is owned by Natel Energy. As a conduit exemption, the Project does not have a water quality certificate issued by the State of Oregon.

The exemption includes several articles but only Article 15 relates to the LIHI cultural and historic resources criterion (see Section VI.G below). Standard Article 2 is also relevant to the LIHI criteria and requires the exemptee to comply with US Fish and Wildlife Service (USFWS) and state fish and wildlife agency terms and conditions to prevent loss or damage to fish and wildlife resources.

In furtherance of that requirement, Oregon Department of Fish and Wildlife (ODFW) issued terms and conditions under Section 30(c) of the Federal Power Act that require the exemptee to a) take immediate action to minimize harm to fish and wildlife resources under emergency situations, and to notify ODFW of any incidents within 24 hours and FERC within 10 days. To date there have been no incidents reported.

The Project operates under a Special Use Permit issued by the USFS which includes general conditions related to some LIHI criteria, contains activity restrictions such as limits on pesticide use, requires a general effort to protect environmental and cultural/historic resources including newly discovered resources, notification to USFS of any major incidents, and annual reporting. The Project also operates under a Hydropower Development Agreement with the North Unit Irrigation District executed in 2012. That agreement includes a Fish Passage Plan Agreement among three irrigation districts and ODFW. The Project is not a party to the agreement nor does the agreement affect the Project.

A review of the entire FERC docket from the initial 2012 preliminary permit application filing to March 28, 2023 found no compliance related issues other than a small number of minor filing delays.

IV. PUBLIC COMMENTS RECEIVED BY LIHI

The application was publicly noticed on February 9, 2023. No public comments were received by LIHI during the 60-day comment period which ended on April 10, 2023. That deadline was extended to April 17, 2023 by stakeholder request and Oregon Department of Fish and Wildlife (ODFW) filed comments on April 17, 2023, which is included in Appendix A and addressed in

² https://elibrary.ferc.gov/elibrary/filelist?accession_number=20140801-3021&optimized=false

³ https://elibrary.ferc.gov/elibrary/filelist?accession_number=20141002-3022&optimized=false

⁴ https://elibrary.ferc.gov/elibrary/filelist?accession_number=20200117-3043&optimized=false

Section VI.D below. Given the limited nature of the Project, no additional outreach to resource agencies was conducted.

V. ZONES OF EFFECT AND STANDARDS SELECTED

The Applicant selected two Zones of Effect (ZoEs), (Figure 6). ZoE 1 is the upstream reach (shown in red) which extends approximately 87 feet from the powerhouse intake upstream in the canal. ZoE 2 (shown in green) is the downstream reach which extends about 350 feet downstream of the powerhouse discharge. The Applicant selected the standards shown in the table below. The reviewer agrees with the selected standards, except for Threatened and Endangered Species Protection as noted in **red** in Table 1.



Figure 6. Zones of Effect**Table 1. LIHI Standards Selected**

Zone:		1: Upstream Reach	2: Downstream Reach
River Mile at upper and lower extent of Zone:		n/a – not on a river 87 feet	n/a – not on a river 350 feet
Criterion		Standard Selected	
A	Ecological Flows	1	1
B	Water Quality	1	1
C	Upstream Fish Passage	1	1
D	Downstream Fish Passage	1, PLUS	1
E	Shoreline and Watershed Protection	1	1
F	Threatened and Endangered Species	3 , 1	3 , 1
G	Cultural and Historic Resources	2	2
H	Recreational Resources	1	1

VI. DETAILED CRITERIA REVIEW**A: Ecological Flow Regimes**

Goal: *The flow regimes in riverine reaches that are affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources.*

Assessment of Criterion: The Applicant selected Standard A-1, Not Applicable/De Minimis Effect in both ZoEs, to pass the Ecological Flow Regimes criterion.

Discussion: There are no FERC exemption requirements related to flows. The Project is located entirely within an irrigation canal and does not discharge into a natural waterway, so it has no flow-related effects. Water for the irrigation project comes from both the Deschutes and Crooked rivers. Water travels out of Wickiup Reservoir into the Deschutes River, where it is diverted to the NUMC in Bend, Oregon. From there, the water is directed to users via the main canal and a series of lateral distribution canals. NUID holds various water rights issued by the State of Oregon that authorize diversion and conveyance of water from the Deschutes and Crooked rivers for irrigation purposes.

