



MASSACHUSETTS WATER RESOURCES AUTHORITY

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Frederick A. Laskey
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June 21, 2023

Maryalice Fischer, Certification Program Director
Low Impact Hydropower Institute
c/o NPCM
P.O. Box 211
Sterling, MA 01564

Re: Cosgrove Intake and Power Plant Low Impact Hydropower Institute Recertification Application

Dear Ms. Fischer:

Please find enclosed the Low Impact Hydropower Institute recertification application for the Cosgrove Hydroelectric Facility. As background, the Cosgrove Intake and Power Plant is located in Clinton, MA and is owned by the Massachusetts Water Resources Authority. The facility, which regulates the flow of drinking water from the Wachusett Reservoir into the Cosgrove Aqueduct, began operations in 1969. The hydroelectric turbines operate when the water drops from one elevation (the Reservoir) in the water supply system into a lower elevation (the Aqueduct). The hydroelectric station is enclosed in the intake building.

Your assistance with our questions as we were completing the recertification applications was invaluable, thank you.

Please let me know if you have any questions about our application.

Regards,

Denise Breiteneicher
Program Manager, Energy and Environmental Management
(w) 617-305-5927
(c) 617-504-1514

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Introduction with Narrative Summary of the Cosgrove Hydroelectric Facility

Background

The MWRA supplies wholesale water to local water departments in 50 communities, primarily in the Boston metropolitan area. On average, MWRA supplies approximately 200 million gallons per day to its water system customers. MWRA's water comes from the Quabbin Reservoir, about 65 miles west of Boston, and the Wachusett Reservoir, about 35 miles west of Boston. Both Quabbin and Wachusett Reservoirs are man-made reservoirs, constructed for water supply purposes. More than 50% of the inflow into the Wachusett Reservoir is transferred from Quabbin Reservoir via the Quabbin Aqueduct. Quabbin Reservoir water is required to meet MWRA's metropolitan demand. A transmission system consisting of over 100 miles of active tunnels and aqueducts that transport water largely by gravity to points of distribution within the MWRA service area.

There are three locations within this water transmission system where hydroelectric facilities are located. These include [Oakdale \(LIHI #57\)](#) at the end of the Quabbin Aqueduct; the Cosgrove Intake to the Cosgrove Aqueduct [LIHI Certificate #55 – Cosgrove Hydroelectric Project, Massachusetts | Low Impact Hydropower](#); and the [Loring Road Covered Storage Facility \(LIHI #56\)](#).

Summary of Cosgrove Hydroelectric Operations

The Cosgrove hydroelectric facility generates power from potable water as it is transferred from the Wachusett Reservoir into the MetroWest Tunnel for eventual distribution throughout MWRA's Service territory. The Cosgrove Aqueduct was constructed in 1965 and is not a historic structure. The Cosgrove hydro turbine began operating in 1969. The project includes two sections, the North and South intakes, and both intakes include a hydraulic turbine and two bypass lines. Each intake has three channels with traveling water screens. Each intake also has an upper intake sluice gate and lower intake sluice gate that allow operational flexibility to draw water from different levels of the reservoir. On the North intake, after this sluice gate, the water enters a common wet-well and from the wet well, flow is directed to either turbine generator 1, bypass line 1 or bypass line 2 or a combination. Each of the bypass lines contains a sleeve valve, which is designed to regulate flows to the water supply transmission system over a range of flows. The configuration of the South intake parallels the North intake and flows entering the South intake are directed to either turbine generator 2, or bypass line 3 or bypass line 4.

The turbines are vertically oriented, full Kaplan type with six adjustable runner blades. The turbine generators were put into operation in 1969 and were recently rehabilitated and upgraded, having a total installed capacity of 2.0 MW. These upgrades were necessary to integrate the turbine operation with a newly configured water supply system. Electricity is used on site as well as exported to the regional electrical grid generating income for MWRA.

The project operates as a conduit facility and is located on a water transfer aqueduct. Waters are transferred from one water supply reservoir to another and do not discharge into a river.

