



July 11, 1994

Ms. Lois Cashell, Secretary
Federal Energy Regulatory Commission
825 North Capital Street, N.E.
Washington, D.C. 20426

94 JUL 12 AM 10:51
REGULATORY COMMISSION

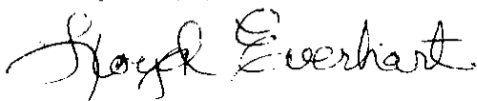
RE: CHIPPEWA FALLS HYDROELECTRIC PROJECT: FERC PROJECT NO. 2440 - 002
COMPLIANCE PLANS PURSUANT TO LICENSE ARTICLES 403, 404, 406,
407, 410, 411, 412, AND 413.

Dear Madam Secretary,

The new license for the Chippewa Falls Project, issued January 14, 1994, requires Northern States Power Company (NSP) to develop and file with the commission compliance plans for the above referenced license articles. The eight attached plans are filed for commission approval pursuant to the license order. An original and eight copies have been provided of each plan.

Should there be any questions on the attached plans, they may be directed to me by telephone at 715-839-2692.

Very truly yours,



Lloyd Everhart, Administrator
Hydro Licensing & Environmental Studies

enc.

c: R. Olson
T. Lovejoy (WDNR)
L. Oborny (USFWS)
A. Tornes (NPS)

9407180082

FILED DOCUMENTED
JUL 12 1994

**COMPLIANCE PLAN FOR MONITORING DOWNSTREAM MINIMUM
FLOW AND HEADWATER AND TAILWATER ELEVATIONS**

ARTICLE 403

CHIPPEWA FALLS LICENSE (FERC NO. 2440)

**PLAN TO COMPLY WITH ARTICLE 403 OF THE
CHIPPEWA FALLS LICENSE (FERC NO. 2440)**

ARTICLE 403 DOCUMENTATION

Within 180 days of license issuance, the Licensee shall file with the Commission for approval a plan to: (1) install a continuous telephone link-up at the U.S. Geological Survey gaging station located 1 mile downstream of the Chippewa Falls Project; (2) install and maintain automatic water level sensors to continuously monitor and record headwater and tailwater elevations and maintain a daily record of project operations data; (3) maintain a staff gage on the upstream wall of the project dam; and (4) install and maintain a staff gage in the tailwater area to monitor compliance with minimum flow requirements and impoundment fluctuation limits, as stipulated by articles 401 and 402, respectively.

The following plan addresses each item numbered in the License article.

(1) Interconnection With USGS Gage: The U.S. Geological Survey (USGS) gage located one mile downstream of the Chippewa Falls project contains a data logger which can be used to remotely retrieve information on river stage using a modem. River stage can be converted to flows in cubic feet per second (cfs) by using stage-discharge formulas developed by the USGS. The stage-discharge formulas are routinely updated and calibrated by personnel of the USGS to account for changes in river flow conditions at the location of the stage measurement. In the 90-year history of the USGS gage below the Chippewa Falls project, there have been only 25 different stage-discharge ratings performed. Routine measurements are taken periodically by USGS personnel to insure the values are within \pm five percent. If values consistently fall outside this range, a new stage-discharge rating will be determined. The Licensee will work with the USGS to obtain the most up-to-date stage-discharge formula to insure accurate determination of flow at the USGS gage.

The National Weather Service currently maintains the data logger on-site at the USGS gage. The USGS intends to replace the digital recorder that it currently uses with a data logger in July or August of 1994. The continuous recording data logger will not record instantaneous stage measurements. The gage is currently equipped with solar panels which provides only enough power to operate the equipment at 15-minute intervals during a 24-hour period.

