



Upper Peninsula Power Company
 1002 Harbor Hills Drive
 Marquette, MI 49855
www.UPPCO.com

April 30, 2018

FERC Project No. 10855-061

Ms. Kimberly D. Bose, Secretary
 The Federal Energy Regulatory Commission
 888 First Street NE
 Washington, DC 20426

Dear Secretary Bose:

Dead River Hydroelectric Project

Follow-Up 2016 Hoist Erosion Survey and 2017 Silver Lake Storage Basin Erosion Survey

Per the Federal Energy Regulatory Commission's (FERC) April 13, 2016 letter, Upper Peninsula Power Company (UPPCO) is to file 2016 survey results of a follow-up survey of one area on the north-east shoreline of the Dead River Storage Basin (DRSB) identified during the five-year survey conducted in 2015¹. The re-survey was completed on May 10, 2016, and its results are described below.²

In addition, UPPCO is also to file a report outlining the erosion survey results for the entire shoreline of the Silver Lake Storage Basin (SLSB) by March 1 of the year following the refill of SLSB. The five-year shoreline survey (2015 survey) could not be completed by boat in 2015 or 2016 because of the drawdown. Therefore, it was completed after the refilling of the reservoir on June 8, 2017, and its results are described below.

DRSB Erosion Site Follow-Up Survey Results

On May 10, 2016, as required, UPPCO completed a re-survey of the DRSB erosion area identified during the 2015 shoreline survey that could be caused by operation (Site 2015 46°33'58" 87°33'54"). UPPCO again voluntarily visited the same site on June 7, 2017. Both visits were documented by photographs to demonstrate the progress of stabilization or acceleration of erosion. The 2015, 2016, and 2017 photographs are available in Appendix A.

In viewing the photographs, the erosion has increased since 2015 as the woody vegetation/debris on the shoreline begins to slow the recession of the bank. At this time, any proposed stabilization measures which would most-likely involve toe protection with woody debris, would create more-intrusion than what is currently occurring. Therefore, UPPCO proposes to visit the site again in 2020 as part of the 5-year shoreline survey requirement of the Approved Shoreline and Bank Erosion Control Plan under Article 401 (approved plan). At that time, UPPCO will determine if active erosion is still occurring, and if so, make further recommendations.

Separate from the required re-survey of the one erosion area on the north-east side of the Basin (Site 2017 46°34'18" 87°35'03"), UPPCO also observed one area that is actively eroding on the 2017 volunteer review of the 2015 erosion site (See Appendix B). Since this site is being reported by UPPCO separate from the formal five-year reporting protocol, no determination of cause, severity, estimated size, and approximate soil type have been made.³ This site will be visited again in 2020 as part of the 5-year shoreline survey requirement of the approved plan. At that

¹ The site was reported to FERC on February 23, 2016.

² On March 23, 2018, the Commission granted an extension of time to file the re-survey report by May 1, 2018.

³ The important site qualities from an erosion-procession standpoint are visible on the photograph.

Ms. Kimberly D. Bose
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time, UPPCO will provide the required information of the five-year survey and determine if active erosion is recurring, and if so, make further recommendations for this site. A review in 2020 is reasonable because of the recent construction activity of the landowner and the unstable nature of the construction area surrounding the home.⁴

The draft report was provided to the Michigan Department of Environmental Quality (MDEQ) and the Michigan Department of Natural Resources (MDNR) on February 13, 2018. The MDNR provided comments on March 14, 2108. The MDNR comments are addressed in Appendix C. The MDEQ did not respond with comments.

SLSB Shoreline Erosion Survey

Following the return of SLSB to its normal reservoir elevation in 2017, UPPCO completed a shoreline erosion survey by boat on June 8, 2017. No active project-induced shoreline erosion was identified.

The draft report was provided to the MDEQ and MDNR on February 13, 2018. The MDNR provided comments on March 14, 2108. The MDNR comments are addressed in Appendix C. The MDEQ did not respond with comments.

Additional Information About Erosion Surveys

The MDNR references complaints in their March 14, 2018 comment letter. Prior to 2014, UPPCO received one complaint, but has not received any photographs or direct complaints in recent years. Because of the initial complaint, UPPCO has been voluntarily surveying the shoreline of the Dead River Storage Basin on a regular basis. The purpose of the voluntary surveys is to identify any erosion caused by high spring water levels.

Furthermore, UPPCO was copied on an April 11, 2018 letter addressed to the Michigan Department of Natural Resources (MDNR) from the Dead River Campers, Inc. (DRCI).⁵ The letter indicates the DRCI has received few complaints about shoreline erosion to date (See Appendix D).

To help individuals that do not have the benefit of observing the shoreline of the DRSB on a regular basis, UPPCO is providing photographs to explain the processes at work on the shorelines of the DRSB and the SLSB (See Appendix E).

UPPCO is not providing the photographs included in Appendix E to report areas of erosion. They are not considered erosion according to the approved plan and the areas of erosion being reported are enclosed in Appendices A and B. UPPCO's intent is to illustrate the character of the shoreline.

The intent is also to assist the reader(s) of this report to understand what is deemed as erosion by UPPCO during the five-year surveys. The photographs also show formation of the line of demarcation or ordinary high-water mark (OHWM) between the upland area and the reservoir bottom⁶.

⁴ Please note the silt fencing placed in the water to indicate recent activity.

⁵ The DRCI is the majority landowner on the DRSB where UPPCO has rights under an existing Water Power Easement Agreement dated October 7, 1999. Under that agreement, UPPCO has the right to comply with all lawful orders and FERC regulations respecting the project up to an elevation of at least 1346 feet NGVD (the project boundary elevation). Under the Water Power Easement Agreement, all shoreline owners (such as the DRCI and others) cannot unreasonably interfere with UPPCO for raising the reservoir elevation above 1341 feet NGVD up to an elevation of at least 1346 feet NGVD. The shoreline owners shall be deemed to have irrevocably waived any claim that they may have against UPPCO for damages resulting from elevations greater than at least 1346 feet NGVD.

⁶ The line of demarcation between the upland areas and reservoir bottom is commonly referred to as the ordinary high-water mark or (OHWM).