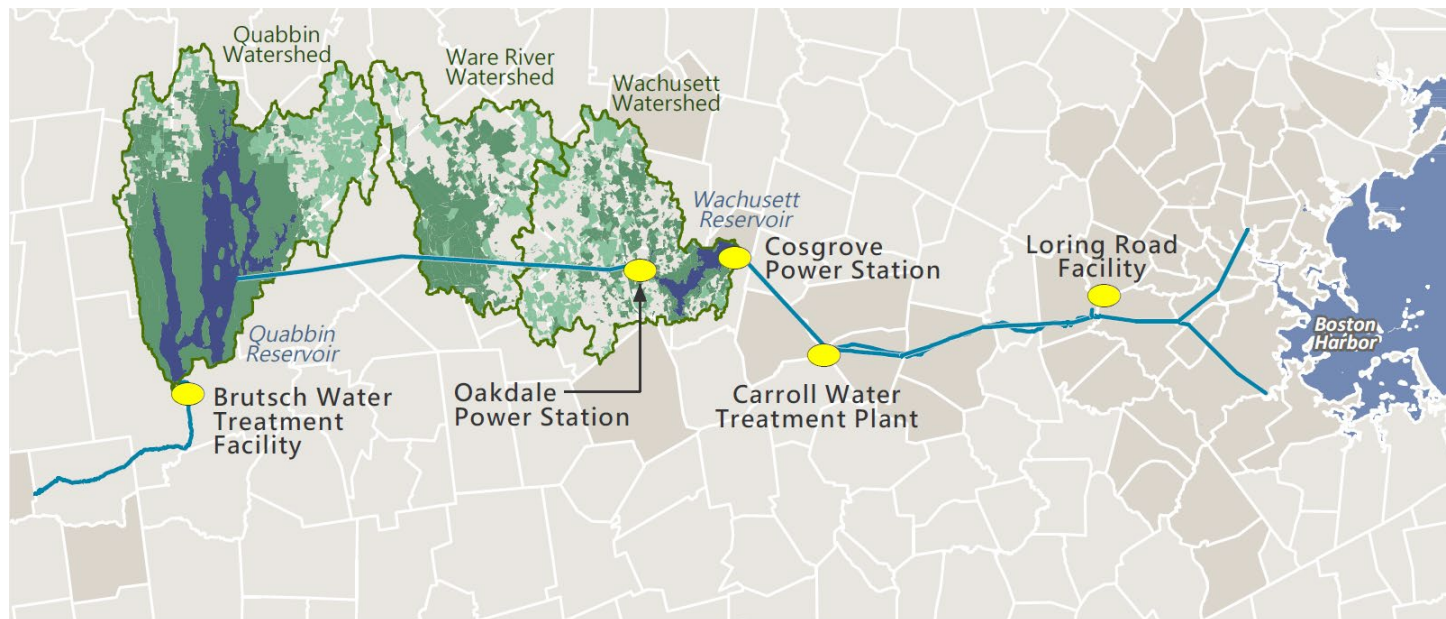
Waters within the project reach are treated and utilized for water supply purposes and are thus high quality and potable.

Fish passage is not necessary nor feasible due to the conduit nature of the project.

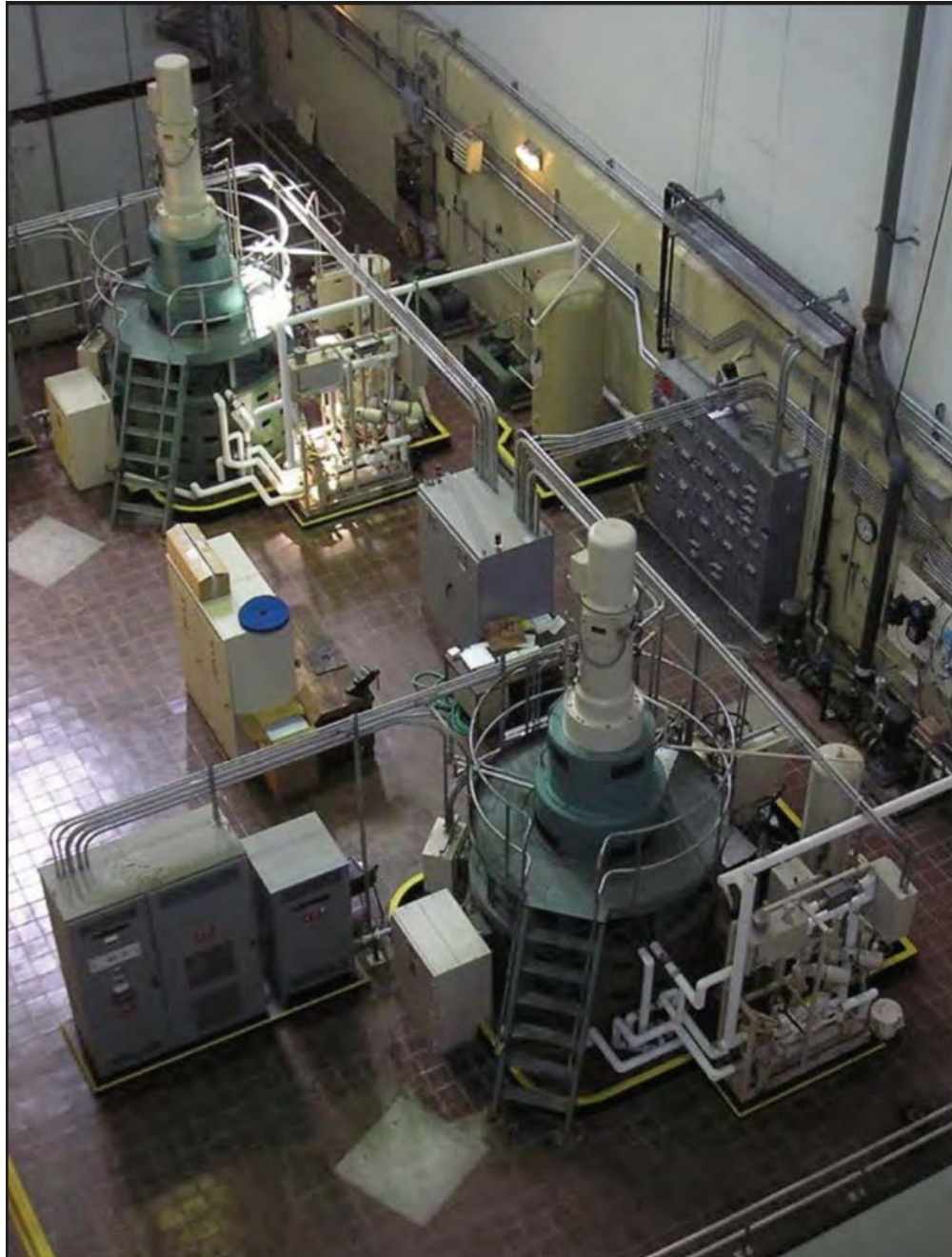
The facility is located in a water distribution facility and the DCR's Division of Water Supply is responsible for shoreline protection. The project is located at a public water supply which restricts public access to project facilities. Boating activities are prohibited as it is considered an unnecessary threat to water supply due to the likelihood of water contact and the fact that private boats would have the potential to introduce or perpetuate exotic and/or nuisance vegetation.