Stage measurements as well as the flow measurement will be retrieved daily by NSPW from the gage site via a computer-activated telephone link-up. The telephone link-up between the USGS gage and the Wissota project will be completed before December 31, 1994. The data will be downloaded to a computer located at the Licensee's Wissota project located directly upstream from the Chippewa Falls Project. Hydro operators at the Wissota project remotely operate the units at the Chippewa Falls project. The computer at the Wissota project will enable NSPW to document compliance in 15 minute increments over the term of the new license. Instantaneous

measurements can be determined by calling the USGS gage and selecting the instantaneous command from the menu.

Daily determinations will be made by operators of the number and the percentage of time that flows are reduced to levels at or slightly above the minimum flow. For the required minimum flow 785 cfs, the number and percentage of time that flows are reduced below 785 and 850 cfs will be determined. The number and percentage of time that flows are reduced below 1,000 and 1,200 cfs for a minimum flow of 1,000 cfs will be determined. Flow information will be kept on file (disk and hard copy?) through the course of the new license and copies will be mailed to the Agencies within 30 days of receipt of any request.

Agency personnel may obtain flow data for the site by either calling NSPW's Wissota Hydro Plant (715/723-6816) or by interfacing directly with the USGS gaging station by dialing 715/723-6889 and following the attached procedures.

(2) Monitoring Headwater and Tailwater Elevations: Headwater elevations for the Chippewa Falls project are monitored by hydro operators at the Wissota project using a digital readout. A continuously recording headwater gage is located at the Chippewa Falls project and instantaneously records headwater elevations. The Wissota project is continually-manned and headwater information from the Chippewa Falls project is hand recorded at hourly intervals on a daily log sheet. The daily log sheet, which also contains generation and flow information, is filed for future reference. The daily log sheets and chart recordings will be kept through the term of the new license and copies will be provided to the Agencies upon request, within 30 days.

The licensee will install a continuously recording circular chart to document tailwater elevation in the tailrace of the Chippewa Falls powerhouse. The device will be installed in time to document the new minimum flow when the work on the runners is complete or by December 31, 1994. Hourly readings of tailwater elevation and headwater elevation will be recorded on daily log sheets at the Wissota project. The data sheets and chart recordings will be stored on-site through the course of the new license. Copies will be mailed to the Agencies within 30 days from the date of the agencies' request.

(3) Headwater Staff Gauge: The Licensee currently maintains a headwater staff gauge at the Chippewa Falls project in the forebay area. The Licensee will install an additional staff gage on an outside wall of the plant which will designate the maximum allowable headwater fluctuation range. The staff gage will be visible to the public from the upstream highway bridge. The headwater staff gauge will be installed by December 31, 1994.

(4) Tailwater Staff Gauge: The Licensee currently maintains a tailwater staff gage on the downstream wall of the Chippewa Falls project. The Licensee will modify the existing staff gage to designate the water elevation corresponding to the 785 cfs and the 1000 cfs required minimum flows. The staff gage will be visible to the public at the Duncan Creek access directly

downstream of the Chippewa Falls project. The tailwater staff gage will be installed by December 31, 1994.

Instructions on how to interface the USGS gage below the Chippewa Falls hydro project using a computer.

The telephone number for the USGS gage below the Chippewa Falls hydro project is 715/723-6889.

1. Get into communications menu and select Procomm Plus.
2. Select ALT D to get the dial menu.
3. Page down to go to Page 3 or 4 of the listings.
4. Select the LARC you want to dial.
5. Once the LARC answers, the SHEF identification will be displayed. The SHEF identification for the Chippewa Falls USGS gage is CHFW3.
6. The following commands can be used:

W Lists the latest stage. Another W gives the previous version.