The project operates in a “run-of-canal” mode generating electricity from available water flowing through the drop structure during the irrigation season only. During emergency powerhouse outages, flow that would normally pass through the powerhouse remains in the canal. The Obermeyer gate automatically adjusts to maintain constant elevation upstream of the drop structure and to maintain flow downstream of it, and typically remains fully inflated during the irrigation season.

Based on the application, FERC eLibrary, and other public information, the Project does not affect flows and therefore satisfies Criterion A.

B: Water Quality

Goal: *Water Quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions.*

Assessment of Criterion: The Applicant selected Standard B-1, Not Applicable/De Minimis Effect in both ZoEs to pass the Water Quality criterion.

Discussion: No state water quality certificate was required as part of the FERC exemption proceeding. The canal system is not a natural river and thus not subject to state water quality standards. As a human-made structure the canal does not support aquatic life. It is dewatered from November to May and the District periodically applies aquatic pesticides authorized under a state NPDES permit which also limits the potential for aquatic life.

Oregon Integrated Report's online mapping tool⁵ indicates that the Crooked River upstream of the diversion (segment OR_SR_1707030510_02_101806) is impaired for fish and aquatic life due to temperature, biocriteria, phosphorus, and total dissolved gas. The Deschutes River at the Main Canal diversion (segment OR_SR_1707030108_02_102627) is impaired for temperature and pH. Since the Project is located 6 miles upstream of Haystack Reservoir with 55-60 similar drops of varying height along the canal system in that section, it is unlikely that the Project would have any effect on dissolved oxygen levels. Given the short distance between the project intake and discharge and lack of storage, water temperature is also unlikely to be affected by Project operations.

Based on the application, FERC eLibrary, and other public information, the Project does not affect water quality and therefore satisfies Criterion B.

C: Upstream Fish Passage

Goal: *The facility allows for the safe, timely, and effective upstream passage of migratory fish. This criterion is intended to ensure that migratory species can successfully complete their life cycles and maintain healthy populations in areas affected by the facility.*

Assessment of Criterion: The Applicant selected Standard C-1, Not Applicable/De Minimis Effect in both ZoEs to pass the Upstream Fish Passage criterion.

Discussion: There are no migratory fish in the Project vicinity. The canal delivers water to the surrounding farmlands via a series of canals and drop structures to irrigate the surrounding farmland, therefore there are no natural water bodies downstream.

⁵ <https://geo.maps.arcgis.com/apps/instant/sidebar/index.html?appid=7d13b19e01a44f1dbfd12903576e6d29>

Standard article 2 of the FERC exemption requires compliance with any terms and conditions that the United States Fish and Wildlife Service and any state fish and wildlife agencies have determined are appropriate to prevent loss of, or damage to, fish and wildlife resources.

In addition, ODFW's section 30(c) terms and conditions incorporated into the exemption reserves authority for the agency to modify or add to these terms and conditions at any time for the protection of fish and wildlife and their habitats. The terms and conditions further require the following: *"If at any time, unanticipated circumstances or emergency situations arise in which fish or wildlife are being killed, harmed or endangered by any of the project facilities, the exemptee shall immediately take appropriate action to prevent further loss. The exemptee shall, within 24 hours, notify the nearest Oregon DFW office and comply with the measures required by Oregon DFW to prevent additional injury or mortality. The exemptee shall notify the Commission as soon as possible but no later than 10 days after each occurrence and inform the Commission as to the nature of the occurrence and measures taken."*

The US Forest Service special use permit requires construction, maintenance, and operation of *"such protective devices and comply with such reasonable modifications of the project structures and operation in the interests of fish and wildlife resources as may be prescribed hereafter by the Forest Service upon the recommendation of the Secretary of the Interior or the State fish and game agency."*

Based on the application, FERC eLibrary, and other public information, there have been no reported fish-related incidents, the Project does not affect upstream fish passage, and it therefore satisfies Criterion C.