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UPPCO believes the definition of erosion employed by recent complainants is different from the definition of erosion in the approved plan. UPPCO has observed different riparian owners taking considerable effort to grade, re-slope, add topsoil to establish grass, build a beach, or build a gravel boat launch that extends onto the reservoir bottom or below the OHWM. In these situations, UPPCO has observed the riparian owner definition for erosion as any change to the work they completed (See Appendix E). UPPCO believes these changes that the riparian owners define as erosion is only the re-establishment of the OHWM on their changes to the shoreline.

On a micro-scale, such changes could be considered erosion. However, they suspend very little sediment and would not occur but, for the modifications that were made to the shoreline by the riparian owner. The re-establishment of the OHWM would occur regardless if it were a natural lake or a reservoir. Therefore, UPPCO does not survey or report such micro-erosion (re-establishment of the OHWM) during the reporting cycle.

In a slightly different situation, riparian owners have been observed removing the woody debris from their shoreline to provide a clear swimming area or removing the stabilizing vegetation when they install a new dock. But, for their actions to remove the shoreline protection, soil would not be exposed on the shoreline and erosion would not be occurring.

When shoreline changes are initially observed during the five-year surveys, and an actively eroding site (macro erosion) (see also Appendix D), the macro-scale erosion sites are reported. However, most often, they do not require action on the part of UPPCO because immediate actions often require disturbances greater than what is already occurring. Since the exposed soil is generally a product of a recent disturbance, UPPCO generally recommends a follow-up survey to determine the next course of action. The severity of the disturbance determines the schedule for the next survey. One observation at one point in time does not easily allow for a determination if it is actively eroding.⁷

If you have any questions, please contact me at (906) 232-1431.

Sincerely,

Virgil Schlorke
Director – Generation and Environmental Services

VES/ebr

Enclosures: Appendices A through E

cc:	Mr. Josh Ball, UPPCO	Ms. Amira Oun, MDEQ
	Mr. Ken Carruthers, UPPCO	Ms. Emily Rushford, UPPCO
	Ms. Elle Gulotty, MDNR	Mr. John Zygaj, FERC - CRO

⁷ In UPPCO's response to MDNR's September 8, 2005 comments submitted with the original plan for FERC approval on October 3, 2005, UPPCO clarified: "The purpose of the plan is to survey actively eroding sites caused by project operations. The purpose of the plan is not to provide research data, but to address erosion concerns caused by project operations."

APPENDIX A – 2015, 2016 and 2017 Dead River Storage Basin
Photographs

Site 2015 46°33'54" 87°33'54"



August 4, 2015 Photograph-Reservoir Elevation Approximately 1341.1

May 10, 2016 Photographs-Approximate Elevation 1342.3 feet NGVD







June 7, 2017 Photographs-Approximate Elevation 1342.7 feet NGVD





Appendix B – 2017 Photograph of Site 2017 46°34'18" 87°35'03"



Please note Silt Fencing

2017 Photograph of Site 2017-46°34'18'' 87°35'03''

Appendix C – Consultation Documentation



Upper Peninsula Power Company
1002 Harbor Hills Drive
Marquette, MI 49855
www.UPPCO.com

February 13, 2018

Consultation Draft

FERC Project No. 10855-061

SENT VIA EMAIL

Ms. Elle Gulotty, Michigan Department of Natural Resources
Ms. Amira Oun, Michigan Department of Environmental Quality

Dear Ms. Gulotty and Ms. Oun:

Dead River Hydroelectric Project
[Follow-Up 2016 Hoist Erosion Survey and 2017 Silver Lake Storage Basin Erosion Survey](#)

Per the Commission's April 13, 2016 letter, Upper Peninsula Power Company (UPPCO) is to file 2016 survey results of a follow-up survey of one area on the Dead River Storage Basin (DRSB) believed to be eroding due to project operations. The area is located on the northeast shoreline of the DRSB and was discovered during the 2015 erosion survey and reported to FERC on February 23, 2016. The re-survey was completed on May 10, 2016, and its results are described below.

In addition, UPPCO is also to file a report outlining the erosion survey results for the entire shoreline of the Silver Lake Storage Basin (SLSB) by March 1 of the year following the refill of SLSB. The shoreline survey in 2015 could not be completed by boat because of the drawdown. Therefore, it was completed on June 8, 2017, and its results are described below.

Due to a staffing change in August, UPPCO recently completed a review of its license requirements. During the review, UPPCO identified that it missed the 2016 reporting requirement for the re-survey of the DRSB site and that it also missed the 2017 reporting requirement for the SLSB shoreline survey. Thus, UPPCO is filing this information now and, since it had collected the DRSB site re-survey information again in 2017, it has also included it in this report.

[DRSB Erosion Site Follow-Up Survey Results](#)

On May 10, 2016, as required, UPPCO completed a re-survey of the DRSB erosion area identified during the 2015 shoreline survey. UPPCO again visited the same site on June 7, 2017. Both visits were documented by photographs to demonstrate the progress of stabilization or acceleration of erosion. The 2015, 2016, and 2017 photographs are available in Appendix A. In viewing the photographs, the erosion has not accelerated from the original documented state in 2015. Therefore, the presence of woody debris on the shoreline appears to maintain the bank such that it is not receding. UPPCO proposes to visit the site again in 2020 as part of the 5-year shoreline survey requirement of the Approved Shoreline and Bank Erosion Control Plan under Article 401.

Much discussion has occurred in the last few years about shoreline erosion from high-water elevations during spring runoff. To help understand the concerns voiced by shoreline



Ms. Gulotty and Ms. Oun
February 9, 2018
Page 2 of 2

Consultation Draft

residents, UPPCO is including in Appendix B pictures of the shoreline where anthropogenic changes have been made to the shoreline in front of residences including removal of accumulated woody debris and woody vegetation. Many of the changes have been made below the ordinary high-water mark (approximately 1344.6 feet NGVD; i.e. the top of the spillway at the dam). The concerns voiced by the landowners appear to be a re-establishment of the ordinary high-water mark resulting from their removal of woody debris and vegetation. The same situation is occurring on the SLSB where UPPCO made changes to the shoreline when the dam was rebuilt in 2008.