CTRL S Lists how many observations are available. You must type in the number of hours that you want to see.

```
GDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD6  
: Choice:  
HMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM<  
Alt-Z FOR HELP3 ANSI      3 HDX 3   1200 N81 3 LOG CLOSED 3 PRINT OFF 3 ON-LINE
```

**COMPLIANCE PLAN FOR MONITORING
DISSOLVED OXYGEN LEVELS**

ARTICLE 404

CHIPPEWA FALLS LICENSE (FERC NO. 2440)

**PLAN TO COMPLY WITH ARTICLE 404 OF THE
CHIPPEWA FALLS LICENSE (FERC NO. 2440).**

ARTICLE 404 DOCUMENTATION

At least 90 days before implementation of the permanent minimum flow releases stipulated in article 401, the Licensee shall file with the Commission, for approval, a plan to monitor dissolved oxygen (DO) levels of the Chippewa River downstream of the project.

DISSOLVED OXYGEN MONITORING STUDY PLAN

History and description of areas of potential dissolved oxygen (DO) depletion.

During the relicensing process, personnel from the Wisconsin Department of Natural Resources (WDNR) documented several side channel areas downstream from the Chippewa Falls project which experienced reduced DO levels during the low flow phase of the Chippewa Falls Project's daily operation cycle. A combination of low nightly minimum flow and low DO water from bank storage were the apparent cause for the reduced DO levels. These areas became isolated from the main river channel under the then existing minimum flow of 300 cfs. The minimum flow was generally released during the nighttime hours during low flow periods.

Personnel from Licensee's staff and the WDNR's fisheries group documented several fish stranding areas during low flow conditions between the Chippewa Falls project and the State Highway 53 bridge downstream. The fish stranding areas were mapped during low flow conditions. Several of the fish stranding locations were the same that experienced reduced DO levels.

In June of 1992, an attempt was made by the WDNR and Northern States Power Company (NSPW) to survey these areas to determine the magnitude of the fish stranding problem and the total area influenced by the DO reductions at the new minimum flow of 785 cfs (recorded at the USGS gage). In July and August of 1992, heavy equipment operators from NSPW's special construction group created openings to all of the fish stranding locations. The openings were made at very low flows to insure that the depths of the channels were adequate for fish movement into and out of the areas that became isolated. The depths of the channel areas were assumed to be more than adequate for the new minimum flow of 785 cfs.

These areas were surveyed immediately after spring runoff in April of 1993 and after the sizable flood in June of 1993. A concern was that the channel areas would become isolated as a result of high flows relocating stream bottom materials. All of the historical fish stranding areas were found to be still open and appeared to be in the same condition as the day that they were created.

The problem areas for fish stranding and DO depletion include the following sites that will be evaluated as part of the DO monitoring plan:

1. Directly downstream of the Main Street bridge on the south side of the river. This area includes four isolated pockets that were connected during 1992.
2. Directly downstream of the Main Street bridge on the north side of the river. This area includes one isolated pool and one larger sized embayment which had a channel that remained open at 785 cfs (measured at the USGS gage). This area was remedied during the 1992 work by connecting the pool and embayment through a dredged channel.
3. The area located directly downstream of the Chippewa Falls hydro plant on the north side of the river between the north bank of the river and the two small islands. A channel was created during the 1992 work which insures that sufficient water flow is present during low flow conditions in the channel and through the small pool between the two islands.
4. On the south side of the river, opposite the Chippewa Falls sewage treatment facility and upstream from the rock piles from the old bridge. This area was not modified during the 1992 work but is assumed to have adequate water flow under the new minimum flow.
5. The area at the USGS gage on the south side of the river. This area experienced reduced DO conditions during the summer of 1990. During the 1992 reconnaissance, it was determined that this area was not as significant a problem as previously surveyed under very low flow conditions.
6. The final area is located directly upstream of the State Highway 53 bridge along the south shore of the river. This area includes three small isolated pools and one small embayment which were connected to the main river via a shallow channel. This area was opened up during the 1992 work utilizing a series of channels that run into and out of the existing shallow pools.
7. Any other areas which meet the specifications listed below.