D: Downstream Fish Passage

Goal: *The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, the facility minimizes loss of fish from reservoirs and upstream river reaches affected by facility operations. Migratory species can successfully complete their life cycles and maintain healthy populations in the areas affected by the Facility.*

Assessment of Criterion: The Applicant selected Standard D-1, Not Applicable/De Minimis Effect in both ZoEs to pass the Downstream Fish Passage and Protection criterion for the Project. The Applicant also requested the PLUS Standard for ZoE 1.

Discussion: As noted above, the FERC exemption and ODFW terms and conditions also apply to downstream fish passage and protection.

The canal is dewatered from November to March or April, so no year-round fish habitat exists. The intake at the Main Canal diversion dam on the Deschutes River, located 37 miles upstream from Monroe Drop, is equipped with a trash rack and fish screening (Figure 7), although it does not meet current state standards.⁶ ODFW reports that resident fish including redband trout,

⁶ Oregon Revised Statutes 498.306

brown trout, and mountain whitefish have been observed stranded in the dewatered canal downstream of the Main Canal intake; and kokanee salmon have been observed in Haystack Reservoir which is located 6 miles downstream in the canal from the Project. These species are tributary spawners, not lake spawners (although they can live in lakes before spawning), and the reservoir does not provide appropriate spawning habitat even if fish survived passage through the canal to reach it.