There are no threatened or endangered species potentially present at the hydro turbine location since it is an in-conduit turbine. Similarly, no cultural or historic resources exist at the hydro project site. However, an abundance of fish and wildlife species are found in the Wachusett Reservoir. The Wachusett Reservoir is a large state-designated Natural Heritage and Endangered Species Program Priority Habitat area.

A schematic of the MWRA water system is presented below, as well as aerial photos of the Cosgrove Intake building and the turbines.







View of Kaplan hydro turbines at Cosgrove

Federal Energy Regulatory Commission (FERC) Process

On January 19, 1990, FERC granted the Cosgrove Hydroelectric Facility an Exemption from Licensing (Conduit), Project 10688-000. From what can be discerned from review of FERC's electronic base, few comments on the project were received during the FERC process. Resource agencies that commented included the Army Corps of Engineers and U.S. Fish and Wildlife. The Army Corps of Engineers stated it had no objection to the issuance of a conduit exemption. USFWS comments and proposed terms and conditions (see Attachment B) primarily addressed discharges to rivers below Winsor Dam on the Quabbin Reservoir (the Swift River) and Wachusett Dam (to the South Branch of the Nashua River). MWRA discharges to these rivers are a function of MWRA's reservoir operating policies, and the Cosgrove hydroelectric facility has no bearing on discharges to the Swift and Nashua Rivers. FERC found that the terms and conditions suggested by USFWS are not related and germane to the project and its operations and therefore, did not attach the USFWS terms and conditions to the Exemption Order.

4B.1 Facility Information Table

All applicable information identified in the table below must be summarized in the table and detailed in the application narrative for an application to be considered complete. If the information is provided in the application narrative, please identify in the table the application section where the information can be found. Alternative formats including the Excel Table 1.b are acceptable if all information is provided.

Table 1.a Facility Information.

<i>Item</i>	<i>Information Requested</i>	<i>Response (include references to further details)</i>
Name of the Facility	Facility name (use FERC project name or other legal name)	Cosgrove Intake and Power Plant
Reason for applying for LIHI Certification	1. To participate in state RPS program 2. To participate in voluntary REC market (e.g., Green-e) 3. To satisfy a direct energy buyer’s purchasing requirement 4. To satisfy the facility’s own corporate sustainability goals 5. For the facility’s corporate marketing purposes 6. Other (describe)	(select and describe only applicable reasons) 1. <input checked="" type="checkbox"/> State Program: To participate in the Mass. RPS program 2. <input type="checkbox"/> 3. <input type="checkbox"/> 4. <input checked="" type="checkbox"/> 5. <input type="checkbox"/> 6. <input type="checkbox"/> describe: MWRA is working to reduce its greenhouse gas emissions
	If applicable, amount of annual generation (MWh and % of total generation) for which RECs are currently received or are expected to be received upon LIHI Certification	Amount of MWh participating: 4,623 % of total MWh generated: <u>about 100%</u> .
Location	River name (USGS proper name)	Cosgrove is a hydroelectric conduit facility associated with the Cosgrove Aqueduct and not located on a river.
	Watershed name - Select region, click on the area of interest until the 8-digit HUC number appears. Then identify watershed name and HUC-8 number from the map at: https://water.usgs.gov/wsc/map_index.html	Chicopee - 01080204
	Nearest town(s), <u>county(ies)</u> , and state(s) to dam	Cosgrove is not located on a river, it is a conduit facility. It is located in Clinton, MA, Worcester county
	River mile of dam above mouth	See note above.

Item	Information Requested	Response (include references to further details)
	Geographic latitude and longitude of dam	Lat: 42.398297 Long: 71.689549
Facility Owner	Application contact names	Denise Breiteneicher (MWRA liaison with LIHI) David W. Coppes, Chief Operating Officer
	Facility owner company and authorized owner representative name. For recertifications: If ownership has changed since last certification, provide the effective date of the change.	The hydropower facility is owned and operated by the Massachusetts Water Resources Authority (MWRA). The MWRA is a public instrumentality and a Commonwealth of Massachusetts authority, charged with providing water and sewer services. Denise Breiteneicher (Program Manager, Energy and Environmental Management) is authorized to represent MWRA in the LIHI Certification process.
	FERC licensee company name (if different from owner)	N/A
Regulatory Status	FERC Project Number (e.g., P-xxxx), issuance and expiration dates, or date of exemption	P-10688, exemption date 1990 (See Attachment A for the exemption letter from FERC)
	FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", "non-jurisdictional")	Conduit
	Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.	Water Quality Certification was not required since it is a conduit hydropower facility within a drinking water aqueduct.
	Hyperlinks to key electronic records on FERC e-Library website or other publicly accessible data repositories ¹	https://elibrary.ferc.gov/eLibrary/filelist?accession_number=19900125-0359&optimized=false .
Powerhouse	Date of initial operation (past or future for pre-operational applications)	1969
	Total installed capacity (MW) For recertifications: Indicate if installed capacity has changed since last certification	2.4. This is unchanged since the last certification

¹ For example, the FERC license or exemption, recent FERC Orders, Water Quality Certificates, Endangered Species Act documents, Special Use Permits from the U.S. Forest Service, 3rd-party agreements about water or land management, grants of right-of-way, U.S. Army Corps of Engineers permits, and other regulatory documents. If extensive, the list of hyperlinks can be provided separately in the application.