DO Monitoring Study Scope

The initial stage of the DO monitoring study will begin during June of 1995 after the new minimum flow of 785 cfs goes into effect at the Chippewa Falls project. Initial observations will be made on the condition of the areas previously listed to determine if these areas remain isolated during minimum flow periods. Flows will be allowed to stabilize at the minimum flow for at least eight hours prior to the reconnaissance survey. In addition, other areas to be selected for further DO monitoring include all non-flowing backwaters that follow a list of conditions that were identified in a WDNR memorandum (May 27, 1992, Paul Laliberte to Tom Lovejoy) and they include:

1. Areas connected to the river channel through a channel of at least six inches depth.
2. The dimension of the problem area is at least 1000 square feet.
3. Any isolated pool that has a maximum depth of at least 18 inches.

Once specific areas of concern are located, the locations will be discussed with the resource agencies for their approval. After approvals are obtained, the second stage of monitoring will begin.

The second stage of monitoring will involve assessing dissolved oxygen in the areas that were identified during the reconnaissance survey. The DO monitoring will be conducted in July and August when water temperatures are the warmest and the percent saturation of DO is the lowest. Sampling will be performed during the pre-dawn hours after generation has been reduced to the minimum flow for a minimum of eight hours. This will insure that sampling takes place at times during the lowest flow period. Dissolved oxygen and temperatures will be measured at mid-depth in the middle of each backwater area at a rate of approximately one sample per each 1,000 square feet of backwater. Multiple samples will be taken at locations which exceed 1,000 square feet of area and each sampling point will be marked on an existing map. The size of the area will be estimated and a maximum depth determined.

If sampling results indicate satisfactory DO levels at the new minimum flow (to be determined through consultation with the resource agencies), NSPW will consider the monitoring adequate and the issue resolved. If significantly reduced levels of DO are found in some of the areas sampled, and there is a demonstrated need for additional work, heavy equipment from NSPW's special construction crew will be deployed to connect these areas to the main river channel. This will also be done after consultation with the resource agencies. Additional remediation will be done through the term of the new license if the DO problem persists.

Presentation of Results.

Information on the DO monitoring results will be forwarded to the resource agencies for their review and comment immediately proceeding the completion of the field work. A decision will be made on what will need to be done, if anything, to satisfy the DO requirements. After a reasonable solution has been reached between the resource agencies and NSPW, the field data sheets, recommendations from the resource agencies, and proof of consultation with the resource agencies will be forwarded to the FERC.

Schedule for implementing the plan, consulting with the Agencies and filing appropriate information with the FERC.

The following outlines the schedule to be followed for the DO monitoring plan:

June, 1995: Initial reconnaissance of the areas of concern between the Chippewa Falls project and the State Highway 53 bridge.

July, August, 1995: Monitor DO conditions in the areas determined appropriate from the reconnaissance survey.

September 15, 1995: Forward results to the resource agencies and determine additional remediation needs, if any (30 day comment period).

October, November, 1995: Conduct additional remediation, if necessary.

December 31, 1995: File information on field data, resource agency recommendations and correspondence with the FERC.

**COMPLIANCE PLAN FOR MAKING CHANNEL
MODIFICATIONS DOWNSTREAM OF THE
CHIPPEWA FALLS HYDRO PROJECT**

ARTICLE 406

CHIPPEWA FALLS LICENSE (FERC NO 2440)

**PLAN TO COMPLY WITH ARTICLE 406 OF THE
CHIPPEWA FALLS LICENSE (FERC NO. 2440)**

ARTICLE 406 DOCUMENTATION

Within 180 days of license issuance, the Licensee shall file with the Commission, for approval, a plan to make channel modifications in the Chippewa River downstream of the project.

The Licensee has already performed the necessary channel modifications downstream from the Chippewa Falls Project. The following information describes the locations of some of the fish entrapment areas and the modifications that were made to remedy the situation.