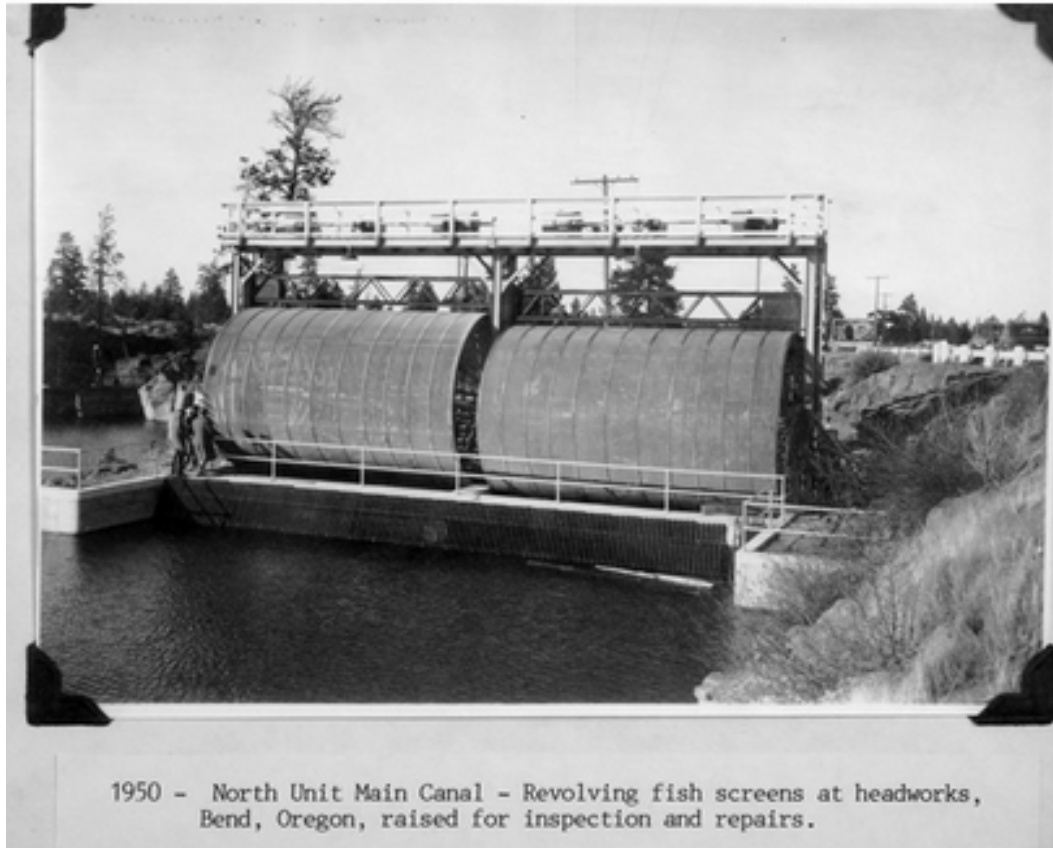


Figure 7. District Fish Screen

The Monroe Drop hydro owner entered into an agreement with NUID in 2012 during Project permitting. The agreement required the owner to contribute up to \$10,000 toward a fish passage facility or fish screen upgrades but states “nothing in the agreement requires [the] District to undertake or fund the design, construction, operation or maintenance” of a passage facility or new screening. According to the Applicant, the funding amount set at the time of the agreement was paid to NUID, thus the Applicant fulfilled their obligation under the agreement.

NUID and other irrigation districts also had a pre-existing fish passage agreement with ODFW from 2010 executed in conjunction with water rights obtained for hydroelectric power on the canal. A 2013 agreement between NUID and ODFW provided for replacing the existing fish screens within 10 years (before the 2023 irrigation season) with co-funding from ODFW which provided support for design. The actual work was never completed since the overall cost estimate exceeded the agreement’s cost cap. ODFW reported that the screening agreement

expires in 2023 and a new agreement or amendment needs to be executed. In addition, ODFW commented on the Project's FERC preliminary application document in 2013 and again during the 2019 FERC exemption amendment proceedings noting the continued lack of adequate screening.

In April 2023, the USBR offered a \$10 million loan to NUID under the federal Infrastructure Investment and Jobs Act and ODFW awarded \$750,000 of American Rescue Act funds. NUID is currently evaluating these along with other funding options.

The Project's intake has a trashrack with 6-inch clear spacing. If fish did reach the Project via the canal, they would become entrained. However, the Restoration Turbine has been shown to provide safe fish passage in laboratory and field testing. In tests at Natal's test facility, survival of silver phase American eels was 100% with minimal injury or impact even when the turbine was operated at full power. Field testing at the Freedom Falls Project (LIHI #178) found 48-hour survival of juvenile alewife to be 100%.⁷ The turbine design is an innovative technology, due in part to the thickness of the blades' leading edges which were engineered to reduce tip speed and minimize strike probability and harm to fish.

During the irrigation season, any fish moving downstream from the canal intake could therefore continue moving downstream through the Project but as noted above, could be stranded downstream during canal dewatering, or be unable to spawn if they reached Haystack Reservoir. NUID reports that they, in coordination with the Deschutes Basin Board of Control, the Deschutes River Conservancy, and volunteers have rescued fish from the canal at the time of dewatering in the fall.⁸

In its April 17, 2023 comment letter on the LIHI application, ODFW acknowledged that the Project's minimal impacts to fish passing through the turbines but noted that NUID is required to eliminate fish entrainment in the canal.

Based on the application, FERC eLibrary, and other public information, NUID's intake is the cause of fish entering the canal and is acknowledged as a long-standing issue.

The Project itself does not adversely affect downstream fish passage or fish protection and therefore satisfies Criterion D. Furthermore, there is nothing the Applicant could reasonably do to influence NUID's actions or schedule for implementing the long-proposed fish screens but with the influx of new funding it is likely that screening will be installed over the next few years.

Because the best plan is to keep fish from entering the canal due to the lack of habitat in the canal and downstream of the Project, the Project's advanced turbine technology is irrelevant and thus a PLUS standard is not applicable. If it is determined that fish must enter the canal and pass through the turbine, then LIHI will reevaluate the PLUS standard.

⁷ Reports can be found here <https://www.natelenergy.com/fish-passage>

⁸ <https://northunitid.com/2022-main-canal-fish-rescue/>

E: Shoreline and Watershed Protection

Goal: *The facility has demonstrated that sufficient action has been taken to protect, mitigate or enhance the condition of soils, vegetation and ecosystem functions on shoreline and watershed lands associated with the facility.*

Assessment of Criterion: The Applicant selected Standard E-1, Not Applicable/De Minimis Effect in both ZoEs to pass the Shoreline and Watershed Protection criterion.