<i>Item</i>	<i>Information Requested</i>	<i>Response (include references to further details)</i>
	Average annual generation (MWh) and period of record used For recertifications: Indicate if average annual generation has changed since last certification	4,623. Generation has not changed since last certification.
	<u>Mode of operation</u> (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.) For recertifications: Indicate if mode of operation has changed since last certification	Please see attached description of this conduit hydroelectric facility and its mode of operation. The mode of operation is based on water demand and other water system operational considerations. The facility harnesses energy as water drops from one elevation in the water supply system (Wachusett Reservoir) to another (Cosgrove Tunnel).
	Number, type, and size of turbine/generators, including maximum and minimum hydraulic capacity and maximum and minimum output of each turbine and generator unit	The 2 turbines are vertically oriented, full Kaplan type with six adjustable runner blades, rated at 2MW each. Due to the hydraulic limitations at the Carroll Water Treatment Plant located downstream of the hydro facility, the realistic maximum output of the facility is no more than 2 MW.
	Trashrack clear spacing (inches) for each trashrack	Not applicable
	Approach water velocity (ft/s) at each intake if known	Click or tap here to enter text.
	Dates and types of major equipment upgrades For recertifications: Indicate only those since last certification	N/A (or provide a separate list)
	Dates, purpose, and type of any recent operational changes For recertifications: Indicate only those since last certification	There have been no permanent operational changes since the last certification, but the facility was shut down for 6 months in CY2022 (June-November) to accommodate electrical work on a downstream building.

<i>Item</i>	<i>Information Requested</i>	<i>Response (include references to further details)</i>
	Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments	N/A
<i>Dam or Diversion</i>	Date of original dam or diversion construction and description and dates of subsequent dam or diversion structure modifications	N/A
	Dam or diversion structure length, height including separately the height of any flashboards, inflatable dams, etc. and describe seasonal operation of flashboards and the like	N/A
	Spillway maximum hydraulic capacity	N/A
	Length and type of each penstock and water conveyance structure between the impoundment and powerhouse	N/A
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	N/A
<i>Conduit Facilities Only</i>	Date of conduit construction and primary purpose of conduit	1965. Purpose of conduit is to transfer water from Wachusett Aqueduct to the Cosgrove tunnel, supplying drinking water to the Metropolitan Boston area.
	Source water	Drinking water from the Wachusett Reservoir
	Receiving water and location of discharge	The Cosgrove hydroelectric facility is located at the Cosgrove Intake where the water drops from the Wachusett Reservoir into the Cosgrove Aqueduct.
<i>Impoundment and Watershed</i>	Authorized maximum and minimum impoundment water surface elevations For recertifications: Indicate if these values have changed since last certification	N/A
	Normal operating elevations and normal fluctuation range For recertifications: Indicate if these values have changed since last certification	N/A

Item	Information Requested	Response (include references to further details)
	Gross storage volume and surface area at full pool For recertifications: Indicate if these values have changed since last certification	N/A
	Usable storage volume and surface area For recertifications: Indicate if these values have changed since last certification	N/A
	Describe requirements related to impoundment inflow and outflow, elevation restrictions (e.g., fluctuation limits, seasonality) up/down ramping and refill rate restrictions.	N/A
	Upstream dams by name, ownership (including if owned by an affiliate of the applicant's company) and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage.	N/A
	Downstream dams by name, ownership (including if owned by an affiliate of the applicant's company), river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage	N/A
	Operating agreements with upstream or downstream facilities that affect water availability and facility operation	N/A
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control. Indicate locations and acres of flowage rights versus fee-owned property.	N/A
Hydrologic Setting	Average annual flow at the dam, and period of record used	N/A
	Average monthly flows and period of record used	N/A
	Location and name of closest stream gaging stations above and below the facility	N/A

Item	Information Requested	Response (include references to further details)
	Watershed area at the dam (in square miles). Identify if this value is prorated from gage locations and provide the basis for proration calculation.	N/A
	Other facility specific hydrologic information (e.g., average hydrograph)	N/A
Designated Zones of Effect	Numbers and names of each zone of effect (e.g., "Zone 1: Impoundment")	There is one zone of effect – the area within and immediately surrounding the intake facility, encompassing the intake and discharge lines.
	River mile of upstream and downstream limits of each zone of effect (e.g., "Zone 1 Impoundment: RM 6.3 - 5.1")	N/A
Pre-Operational Facilities Only		
Expected operational date	Date generation is expected to begin	Click or tap here to enter text.
Dam, diversion structure or conduit modification	Description of modifications made to a pre-existing conduit, dam or diversion structure needed to accommodate facility generation. This includes installation of flashboards or raising the flashboard height. Date the modification is expected to be completed	Click or tap here to enter text.
Change in water flow regime	Description of any change in impoundment levels, water flows or operations required for new generation	Click or tap here to enter text.

