



Fact Sheet for Proposal of Heat Load Effluent Limits in Lower Columbia River Hydroelectric Generating Facilities

The United States Environmental Protection Agency (EPA) proposes to issue National Pollutant Discharge Elimination System (NPDES) Permits to discharge pollutants pursuant to the provisions of the Clean Water Act, 33 USC §1251 et seq to:

<u>Facility</u>	<u>Permit Number</u>
Bonneville Project, U.S. Army Corps of Engineers	WA0026778
The Dalles Lock and Dam, U.S. Army Corps of Engineers	WA0026701
John Day Project, U.S. Army Corps of Engineers	WA0026832
McNary Lock and Dam, U.S. Army Corps of Engineers	WA0026824

Public Comment Start Date: January 15, 2021
 Public Comment Expiration Date: February 16, 2021

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The EPA Proposes to Issue NPDES Permits

The EPA proposes to issue NPDES permits for the facilities referenced above. The draft permits place conditions on the discharge of pollutants from the hydroelectric generating facilities to waters of the United States (U.S.). To ensure the protection of water quality and human health, these permits place limits on the types and amounts of pollutants that can be discharged from the facilities.

This Fact Sheet includes:

- information on public comment, public hearing, and appeal procedures
- technical material supporting the heat load effluent limits in the permits

State Certification

The EPA requested final 401 certification of these permits from the Washington Department of Ecology (Ecology) on March 18, 2020. On May 7, 2020, Ecology provided final certifications of these permits under Section 401 of the Clean Water Act. One condition in Ecology's final certifications was a condition to incorporate the wasteload allocations (WLAs) from the Lower Columbia and Snake Rivers Temperature Total Maximum Daily Load (Lower Columbia and Snake Rivers temperature TMDL). These revised draft permits now include the effluent limits that incorporate the WLAs.

Public Comment

On March 18, 2020 EPA proposed NPDES permits for public comment to authorize the discharges from the Lower Columbia River Hydroelectric Generating Facilities. The public notice closed on May 4, 2020. The draft permits did not include heat load effluent limits. EPA is proposing changes to the draft permits to include heat load effluent limits and is seeking public comment on these limits.

On May 18, 2020, EPA issued the Lower Columbia and Snake Rivers temperature TMDL, which included heat load WLAs for the Lower Columbia River hydroelectric generating facilities. From May 20, 2020 to August 20, 2020, EPA provided the public an opportunity to comment on the Lower Columbia and Snake Rivers temperature TMDL. During that time, the U.S. Army Corps of Engineers submitted new information and analysis and proposed revisions to the heat load WLAs.

EPA is seeking comment on heat load effluent limits based on both the May 2020 WLAs and USACE-proposed WLAs alternatives. EPA is not seeking comment on other effluent limits or provisions in these permits. EPA will consider all comments received in the public comment period from March 18, 2020 to May 4, 2020 and this comment period prior to issuing final permits.

Persons wishing to comment on, or request a Public Hearing for, the draft permits for these facilities may do so in writing by the expiration date of the Public Comment period. A request for a Public Hearing must state the nature of the issues to be raised as well as the requester's name, address and telephone number. All comments and requests for Public Hearings must be in writing and should be submitted to EPA as described in the Public Comments Section of the attached Public Notice. Comments must include the commenter's name, address, telephone number, permit name, and permit number. Comments must include a concise statement of the basis and any relevant facts the commenter believes EPA should consider in making its decision regarding the conditions and limitations in the final permit.

After the comment period closes, and all comments have been considered, EPA will review and address all submitted comments. EPA's Director for the Water Division will then make a final decision regarding permit issuance. If no substantive comments are received, the tentative conditions in the draft permits will become final, and the permits will become effective upon issuance. If substantive comments are received, EPA will address the comments and issue the permit. The permit will become effective no less than 30 days after the issuance date, unless an appeal is submitted to the Environmental Appeals Board within 30 days pursuant to 40 CFR 124.19.

Documents are Available for Review

The draft permits, fact sheet, and other information can be found by visiting the Region 10 NPDES website at: 'http://EPA.gov/r10earth/waterpermits.htm' and at <https://www.epa.gov/npdes-permits/proposed-discharge-permits-federal-hydroelectric-projects-lower-columbia-river>. Because of the COVID-19 virus and limited building access, EPA cannot make hard copies available for viewing at EPA offices.