1.0 Location and description of previous channel modifications. The Licensee made modifications to portions of the river channel downstream of the Chippewa Falls Project in 1992. The modifications took place directly downstream from the dam spillway and in the shoal areas located along a 2.5 mile river segment between the Chippewa Falls Project and the U.S. Highway 53 bridge. The work was done in direct consultation with the Wisconsin Department of Natural Resources (WDNR), the U.S. Fish and Wildlife Service (USFWS) and the Army Corps of Engineers (COE) (Attachment A). The following is a description of the channel modification projects that have been completed as part of the relicensing of the Chippewa Falls Project.

1.1 Channel modifications below the spillway gates. In July and August of 1992, heavy equipment operators from NSPW's special construction group dredged channels that connected several of the pools located directly downstream of the spillway gates to the main channel of the river. The intention of this project was to allow fish that became trapped in the pools after closure of the spillway gates to move downstream to the main river channel. The channel modifications in this area have reduced the elevation of the pools slightly but has offered fish an escape route to the main river.

The problems with fish stranding downstream of the Chippewa Falls spillway have occurred below spillway gates #1, #2, #4, and #9 through #13. A channel was dredged through rock rubble and bedrock from the pool below spillway gate #4 down to the main river channel (see picture #1). An escape channel was also excavated that connected the large pool downstream of spillway gates #9 through #13 to the main river channel (see picture #2). The excavation of the two channels involved moving rock rubble and pulverizing sections of bedrock to open up channels of suitable depth for fish movement. Additional rock was excavated out of the area downstream of spillway gates #1 and #2 to eliminate additional fish stranding areas (picture #3).

The excavated material was reestablished on-site and was used to armor the boundaries of the channels or to fill in depressions in the exposed bedrock to prevent further fish stranding during

the closing of the spillway gates. The integrity of the channels has held up very well through two spring runoff seasons as well as through the flood of 1993. The Licensee proposes to survey these areas in the future after flow events greater than 35,000 cfs to insure that flows do not relocate some of the rock rubble material in the channels.

The channel modification project below the spillway has had limited environmental impact on the aquatic resources in this area. Fish stranding incidents have been reduced significantly since the project was completed and these improvements far outweigh any environmental impact that the channel modification project may have had on the aquatic resources in this segment of river.

The Licensee met recently with the WDNR and the USFWS to discuss the development of compliance plans for the Chippewa Falls Project (May 18, 1994 meeting, Attachment A, Section 8.0). Personnel from the WDNR's fishery management staff indicated that the current condition of the channels below the spillway gates is adequate but should be monitored annually or as high flows dictate. The Licensee has agreed to do further modifications if the periodic monitoring indicates additional entrapment areas have redeveloped.

The Licensee proposed a plan to the Agencies to remove some of the loose boulders downstream from the Chippewa Falls spillway for stabilization of the south bank of the spillway section. Removal of the rocks should alleviate some of the future problems that might occur as high flows relocate the rock rubble material. The WDNR's fish manager agreed to allow NSPW to use the rock rubble for riprapping the south bank of the spillway as long as depressions were not left behind that could result in potential fish stranding pockets. The removal of rock rubble for the dike stabilization project will be completed in 1994.

1.2 Channel modifications in the shoal areas. The second portion of the channel modification project involved remediation work on some of the shoal areas (cobble and gravel areas) between the Chippewa Falls Project and the U.S. Highway 53 bridge located approximately 2.5 miles downstream. Historically, these shoals acted as fish entrapment areas when flows were reduced at the Chippewa Falls Project. The purpose of the channel modifications in these areas was to insure that there were open escape channels that fish could utilize in the event that flows were reduced from the Chippewa Falls Project. The magnitude of the fish stranding areas were documented during the summer of 1988 and again during June of 1992 after the new minimum flows of 785 and 1,000 cfs had been negotiated. Channel modifications took place in July and August of 1992. The work was performed under low flow conditions (~500 cfs) to insure that escape channel depths would be adequate at flows well below the new minimum flows of 785 and 1,000 cfs.