Table 2.a. Standards Matrix Template for One ZoE.

Copy the table for each ZoE.

Facility Name: Cosgrove Intake and Power Plant

Zone of Effect: Conduit

Criterion		<i>Alternative Standards (check one numbered box and PLUS if applicable)</i>				
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>Plus</i>
A	Ecological Flow Regimes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B	Water Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
C	Upstream Fish Passage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D	Downstream Fish Passage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E	Watershed and Shoreline Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
F	Threatened and Endangered Species Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	Cultural and Historic Resources Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>
H	Recreational Resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

B.2.1 Ecological Flow Standards

Required regardless of standard selected:

1. Identify any deviations that have occurred in the past 10 years; if none have occurred, state so. If deviations have occurred, identify the date, duration, cause, and the measures taken to minimize reoccurrence. Links to FERC notifications and responses should be included.
2. Identify how flows and water levels are monitored and explain how compliance with requirements is demonstrated.
3. Describe any enforceable agreements with upstream or downstream facilities that regulate inflow or outflow at the facility (see Section 4.1.1 as these “regulated reaches” may need to be designated as separate Zones of Effect).

Table 3. Ecological Flows Standards

(select one standard, and PLUS if requested for each ZoE).

Criterion	Standard	Instructions
A	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> • Confirm the location of the powerhouse relative to any dam/diversion structures and demonstrate that there are no bypassed reaches in the designated Zone of Effect. • For run-of-river facilities, provide details on operations and describe how flows, water levels, and operations are monitored to ensure such an operational mode is maintained. In a conduit facility, identify the source waters, location of discharge points, and receiving waters for the conduit system within which the hydropower facility is located. This standard cannot be used for conduits that discharge to a natural waterbody. • For impoundment zones, explain water management (e.g., fluctuations, ramping, refill rates, restrictions) and how those requirements support fish and wildlife habitat within the ZoE.

The Cosgrove Intake and Power Plant is a conduit facility that is located in the Town of Clinton and is situated between the Wachusett Reservoir, a public water supply reservoir, and the Cosgrove Tunnel in the MWRA’s drinking water distribution system. At no point does this facility directly receive from surface waters and is considered a closed water system. There are no bypassed reaches and there is no flow release schedule associated with the FERC approval. US Fish and Wildlife did not provide flow recommendations related to the facility tailrace. The hydro turbines run most of the time and generation is based on the amount of flow passing through. There are bypass lines so that if the generators are down for maintenance, etc. drinking water continues to flow into the Metro West tunnel.

B.2.2 Water Quality Standards

Required regardless of standard selected:

1. Specify the state's water quality classification and designated uses for the river at the facility or for each zone if they differ. For instance, "*The impoundment is a Class B water designated as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation*".
2. Provide a link to the state's most recent final Clean Water Act Section 303(d) impaired waters list, the Section 305(b) integrated water quality report; and lists of other stressed waters (if applicable) and indicate the page(s) therein that apply to facility waters or state that the facility waters are not included on any list.

Table 4. Water Quality Standards

(select one standard, and PLUS if requested for each ZoE).

Criterion	Standard	Instructions
B	1	<u>Not Applicable / De Minimis Effect:</u> <ul style="list-style-type: none">• Explain the rationale for why the facility does not alter water quality characteristics below, around, and above the facility.

The Cosgrove Intake and Power Plant is not located on a Water Quality Limited reach river, it is a conduit facility that discharges into the MWRA's water distribution system. The water within the facility does not affect the water quality below, around, or above the facility. The water flows from the Wachusett Reservoir into the Cosgrove Tunnel and is part of MWRA's drinking water distribution system. The drinking water passing through the conduit is of the highest quality and is a Class A water.

B.2.3 Upstream Fish Passage Standards

Required regardless of standard selected:

1. Provide a list all migratory fish species (anadromous, catadromous, and potamodromous species) that occur now or have occurred historically at the facility.

Table 5. Upstream Fish Passage Standards

(select one standard, and PLUS if requested for each ZoE).

Criterion	Standard	Instructions
C	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> • Explain why the facility does not impose a barrier to upstream fish passage in the designated ZoE. Typically, impoundment zones will qualify for this standard since once above a dam and in an impoundment, there is no additional facility barrier to further upstream movement. • Document available fish distribution data and the lack of migratory fish species in the ZoE. • If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.

The Cosgrove Intake and Power Plant is a conduit hydropower facility that is fed from the Wachusett Reservoir and flows into the Cosgrove Tunnel. The hydro turbine(s) are in the interior of the intake building in a conduit, and are not part of the larger water supply reservoir so there is no interaction between the hydro facility and any fish that might be present. The water passing through the turbine is drinking water traveling to the Boston Metropolitan area being delivered to the end user in a closed system, therefore, it is not possible for fish to approach the project from the downstream side.

B.2.4 Downstream Fish Passage and Protection Standards

Required regardless of standard selected:

1. In addition to the migratory species list provided for criterion C above, provide a list of all riverine/resident fish species that occur now or have occurred historically at the facility.

Table 6. Downstream Fish Passage Standards

(select one standard, and PLUS if requested for each ZoE).

Criterion	Standard	Instructions
D	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> • Explain why the facility does not impose a barrier to downstream fish passage in the designated ZoE, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no additional facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective, and timely downstream migration. • For riverine fish populations that are known to move downstream, explain why the facility in the designated ZoE does not contribute adversely to the species populations or to their access to habitat necessary for successful completion of their life cycles; or • Document available fish distribution data and the lack of fish species requiring passage in the ZoE; or • If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.