For technical questions regarding the permits or fact sheet, contact Jenny Wu at the phone number or email listed above.

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DEFINITIONS

Administrator means the Administrator of the United States Environmental Protection Agency, or an authorized representative [40 CFR 122.2].

Average monthly limits means the highest allowable average of “daily discharges” over a calendar month, calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month. It may also be referred to as the “monthly average limits” [40 CFR 122.2].

CFR means the Code of Federal Regulations, which is the official annual compilation of all regulations and rules promulgated during the previous year by the agencies of the United States government, combined with all the previously issued regulations and rules of those agencies that are still in effect.

CWA means the Clean Water Act in the United States Code (USC) (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483, and Public Law 97-117, 33 USC 1251 et seq. [40 CFR 122.2].

The Director means the Regional Administrator of the EPA Region 10, or the Director of the Water Division, the Washington Department of Ecology, or an authorized representative thereof.

Discharge when used without qualification means the “discharge of a pollutant.”

Discharge Monitoring Report (DMR) means the EPA uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees [40 CFR 122.2].

Discharge of a pollutant means any addition of any “pollutant” or combination of pollutants to “waters of the United States” from any “point source,” or any addition of any pollutant or combination of pollutants to the waters of the “contiguous zone” or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any “indirect discharger” [40 CFR 122.2].

Draft permit means a document prepared under 40 CFR 124.6 indicating the Director's tentative decision to issue or deny, modify, revoke and reissue, terminate, or reissue a “permit” [40 CFR 122.2].

Effluent limitation means any restriction imposed by the Director on quantities, discharge rates, and concentrations of “pollutants” which are “discharged” from “point sources” into “waters of the United States,” the waters of the “contiguous zone,” or the ocean [40 CFR 122.2].

Facility means any NPDES point source or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program.

Influent means the water from upstream that enters the facility.

Monthly Average Limit means the average of “daily discharges” over a monitoring month, calculated as the sum of all “daily discharges” measured during a monitoring month divided by the number of “daily discharges” measured during that month [40 CFR 122.2].

National Pollutant Discharge Elimination System (NPDES) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of CWA [40 CFR 122.2].

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials [except those regulated under the Atomic Energy Act of 1954, as amended (42 USC 2011 et seq.)], heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water [40 CFR 122.2].

Total Maximum Daily Load (TMDL) means the sum of the individual wasteload allocations (WLAs) for point sources, load allocations (LAs) for non-point sources, and natural background when allocating pollutant loading to a particular waterbody. The TMDL establishes loads at levels that meet applicable water quality standards.

I. General and Facility-Specific Information

This fact sheet provides information on the draft National Pollutant Discharge Elimination System (NPDES) permits for four hydroelectric projects: Bonneville Project, The Dalles Lock and Dam, John Day Project, and McNary Lock and Dam.

The fact sheet dated March 18, 2020 provides general information on the facilities, information on the receiving water, applicable water quality standards, and information on permit history, tribal consultation, geographic area, facility operations and types of discharges, pollutants associated with facilities, treatment, description of outfalls, compliance history, receiving water, and proposed final effluent limits and permit conditions.

The March 2020 draft permits did not include heat load effluent limits. EPA has revised the draft permits to include heat load effluent limits. The following sections in this fact sheet provide the basis for the proposed heat load effluent limits for which EPA is seeking public comment.

II. Impaired Waters/TMDLs

Section 303(d) of the CWA requires states to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations by point sources. For all 303(d)-listed water bodies and pollutants, states must develop and adopt total maximum daily loads (TMDLs) that will specify wasteload allocations (WLAs) for point sources and load allocations (LAs) for non-point sources, as appropriate. WLAs for point sources are implemented through limitations incorporated into NPDES permits that are consistent with the assumptions of the WLAs in the TMDL (40 CFR 122.44(d)(1)(vii)(B)).

The fact sheet dated March 18, 2020 describes impairments from PCBs, dioxins, total dissolved gases and temperature in the Lower Columbia River. This fact sheet elaborates further on temperature impairments.