The reshaped shoals were monitored immediately after spring runoff in April of 1993 and again after high flows in June of 1993 (60,300 cfs, USGS determined it to be between a five and ten year flood). A concern was that the dredged channels would fill in as a result of high flows relocating stream bottom materials. The monitoring survey indicated that all of the previously dredged channels remained opened and retained suitable water depths for fish escape. The

majority of the shoals monitored appeared to be in the same condition as the day that they were dredged.

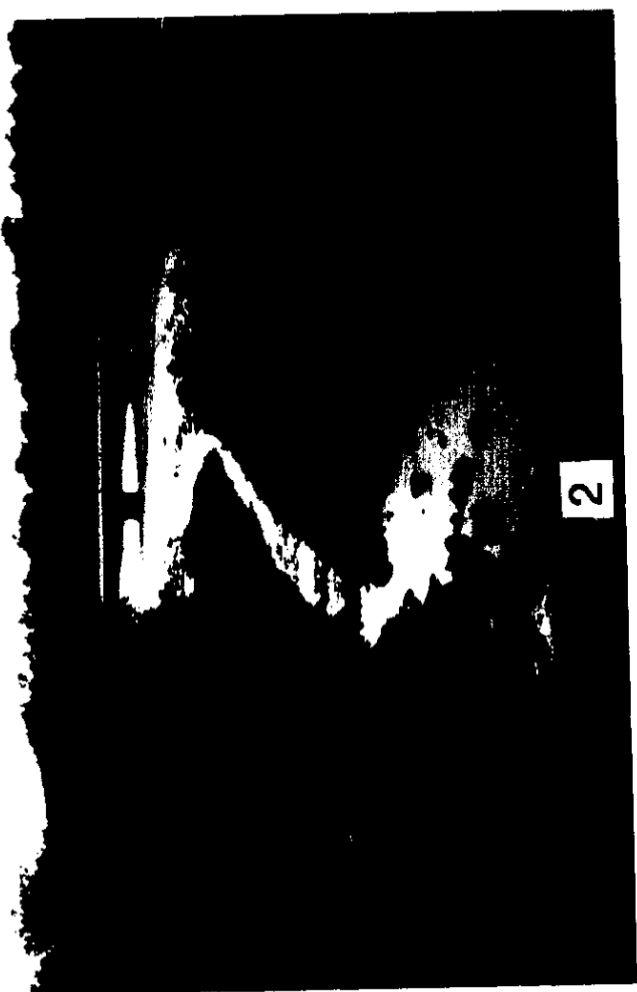
The problems with fish stranding occurred at several of the shoal areas downstream of the Chippewa Falls project as a result of low flow conditions combined with the limited gradient. The locations of these shoal areas and the remediation efforts performed during the summer of 1992 are outlined below:

