

ORIGINAL



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April 30, 2008

FERC Project No. 10855

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
Mail Code: DTCA, HL 21.3
888 First Street, N.E.
Washington, DC 20426

Dear Secretary Bose:

Proposed Amendment to Water Quality Monitoring Plan

As per the Order Issuing Original License for the Dead River Hydroelectric Project (FERC Project No. 10855) dated October 3, 2002, and per the Order Approving Modification to Approved Water Quality Monitoring Plan Under Article 408, dated March 3, 2005, Upper Peninsula Power Company (UPPCO) is enclosing an amended Water Quality Monitoring Plan for approval, as described in Article 408 of the Order.

Water quality monitoring has been conducted below the Hoist and McClure reservoirs during the 2005 through 2007 water quality monitoring seasons. The 2005 through 2007 monitoring periods can be characterized as atypical periods of high water temperatures, low precipitation, and consequently low water flow. UPPCO was in Dry Year Consultation with the resource agencies during these monitoring seasons. Despite the atmospheric conditions observed, deviations from water quality standards were not observed below the McClure Dam or the McClure Powerhouse during this time period. Given that deviations have not been observed over the past three monitoring seasons when below normal rainfall and warm water temperatures were observed, UPPCO proposes to cease water quality monitoring at these two sites.

Deviations from the dissolved oxygen and temperature water quality standards have been observed below the Hoist Powerhouse during the past three monitoring seasons. As a result of the observed deviations, UPPCO has conducted additional water quality monitoring below the Hoist Powerhouse to evaluate atmospheric effects on water quality and evaluated possible operational or physical changes at the Hoist Powerhouse to mitigate water quality deviations. The additional water quality monitoring conducted in 2007 below the Hoist Powerhouse indicated that dissolved oxygen concentrations do increase with distance from the Powerhouse. At the same time, water temperature within the Dead River also increases with distance from the Powerhouse due to atmospheric conditions. In addition, dissolved oxygen profiles taken in the Dead River Storage Basin has shown that the water temperature in the hypolimnion has been at or above the water quality standard for temperature.

A review of the current configuration of the Hoist Dam and Powerhouse generators indicates that there are no easy operational or physical modifications that can be conducted at the facility to mitigate water quality deviations. It is UPPCO's belief that rebuilding the Silver Lake Storage Basin will result in the release of cold water into the Dead River Storage Basin, which will in turn

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Secretary Bose
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help mitigate temperature and dissolved oxygen deviations downstream of the Hoist Powerhouse by providing more cold water to the hypolimnion. Given that exceedances have been observed during years of below normal precipitation and water flow, the only remaining question is whether compliance with the water quality standards can be achieved below the Hoist Powerhouse during these periods once Silver Lake is rebuilt and is providing additional cold water to the Dead River Storage Basin.

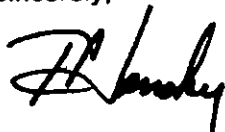
As part of the rebuilding effort at Silver Lake, operational testing is scheduled to be conducted for the first three years after construction is completed (assuming normal precipitation is observed during those three years). Since operation of the Silver Lake Storage Basin will fluctuate until the operational testing is completed, UPPCO proposes the following water quality monitoring for the Dead River Hydroelectric Project:

- 2008 and 2009 – Monitor dissolved oxygen and temperature below the Silver Lake Reservoir at the County Road AAO Bridge (in the Township of Champion - SE ¼ of NE ¼, section 17, T48N, R25W) while construction and refilling of the reservoir is occurring to collect background information on dissolved oxygen and temperature of the water currently being released from Silver Lake.
- In the first year after operation test period, monitor dissolved oxygen and temperature below the Silver Lake Storage Basin and downstream of the Hoist Powerhouse, in the natural river channel in SE ¼, of the NE ¼ of Section 18, T48N, R26W (Township of Negeunee).
- In the first year after operation test period, conduct dissolved oxygen profiles and take secchi disk readings at the Silver Lake and Dead River Storage Basins near the release structure/intake structure at the respective developments.

Attached for your review and approval in Appendix A is a copy of the amended water quality monitoring plan. UPPCO consulted with the Michigan Department of Natural Resources (MDNR), the Michigan Department of Environmental Quality (MDEQ), and the U.S. Fish & Wildlife Service (FWS) regarding the proposed amendments to the water quality monitoring plan. Documentation of agency consultation and a response to agency comments is attached in Appendix B.

Should you have any questions about the proposed plan, please feel free to call Mr. Mark Metcalf at (920) 433-1833. Thank you for your time and consideration.

Sincerely,



Terry P. Jensky
 Vice President - Energy Supply Operations
 for Wisconsin Public Service Corporation
 Telephone: (920) 433-2900

Enc.

cc: Mr. Shawn Puzen, IBS - D2
 Mr. Robert Meyers, UPPCO - UISC
 Ms. Connie Granroth, UPPCO - UISC
 Mr. Pat Fulsher, UPPCO - UISC

Ms. Jessica Mistak, MDNR
 Mr. John Suppnick, MDEQ
 Ms. Christie Deloria, USFWS
 Ms. Joan Johanek, WPSC - D2 (file)

Attachment A
Dead River Hydroelectric Project
Water Quality Monitoring Plan

Water Quality Monitoring Plan
Dead River Hydroelectric Project
FERC License No. 10855

ORDER APPROVING MODIFICATION TO APPROVED
WATER QUALITY MONITORING PLAN

Upper Peninsula Power Company

April 2008

Last Revised: March 2005
Revision Number: 2

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Water Quality Monitoring Plan

Dead River Hydroelectric Project - FERC License No. 10855

Article 408 The licensee shall file with the Commission, for approval, a plan to monitor water temperature and dissolved oxygen (DO), other water quality parameters, and sediment parameters, at various locations in the Dead River.