SLSB Shoreline Erosion Survey

Following the return of SLSB to its normal reservoir elevation in 2017, UPPCO completed a shoreline erosion survey by boat on June 8, 2017. No operation-induced shoreline erosion was identified. However, a photograph demonstrating establishment of an ordinary high-water mark in an area restored during the rebuild of Silver Lake in 2008 is included in Appendix C. The photograph in Appendix C does not demonstrate project-induced erosion but has been included to demonstrate re-establishment of the ordinary high-water mark where anthropogenic changes have been made to the shoreline.

If you have any questions, please contact me at (906) 232-1431.

Sincerely,



Virgil Schlorke
Director – Generation and Environmental Services

Enclosure: Appendices A through C

cc: Mr. Josh Ball, UPPCO Ms. Katie Kern, UPPCO
Mr. Kenneth Carruthers, UPPCO

Consultation Draft

APPENDIX A – 2016 and 2017 Dead River Storage Basin Re-Survey Photographs

Consultation Draft



August 4, 2015 Photograph-Reservoir Elevation Approximately 1341.1

Consultation Draft



May 6, 2016 Photograph-Reservoir Elevation Approximately 1342.7
No Change

Consultation Draft



June 7, 2017 Photograph-Reservoir Elevation Approximately 1342.7
No Change

Consultation Draft

Appendix B – Anthropogenic Changes on the Shoreline

Consultation Draft



Consultation Draft



Dead River Storage Basin Shoreline Modification - Reservoir
Elevation Approximately 1342.7

Consultation Draft



Consultation Draft



Consultation Draft

Appendix C – Silver Lake Storage Basin Photograph

Consultation Draft



June 8, 2017 Photograph – Reservoir Elevation Approximately 1485
Establishment of Ordinary High Water Mark

Michigan Department of Natural Resources Comments



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
LANSING



KEITH CREAMER
DIRECTOR

March 14, 2018

Mr. Virgil Schlorke
Upper Peninsula Power Company
1002 Harbor Hills Drive
Marquette, MI 49855

RE: DEAD RIVER HYDROELECTRIC PROJECT - SHORELINE EROSION REPORT (P-10855)

Dear Mr. Schlorke,

The Michigan Department of Natural Resources (MDNR) has reviewed Upper Peninsula Power Company's (UPPCO) February 13, 2018 Dead River Shoreline Erosion Report. The purpose of this letter is to discuss UPPCO's report regarding Hoist Basin under the Shoreline and Bank Erosion Control Plan, issued April 13, 2006, pursuant to Article 401 of UPPCO's Dead River Project License. In addition to specific comments regarding that report, MDNR would like to recommend approaches for staff to consider.

Article 401 requires UPPCO to file for Commission approval a shoreline and bank erosion control plan that includes: (1) a determination of the area influenced by project operations; (2) an erosion site inventory; (3) an assessment of reasonable erosion control alternatives available for each site; (4) implementation dates for erosion control options; and (5) proposed methods to identify and control future project related erosion and sedimentation.

In UPPCO's October 4, 2005 filing of the Shoreline and Bank Erosion Control Plan, the shoreline site inventory (item 2 above) should include:

- Cause of erosion (natural slumping, recreation, operation)
- Severity of Erosion (ranking of 1 to 5)
- Estimated size (length and height)
- Approximate soil type (clay, organic, sand)
- Additional observations (comments)

UPPCO proposed to have surveys be identical to 2005 and provide similar information. In their 2005 filing UPPCO said that if project-induced erosion sites were identified in the future, an assessment of reasonable control methods would be conducted and provided along with a proposed implementation schedule. Also in the October 4, 2005 filing; UPPCO responded to a question about coordinating with landowners on both education and repair of shoreline erosion as follows "...If active erosion is identified on private property, UPPCO will contact the landowner and help them to identify options for them to correct the erosion."

Ordering Paragraph C of FERC's April 13, 2006 Order Approving Shoreline and Bank Erosion Control Plan states that "...future surveys must be conducted in compliance with the same requirements of Article 401."

February 13, 2018 Report

Mr. Virgil Schlorke, Upper Peninsula Power Company
Dead River, Hoist Erosion Report

March 14, 2018

Currently, two narratives compete for resource agency attention: the riparian's view and the view of UPPCO. Some riparian stakeholders at Hoist Basin have shared observations of shorelines where they live with MDNR and MDEQ staff. These observations led some folks living on the reservoir to believe project operations, especially sustained higher elevations and timing of reaching targets led to increased erosion. UPPCO suggested in their February 13, 2018 report that the erosion is caused by riparian owners; "The concerns voiced by the landowners appear to be a re-establishment of the ordinary high-water mark resulting from their removal of woody debris and vegetation." Inquiries about the timing of activities by riparians identified as potentially causing erosion, compared to the erosion observed were not resolved. Generally, an effect cannot precede its cause. Minimally, knowledge of the timeline and the spatial proximity of shoreline circumstances observed is necessary to consider whether the two phenomena are related.

Regarding requirements outlined in Ordering paragraph C, and the commitments outlined in UPPCO's 2005 filing,

- UPPCO has provided limited evidence to refute the original identification that the site was potentially caused by project operation.
- UPPCO's photos do not support their conclusion that the erosion has not accelerated and that the woody debris on the shoreline means the bank is not receding.
 - o The photo included, though of poor resolution, appears to show woody debris 'falling in' further in the more recent photo than previous years, indicating the accelerated erosion continues (See photo panel A).
- UPPCO has not provided any suggested control methods or implementation plans associated with the erosion observed. Instead, it seems like UPPCO is contending that the erosion is not project induced as originally suspected, that there is no erosion issue, or there is no responsibility of UPPCO to address it due to a claim that the erosion is the fault of riparians.
 - o On the latter point, as noted earlier, UPPCO has stated "if active erosion is identified on private property, UPPCO will contact the landowner and help them to identify options for them to correct the erosion."