A. Proposed Heat Load Effluent Limits from the Lower Columbia and Snake Rivers Temperature TMDL, May 18, 2020

The Columbia River is listed as impaired for temperature on Ecology's and Oregon Department of Environmental Quality's CWA Section 303(d) list. On May 18, 2020, EPA issued a TMDL for temperature in the Columbia River. The Lower Columbia and Snake Rivers temperature TMDL determined that if all point sources discharged at their current heat load (design flow and maximum temperature), the TMDL allocation for the cumulative impact of all point sources would be attained. The TMDL established facility-wide heat load WLAs for all point sources, including for the four Lower Columbia River federal dams. The draft permits propose facility-wide heat load limits identical to the WLAs in Table 6-13 of the TMDL as a monthly average. Page 53 of the TMDL states that a monthly average is an appropriate timeframe for heat load limits because of TMDL modeling assumptions. The draft permits also require continuous temperature monitoring at a subset of outfalls discharging cooling water.

Table 1 includes proposed heat load effluent limits from the Columbia and Snake Rivers temperature TMDL

Table 1. Proposed Heat Load Effluent Limits from the Columbia and Snake Rivers Temperature TMDL

Facility	Facility-wide heat load effluent limit (kcal/day)
Bonneville Project (WA)	2.07E+09
The Dalles Lock and Dam	4.23E+09
John Day Project (WA)	3.79E+09
McNary Lock and Dam (WA)	6.70E+07

The permittee must calculate the sum of heat loads from all outfalls by multiplying the flow and temperature from each outfall on a monthly average basis and report these on DMRs. The permittee shall use the following equation to calculate the facility-wide monthly average heat load:

$$\text{Facility-wide monthly average heat load (kcal/day)} = \sum_{\text{outfalls}} [(\text{monthly average temperature } (^{\circ}\text{C}))_{\text{outfall}} \times (\text{monthly average flow (MGD)})_{\text{outfall}} \times 3.78\text{E}+06 \text{ kcal/day}/(^{\circ}\text{C} \times \text{MGD})]$$

The permittee may also conduct representative sampling as outlined in the permit to calculate facility-wide heat loads. In addition, the permit requires continuous monitoring for any discharges with cooling water and monthly monitoring where a similar discharge already has continuous monitoring.

B. Proposed Heat Load Effluent Limits from information received during public comment

After EPA issued the Lower Columbia and Snake Rivers Temperature TMDL, EPA accepted public comments on the final TMDL from May 21, 2020 to August 20, 2020. During the TMDL public comment period, USACE requested revised WLAs based on new information and analysis for facility heat discharges in the summer. The primary basis for the request was that the maximum temperatures used in the May 18, 2020 temperature TMDL were typically based on one temperature data point at each outfall, which was not collected in August, the time period with the highest temperatures. The USACE estimated maximum August temperatures by analyzing the amount that facility operations would raise influent temperatures in their discharges based on turbine efficiencies and measured data, and applying these increases to measured August influent temperatures. The resulting temperatures were then multiplied by the design flow of their associated outfalls to calculate a heat load for each outfall. The heat loads from each outfall were added together to determine the revised, facility-wide heat load. The USACE proposed these revised facility-wide heat loads, which reflect the design flows and maximum temperatures, as WLAs to be applied in a revised TMDL and subsequently in the NPDES permits.

Note that the Lower Columbia and Snake Rivers temperature TMDL erroneously assigned the McNary Lock and Dam (WA) a WLA; however, McNary Lock and Dam does not add heat to their discharge in Washington waters. Therefore, the USACE requested that a revised TMDL remove the WLAs assigned to McNary Lock and Dam (WA), and Table 2 does not include a heat load effluent limit for McNary Lock and Dam (WA). Table 2 includes the proposed heat load effluent limits from the USACE from the TMDL public comment period.