The Cosgrove Intake and Power Plant is a conduit hydropower facility and is considered a closed water system. Drinking water enters the facility and is discharged into the Cosgrove Tunnel, part of the MWRA's water distribution system. The hydro turbine(s) are in the interior of the intake building in a conduit, and are not part of the larger water supply reservoir so there is no interaction between the hydro facility and any fish that might be present. The water inlet for the turbines and bypass valves at Cosgrove has a travelling screen system. There is a six travelling screen system that prevents fish and debris from entering the penstock. There is no direct discharge from this facility that could impact downstream fish passage. This link shows a list of fish present in the Wachusett Reservoir.

<https://www.aa-fishing.com/ma/ma-fishing-lake-wachusett.html#lakesspecies>

B.2.5 Shoreline and Watershed Protection Standards

Required regardless of standard selected:

1. Describe land use and land cover around the facility. Describe any protections afforded the river or lands around the facility (e.g., Wild and Scenic River, conservation lands surrounding the impoundment: state or local regulatory restrictions: critical or core habitats for sensitive species, etc.)

Table 7. Shoreline and Watershed Protection Standards

(select one standard, and PLUS if requested for each ZoE).

Criterion	Standard	Instructions
E	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> • If there are no lands with significant ecological value associated with the designated ZoE, document and justify this (e.g., describe the land use and land cover within the FERC project or facility boundary, and absence of critical habitat for protected species). • Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.

As the hydroelectric equipment is within the intake facility, there are no impacts to shoreline or watersheds. There is a buffer zone around the facility intake for water supply protection purposes. MWRA owns over 30 % of the watershed and the entire perimeter, including the land around the intake from the shoreline out to the road. MWRA has a partnership with the Department of Conservation and Recreation Division of Water Supply Protection who is responsible for managing the watersheds and watershed protection activities funded by the MWRA. Additionally, MWRA operates the Wachusett Reservoir as a terminal reservoir within the Quabbin and Wachusett system, typically maintaining a relatively narrow operating band in the reservoir for water quality purposes, reducing the risk of erosion.

MWRA and the Department of Conservation and Recreation Division of Water Supply Protection (DCR DWSP) work cooperatively to protect the Quabbin, Ware and Wachusett watersheds for water supply quality, and to manage the two reservoirs. MWRA provides 100 percent of the DCR's operating budget for the protection of these resources through the legislatively created Water Supply Trust. With MWRA funding, DCR manages and maintain the 400 square miles of watersheds, monitors water quality in the tributary streams and the reservoirs, and conducts water supply protection activities. The DCR's extensive water quality databases and aquatic and terrestrial protection surveys as posted on their website - <https://www.mass.gov/orgs/dcr-division-of-water-supply-protection>.

B.2.6 Threatened and Endangered Species Standards

Required regardless of standard selected:

1. Identify all federal and state listed species (fish, aquatic plants and organisms, and terrestrial plants and wildlife) in the facility area based on current data. Avoid using privileged locational information or provide that information in a separate confidential attachment.

Table 8. Threatened and Endangered Species Standards

(select one standard, and PLUS if requested for each ZoE).

Criterion	Standard	Instructions
F	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> • Document that there are no listed species in the designated ZoE; or • If listed species are known to have existed in the facility area in the past but are not currently present, explain why the facility was not the cause of the extirpation of such species. • If the facility is making significant efforts to reintroduce an extirpated species, describe the actions that are being taken.

The Cosgrove Facility is surrounded by the Wachusett Reservoir, which is designated under the Massachusetts Endangered Species Act (MESA) as Estimated Habitat of Rare Wildlife and Priority Habitat of Rare Species, due to the presence of the Common Loon. It is a conduit facility and is located within an intake building. The US Fish and Wildlife Service lists the Northern long-eared bat and the candidate species Monarch butterfly as federally endangered species that may be present in the vicinity of the project, however the area is not designated as a critical habitat for these species. This project does not impact these species as it is located within a conduit.

*The maintenance of the hydroelectric generating equipment does not require any cutting of trees and therefore, there is no impact on bird species nesting or living in the area around the facility. The only vegetation management that occurs at or around the site is periodic grass mowing to keep the site accessible for MWRA maintenance staff. According to the USFWS IIPaC report, birds that may be present in the area include the Bald Eagle (*Haliaeetus leucocephalus*), Bobolink (*Dolichonyx oryzivorus*), Black-billed Cuckoo (*Coccyzus erythrophthalmus*), Blue-winged Warbler (*Vermivora pinus*), Canada Warbler (*Cardellina Canadensis*), Cerulean Warbler (*Dendroica cerulean*), Chimney Swift (*Chaetura pelagica*), Eastern Whip-poor-will (*Antrostomus vociferous*), Lesser Yellowlegs (*Tringa flavipes*), Prairie Warbler (*Dendroica discolor*), Rusty Blackbird (*Euphagus carolinus*), Wood Thrush (*Hylocichla mustelina*). All of the above birds, with the exception of the Bald Eagle, are listed as Birds of Concern regionally. However, as stated, the hydro turbines are inside a conduit inside a building, and therefore, there would be no impact to any of these bird species.*

B.2.7 Cultural and Historic Resources Standards

Required regardless of standard selected:

1. Identify the cultural and historic resources present on facility-owned property or that may be affected by facility operations. Avoid using privileged locational information or provide that information in a separate confidential attachment.