Discussion: The Project occupies 2.09 acres of federal land in the Crooked River National Grassland administered by the USFS as part of the Ochoco National Forest. These lands are managed in accordance with the Grasslands Management Plan, part of the Ochoco National Forest Land and Resource Management Plan.⁹ The Grassland is managed for ranch land, fish and wildlife, recreation, mineral extraction, and fuelwood, with no direct impacts on the Monroe Drop Project. There are no lands of ecological value and no critical habitats for threatened or endangered species. Lands west of the canal are primarily agricultural, and to the east is the Crooked River National Grasslands.

As a conduit project, there is no shoreline associated with the Project and no FERC exemption requirements related to shoreline or watershed protection, although the 2020 exemption amendment required development and implementation of an erosion and sediment control plan for construction related to the turbine replacement. That plan was filed with FERC on January 23, 2020 and acknowledged by FERC on February 7, 2020 in a letter authorizing construction.

Based on the application, FERC eLibrary, and other public information, the Project does not impact shorelines or the watershed, and therefore satisfies Criterion E.

F: Threatened and Endangered Species

Goal: *The facility does not negatively impact federal or state listed species.*

Assessment of Criterion Passage: The Applicant selected Standard F-3, Recovery Planning and Action in both ZoEs to pass the Shoreline and Watershed Protection criterion. This review finds that Standard F-1, Not Applicable/De Minimis Effect is more appropriate for both ZoEs.

Discussion: The LIHI application included a USFWS IPaC report dated April 5, 2022. The reviewer checked for updated information on March 30, 2023 and confirmed there had been no changes. The IPaC report indicates that the federally threatened bull trout could be present; however, USFWS indicated at the time of FERC exemption proceedings (after the species was listed) that there were no listed species present at the Project site and agreed that the then-

⁹ <https://www.fs.usda.gov/detail/ochoco/landmanagement/planning/?cid=stelprd3808740>

proposed Project would have minimal environmental impacts.¹⁰ ODFW indicated that bull trout are not present in the portion of the Deschutes River upstream from the Project.¹¹

According to the IPaC report, migratory birds may be present during parts of the year. The Project's transmission line is buried so there is no potential for transmission line interactions. The LIHI application includes information on state-listed plant and wildlife species, and none other than bull trout are likely to be present in the Project area.

The District, along with seven other irrigation districts and the City of Prineville are collectively subject to a 2020 Deschutes River Basin Habitat Conservation Plan.¹² The Plan is a voluntary collaborative strategy to share water resources in the Deschutes Basin, covering irrigation and related water management operations while enhancing fish and wildlife habitat designed to minimize and mitigate impacts caused by the incidental take of covered listed species that may result from the storage, release, diversion and return of irrigation water.¹³ The Plan covers bull trout, steelhead, sockeye salmon, and Oregon spotted-frog, and includes provisions for District funding of various conservation measures. Oregon spotted frog is federally threatened but not present in the immediate Project area.¹⁴

Based on the application, FERC eLibrary, and other public information, there are no listed species present that could be affected by the Project, and therefore the Project satisfies Criterion F.

G: Cultural and Historic Resources Protection

Goal: *The Facility does not unnecessarily impact cultural or historic resources that are associated with the facility's lands and waters, including resources important to local indigenous populations, such as Native Americans.*

Assessment of Criterion: The Applicant selected Standard G-2, Approved Plan to pass the Cultural and Historic Protection criterion.

Discussion: The Monroe Drop structure and canal qualify as historic properties eligible for listing in the National Register of Historic Places. On October 7, 2013, the Oregon State Historic Preservation Office (SHPO) determined that the Project would have an adverse effect on these historic properties.

FERC exemption Article 15 approved and incorporated a Memorandum of Agreement (MOA) executed between FERC and the SHPO. The MOA required photographic documentation and a narrative description of the dewatered Monroe Drop concrete chute structure and SHPO

¹⁰ <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=01B4C7F9-66E2-5005-8110-C31FAFC91712>

¹¹ Teleconference between M. Fischer of LIHI and T. Wise of ODFW, April 10, 2023.