Table 2. Proposed Revised Heat Load Effluent Limits from USACE

Facility	Facility-wide heat load effluent limit (kcal/day)
Bonneville Project (WA)	2.32E+09
The Dalles Lock and Dam	4.02E+09
John Day Project (WA)	4.19E+09
McNary Lock and Dam (WA)	Not applicable

The permittee must calculate the sum of heat loads from all outfalls by multiplying the flow and temperature from each outfall on a monthly average basis and report these on DMRs. The permittee shall use the following equation to calculate the facility-wide monthly average heat load:

$$\text{Facility-wide monthly average heat load (kcal/day)} = \sum_{\text{outfalls}} [(\text{monthly average temperature } (^{\circ}\text{C}))_{\text{outfall}} \times (\text{monthly average flow (MGD)})_{\text{outfall}} \times 3.78\text{E}+06 \text{ kcal/day}/(^{\circ}\text{C} \times \text{MGD})]$$

The permittee may also conduct representative sampling as outlined in the permit to calculate facility-wide heat loads. In addition, the permit requires continuous monitoring for any discharges with cooling water and monthly monitoring where a similar discharge already has continuous monitoring.

EPA is in the process of reviewing the USACE information supporting revised WLAs as part of the TMDL process. If EPA issues a revised temperature TMDL for the Lower Columbia and Snake Rivers, and these WLAs are included in the revised temperature TMDL prior to the final issuance of these permits, the permits will include the heat load effluent limits in Table 2. **EPA is accepting comment on the effluent limits based upon the current final TMDL as well as the alternative effluent limits based on the revised WLAs submitted by the USACE during the TMDL public comment period.**

III. Effluent Limitations and Monitoring

The tables below show the proposed effluent limits for each facility. The proposed draft heat load limits and conditions are shown in highlighted text and excerpted from the proposed permits.

The following is excerpted from pages 8-11 in the Bonneville Project draft NPDES permit.

Table 1. Effluent Limitations and Monitoring Requirements for Outfalls 001, 002, 003, 004a, 004b, 005a, 005b, 006a, 006b, 007a, 007b, 008a, 008b, 009a, 009b, 010a, 010b, 011a, 011b, and 013: Fish Units Non-Contact Cooling Water, Main Turbine Units Non-Contact Cooling Water, Main Turbine Units Thrust Bearing Water and HVAC Chillers

Parameter	Units	Effluent Limitations	Monitoring Requirements		
			Sample Location	Sample Frequency	Sample Type
Parameters With Effluent Limits					
pH	std units	Between 7 – 8.5	Effluent	1/week or 1/month ¹	Grab
Oil and grease	mg/L	5 (daily maximum)	Effluent	1/week or 1/month ¹	Grab
Heat Load	kcal/day	See Paragraph I.B.12.	See Paragraph I.B.10.	See Paragraph I.B.12.	Measurement/ Calculation
Report Parameters					
Flow	mgd	Report	Effluent	1/month	Measurement
Temperature	°C	Report 7DADM ² , daily maximum, and daily average.	See Paragraph I.B.10.	Continuous or 1/month ³	Measurement/ Calculation
Visible Oil Sheen, Floating, Suspended, or Submerged Matter	--	See Paragraph I.B.4 of this permit.			Visual Observation
Notes					
1. In the first year of the permit, if there are no exceedances of the pH limit or detection of oil and grease, the required monitoring frequency for that pollutant is reduced to 1/month. If there are exceedances/detections in the first year of the permit, the frequency will remain 1/week for the remainder of the permit term. 2. 7-day average daily maximum. This is a rolling 7-day average calculated by taking the average of the daily maximum temperatures. The 7-day average daily maximum for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date. 3. See Paragraphs I.B.10 and I.B.11. In the first six months of the effective date of the permit, monthly sampling is required. Continuous monitoring is required after the first six months of the effective date of the permit.					

Table 3. Effluent Limitations and Monitoring Requirements for Outfalls 014 and 015: Unwatering Sump and Drainage Sump