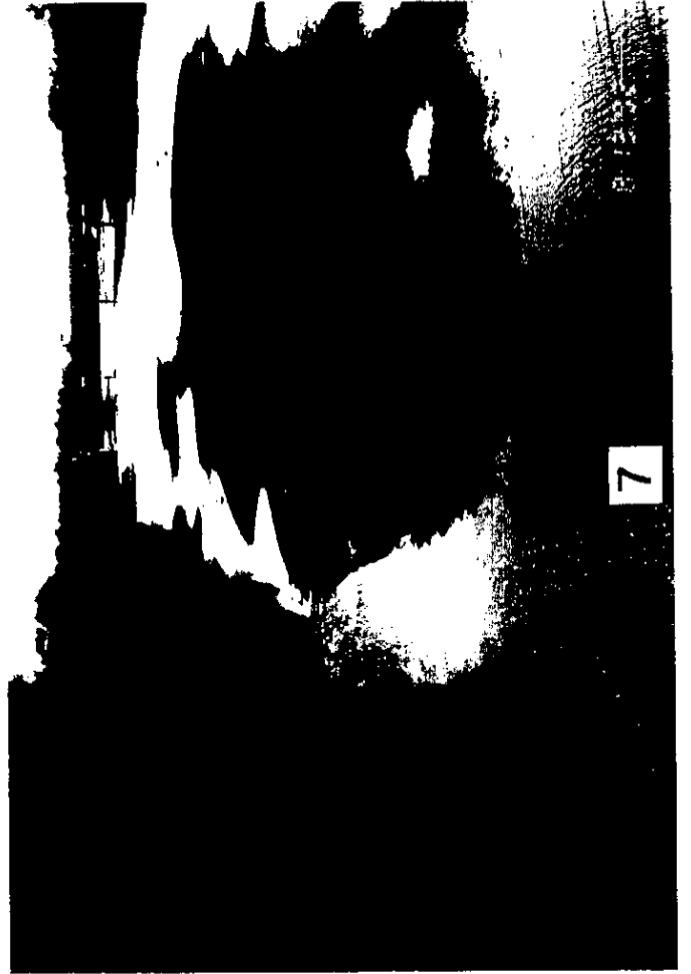
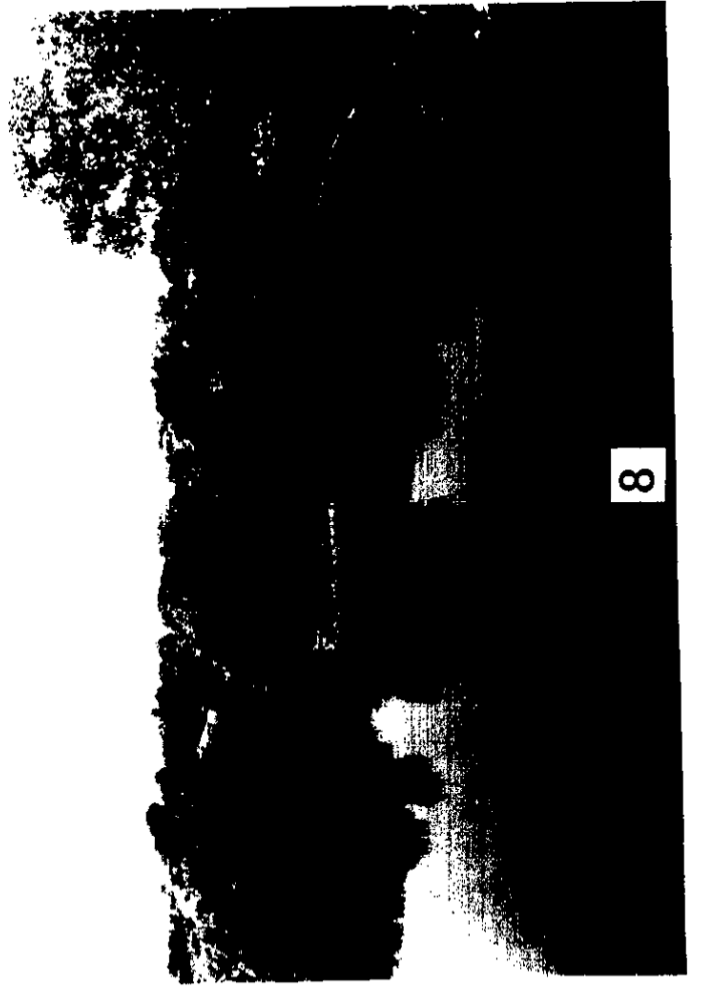
- Site #1. This area is located directly downstream of the Main Street bridge on the south side of the river (picture #4). This area includes four isolated pockets that were connected together and to the main river channel (picture #5).
- Site #2. Site #2 is located directly downstream of the Main Street bridge on the north side of the river (picture #6). This area included one isolated pool and one larger embayment which had a channel that remained open at 785 cfs (measured at USGS gage). This area was remedied during the 1992 work by connecting the isolated pool and embayment to the main channel through a dredged channel that followed the direction of flow in the river (picture #7).
- Site #3. This area is located directly downstream of the Chippewa Falls plant on the north side of the river between the north bank of the river and the two small islands (picture #8). A channel was dredged during the 1992 work which insures that sufficient water flow is present during low flow conditions in the channel and through the small pool between the two islands (picture #9).
- Site #4. The final area is located directly upstream of the U.S. Highway 53 bridge along the south shore of the river. This area includes three small isolated pools and one small embayment which were connected to the main river via a shallow channel (picture #10). This area was opened up during the 1992 work utilizing a series of channels that run into and out of the existing shallow pools (picture #11).