Absent compelling evidence to the contrary, MDNR's *a priori* expectation is that some responsibility for shoreline health depends on the riparian's practices on shoreline and adjacent land, but not, as UPPCO suggested in its report, sole or even primary responsibility for any accelerated erosion in the reservoir. In order to have evidence of what is causing erosion or the extent to which activities of various parties are exacerbating erosion, a meaningful baseline is needed, so that changes in erosion trajectories can be compared to either the acute land use practices of the nearby riparians, or the broad operations-driven changes in reservoir level.

Recommendations

In order for future years of monitoring to be meaningful, improvements to the recently employed procedure described in the February 2018 report should be discussed, developed and implemented such that baseline conditions relevant to the agreed upon procedure can be documented in the next possible survey season. Improvements to the current method of conducting an erosion site inventory would help protect aquatic health and resources, increase efficiency of identifying reasonable erosion control alternatives for each site, and allow for timely implementation of practices to minimize or prevent project-related erosion and sedimentation. Applying a standardized, thoughtful framework would allow for greater understanding.

Mr. Virgil Schlorke, Upper Peninsula Power Company
Dead River, Hoist Erosion Report

March 14, 2018

To aid in determining whether the two narratives described earlier are plausible, and what weight should be given to each as a likely driver of shoreline erosion, the following should be conducted:

- Compare to monuments: Present day conditions and shoreline features should be compared to descriptions and monuments, potentially including monuments created during the platting out of lands in the vicinity of the project. The differences between those data and present context (first available field season) can be compared future to surveys UPPCO plans to conduct.
- Establish photopoints: As part of comparing present day to the past, and creating a baseline for the future, photopoints should be established and used to document changes or lack of changes during each survey. Several methods of distributing photo points to have representative coverage are plausible. At a minimum, photo points should be of sufficient detail to document whether exposed slopes are healing, whether they are getting worse and by how much. Photopoints should:
 - o Document conditions at several developed and undeveloped sites
 - Developed sites should include a range of riparian practices, from those with natural shorelines, to those with manicured lawns
 - o Include sites with shoreline vegetation and natural structure, sites without, and in varying proximity to the project development
 - o For reference, photopoints are described well in http://www.fs.fed.us/eng/rsac/invasivespecies/documents/Photopoint_monitoring.pdf

Following the collection of these data:

- Differences between present conditions and platted boundaries could support the UPPCO's selection of the site considered in 2015, or allow for identification of different or additional sites
- A difference in erosion observed between undeveloped and developed sites could support a conclusion about the cause of erosion being potentially related to riparian activity
- Riparian landowner practices can be documented as preceding erosion (if erosion develops) and likely be viewed as more credible by those landowners if documented clearly
- Practices of riparian landowners can be compared in a space-for-time substitution along the reservoir and justify adoption of BMP's
- Overall patterns in the reservoir can be compared to operational parameters conducted by UPPCO in the years between surveys and used to inform their impact.
- A meaningful baseline will be available for prioritization of implementing changes or adoption of BMP's by UPPCO and others

I am looking forward to discussing these recommendations for improved monitoring as well as any alternatives and solutions UPPCO might have for addressing these concerns. Thank you for the opportunity to comment. If you have any questions or feel additional clarification would help, please feel free to contact me at:

Mr. Virgil Schlorke, Upper Peninsula Power Company
Dead River, Hoist Erosion Report

March 14, 2018

MARQUETTE CUSTOMER SERVICE CENTER
MICHIGAN DEPARTMENT OF NATURAL RESOURCES
1990 US HWY 41 SOUTH
MARQUETTE MI 49855

Sincerely,



Elle Gulotty
Resource Analyst
Habitat Management Unit
FISHERIES DIVISION
(906) 228-6561 x 3002

cc: Burr Fisher, USFWS, E. Lansing
Amira Oun, Michigan DEQ, Lansing, MI
Jessica Mistak, HMU Supervisor, Escanaba Field Office, Gladstone MI

Continued: Photo Panel A

Mr. Virgil Schlorke, Upper Peninsula Power Company
Dead River, Hoist Erosion Report

March 14, 2018



Panel A: photos from UPPCO's Appendix A with areas in yellow to highlight soil loss and red to document large woody debris falling into reservoir, potentially due to erosion inland.

Reponses to Michigan Department of Natural Resources Comments

Comment:

The Michigan Department of Natural Resources (MDNR) has reviewed Upper Peninsula Power Company's (UPPCO) February 13, 2018 Dead River Shoreline Erosion Report. The purpose of this letter is to discuss UPPCO's report regarding Hoist Basin under the Shoreline and Bank Erosion Control Plan, issued April 13, 2006, pursuant to Article 401 of UPPCO's Dead River Project License. In addition to specific comments regarding that report, MDNR would like to recommend approaches for staff to consider.

Article 401 requires UPPCO to file for Commission approval a shoreline and bank erosion control plan that includes: (1) a determination of the area influenced by project operations; (2) an erosion site inventory; (3) an assessment of reasonable erosion control alternatives available for each site; (4) implementation dates for erosion control options; and (5) proposed methods to identify and control future project related erosion and sedimentation.

In UPPCO's October 4, 2005 filing of the Shoreline and Bank Erosion Control Plan, the shoreline site inventory (item 2 above) should include:

- *Cause of erosion (natural slumping, recreation, operation)*
- *Severity of Erosion (ranking of 1 to 5)*
- *Estimated size (length and height)*
- *Approximate soil type (clay, organic, sand)*
- *Additional observations (comments)*

UPPCO proposed to have surveys be identical to 2005 and provide similar information. In their 2005 filing UPPCO said that if project-induced erosion sites were identified in the future, an assessment of reasonable control methods would be conducted and provided along with a proposed implementation schedule. Also, in the October 4, 2005 filing; UPPCO responded to a question about coordinating with landowners on both education and repair of shoreline erosion as follows "...If active erosion is identified on private property, UPPCO will contact the landowner and help them to identify options for them to correct the erosion."

Ordering Paragraph C of FERC's April 13, 2006 Order Approving Shoreline and Bank Erosion Control Plan states that "...future surveys must be conducted in compliance with the same requirements of Article 401."