Parameter	Units	Effluent Limitations	Monitoring Requirements		
			Sample Location	Sample Frequency	Sample Type
Parameters With Effluent Limits					
pH	std units	Between 7 – 8.5	Effluent	1/week or 1/month ¹	Grab
Oil and grease	mg/L	5 (daily maximum)	Effluent	1/week or 1/month ¹	Grab
Heat Load	kcal/day	See Paragraph I.B.12	See Paragraph I.B.10.	See Paragraph I.B.12.	Measurement/ Calculation
Report Parameters					
Flow	mgd	Report	Effluent	1/month	Measurement
Temperature	°C	Report 7DADM ² , daily maximum, and daily average.	Effluent	Continuous or 1/month ³	Measurement/ Calculation
Visible Oil Sheen, Floating, Suspended, or Submerged Matter	--	See Paragraph I.B.4 of this permit.			Visual Observation
Notes					
1. In the first year of the permit, if there are no exceedances of the pH limit or detection of oil and grease, the required monitoring frequency for that pollutant is reduced to 1/month. If there are exceedances/detections in the first year of the permit, the frequency will remain 1/week for the remainder of the permit term. 2. 7-day average daily maximum. This is a rolling 7-day average calculated by taking the average of the daily maximum temperatures. The 7-day average daily maximum for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date. 3. See Paragraphs I.B.10 and I.B.11. In the first six months of the effective date of the permit, monthly sampling is required. Continuous monitoring is required after the first six months of the effective date of the permit.					

12. The permittee must not exceed a facility-wide monthly average heat load of 2.07E+09 kcal/day.

The facility-wide monthly average heat load is calculated as the summation of the average monthly heat load for each outfall in accordance with the following equation:

$$\text{Facility-wide monthly average heat load (kcal/day)} = \sum_{\text{outfalls}} [(\text{monthly average temperature } (^\circ\text{C}))_{\text{outfall}} \times (\text{monthly average flow (MGD)})_{\text{outfall}} \times 3.78\text{E}+06 \text{ kcal/day}/(^\circ\text{C} \times \text{MGD})]$$

The heat load for each outfall is calculated as the product of the monthly average temperature and average monthly flow, times a conversion factor of 3.78E+06 kcal/day/(°C x MGD). All outfalls identified in Tables 1 and 2 must be included in the summation.

The following is excerpted from pages 8-11 in The Dalles Lock and Dam draft NPDES permit.

Table 1. Effluent Limitations and Monitoring Requirements for Outfalls 001, 002 and 032: Unwatering Sump, Drainage Sump, Station Service Non-Contact Cooling Water

Parameter	Units	Effluent Limitations	Monitoring Requirements		
			Sample Location	Sample Frequency	Sample Type
Parameters With Effluent Limits					
pH	standard units (s.u.)	Between 7 – 8.5	Effluent	1/week or 1/month ¹	Grab
Oil and grease	mg/L	5 (daily maximum)	Effluent	1/week or 1/month ¹	Grab
Heat Load	kcal/day	See Paragraph I.B.12.	See Paragraph I.B.10.	See Paragraph I.B.12.	Measurement/Calculation
Report Parameters					
Flow	mgd	Report	Effluent	1/month	Measurement
Temperature	°C	Report 7DADM ² , daily maximum, and daily average.	Effluent	Continuous or 1/month ³	Measurement/Calculation
Visible Oil Sheen, Floating, Suspended, or Submerged Matter	--	See Paragraph I.B.4 of this permit.			Visual Observation
<u>Notes</u>					
1. In the first year of the permit, if there are no exceedances of the pH limit or detection of oil and grease, the required monitoring frequency for that pollutant is reduced to 1/month. If there are exceedances/detections in the first year of the permit, the frequency will remain 1/week for the remainder of the permit term. 2. 7-day average daily maximum. This is a rolling 7-day average calculated by taking the average of the daily maximum temperatures. The 7-day average daily maximum for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date. 3. See Paragraphs I.B.10 and I.B.11. In the first six months of the effective date of the permit, monthly sampling is required. Continuous monitoring is required after the first six months of the effective date of the permit.					