¹² https://www.fws.gov/sites/default/files/documents/DBHCP%20Volume%201%20December%202020_0.pdf

¹³ <https://www.fws.gov/project/deschutes-river-basin-habitat-conservation-plan>

¹⁴ <https://northunitid.com/oregon-spotted-frog-hcp/>

approval of the mitigation documentation. Documentation was completed and accepted by the SHPO on August 14, 2014.¹⁵

As part of the 2020 exemption amendment, the SHPO provided an email confirming there would be no adverse effect related to turbine replacement since the powerhouse is not 50 years old and is currently ineligible for listing on the National Register.¹⁶

The USFS Special Use Permit includes a provision to notify USFS if cultural or historic resources are discovered. To date this has not occurred.

Based on the application, FERC eLibrary, and other public information, the Project fulfilled its obligation for mitigation, and ongoing operations are unlikely to impact cultural or historic resources and therefore satisfies Criterion G.

H: Recreational Resources

Goal: *The facility accommodates recreation activities on lands and waters controlled by the facility and provides recreational access to its associated lands and waters without fee or charge.*

Assessment of Criterion Passage: The Applicant selected Standard H-1, Not Applicable/De Minimis Effect in both ZoEs to pass the Recreational Resources criterion.

Discussion: There are no recreational resources or uses at the Project. The District prohibits public access to the Main Canal due to safety concerns. However, other recreational resources are available in the vicinity, including at Haystack Reservoir which is popular for fishing, camping, boating, and day use; and within the Crooked River National Grassland.¹⁷

Based on the application, FERC eLibrary, and other public information, the Project's very small footprint and District safety concerns, the Project cannot reasonably provide recreational access, and satisfies Criterion H.

VII. CERTIFICATION RECOMMENDATION

This review included evaluation of the application and supplemental additional information provided by the Applicant, a review of the FERC eLibrary, and other publicly available information. Based on the evaluation, I recommend that the Project be certified for a term of ten (10) years. No facility-specific conditions are recommended.

¹⁵ https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20151215-5129&optimized=false

¹⁶ <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=02033334-66E2-5005-8110-C31FAFC91712>

¹⁷ <https://www.fs.usda.gov/recarea/ochoco/recarea/?recid=38274>

APPENDIX A – ODFW COMMENT LETTER



Oregon

Tina Kotek, Governor

Department of Fish and Wildlife

East Region

Hydropower Program

61374 Parrell Rd.

Bend, OR 97702



April 17th, 2023

Shannon Ames
Executive Director
Low Impact Hydropower Institute
1167 Massachusetts Avenue
Arlington, Massachusetts 02476
sames@lowimpacthydro.org

Re: ODFW Comments: LIHI Certification - Monroe Drop Hydroelectric Project (FERC – 14430)

Dear Shannon Ames,

Oregon Department of Fish and Wildlife (ODFW) appreciates the opportunity to review and provide comments on Natel Energy's (Applicant/Licensee) application for Low Impact Hydropower Institute (LIHI) certification for the Monroe Drop Hydroelectric Project (Project).

ODFW has actively engaged in providing comments in respect to the Project since the early consultation stages of its planning and development. This included submittal of comments to the Federal Energy Regulatory Commission (FERC) relevant to the Project Pre-Application Document, as well as in follow up to the initial consultation meeting and site visit. Our involvement extended through and beyond the FERC's determination of Exemption status for the Project and included comments provided to the Licensee on August 12th, 2019, in respect to their proposed amendment for Project modifications. In previous comments to the Project operator/owner's representative, ODFW recommended that the Project description include detailed information in respect to the Party responsible for the operation, maintenance and replacement of the canal delivery system, a description of the current fish screen and its condition relative to meeting fisheries agency (National Marine Fisheries Service and ODFW) screening criteria to prevent fish entrainment into the North Unit Irrigation District (NUID) irrigation canal or being impinged onto the fish screens.