UPPCO Response:

The MDNR has attempted to describe the requirements of the five-year monitoring protocol. In the February 13, 2018 report provided for MDNR comment, only the portion pertaining to the survey of Silver Lake Storage Basin follows the five-year monitoring protocol required by the Approved Shoreline Bank Erosion Plan under

Article 401 of the current license (approved plan). No erosion sites were identified on Silver Lake Storage Basin (SLSB) and the protocol was followed.

For the follow-up survey of the one site on the Dead River Storage Basin (DRSB) (Site 2017 46°34'18" 87°35'03"), UPPCO provided a follow-up photograph in the report. In the draft report provided to the MDNR and MDEQ, no follow-up was recommended. However, after review, UPPCO has modified the report and has provided a follow-up recommendation to re-visit the location in 2020.

The MDNR has quoted select portions of UPPCO's response to the MDNR comments in its October 4, 2005 filing to the Commission. However, it has neglected to point out other clarifications made in the UPPCO responses that again need to be entered into the record as follows:

MDNR comment made in September 8, 2005 letter: "3.0 Area Influenced by project operations-The last sentence of the paragraph is unclear. The DNR recommends that all shoreline erosion, regardless of perceived cause, should be surveyed."

UPPCO Response: "The last sentence has been clarified. The purpose of the plan is to survey actively eroding sites caused by project operations. The purpose of the plan is not to provide research data, but to address erosion concerns caused by project operations."

Comment:

Currently, two narratives compete for resource agency attention: the riparian's view and the view of UPPCO. Some riparian stakeholders at Hoist Basin have shared observations of shorelines where they live with MDNR and MDEQ staff. These observations led some folks living on the reservoir to believe project operations, especially sustained higher elevations and timing of reaching targets led to increased erosion. UPPCO suggested in their February 13, 2018 report that the erosion is caused by riparian owners; "The concerns voiced by the landowners appear to be a re-establishment of the ordinary high-water mark resulting from their removal of woody debris and vegetation." Inquiries about the timing of activities by riparians identified as potentially causing erosion, compared to the erosion observed were not resolved. Generally, an effect cannot precede its cause. Minimally, knowledge of the timeline and the spatial proximity of shoreline circumstances observed is necessary to consider whether the two phenomena are related.

UPPCO Response:

UPPCO has clarified such topics as re-establishment of the ordinary high-water mark, woody debris, vegetation, and the riparian's role in the additional information section of the report.

Additionally, UPPCO provides the following information to support its current survey and reporting protocol:

- 1) The riparian owners have been observed making shoreline modifications based upon an assumed water elevation of 1341 feet NGVD.
- 2) Their activities often occur below the 1344.6-foot elevation of the spillway at the Hoist Dam and due to the configuration of the Hoist Dam, discharges are limited to approximately 330 cubic feet per second when the reservoir

elevation is below the spillway crest. This results in a regular rise of the reservoir elevation above 1341 feet (beyond UPPCO's control) during high flow events such as spring runoff and an established ordinary high-water mark (OHWM) of approximately 1344.6 feet (spillway crest elevation).

- 3) There are limited riparian complaints of erosion. These are due to the regular rise of the reservoir elevation to 1344.6. At that time, the shoreline modifications made by the riparian owners are impacted even because they completed their shoreline modifications on the bottom of the reservoir (i.e. below the OHWM of 1344.6 feet).
- 4) The amount of woody debris available on the shoreline, if left undisturbed by the shoreline owner, will allow the shoreline to stabilize itself. The requirements of the Organic Debris Plan under Article 409 are consistent with this approach.

Comment:

Regarding requirements outlined in Ordering paragraph C, and the commitments outlined in UPPCO's 2005 filing,

- UPPCO has provided limited evidence to refute the original identification that the site was potentially caused by project operation.

- UPPCO's photos do not support their conclusion that the erosion has not accelerated and that the woody debris on the shoreline means the bank is not receding.

- The photo included, though of poor resolution, appears to show woody debris 'falling in' further in the more recent photo than previous years, indicating the accelerated erosion continues (See photo panel A).

- UPPCO has not provided any suggested control methods or implementation plans associated with the erosion observed. Instead, it seems like UPPCO is contending that the erosion is not project induced as originally suspected, that there is no erosion issue, or there is no responsibility of UPPCO to address it due to a claim that the erosion is the fault of riparians.

- On the latter point, as noted earlier, UPPCO has stated "if active erosion is identified on private property, UPPCO will contact the landowner and help them to identify options for them to correct the erosion."

UPPCO Response:

UPPCO has clarified the report and has recommended actions to continue future monitoring for the two DRSB erosion sites because repair actions at this time could cause more disturbance than what is currently occurring.

Comment:

Absent compelling evidence to the contrary, MDNR's a priori expectation is that some responsibility for shoreline health depends on the riparian's practices on shoreline and adjacent land, but not, as UPPCO suggested in its report, sole or even primary responsibility for any accelerated erosion in the reservoir. In order to have evidence of what is causing erosion or the extent to which activities of various parties are exacerbating erosion, a meaningful baseline is needed, so that changes in erosion trajectories can be compared to

either the acute land use practices of the nearby riparians, or the broad operations-driven changes in reservoir level.

In order for future years of monitoring to be meaningful, improvements to the recently employed procedure described in the February 2018 report should be discussed, developed and implemented such that baseline conditions relevant to the agreed upon procedure can be documented in the next possible survey season. Improvements to the current method of conducting an erosion site inventory would help protect aquatic health and resources, increase efficiency of identifying reasonable erosion control alternatives for each site, and allow for timely implementation of practices to minimize or prevent project-related erosion and sedimentation.

Applying a standardized, thoughtful framework would allow for greater understanding.