1. Requirements - Temperature and Dissolved Oxygen

A. Continuous Temperature Monitoring - Requirements

Upper Peninsula Power Company (UPPCO) shall not warm the Dead River downstream from Silver Lake Dam, downstream of the Hoist Powerhouse, and downstream from the McClure Dam in the bypassed natural river channel, by operation of the development, to temperatures higher than the following monthly average temperatures:

| Jan | Feb | Mar | Apr | May | Jun | July | Aug | Sept | Oct | Nov | Dec |
|------|-----|-----|-----|-----|-----|------|-----|------|-----|-----|-----|
| 38°F | 38 | 43 | 54 | 65 | 68 | 68 | 68 | 63 | 56 | 48 | 40 |

Listed below are the maximum monthly average temperatures downstream from the McClure Powerhouse tailrace.

| Jan | Feb | Mar | Apr | May | Jun | July | Aug | Sept | Oct | Nov | Dec |
|------|-----|-----|-----|-----|-----|------|-----|------|-----|-----|-----|
| 38°F | 38 | 41 | 56 | 70 | 80 | 83 | 81 | 74 | 64 | 49 | 39 |

Temperature data will be collected hourly from May 1 through October 31 each year using portable, programmable recording instrumentation (see dissolved oxygen monitoring equipment).

B. Continuous Dissolved Oxygen Monitoring - Requirements

UPPCO shall not cause the dissolved oxygen (DO) concentration to be less than 7.0 mg/L at any time in the Dead River below the facilities mentioned above, except the McClure Powerhouse, where the dissolved oxygen concentration shall not be less than 5.0 mg/L. Dissolved oxygen will be monitored from June 1 to September 30 each year.

C. Continuous Monitoring - Reporting Deviations

In the event of deviations from the water quality standards, UPPCO shall notify the Marquette district supervisor of the Michigan Department of Environmental Quality (MDEQ) and Michigan Department of Natural Resources (MDNR) within one business day of the observation of the incident. A report of any deviations will be

filed with the Commission within 10 days of an observed incident. As described in article 407, UPPCO shall identify the deviant condition and any corrective actions.

2. Dissolved Oxygen and Temperature Monitoring: Locations and Schedule

Temperature and dissolved oxygen data will be collected on an hourly basis (24 measurements per day, per location). UPPCO proposes the following monitoring locations for compliance with the requirements set forth in the project license:

- A. For the Silver Lake Development in 2008 and 2009, UPPCO will monitor temperature and dissolved oxygen below the confluence of the bypass channel and discharge channel, where the County Road AAT crosses the Dead River, SE $\frac{1}{4}$ of NE $\frac{1}{4}$, section 17, T48N, R25W (Township of Champlin).
- B. In the first year after the Silver Lake Reservoir operation test period, monitor dissolved oxygen and temperature below the Silver Lake Storage Basin and downstream of the Hoist Powerhouse, in the natural river channel in SE $\frac{1}{4}$, of the NE $\frac{1}{4}$ of Section 16, T48N, R26W (Township of Negaunee).

3. Monitoring Equipment and Quality Assurance

Temperature and dissolved oxygen data will be collected using portable water quality monitoring equipment manufactured by Hydrolab, Inc., or equivalent. All monitoring equipment will be calibrated for dissolved oxygen prior to deployment according to the manufacturer instructions. The instruments shall be cleaned and calibrated at least once every two weeks during the annual monitoring period. At the time the monitoring equipment is removed from monitoring, a post-calibration will be performed per the manufacturer instructions to determine loss of calibration, with a goal of less than 1.0 mg/L drift or error at least 70% of the time. The post-calibration will be performed on the dissolved oxygen monitoring equipment before any maintenance or cleaning of the probe occurs.

Per the equipment manufacturer, the monitoring equipment has an accuracy of 0.20 mg/L, excluding any bio-fouling or water quality problems. The data collected will be corrected for any loss of calibration greater than 0.20 mg/L. Raw data will be adjusted assuming a linear degradation of calibration based upon a post-calibration of the equipment.

4. Dissolved Oxygen and Temperature Profile

In the first year after the Silver Lake Reservoir operation test period, vertical temperature and dissolved oxygen profiles will be performed approximately every two weeks from June 1 to August 31 at the Silver Lake and Dead River Storage

Basins. The profile will be performed near the release valve at the Silver Lake Dam and near the turbine Intake structure on the Dead River Storage Basin. Secchi disk depth measurements will be made at the same time as the profile. When secchi disk readings are taken, weather conditions will be noted on field sheets (time of day, cloud cover, wave conditions, etc.).

Profiles will be performed at 0.5 meter intervals using a hand held dissolved oxygen monitoring device (manufactured by YSI, Inc. or equivalent). Temperature and dissolved oxygen measurements will be replicated by using a second hand held device at both the surface and bottom of the basin. In the event that replicate analyses differ by more than 1.0 mg/L D.O or 1.8°F (1°C), the meters will be recalibrated and the profiles will be repeated.

5. Annual Monitoring Results - Reports

All temperature and DO data collected will be compiled and summarized in an annual report submitted to the Marquette District Supervisor of the MDEQ-SWQD and MDNR. The report will be submitted within 30 days of the completion of the annual monitoring period. Results from profile sampling will be submitted with the annual report, including any replicate measurements. For each continuous monitoring location, the following information will be provided:

- A. A determination of the daily minimum, daily maximum, and daily average DO and temperature for every day monitored. All raw temperature and DO data corrected for calibration drift will be submitted. All data gaps, if they occur, shall be explained.
- B. An upstream/downstream comparison of the DO and temperature for the Silver Lake and Dead River Storage Basin Developments, including the frequency and magnitude of any values that exceed the standard at each location.
- C. An evaluation of the relationship between any observed temperature or DO deviations and other environmental factors, including project operations data, that may affect the water quality of the discharge.
- D. All quality assurance data.

6. Water Chemistry Monitoring - Equipment and Schedule

Water chemistry monitoring parameters, methods and instrumentation are listed in Table 1. Water chemistry samples shall be collected quarterly from the Dead River Storage Basin and McClure Storage Basin beginning 5 years after license issuance (2007), and continue every 5 years thereafter. Water Chemistry samples shall be collected quarterly from the Silver Lake Storage Basin beginning in 2008, again in 2012, and every 5 years thereafter. Water chemistry samples will be taken in the

basin outlets. Water chemistry monitoring results will be reported to the MDEQ and MDNR within 30 days of the end of the quarter in which the samples were collected.