As a matter of consideration in respect to the Applicant's LIHI certification request, ODFW feels it is important to highlight the issue of the continued lack of adequate screening on the canal system on which the Project is located. The two antiquated primary fish screens at the NUID main canal headworks in Bend date back to the 1940s and are well beyond their useful life and are deteriorated well past the point of patching and repair. The inadequate fish screening for the 700 cfs – 800 cfs of river water currently diverted into the irrigation canal is seriously problematic in the sense that

juvenile and adult native resident salmonids (redband trout and mountain whitefish) are entrained and stranded in the canal and dispersed through-out the NUID irrigation canal distribution system, including to the point of the Project. ODFW Upper Deschutes Watershed District Fisheries staff and ODFW fish passage engineers have made many site visits to inspect the screens, the last one on March 1, 2022. ODFW Upper Deschutes District Fisheries biologists have responded to citizen complaints of adult redband trout (*Oncorhynchus mykiss newberrii*), mountain whitefish (*Prosopium williamsoni*) and brown trout (*Salmo trutta*) being left stranded in pools in the NUID canal as it is dewatered at the end of the irrigation season. In addition, the approach velocities for the current drum screen assembly exceed the required criteria. High approach velocities provide the potential for young fish to become impinged/trapped on the screen face which can result in injury or mortality.

Oregon law ORS 543.765 “Certificate to use water for hydroelectric purposes within artificial delivery system”, requires that development of hydroelectric facilities on conduits have a screened diversion into the conduit itself. On October 21, 2013, as a precursor to approval of the Project, NUID and the ODFW signed a Fish Screening Facility Plan Agreement (Agreement). Per the Agreement, NUID agreed to construct a new fish screen on its canal at the main point of diversion in consultation with ODFW, with NUID ultimately being the responsible party for securing the funds necessary for screening and for the construction of the screening facility at the point of their irrigation diversion on the Deschutes River. The screen is intended to prevent redband trout and other resident fish species from entering the irrigation conduit, including any in-conduit hydro projects. Per ODFW and NUID Agreement, NUID agreed to ensure the construction of a fully compliant and operational Fish Screening Facility to be completed within ten (10) years of the signing of the Agreement, and not later than the start of the irrigation season in 2023. Additionally, the Oregon Water Resources Department Certificate of Water Right (PC 899) issued to NUID on November 18, 2014, for the Monroe Drop Project is conditioned on the water right holder (NUID) constructing, operating, and maintaining all fish screens, by-pass devices and fish passage devices as required by ODFW.

Unfortunately, screening design cost estimates for the NUID Fish Screening Facility exceeded the agreed upon cost fund cap, therefore, at this point, 10 years after the signing of the Agreement, the construction of the screen has not occurred, as the ODFW and NUID seek a mutually agreeable solution to resolving the fish screening issue. To this end NUID and ODFW have continued to work together to find ways for either lowering the cost of the screen as proposed or securing additional funding sources. The U.S. Interior Department recently announced that it is making a \$10 million loan available to the NUID for replacing the two aging fish screens on its main canal in Bend. The Bureau of Reclamation (BOR) indicating that fish exclusion from the canal is necessary to meet current ODFW requirements. In addition to this \$10 million dollar loan, ODFW also just awarded NUID an additional \$750,000 of America Rescue Act funds for the continued planning and construction of the screening facility.

While the recent grant awards and offer of loan to NUID are very positive developments, the potential completion of a compliant screen at the main canal headworks will likely still be a number of years out, during which time fish are still able to enter the canal, and or suffer impingement on the existing screens. Despite the Project’s minor impacts to fish passing through its turbines and associated facilities, the ultimate goal and requirement of the NUID main irrigation canal headworks screening is, that no fish be entrained into the irrigation delivery system and even reach the Project.

ODFW acknowledges many of the Project elements are in line with LIHI certification criteria, however, based on the ongoing potential for significant impacts to the native fish assemblage resulting from diverted streamflow associated with the NUID water supply to the Project, ODFW cannot at this time support LIHI certification for the Project.

Please feel free to contact me at 541-633-1115 or by email at Ted.G.WISE@odfw.oregon.gov, should there be any questions, or should you care for follow-up discussion regarding our comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Ted Wise", with a stylized flourish at the end.

Ted Wise
ODFW – East Region Hydropower Program Coordinator
Office Phone – 541-633-1115