To aid in determining whether the two narratives described earlier are plausible, and what weight should be given to each as a likely driver of shoreline erosion, the following should be conducted:

- *Compare to monuments: Present day conditions and shoreline features should be compared to descriptions and monuments, potentially including monuments created during the platting out of lands in the vicinity of the project. The differences between those data and present context (first available field season) can be compared future to surveys UPPCO plans to conduct.*
- *Establish photopoints: As part of comparing present day to the past, and creating a baseline for the future, photopoints should be established and used to document changes or lack of changes during each survey. Several methods of distributing photo points to have representative coverage are plausible. At a minimum, photo points should be of sufficient detail to document whether exposed slopes are healing, whether they are getting worse and by how much. Photopoints should:*
 - *Document conditions at several developed and undeveloped sites*
 - *Developed sites should include a range of riparian practices, from those with natural shorelines, to those with manicured lawns*
 - *Include sites with shoreline vegetation and natural structure, sites without, and in varying proximity to the project development*
 - *For reference, photopoints are described well in http://www.fs.fed.us/eng/rsac/invasivespecies/documents/Photopoint_monitoring.pdf*

Following the collection of these data:

- *Differences between present conditions and platted boundaries could support the UPPCO's selection of the site considered in 2015, or allow for identification of different or additional sites*
- *A difference in erosion observed between undeveloped and developed sites could support a conclusion about the cause of erosion being potentially related to riparian activity*
- *Riparian landowner practices can be documented as preceding erosion (if erosion develops) and likely be viewed as more credible by those landowners if documented clearly*
- *Practices of riparian landowners can be compared in a space-for-time substitution along the reservoir and justify adoption of BMP's*
- *Overall patterns in the reservoir can be compared to operational parameters conducted by UPPCO in the years between surveys and used to inform their impact.*

- *A meaningful baseline will be available for prioritization of implementing changes or adoption of BMP's by UPPCO and others*

UPPCO Response:

Without having to rely on a theoretical approach recommended by the MDNR, UPPCO's field experience and previous erosion monitoring data on the shorelines of the SLSB and DRSB, dictates the following conclusions:

- 1) The protocol outlined in the approved plan is a standardized, thoughtful framework. It is also a practiced and practical framework that has demonstrated it accomplishes the objectives of Article 401 of the project license on a case-by-case basis in a progressive manner.
- 2) The current monitoring protocol already employs the use of photographs of areas found actively eroding from the same vantage point for comparison from year to year.
- 3) A wide-scale baseline as recommended by the MDNR is not necessary. Establishing baseline photographs on a case-by case basis follows the protocol outlined in the approved plan and has been more than adequate in assuring the overall shorelines remain stable.
- 4) The objective of Article 401 of the project license is to inventory active erosion sites. It does not have the objective of characterizing the entire shoreline of all three reservoirs as recommended by MDNR.

Absent any valid complaints and the April 11, 2018 affirmation of few erosion complaints from the DRCI, there are no valid reasons provided by the MDNR to support a change in the monitoring protocol at this time.

The Michigan Department of Environmental Quality did not
Respond with Comments

Appendix D – April 11, 2018 Letter from the Dead River Campers,
Inc. to the Michigan Department of Natural
Resources



Dead River Campers, Inc.

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April 11, 2018

Ms. Elle Gulotty
Resource Analyst
Habitat Management Unit
Michigan Department of Natural Resources
1990 US Highway 41 South
Marquette, MI 49855

RE: Dead River Hydroelectric Project – Requested Planned Deviations of Start of Month Target – Article 402 (P-10855)

Dear Ms. Gulotty:

On behalf of the Dead River Campers, Inc. Board of Directors, representing nearly 400 camper/shareholders on and around the Hoist Storage Basin, we would like to present the following observations related to UPPCO's requested license deviations:

There seems to be three reoccurring issues in your correspondences and we would like to offer our view on them.

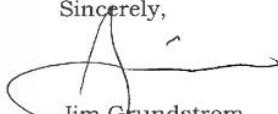
Utilizing the Low-Level Outlet to lower the Basin in times of "High Water." It's the board's opinion that this only be utilized when water cannot be passed through the turbines, or extremely high water which creates an emergency situation. Based on our water power lease agreement with UPPCO, 1346 appears to be the project boundary. Dumping water prematurely floods out areas below to Lake Superior, wastes a valuable resource and causes low water later in the summer, when the recreation season is in peak activity. It is critical to our shareholders that we have target elevation water or slightly higher May 15th – August.

Erosion. Erosion is inevitable during times of high and low water, especially with boat traffic. This board has been presented with few complaints of erosion to date. It should also be noted; the basin was originally designed for and ran at elevations up to and greater than 1347. This elevation was utilized throughout the 60+ years Cleveland Cliffs Iron Company ran the impoundment. To put it into perspective, an elevation of 1343 is actually four feet lower than the original spill way.

License deviations. With every winter and spring being different, and a static license, we feel there is real value in license deviations. UPPCO has presented sound reasoning for all requested deviations and every one was given board approval. The 1342-1343 deviation of March 2016, which you referenced is a perfect example as this particular deviation was **unanimously** approved. Spring rains cannot be accurately predicted, therefore a deviation to the high side is preferred. Once the water from the spring season and Silver Lake are gone, there is no recovery available to save our summer boating season.

We find it puzzling that this previously seamless process has become so convoluted. If the elected board can be of any assistance, please do not hesitate to contact us.