7. Sediment Monitoring - Equipment and Schedule

Sediment monitoring parameters, methods and instrumentation are listed in Table 2. Samples will be collected during the 3rd quarter of the 10th year after license issuance (2012), and every 10 years thereafter. Sediment samples will be collected at each of the three developments on the Dead River. Samples will be collected at the deepest part of the impoundments, where the most sediment settling occurs. Sediment samples in each basin should all be three part composites from depositional areas with organic sediments and not from areas with sand or gravel sediments.

Samples will be collected using a petite Ponar grab sampler, or equivalent. In the event that little sediment is found around the dam, multiple attempts will be made to collect sediment. All attempts will be mixed and a composite sample will be analyzed. UPPCO proposes that acid volatile sulfides be removed as a monitoring requirement because the method currently is not EPA approved. Sediment monitoring results will be reported to the MDEQ and MDNR within 30 days of the end of the quarter in which the samples were collected.

8. Fish Tissue Monitoring

Mercury levels will be monitored in resident predator fish species during the 10th year after license issuance, and every 10 years thereafter. Currently, MDEQ performs periodic sampling on the Dead River. UPPCO will assist the MDEQ and MDNR to identify and sample the target species of interest and identify the location(s) to be sampled based on current information available to the MDEQ and MDNR. Ten individual, legal sized resident predator fish will be individually analyzed. The method for mercury analysis should be capable of achieving a quantification level of 0.1 mg/kg or less and should be a method that has been peer reviewed for use in fish tissue. A subcontract laboratory will analyze the samples. Results of fish tissue monitoring will be reported to the MDEQ and MDNR within 30 days of the end of the quarter in which the samples were collected.

9. Schedule Amendments

After any of the following, water quality monitoring (temperature and dissolved oxygen) in year 1, water chemistry monitoring in year 5, sediment monitoring in year 10, and fish tissue monitoring in year 10, UPPCO may file a written request to the MDEQ to change the monitoring frequency, chemical analyses, or target fish species. Alternative monitoring frequencies, chemical analyses, or target fish species may be implemented by UPPCO through consultation with MDEQ and upon written approval by the Commission.

Table 1**Water Chemistry Monitoring: Parameters and Methods**

| <u>Parameter</u> | <u>Reference Method</u> |
|-------------------------|--------------------------------|
| Alkalinity | S.M. 2320 B |
| pH | S.M. 4500H B |
| Specific Conductivity | S.M. 2510 B |
| Total Ammonia | EPA 350.2 |
| Total Dissolved Solids | EPA 160.1 |
| Total Phosphorous | EPA 365.2 |
| Total Suspended Solids | EPA 160.2 |
| Total Arsenic | EPA 200.9 |
| Total Cadmium | EPA 213.2 |
| Total Copper | EPA 220.2 |
| Total Lead | EPA 239.2 |
| Total Nickel | EPA 249.2 |
| Total Silver | EPA 272.2 |
| Total Organic Carbon | EPA 415.1 |
| Hardness (calculated) | S.M. 2340 B |
| Chlorophyll a | S.M. 10200 H |
| Secchi Disk | |
| Transparency | EPA 440-4-91-002 |

At the time of analysis, methods used will be those approved by the United States Environmental Protection Agency for the Water program in 40 CFR 136.

The quantification levels for metals should be as follows:

| | |
|---------------|----------|
| Total Arsenic | 1 ug/L |
| Total Cadmium | 0.2 ug/L |
| Total Copper | 1 ug/L |
| Total Lead | 1 ug/L |
| Total Nickel | 5 ug/L |
| Total Silver | 0.5 ug/L |

Table 2

Sediment Monitoring: Parameters and Methods

| <u>Parameter</u> | <u>Reference Method(s)</u> |
|----------------------|--------------------------------|
| Total Oil and Grease | S.M. 5520 B |
| Total PCB | SW-846 8082 |
| Total Phosphorous | EPA 365.2 |
| Total Arsenic | SW-846 7060A, |
| Total Cadmium | SW-846 7131A, |
| Total Chromium | SW-846 7191 |
| Total Copper | SW-846 7211 |
| Total Lead | SW-846 7421 |
| Total Nickel | SW-846 7520 |
| Total Selenium | SW-846 7740 |
| Total Silver | SW-846 7761 |
| Total Zinc | SW-846 7950 |
| Total Mercury | SW-846 7471A |
| Total Organic Carbon | SW-846 9060 |

At the time of analysis, EPA approved methodology and instrumentation will be used.

Attachment B

Dead River Hydroelectric Project

Documentation of Agency Consultation



Upper Peninsula Power Company

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P.O. Box 357

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April 10, 2008

FERC Project No. 10855

**Ms. Jessica Mistak
Michigan Department of Natural Resources
Marquette State Fish Hatchery and Station
488 Cherry Creek Road
Marquette, MI 49855**

Ra: Proposed Amendment to Water Quality Monitoring Plan

Dear Ms. Mistak:

Upper Peninsula Power Company (UPPCO) is pleased to submit an amended water quality monitoring plan for the Dead River Hydroelectric Project for your review and comment.

Water quality monitoring has been conducted below the Hoist and McClure reservoirs during the 2005 through 2007 water quality monitoring seasons. The 2005 through 2007 monitoring periods can be characterized as atypical periods of high water temperatures, low precipitation, and consequently low water flow. UPPCO was in Dry Year Consultation with the resource agencies during these monitoring seasons. Despite the atmospheric conditions observed, deviations from water quality standards were not observed below the McClure Dam or the McClure Powerhouse during this time period. Given that deviations have not been observed over the past three monitoring seasons when below normal rainfall and warm water temperatures were observed, UPPCO proposes to cease water quality monitoring at these two sites.