Table 2. Effluent Limitations and Monitoring Requirements for Outfalls 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 018, 019, 022, 023, 026, 027, 028, 029, 030, 031, 033 and 034: Main Units Non-Contact Cooling Water, Transformer Non-Contact Cooling Water, Station Service Non-Contact Cooling Water, and Fish Unit Non-Contact Cooling Water

Parameter	Units	Effluent Limitations	Monitoring Requirements		
			Sample Location	Sample Frequency	Sample Type
Parameters With Effluent Limits					
pH	std units	Between 7 – 8.5	Effluent	1/week or 1/month ¹	Grab
Oil and grease	mg/L	5 (daily maximum)	Effluent	1/week or 1/month ¹	Grab
Heat Load	kcal/day	See Paragraph I.B.12.	See Paragraph I.B.10.	See Paragraph I.B.12.	Measurement/ Calculation
Report Parameters					
Flow	mgd	Report	Effluent	1/month	Measurement
Temperature	°C	Report 7DADM ² , daily maximum, and daily average.	See Paragraph I.B.10 of this permit	Continuous or 1/month ³	Measurement/ Calculation
Visible Oil Sheen, Floating, Suspended, or Submerged Matter	--	See Paragraph I.B.4 of this permit.			Visual Observation
Notes					
1. In the first year of the permit, if there are no exceedances of the pH limit or detection of oil and grease, the required monitoring frequency for that pollutant is reduced to 1/month. If there are exceedances/detections in the first year of the permit, the frequency will remain 1/week for the remainder of the permit term. 2. 7-day average daily maximum. This is a rolling 7-day average calculated by taking the average of the daily maximum temperatures. The 7-day average daily maximum for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date. 3. See Paragraphs I.B.10 and I.B.11. In the first six months of the effective date of the permit, monthly sampling is required. Continuous monitoring is required after the first six months of the effective date of the permit.					

12. The permittee must not exceed a facility-wide monthly average heat load of 4.23E+09 kcal/day.

The facility-wide monthly average heat load is calculated as the summation of the average monthly heat load for each outfall in accordance with the following equation:

$$\text{Facility-wide monthly average heat load (kcal/day)} = \sum_{\text{outfalls}} [(\text{monthly average temperature } (^\circ\text{C}))_{\text{outfall}} \times (\text{monthly average flow (MGD)})_{\text{outfall}} \times 3.78\text{E}+06 \text{ kcal/day}/(^\circ\text{C} \times \text{MGD})]$$

The heat load for each outfall is calculated as the product of the monthly average temperature and average monthly flow, times a conversion factor of 3.78E+06 kcal/day/(°C x MGD). All outfalls identified in Tables 1 and 2 must be included in the summation.

The following is excerpted from pages 8-11 in the John Day Project draft NPDES permit.

Table 4. Effluent Limitations and Monitoring Requirements for Outfalls 018, 019, and 043: Main Units 15 and 16 Non-Contact Cooling Water, Powerhouse HVAC Cooling Water

Parameter	Units	Effluent Limitations	Monitoring Requirements		
			Sample Location	Sample Frequency	Sample Type
Parameters With Effluent Limits					
pH	std units	Between 7 – 8.5	Effluent	1/week or 1/month ¹	Grab
Oil and grease	mg/L	5 (daily maximum)	Effluent	1/week or 1/month ¹	Grab
Heat Load	kcal/day	See Paragraph I.B.12.	See Paragraph I.B.10.	See Paragraph I.B.12.	Measurement/ Calculation
Report Parameters					
Flow	mgd	Report	Effluent	1/month	Measurement
Temperature	°C	Report 7DADM ² , daily maximum, and daily average.	See Paragraph I.B.10.	Continuous or 1/month ³	Measurement/ Calculation
Visible Oil Sheen, Floating, Suspended, or Submerged Matter	--	See Paragraph I.B.4 of this permit.			Visual Observation
Notes					
1. In the first year of the permit, if there are no exceedances of the pH limit or detection of oil and grease, the required monitoring frequency for that pollutant is reduced to 1/month. If there are exceedances/detections in the first year of the permit, the frequency will remain 1/week for the remainder of the permit term. 2. 7-day average daily maximum. This is a rolling 7-day average calculated by taking the average of the daily maximum temperatures. The 7-day average daily maximum for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date. 3. See Paragraphs I.B.10 and I.B.11. In the first six months of the effective date of the permit, monthly sampling is required. Continuous monitoring is required after the first six months of the effective date of the permit.					