Sincerely,



Jim Grundstrom
DRCI President

Appendix E –Shoreline Modification Examples

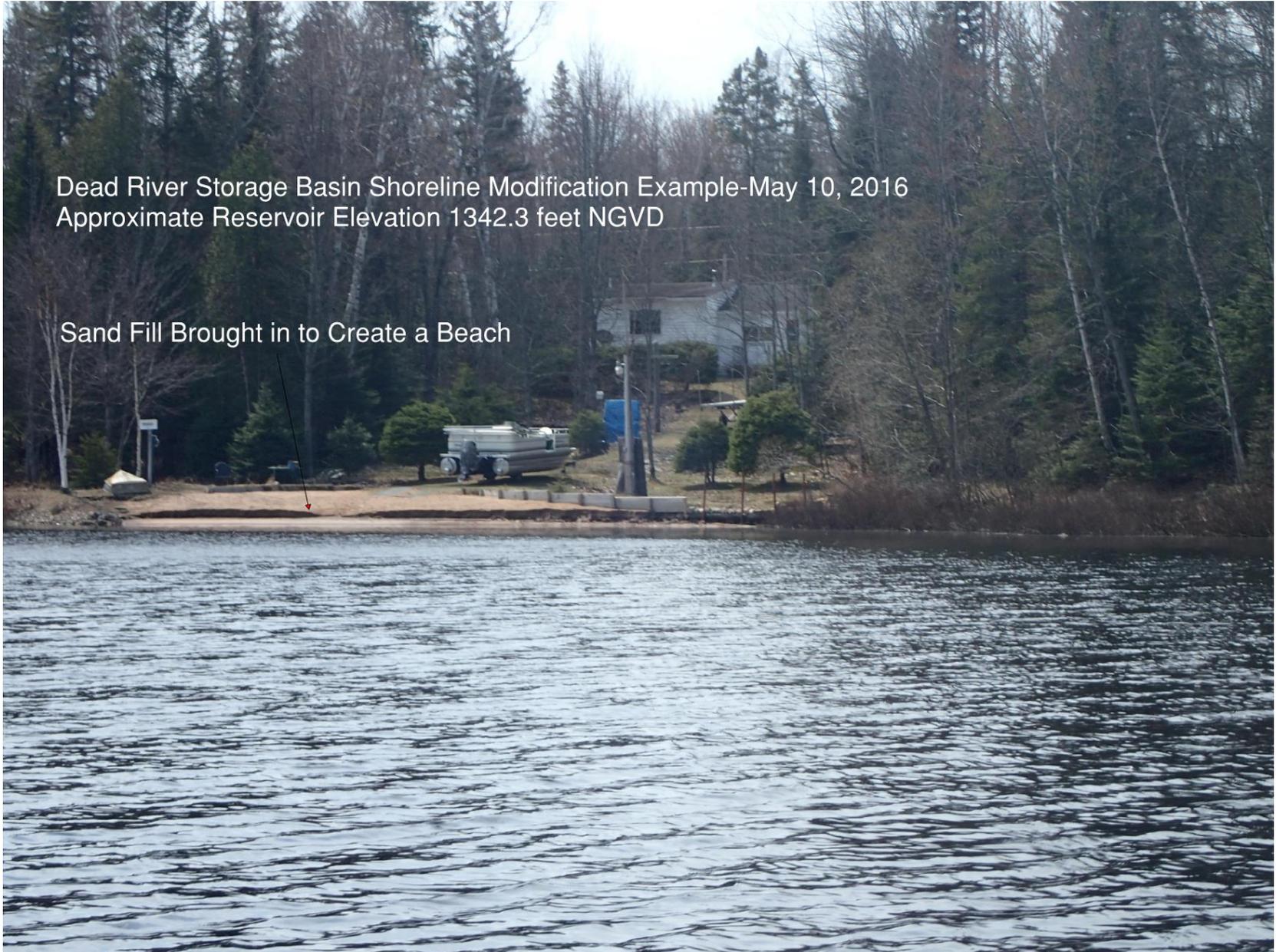
Dead River Storage Basin Shoreline Modification Example-May 10, 2016
Approximate Reservoir Elevation 1342.3 Feet NGVD

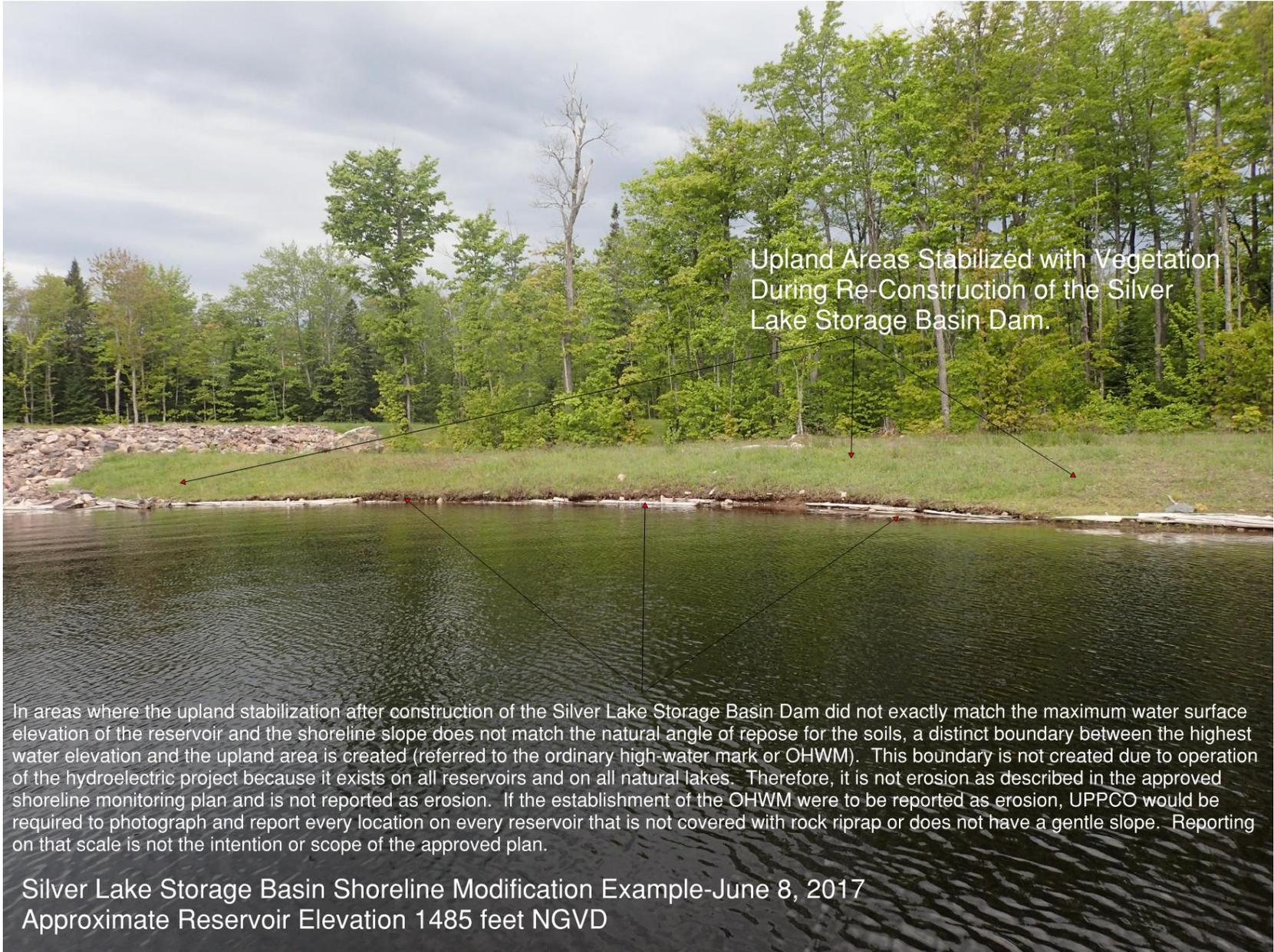
Entire Shoreline Re-Graded By Owner



Dead River Storage Basin Shoreline Modification Example-May 10, 2016
Approximate Reservoir Elevation 1342.3 feet NGVD