Deviations from the dissolved oxygen and temperature water quality standards have been observed below the Hoist Powerhouse during the past three monitoring seasons. As a result of the observed deviations, UPPCO has conducted additional water quality monitoring below the Hoist Powerhouse to evaluate atmospheric effects on water quality and evaluate possible operational or physical changes at the Hoist Powerhouse to mitigate water quality deviations. The additional water quality monitoring conducted in 2007 below the Hoist Powerhouse indicated that dissolved oxygen concentrations do increase with distance from the Powerhouse. At the same time, water temperature within the Dead River also increases with distance from the Powerhouse due to atmospheric conditions. In addition, dissolved oxygen profiles taken in the Dead River Storage Basin has shown that the water temperature in the hypolimnion has been at or above the water quality standard for temperature.

A review of the current configuration of the Hoist Dam and Powerhouse generators indicates that there are no easy operational or physical modifications that can be conducted at the facility to mitigate water quality deviations. It is UPPCO's belief that rebuilding the Silver Lake Storage Basin will result in the release of cold water into the Dead River Storage Basin, which will in turn help mitigate temperature and dissolved oxygen deviations downstream of the Hoist Powerhouse by providing more cold water for the hypolimnion. Given that exceedances have been observed during years of below normal precipitation and water flow, the only remaining question is whether compliance with the water quality standards can be achieved below the

Ms. Jessica Mistak
April 10, 2008
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Hoist Powerhouse during these periods once Silver Lake is rebuilt and is providing additional cold water to the Dead River Storage Basin.

As part of the rebuilding effort at Silver Lake, operational testing is scheduled to be conducted for the first three years after construction is completed (assuming normal precipitation is observed during those three years). Since operation of the Silver Lake Storage Basin will fluctuate until the operational testing is completed, UPPCO proposes the following water quality monitoring for the Dead River Hydroelectric Project:

- 2008 and 2009 – Monitor dissolved oxygen and temperature below the Silver Lake Reservoir at the County Road AAT Bridge (in the Township of Champion- SE ¼ of NE ¼, section 17, T48N, R25W) while construction and refilling of the reservoir is occurring to collect background information on dissolved oxygen and temperature of the water currently being released from Silver Lake.
- In the first year after operation test period, monitor dissolved oxygen and temperature below the Silver Lake Storage Basin and downstream of the Hoist Powerhouse, in the natural river channel in SE ¼, of the NE ¼ of Section 16, T48N, R26W (Township of Negaunee).
- In the first year after operation test period, conduct dissolved oxygen profiles and take secchi disk readings at the Silver Lake and Dead River Storage Basins near the release structure/intake structure at the respective developments.

Attached for your review is a proposed water quality monitoring plan. Please provide a response as soon as possible. Should you have any questions about the proposed plan, please do not hesitate to call me at (920) 433-1833. Thank you for your time and consideration.

Sincerely,



Mark W. Metcalf
Environmental Consultant – Air & Water
Telephone: (920) 433-1833

Enc.

cc: Mr. John Suppnick - MDEQ
Mr. Pat Fulsher - UPPCO – UISC
Ms. Connie Granroth-Eardley – UPPCO - UISC
Mr. Shawn Puzen – Integrys – GB
Ms. Christie Deloria - USFWS

Metcalf, Mark W

From: Jessica Mistak [mistakj@michigan.gov]
Sent: Wednesday, April 16, 2008 10:30 AM
To: Metcalf, Mark W
Cc: Christie_Deloria@fws.gov; Fulsher, Patrick F; Granroth, Connie J; Puzen, Shawn C; Suppnick, John
Subject: Re: Dead River WQM plan modification

Hi Mark,

The DNR has reviewed UPPCO's proposed modifications to the Dead River Water Quality Monitoring Plan. We have the following comments:

- The request to modify monitoring at McClure is reasonable given the record of compliance in the past several years. However, since there are historical records of temperature non-compliance (1991-1992), we recommend continued periodic sampling every 5 years. Periodic sampling every 5 years will capture any changes that may occur throughout the 40 year license term.
- We agree that baseline water quality monitoring should occur downstream of Silver Lake during 2008 and 2009. We suggest that the monitoring station be moved to a location that is nearer the dam while still downstream of the spillway and low level release channels (i.e., a few hundred feet downstream from the dam). The proposed monitoring site at AAO bridge is about 2 miles further downstream and this station no longer reflects the release from Silver Lake because of cold tributary inputs and aeration in the reach. DEQ data from their May 2006 report showed that the Dead River was about 2.6 degrees C colder at the AAO bridge versus immediately below the Silver Lake in 2004 due to cold tributary inputs. In addition, we recommend that UPPCO add a temperature monitoring station upstream of Silver Lake to assess the temperature benefits of releasing water from the low level outlet compared to from the surface as in 2004.
- It is not appropriate to postpone additional water quality monitoring until after the 3-year operation test period after Silver Lake is rebuilt. Given the several year time frame for Silver Lake rebuild and refill, this could mean postponing water quality monitoring until 2014 at the earliest.

Thank you,
Jessica

Jessica Mistak, Senior Fisheries Biologist
DNR Marquette Fisheries Station
484 Cherry Creek Rd
Marquette, MI 49855
906-249-1611 ext. 308
FAX 906-249-3190

5/1/2008

>>> "Metcalf, Mark W" <MWMetcalf@integrysgroup.com> 04/10/2008 11:43 AM >>>
Hi Jessica,

As mentioned during the Annual UPPCO Agency meeting, Upper Peninsula Power Company is providing a modified water quality monitoring plan for your review and comment. In summary, UPPCO is proposing the following changes to the water quality monitoring plan:

1. Cease monitoring below the McClure Storage Basin and Powerhouse since deviations from the water quality standard have not been observed over the past 3 monitoring seasons, even during periods of Dry Year Consultation;
2. Conduct water quality monitoring below the Silver Lake Storage Basin in 2008 and 2009 to collect water quality data prior to the rebuilding of Silver Lake;
3. After Silver Lake has been rebuilt and operational testing has been completed, conduct water quality monitoring below the Silver Lake Storage Basin and below the Hoist Powerhouse to determine if the release of additional cold water from Silver Lake will mitigate dissolved oxygen and temperature deviations below the Hoist Powerhouse.