Table 5. Effluent Limitations and Monitoring Requirements for Outfalls 020 and 021: Unwatering Sumps for Pumps 3 and 4

Parameter	Units	Effluent Limitations	Monitoring Requirements		
			Sample Location	Sample Frequency	Sample Type
Parameters With Effluent Limits					
pH	std units	Between 7 – 8.5	Effluent	1/week or 1/month ¹	Grab
Oil and grease	mg/L	5 (daily maximum)	Effluent	1/week or 1/month ¹	Grab
Heat Load	kcal/day	See Paragraph I.B.12.	See Paragraph I.B.10.	See Paragraph I.B.12.	Measurement/Calculation
Report Parameters					
Flow	mgd	Report	Effluent	1/month	Measurement
Temperature	°C	Report 7DADM ² , daily maximum, and daily average.	Effluent	Continuous or 1/month ³	Measurement/Calculation
Visible Oil Sheen, Floating, Suspended, or Submerged Matter	--	See Paragraph I.B.4 of this permit.			Visual Observation
Notes					
1. In the first year of the permit, if there are no exceedances of the pH limit or detection of oil and grease, the required monitoring frequency for that pollutant is reduced to 1/month. If there are exceedances/detections in the first year of the permit, the frequency will remain 1/week for the remainder of the permit term. 2. 7-day average daily maximum. This is a rolling 7-day average calculated by taking the average of the daily maximum temperatures. The 7-day average daily maximum for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date. 3. See Paragraphs I.B.10 and I.B.11. In the first six months of the effective date of the permit, monthly sampling is required. Continuous monitoring is required after the first six months of the effective date of the permit.					

12. The permittee must not exceed a facility-wide monthly average heat load of 3.79E+09 kcal/day. The facility-wide monthly average heat load is calculated as the summation of the average monthly heat load for each outfall in accordance with the following equation:

$$\text{Facility-wide monthly average heat load (kcal/day)} = \sum_{\text{outfalls}} [(\text{monthly average temperature } (^\circ\text{C}))_{\text{outfall}} \times (\text{monthly average flow (MGD)})_{\text{outfall}} \times 3.78\text{E}+06 \text{ kcal/day}/(^\circ\text{C} \times \text{MGD})]$$

The heat load for each outfall is calculated as the product of the monthly average temperature and average monthly flow, times a conversion factor of 3.78E+06 kcal/day/(°C x MGD). All outfalls identified in Tables 1 and 2 must be included in the summation.

The following is excerpted from page 6 in the McNary Lock and Dam draft NPDES permit.

Table 6. Effluent Limitation and Monitoring Requirements for Outfalls 021 and 022: Navigation Lock Sumps

Parameter	Units	Effluent Limitations	Monitoring Requirements		
			Sample Location	Sample Frequency	Sample Type
Parameters With Effluent Limits					
pH	std units	Between 7 – 8.5	Effluent	1/week or 1/month ¹	Grab
Oil and grease	mg/L	5 (daily maximum)	Effluent	1/week or 1/month ¹	Grab
Heat Load	kcal/day	See Paragraph I.B.9.	Effluent	1/month	Measurement/Calculation
Report Parameters					
Flow	mgd	Report	Effluent	1/month	Measurement
Visible Oil Sheen, Floating, Suspended, or Submerged Matter	--	See Paragraph I.B.4 of this permit.			Visual Observation
<u>Notes</u>					
1. In the first year of the permit, if there are no exceedances of the pH limit or detection of oil and grease, the required monitoring frequency for that pollutant is reduced to 1/month. If there are exceedances/detections in the first year of the permit, the frequency will remain 1/week for the remainder of the permit term.					

9. The permittee must not exceed a facility-wide monthly average heat load of 6.70E+07 kcal/day.

The facility-wide monthly average heat load is calculated as the summation of the average monthly heat load for each outfall in accordance with the following equation:

$$\text{Facility-wide monthly average heat load (kcal/day)} = \sum_{\text{outfalls}} [(\text{monthly average temperature } (^{\circ}\text{C}))_{\text{outfall}} \times (\text{monthly average flow (MGD)})_{\text{outfall}} \times 3.78\text{E}+06 \text{ kcal/day}/(^{\circ}\text{C} \times \text{MGD})]$$

The heat load for each outfall is calculated as the product of the monthly average temperature and average monthly flow, times a conversion factor of 3.78E+06 kcal/day/(°C x MGD). The outfalls in Table 1 must be included in the summation.