Sand Fill Brought in to Create a Beach



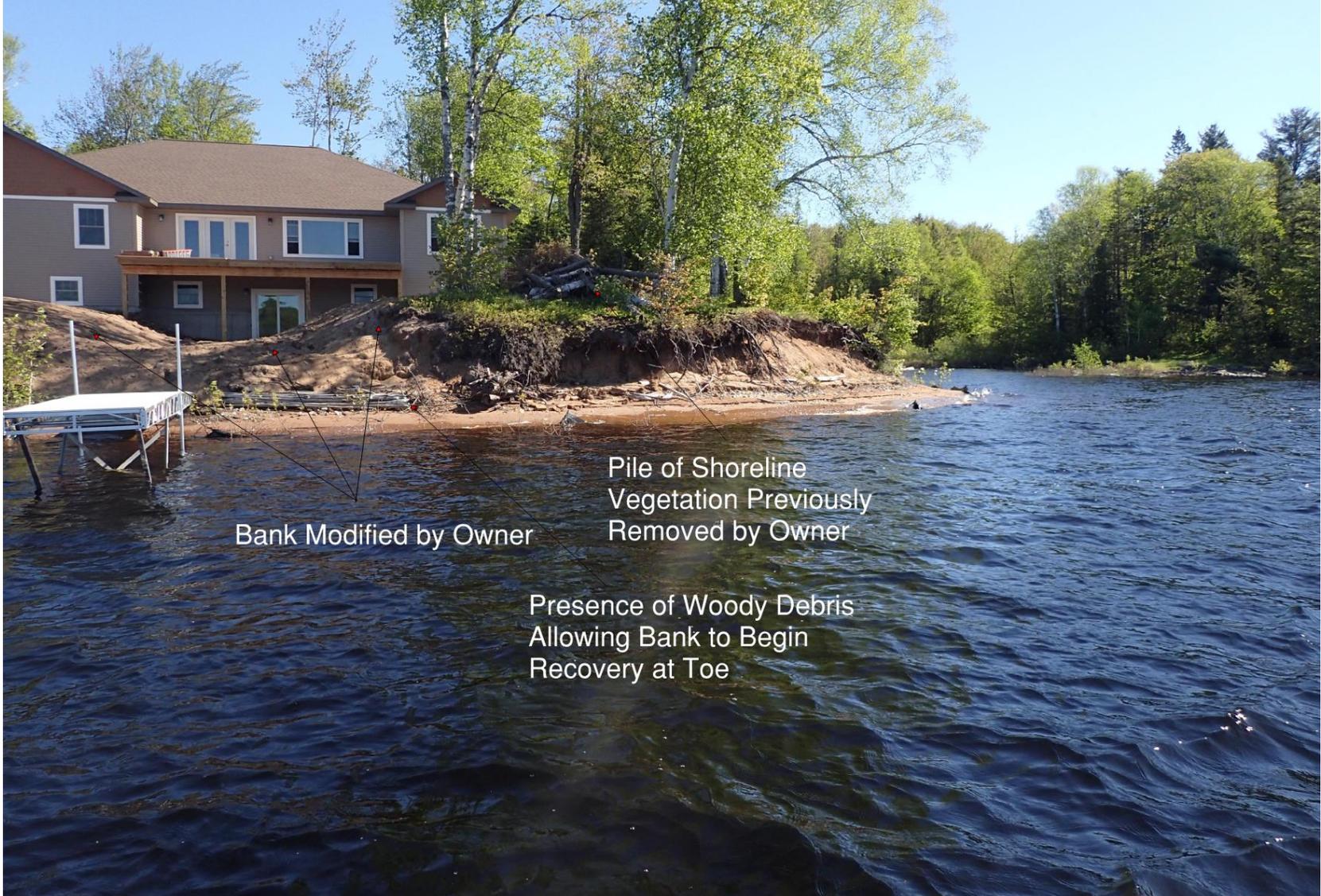


Upland Areas Stabilized with Vegetation During Re-Construction of the Silver Lake Storage Basin Dam.

In areas where the upland stabilization after construction of the Silver Lake Storage Basin Dam did not exactly match the maximum water surface elevation of the reservoir and the shoreline slope does not match the natural angle of repose for the soils, a distinct boundary between the highest water elevation and the upland area is created (referred to the ordinary high-water mark or OHWM). This boundary is not created due to operation of the hydroelectric project because it exists on all reservoirs and on all natural lakes. Therefore, it is not erosion as described in the approved shoreline monitoring plan and is not reported as erosion. If the establishment of the OHWM were to be reported as erosion, UPPCO would be required to photograph and report every location on every reservoir that is not covered with rock riprap or does not have a gentle slope. Reporting on that scale is not the intention or scope of the approved plan.

Silver Lake Storage Basin Shoreline Modification Example-June 8, 2017
Approximate Reservoir Elevation 1485 feet NGVD

Dead River Storage Basin Shoreline Modification Example - June 7, 2017
Approximate Reservoir elevation 1342.7 Feet NGVD



Bank Modified by Owner

Pile of Shoreline
Vegetation Previously
Removed by Owner

Presence of Woody Debris
Allowing Bank to Begin
Recovery at Toe



Same Shoreline Area Stabilizing with
Vegetation When not Disturbed and
Woody Debris Remains.

Dead River Storage Basin Shoreline Modification – Reservoir Elevation
Approximately 1342.7

Document Content(s)

20180430 DRV Erosion Report.PDF.....1-47