Please review the attached documents and provide a response as soon as possible. Please feel free to call me if you have any questions.

Thank you very much for your time and feedback!

Mark

Mark Metcalf
Environmental Consultant - Air & Water
Integrus Business Support, LLC.
mwmetcalf@integrysgroup.com
920-617-6046

5/1/2008

Response to Comments from the Michigan Department of Natural Resources on the proposed Water Quality Monitoring Plan changes

MDNR Comment: The request to modify monitoring at McClure is reasonable given the record of compliance in the past several years. However, since there are historical records of temperature non-compliance (1991-1992), we recommend continued periodic sampling every 5 years. Periodic sampling every 5 years will capture any changes that may occur throughout the 40 year license term.

UPPCO Response: Comment noted. The 1991-1992 data referenced was determined to be unreliable. Therefore, complete water quality monitoring needed to be repeated and was required as conditions in the new license. In addition, the monitoring captures conditions of operation that no longer exist (complete plant shutdowns due to no minimum flow requirements). As a result, the 1991-1992 data referenced (See Exhibit E-Section 2 of the License Application) should not be utilized to determine further monitoring requirements. All data obtained during the post-licensing demonstrates there are no concerns regarding compliance for temperature purposes. These past few years of monitoring occurred during considerably drier years and no periods of non-compliance were encountered. It is not pertinent to utilize water quality data from 1991-1992 and compare it to the current situation because the situation where no flow is released into the bypass reach no longer exists.

MDNR Comment: We agree that baseline water quality monitoring should occur downstream of Silver Lake during 2008 and 2009. We suggest that the monitoring station be moved to a location that is nearer the dam while still downstream of the confluence of the spillway and low level release channels (i.e., a few hundred feet downstream from the dam). The proposed monitoring site at AAO bridge is about 2 miles further downstream and this station no longer reflects the release from Silver Lake because of cold tributary inputs and aeration in the reach. DEQ data from their May 2006 report showed that the Dead River was about 2.6 degrees C colder at the AAO bridge versus immediately below the Silver Lake in 2004 due to cold tributary inputs.

UPPCO Response: UPPCO will conduct water quality monitoring in 2008 and 2009 below Silver Lake at the County Road AAO bridge. UPPCO does not agree with MDNR that the monitoring location should be changed for two reasons: 1) the County Road AAO monitoring location was originally agreed to by MDNR, MDEQ, and UPPCO during the original water quality monitoring plan development, and 2) this location will serve as an upstream monitoring location for the Dead River Storage Basin once Silver Lake is rebuilt (please refer to the original water quality monitoring plan submittal dated February 27, 2003).

Monitoring at the County Road AAO bridge was agreed to by UPPCO and the resource agencies in 2003 to assess water quality before entering the Dead River Storage Basin, and after discharge from the Hoist Powerhouse. Monitoring at the AAO bridge will allow for a proper evaluation of the water quality going into the Dead River Storage

Basin and for a proper evaluation of the effects of refilling Silver Lake on water quality upstream and downstream of the Dead River Storage Basin.

MDNR Comment: In addition, we recommend that UPPCO add a temperature monitoring station upstream of Silver Lake to assess the temperature benefits of releasing water from the low level outlet compared to from the surface as in 2004.

UPPCO Response: UPPCO does not agree with MDNR about monitoring upstream of Silver Lake to assess temperature benefits of releasing water from the low level outlet. UPPCO does not dispute that water coming into Silver Lake is colder than the surface water currently being released, as the data collected in 2004 shows this. Given that the Silver Lake Storage Basin is in the process of being rebuilt, UPPCO does not believe that measuring the temperature of surface water coming into a reservoir can be used to assess the temperature benefits of releasing water from a low level outlet (i.e, from the hypolimnion of a water body), when a hypolimnion is not present.

A similar situation to what MDNR has recommended would be to use the water quality monitoring data collected below the Hoist Powerhouse to assess the temperature benefits of releasing water from the hypolimnion of the McClure Storage Basin. Monitoring data collected from 2005 through 2007 shows a significant temperature difference between the water temperature going into the McClure Storage Basin and the water temperature in the hypolimnion as measured during dissolved oxygen and temperature profiles of the reservoir. The monitoring data collected shows an assessment of a surface water temperature and the benefit of a low level outlet can not be conducted. The only way to assess the temperature benefit of a low level outlet is to measure the temperature in the Dead River before and after the rebuild of Silver Lake.

UPPCO is certain that temperature benefits will be observed by releasing water from the low level outlet at Silver Lake once the Storage Basin is rebuilt. Dissolved Oxygen profile data collected at the Dead River Storage Basin and McClure Storage Basins from 2005 through 2007 demonstrates the temperature differences between the epilimnion and hypolimnion in the reservoirs. In addition, a low level siphon was installed at the McClure Dam to benefit from this temperature benefit. While the 2004 data did show a temperature difference between the monitoring location at the County Road AAO bridge and below Silver Lake, the temperature difference would be expected since the reservoir was only releasing water from the epilimnion. After the rebuild of Silver Lake, DO profiles conducted at the dam will provide temperature information on the water being released through the low level outlet.

MDNR Comment: It is not appropriate to postpone additional water quality monitoring until after the 3-year operation test period after Silver Lake is rebuilt. Given the several year time frame for Silver Lake rebuild and refill, this could mean postponing water quality monitoring until 2014 at the earliest.

UPPCO Response: As described in the Supplement to the Dead River Hydroelectric Project: Environmental Report-Silver Lake Reservoir Rebuild submitted to FERC by

letter dated March 19, 2008, operational testing is scheduled to occur for three years after Silver Lake is rebuilt to determine what level the reservoir will be operated at. As the current operating license and the WQC is written, UPPCO believes it is unable to meet license conditions for minimum flows and minimum reservoir elevation at Silver Lake and the Dead River Storage Basin a majority of the years, especially during years with less than average inflows to the system.