Table 9. Cultural and Historic Resources Standards
(select one standard, and PLUS if requested for each ZoE).

Criterion	Standard	Instructions
G	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> • Document that there are no cultural or historic resources located on facility lands associated with the designated ZoE that can be affected by construction or operations of the facility; or • Document that the facility construction and operation have not in the past, nor currently adversely affect any cultural or historic resources that are present on facility lands in the designated ZoE; and • Provide a letter from the state and tribal (if applicable) historic preservation office that confirms no effect (this may be newly obtained or issued during prior FERC licensing or exemption proceedings).

The Cosgrove Intake and Power Plant is a conduit hydropower facility located in the Town of Clinton, MA and serves the MWRA's water distribution system. This very small project site is located on land that is owned and operated by the MWRA. There are several surrounding historic resources within the Wachusett Dam Historic District (CLI.G), which is a National Register Historic District and National Register Thematic Resource Area, in the area including the Wachusett Dam (CLI.903) and Wachusett Lower Gatehouse (CLI.906). The Wachusett Dam Historic District and the Wachusett Aqueduct Linear District are both listed on the National Register of Historic Places. The Cosgrove facility is not listed on the National Register of Historic Places or inventoried by the Massachusetts Historical Commission. There are no known cultural or historic resources located on the Cosgrove property and this facility does not impact any of surrounding historical resources including districts and structures. No digging or land disturbance was performed during construction, and all work occurred inside an intake building. The FERC exemption has no requirements for cultural or historic resources.

B.2.8 Recreational Resources Standards

Required regardless of standard selected:

1. Identify and briefly describe all recreational amenities associated with the facility, identify which are owned by the facility, and which not owned or operated by the facility.
2. If there has been a FERC Environmental and Recreation Inspection, please provide a link to or copy of the report and any follow up activities. If there was no inspection, please state that.
3. Provide representative photos of recreational facilities and amenities taken within the last 12 months, and a map showing locations.
4. If applicable, provide a weblink to any public website or describe signage informing the public about the facility's recreational amenities.

Table 10. Recreational Resources Standards

(select one standard, and PLUS if requested for each ZoE).

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
H	1	<u>Not Applicable / De Minimis Effect:</u> <ul style="list-style-type: none"> • Document that the facility does not occupy lands or waters in the designated ZoE to which public access can be granted and that the facility does not otherwise impact recreational opportunities in the facility area.

There were no recreational access and facilities conditions in the FERC exemption. The hydroelectric facility is located in the Wachusett Reservoir water supply intake zone and access in the immediate area is restricted. The facility is a secure and locked area, with no opportunities for public access. There is a Wachusett Reservoir Public Access Plan that provides for passive recreation elsewhere in the watershed. The plan allows for public enjoyment and shoreline fishing and passive recreation, including hiking, walking, nature study, bird watching, and snowshoeing.

B.4 Contacts Forms

All applications for LIHI Certification must include complete contact information.

Table 11. Applicant-related contacts

Facility Owner:	
Name and Title	N/A
Company	Massachusetts Water Resources Authority – see contact below
Phone	Click or tap here to enter text.
Email Address	Click or tap here to enter text.
Mailing Address	Click or tap here to enter text.
Facility Operator (if different from Owner):	
Name and Title	David W. Coppes, Chief Operating Officer
Company	Massachusetts Water Resources Authority
Phone	617-788-4359
Email Address	David.coppes@mwra.com
Mailing Address	33 Tafts Avenue, Boston, MA 02128
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	N/A
Company	Click or tap here to enter text.
Phone	Click or tap here to enter text.
Email Address	Click or tap here to enter text.
Mailing Address	Click or tap here to enter text.
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Denise Breiteneicher, Program Manager, Energy and Environmental Management
Company	Massachusetts Water Resources Authority
Phone	617-305-5927
Email Address	Denise.breiteneicher@mwra.com
Mailing Address	2 Griffin Way, Chelsea, MA 02150
Party responsible for accounts payable:	
Name and Title	Christine Pieroni, Manager, Finance and Administration
Company	Massachusetts Water Resources Authority
Phone	617-788- 2223
Email Address	Christine.Pieroni@mwra.com
Mailing Address	2 Griffin Way, Chelsea, MA 02150

Table 12. Current relevant state, federal, and tribal resource agency contacts (excluding FERC).

Agency Contact		Area of Responsibility (check applicable boxes)
Agency Name	Massachusetts Department of Conservation and Recreation	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input checked="" type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input checked="" type="checkbox"/> Recreation
Name and Title	John M. Scannell, Division Director, Div. of Water Supply Protection, DCR	
Phone	617-592-2436	
Email address	john.m.scannell@state.ma.us	
Mailing Address	180 Beaman Street, West Boylston, MA 01583	

Agency Contact		Area of Responsibility (check applicable boxes)
Agency Name	Click or tap here to enter text.	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Click or tap here to enter text.	
Phone	Click or tap here to enter text.	
Email address	Click or tap here to enter text.	
Mailing Address	Click or tap here to enter text.	

Agency Contact		Area of Responsibility (check applicable boxes)
Agency Name	Click or tap here to enter text.	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Click or tap here to enter text.	
Phone	Click or tap here to enter text.	
Email address	Click or tap here to enter text.	
Mailing Address	Click or tap here to enter text.	