UPPCO disagrees with MDNR that water quality monitoring should not wait until after the 3-year operational test period. The primary objective of conducting operational testing at Silver Lake is to determine the appropriate reservoir levels and discharge volumes needed from Silver Lake in order to maintain minimum reservoir elevations downstream in the Dead River Storage Basin. During the past three water quality monitoring seasons, deviations from the water quality standards has been observed downstream of the Dead River Storage Basin. In each of these monitoring seasons, UPPCO has not been able to maintain minimum reservoir elevations. During this time period, UPPCO has documented that the hypolimnion in the Dead River Storage Basin has had temperature readings at or near the downstream water quality standard.

In order to mitigate deviations from water quality standards downstream of the Dead River Storage Basin, UPPCO believes that a larger hypolimnion must be available in the Dead River Storage Basin. The only way to create a larger hypolimnion is by rebuilding Silver Lake (with increased depth of a reservoir comes colder water temperatures at the bottom of the reservoir) and discharging more cold water into the Dead River Storage Basin. The potential impact on water quality below Silver Lake is that if reservoir levels are maintained as recommended by the resource agencies, a smaller hypolimnion will be available to withdraw cold water from, and depending on the amount of precipitation during the year, could result in a depletion of the hypolimnion in Silver Lake and in the amount of cold water being released into the Dead River Storage Basin.

Until reservoir levels, minimum flow rates, and operating procedures for Silver Lake are developed and it is demonstrated that the operating procedures will meet the minimum reservoir elevation requirements of the License, it is not possible to accurately evaluate water quality in the Dead River below Silver Lake. It is also not possible to determine whether water quality standards can be met below the Dead River Storage Basin. UPPCO is cognizant of the fact that the rebuilding, refilling, and operational testing will take a considerable amount of time, especially considering the size and magnitude of the project; however, given that the 3-year period after refilling Silver Lake is a "test" period, it is not prudent to conduct monitoring to evaluate compliance with the project License when the reservoir is not being operated in accordance with an approved operational plan.



Upper Peninsula Power Company

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P.O. Box 357

Ishpeming, MI 49849-0357

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April 10, 2008

FERC Project No. 10855

Mr. John Suppnick
Michigan Department of Environmental Quality
P. O. Box 30273
Lansing, MI 48909

Dear Mr. Suppnick:

Upper Peninsula Power Company (UPPCO) is pleased to submit an amended water quality monitoring plan for the Dead River Hydroelectric Project for your review and comment.

Water quality monitoring has been conducted below the Hoist and McClure reservoirs during the 2005 through 2007 water quality monitoring seasons. The 2005 through 2007 monitoring periods can be characterized as atypical periods of high water temperatures, low precipitation, and consequently low water flow. UPPCO was in Dry Year Consultation with the resource agencies during these monitoring seasons. Despite the atmospheric conditions observed, deviations from water quality standards were not observed below the McClure Dam or the McClure Powerhouse during this time period. Given that deviations have not been observed over the past three monitoring seasons when below normal rainfall and warm water temperatures were observed, UPPCO proposes to cease water quality monitoring at these two sites.

Deviations from the dissolved oxygen and temperature water quality standards have been observed below the Hoist Powerhouse during the past three monitoring seasons. As a result of the observed deviations, UPPCO has conducted additional water quality monitoring below the Hoist Powerhouse to evaluate atmospheric effects on water quality and evaluated possible operational or physical changes at the Hoist Powerhouse to mitigate water quality deviations. The additional water quality monitoring conducted in 2007 below the Hoist Powerhouse indicated that dissolved oxygen concentrations do increase with distance from the Powerhouse.

At the same time, water temperature within the Dead River also increases with distance from the Powerhouse due to atmospheric conditions. In addition, dissolved oxygen profiles taken in the Dead River Storage Basin has shown that the water temperature in the hypolimnion has been at or above the water quality standard for temperature.

A review of the current configuration of the Hoist Dam and Powerhouse generators indicates that there are no easy operational or physical modifications that can be conducted at the facility to mitigate water quality deviations. It is UPPCO's belief that rebuilding the Silver Lake Storage Basin will result in the release of cold water into the Dead River Storage Basin, which will in turn help mitigate temperature and dissolved oxygen deviations downstream of the Hoist Powerhouse by providing more cold water for the hypolimnion. Given that exceedances have been observed during years of below normal precipitation and water flow, the only remaining question is whether compliance with the water quality standards can be achieved below the Hoist Powerhouse during these periods once Silver Lake is rebuilt and is providing additional cold water to the Dead River Storage Basin.

Mr. John Suppnick
April 10, 2008
Page 2 of 2

As part of the rebuilding effort at Silver Lake, operational testing is scheduled to be conducted for the first three years after construction is completed (assuming normal precipitation is observed during those three years). Since operation of the Silver Lake Storage Basin will fluctuate until the operational testing is completed, UPPCO proposes the following water quality monitoring for the Dead River Hydroelectric Project:

- 2008 and 2009 – Monitor dissolved oxygen and temperature below the Silver Lake Reservoir at the County Road AAT Bridge (in the Township of Champion - SE ¼ of NE ¼, section 17, T48N, R25W) while construction and refilling of the reservoir is occurring to collect background information on dissolved oxygen and temperature of the water currently being released from Silver Lake.
- In the first year after operation test period, monitor dissolved oxygen and temperature below the Silver Lake Storage Basin and downstream of the Hoist Powerhouse, in the natural river channel in SE ¼, of the NE ¼ of Section 16, T48N, R26W (Township of Negaunee).
- In the first year after operation test period, conduct dissolved oxygen profiles and take secchi disk readings at the Silver Lake and Dead River Storage Basins near the release structure/intake structure at the respective developments.

Attached for your review is a proposed water quality monitoring plan. Please provide a response as soon as possible. Should you have any questions about the proposed plan, please do not hesitate to call me at (920) 433-1833. Thank you for your time and consideration.

Sincerely,



Mark W. Metcalf
Environmental Consultant – Air & Water
Telephone: (920) 433-1833

Enc.

cc: Ms. Jessica Mistak - MDNR
Ms. Christie Deloria - USFWS
Mr. Pat Fulsher - UPPCO – UISC
Ms. Connle Grenroth-Eardley – UPPCO - UISC
Mr. Shawn Puzen – Integrys – GB

Metcalf, Mark W

From: John Suppnick [suppnick@michigan.gov]
Sent: Thursday, April 24, 2008 6:59 AM
To: Metcalf, Mark W
Subject: Re: Dead River Hydroelectric Project - WQM plan modification

Attachments: 06_051deadriv.pdf



06_051deadriv.p
df (1 MB)

Hi Mark,

We have reviewed your proposed changes to the water quality monitoring plan for the Dead River Project that you sent to me in an email on April 10, 2008. This revised plan was dated April 2008.

We agree with the proposal to discontinue monitoring at the McClure facility but request that the monitoring be conducted periodically in the future at a frequency of every 5 years.

After rebuild of Silver Lake the monitoring station downstream of Silver Lake should be closer to the dam but still downstream of the confluence of the spillway and low level release channels. This would be only a few hundred feet downstream from the dam. The proposed monitoring site at AAO bridge is about 2 miles further downstream and this station no longer reflects the release from Silver Lake because of cold tributary inputs and aeration in the reach. My May 2006 report (attached) shows in table 2 on page 7 that the Dead River was about 2.6 degrees C colder at AAO vs immediately below the Lake in 2004 due to cold tributary inputs. In addition, a temperature monitoring station should be added upstream of Silver Lake at the same location sampled in the pre-licensing period so that we can assess the temperature benefits of releasing water from the low level outlet compared to from the surface as in 2004.

Let me know if you have any questions about these comments

John

John Suppnick
Michigan Department of Environmental Quality Water Bureau
517-335-4192
suppnick@michigan.gov

>>> "Metcalf, Mark W" <MMMetcalf@integrysgroup.com> 4/10/2008 11:47 AM

>>> >>>

Hello John,

As mentioned during the Annual UPPCO Agency meeting, Upper Peninsula Power Company is providing a modified water quality monitoring plan for your review and comment. In summary, UPPCO is proposing the following changes to the water quality monitoring plan:

1. Cease monitoring below the McClure Storage Basin and Powerhouse since deviations from the water quality standard have not been observed over the past 3 monitoring seasons, even during periods of Dry Year Consultation;
2. Conduct water quality monitoring below the Silver Lake Storage Basin in 2008 and 2009 to collect water quality data prior to the rebuilding of Silver Lake;
3. After Silver Lake has been rebuilt and operational testing has been completed, conduct water quality monitoring below the Silver Lake Storage Basin and below the Hoist Powerhouse to determine if the release of additional cold water from Silver Lake will mitigate dissolved oxygen and temperature deviations below the Hoist Powerhouse.

Please review the attached documents and provide a response as soon as possible. Please feel free to call me if you have any questions.

Thank you very much for your time and feedback!

Mark

Mark Metcalf
Environmental Consultant - Air & Water
Integrus Business Support, LLC.
mwmetcalf@integrysgroup.com
920-617-6046

Response to Comments from the Michigan Department of Environmental Quality on the proposed Water Quality Monitoring Plan changes

MDEQ Comment: We agree with the proposal to discontinue monitoring at the McClure facility but request that the monitoring be conducted periodically in the future at a frequency of every 5 years.

UPPCO Response: Comment noted. UPPCO does not agree that future water quality monitoring below the McClure Dam or McClure Powerhouse is necessary. Water quality monitoring conducted in 2005 through 2007 occurred during considerably drier years and no periods of non-compliance were encountered. Currently, there is a 20 cfs minimum flow release from a low level siphon at the McClure Dam. All data obtained during the minimum flow release period has demonstrated there are no concerns regarding compliance for temperature or dissolved oxygen purposes.

MDEQ Comment: After rebuild of Silver Lake the monitoring station downstream of Silver Lake should be closer to the dam but still downstream of the confluence of the spillway and low level release channels. This would be only a few hundred feet downstream from the dam. The proposed monitoring site at AAO bridge is about 2 miles further downstream and this station no longer reflects the release from Silver Lake because of cold tributary inputs and aeration in the reach. My May 2006 report (attached) shows in table 2 on page 7 that the Dead River was about 2.6 degrees C colder at AAO vs immediately below the Lake in 2004 due to cold tributary inputs.

UPPCO Response: UPPCO will conduct water quality monitoring in 2008 and 2009 below Silver Lake at the County Road AAO bridge. UPPCO does not agree with MDEQ that the monitoring location should be changed for two reasons: 1) the County Road AAO monitoring location was originally agreed to by MDNR, MDEQ, and UPPCO during the original water quality monitoring plan development, and 2) this location will serve as an upstream monitoring location for the Dead River Storage Basin once Silver Lake is rebuilt (please refer to the original water quality monitoring plan submittal dated February 27, 2003).

Monitoring at the County Road AAO bridge was agreed to by UPPCO and the resource agencies in 2003 to assess water quality before entering the Dead River Storage Basin, and after discharge from the Hoist Powerhouse. Monitoring at the AAO bridge will allow for a proper evaluation of the water quality going into the Dead River Storage Basin and for a proper evaluation of the effects of refilling Silver Lake on water quality upstream and downstream of the Dead River Storage Basin. While the 2004 data did show a temperature difference between the monitoring location at the County Road AAO bridge and below Silver Lake, the temperature difference would be expected since the reservoir was only releasing water from the epilimnion. After the rebuild of Silver Lake, DO profiles conducted at the dam will provide temperature information on the water being released through the low level outlet.

MDEQ Comment: In addition, a temperature monitoring station should be added upstream of Silver Lake at the same location sampled in the pre-licensing period so that we can assess the temperature benefits of releasing water from the low level outlet compared to from the surface as in 2004.

UPPCO Response: UPPCO does not agree with MDEQ about monitoring upstream of Silver Lake to assess temperature benefits of releasing water from the low level outlet. UPPCO does not dispute that water coming into Silver Lake is colder than the surface water currently being released, as data collected by UPPCO in 2004 and presented in the MDEQ report shows this. Given that the Silver Lake Storage Basin is in the process of being rebuilt, UPPCO does not believe that measuring the temperature of surface water coming into a reservoir can be used to assess the temperature benefits of releasing water from a low level outlet (i.e, from the hypolimnion of a water body), when a hypolimnion is not present.