Agency Contact		Area of Responsibility (check applicable boxes)
Agency Name	Click or tap here to enter text.	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Click or tap here to enter text.	
Phone	Click or tap here to enter text.	
Email address	Click or tap here to enter text.	
Mailing Address	Click or tap here to enter text.	

Table 13. Current engaged stakeholder and tribal contacts.

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	Click or tap here to enter text.	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Click or tap here to enter text.	
Phone	Click or tap here to enter text.	
Email address	Click or tap here to enter text.	
Mailing Address	Click or tap here to enter text.	

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	Click or tap here to enter text.	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Click or tap here to enter text.	
Phone	Click or tap here to enter text.	
Email address	Click or tap here to enter text.	
Mailing Address	Click or tap here to enter text.	

B.3 Attestation and Waiver Form

All applications for LIHI Certification must include the following statement before they can be reviewed by LIHI:

ATTESTATION

As an Authorized Representative of Massachusetts Water Resources Authority, the Undersigned attests that the material presented in the application is true and complete.

The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's certification program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.

The Undersigned further acknowledges that if LIHI Certification of the applying facility is granted, the LIHI Certification Mark License Agreement must be executed prior to the final certification decision and prior to marketing the electricity product as LIHI Certified® (which includes selling RECs in a market that requires LIHI Certification).

The Undersigned further agrees to hold the Low Impact Hydropower Institute, the Governing Board, and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's certification program.

FOR PRE-OPERATIONAL CERTIFICATIONS:

The Undersigned acknowledges that LIHI may suspend or revoke the LIHI Certification should the impacts of the facility, once operational, fail to comply with the LIHI program requirements.

Authorized Representative:

Name: David W. Coppes, P.E.

Title: Chief Operating Officer

Authorized Signature:  _____

Date: June 16, 2023



United States Department of the Interior

FISH AND WILDLIFE SERVICE
400 RALPH PILL MARKETPLACE
22 BRIDGE STREET
CONCORD, NEW HAMPSHIRE 03301-4901

MWRA
DIRECTOR'S
OFFICE
11
5

Mr. William Brutsch, Waterwork Div.
Mass. Water Resources Authority
Charlestown Navy Yard
100 First Avenue
Boston, MA 02129

OCT 7 1988

Dear Mr. Brutsch:

This is in response to your request for our comments on the application for exemption for a small conduit hydroelectric facility - Cosgrove Intake Power Plant, located in Clinton, Massachusetts. Our comments are provided in accordance with the Fish and Wildlife Coordination Act (48 Stat. as amended; 16 U.S.C. 661 et seq.).

The proposed project would utilize the direct intake of water from the Wachusett Reservoir as it enters the water supply aqueduct system supplying water to the Boston metropolitan region. We recognize that it is an existing facility and that flow from the Wachusett Reservoir to the metropolitan district is part of the normal operation required by the Massachusetts Water Resources Authority, and waters are completely enclosed in a conduit exiting from this point.

We have reviewed your initial stage consultation materials, and the information that you submitted as part of the second stage of consultation. The Exhibit E of your draft application is incomplete. You need to provide a description of the fishery resources in the Wachusett Reservoir, as well as wildlife resources in the project area.

Because of the nature of the proposed project, it is not necessary for the Fish and Wildlife Service to prescribe a minimum flow release from the project to protect fish and wildlife resources. However, in order to prevent the loss of or damage to fish and wildlife resources as a result of project construction and operation, the Fish and Wildlife Service will prescribe the following terms and conditions for incorporation in their entirety in the exemption pursuant to Section 30(c) of the Federal Power Act and Section 408 of the Energy Security Act. These are our preliminary terms and conditions and we will finalize them once we have reviewed the additional information that should be included as part of your Exhibit E.

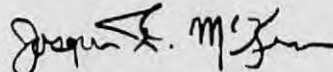
1. The Exemptee shall permit access to the project area wherever possible to allow for public utilization of fish and wildlife resources, taking into consideration any necessary restrictions to maintain public safety and protect project civil works.

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2. The Fish and Wildlife Service shall be allowed to inspect the project area at any time while the project operates under an exemption from licensing to monitor compliance with their terms and conditions and to investigate reported adverse impacts to fish and wildlife resources associated with project operation.
3. If, as a result of project construction or operation, adverse impacts to fish and wildlife resources of the area occur, project construction or operation will cease until the situation is correct, or if not immediately corrected, project construction or operation will resume only after a recommendation to do so by the U.S. Fish and Wildlife Service.
4. The Fish and Wildlife Service is reserved the right to add and alter terms and conditions as appropriate to carry out its responsibilities during the life of the project with respect to fish and wildlife resources. The Exemptee shall, within thirty (30) days of receipt, file with the Commission any additional terms and conditions imposed by the above agency.
5. The Exemptee shall incorporate the aforementioned fish and wildlife conditions in any conveyance -- by lease, sale or otherwise -- of his interests so as to legally assure compliance with said conditions for as long as the project operates under an exemption from licensing.

Your submittal of the information we have requested will satisfy the requirements for the second stage of consultation. It is not likely that environmental studies will need to be conducted as part of the second stage of consultation. If you have any questions, please contact Joseph F. McKeon at (603) 225-1411.

Sincerely yours,



for
Gordon E. Beckett
Supervisor
New England Area