A similar situation to what MDEQ has recommended would be to use the water quality monitoring data collected below the Hoist Powerhouse to assess the temperature benefits of releasing water from the hypolimnion of the McClure Storage Basin. Monitoring data collected from 2005 through 2007 shows a significant temperature difference between the water temperature going into the McClure Storage Basin and the water temperature in the hypolimnion as measured during dissolved oxygen and temperature profiles of the reservoir. The monitoring data collected shows an assessment of a surface water temperature and the benefit of a low level outlet can not be conducted. The only way to assess the temperature benefit of a low level outlet is to measure the temperature in the Dead River before and after the rebuild of Silver Lake.

UPPCO is certain that temperature benefits will be observed by releasing water from the low level outlet at Silver Lake once the Storage Basin is rebuilt. Dissolved Oxygen profile data collected at the Dead River Storage Basin and McClure Storage Basins from 2005 through 2007 demonstrates the temperature differences between the epilimnion and hypolimnion in the reservoirs. In addition, a low level siphon was installed at the McClure Dam to benefit from this temperature difference. While the 2004 data did show a temperature difference between the monitoring location at the County Road AAO bridge and below Silver Lake, the temperature difference would be expected since the reservoir was only releasing water from the epilimnion. After the rebuild of Silver Lake, DO profiles conducted at the dam will provide temperature information on the water being released through the low level outlet.



Upper Peninsula Power Company

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April 10, 2008

FERC Project No. 10855

Ms. Christie Deloria
U.S. Fish and Wildlife Service
1924 Industrial Parkway
Marquette, MI 49855

Re: Proposed Amendment to Water Quality Monitoring Plan

Dear Ms. Deloria:

Upper Peninsula Power Company (UPPCO) is pleased to submit an amended water quality monitoring plan for the Dead River Hydroelectric Project for your review and comment.

Water quality monitoring has been conducted below the Hoist and McClure reservoirs during the 2005 through 2007 water quality monitoring seasons. The 2005 through 2007 monitoring periods can be characterized as atypical periods of high water temperatures, low precipitation, and consequently low water flow. UPPCO was in Dry Year Consultation with the resource agencies during these monitoring seasons. Despite the atmospheric conditions observed, deviations from water quality standards were not observed below the McClure Dam or the McClure Powerhouse during this time period. Given that deviations have not been observed over the past three monitoring seasons when below normal rainfall and warm water temperatures were observed, UPPCO proposes to cease water quality monitoring at these two sites.

Deviations from the dissolved oxygen and temperature water quality standards have been observed below the Hoist Powerhouse during the past three monitoring seasons. As a result of the observed deviations, UPPCO has conducted additional water quality monitoring below the Hoist Powerhouse to evaluate atmospheric effects on water quality and evaluated possible operational or physical changes at the Hoist Powerhouse to mitigate water quality deviations. The additional water quality monitoring conducted in 2007 below the Hoist Powerhouse indicated that dissolved oxygen concentrations do increase with distance from the Powerhouse. At the same time, water temperature within the Dead River also increases with distance from the Powerhouse due to atmospheric conditions. In addition, dissolved oxygen profiles taken in the Dead River Storage Basin has shown that the water temperature in the hypolimnion has been at or above the water quality standard for temperature.

A review of the current configuration of the Hoist Dam and Powerhouse generators indicates that there are no easy operational or physical modifications that can be conducted at the facility to mitigate water quality deviations. It is UPPCO's belief that rebuilding the Silver Lake Storage Basin will result in the release of cold water into the Dead River Storage Basin, which will in turn help mitigate temperature and dissolved oxygen deviations downstream of the Hoist Powerhouse by providing more cold water for the hypolimnion. Given that exceedances have been observed during years of below normal precipitation and water flow, the only remaining question is whether compliance with the water quality standards can be achieved below the

Ms. Christie Deloria
April 10, 2008
Page 2 of 2

Hoist Powerhouse during these periods once Silver Lake is rebuilt and is providing additional cold water to the Dead River Storage Basin.

As part of the rebuilding effort at Silver Lake, operational testing is scheduled to be conducted for the first three years after construction is completed (assuming normal precipitation is observed during those three years). Since operation of the Silver Lake Storage Basin will fluctuate until the operational testing is completed, UPPCO proposes the following water quality monitoring for the Dead River Hydroelectric Project:

- 2008 and 2009 – Monitor dissolved oxygen and temperature below the Silver Lake Reservoir at the County Road AAT Bridge (in the Township of Champion- SE ¼ of NE ¼, section 17, T48N, R25W) while construction and refilling of the reservoir is occurring to collect background information on dissolved oxygen and temperature of the water currently being released from Silver Lake.
- In the first year after operation test period, monitor dissolved oxygen and temperature below the Silver Lake Storage Basin and downstream of the Hoist Powerhouse, in the natural river channel in SE ¼, of the NE ¼ of Section 16, T48N, R28W (Township of Negaunee).
- In the first year after operation test period, conduct dissolved oxygen profiles and take secchi disk readings at the Silver Lake and Dead River Storage Basins near the release structure/intake structure at the respective developments.

Attached for your review is a proposed water quality monitoring plan. Please provide a response as soon as possible. Should you have any questions about the proposed plan, please do not hesitate to call me at (920) 433-1833. Thank you for your time and consideration.

Sincerely,



Mark W. Metcalf
Environmental Consultant – Air & Water
Telephone: (920) 433-1833

Enc.

cc: Ms. Jessica Mistak – MDNR
Mr. John Supnick - MDEQ
Mr. Pat Fulsher - UPPCO – UISC
Ms. Connie Granroth-Eerdley – UPPCO - UISC
Mr. Shawn Puzen – Integrys – GB

**Response to Comments from the US Fish and Wildlife Service on the proposed
Water Quality Monitoring Plan changes**

The US Fish & Wildlife Service did not respond with comments.