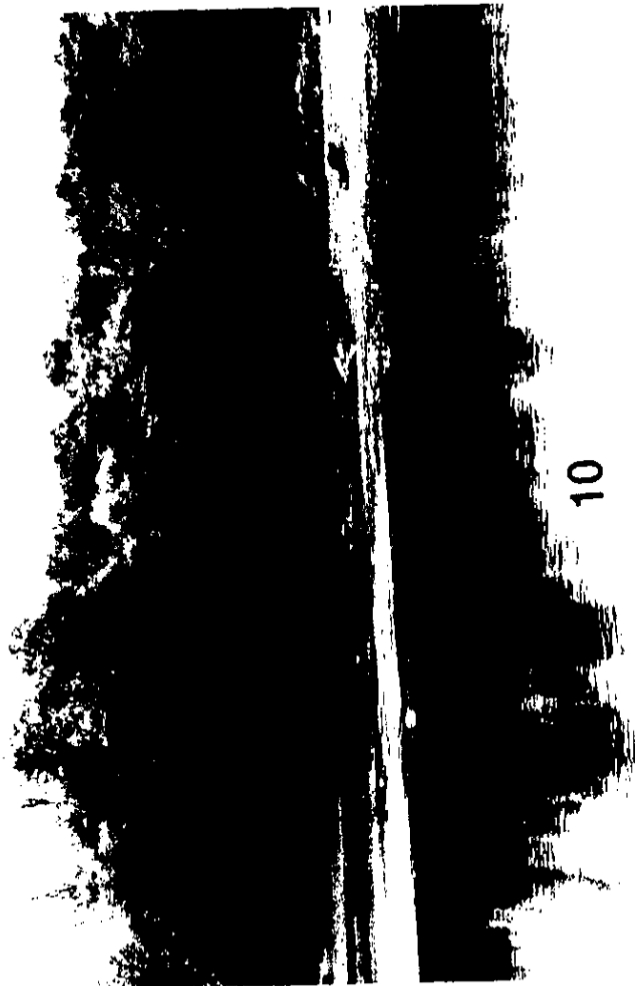
The material from the dredging in the shoal areas was comprised of a cobble/gravel/sand mixture. The material was used to fill depressions within the shoal. The impact to the aquatic resources was limited to disturbance of the bottom material which may have affected macroinvertebrates populations. The impact was likely inconsequential because the majority of the work was conducted on a portion of the shoals that are often dewatered.

The follow-up monitoring that has been conducted since the 1992 work indicates the openings have held up well in the two years since the original dredging. The Licensee will survey these areas on an annual basis or as high flows dictate. If additional fish stranding areas are located as part of the routine monitoring, the Licensee will bring in heavy equipment as soon as possible to remedy the situation.

2.0 Monitoring of the effectiveness of the channel modifications. A plan to monitor the effectiveness of the channel modifications through the term of the new license has been developed as part of Article 407 of the Chippewa Falls license. The plan details the monitoring strategy, consultation activities with the resource agencies, and a schedule of when specific items are to be completed.







ATTACHMENT A
AGENCY CORRESPONDENCE



Sent 6/3/94



Northern States Power Company

100 North Barstow Street
P.O. Box 8
Eau Claire, WI 54702-0008
Telephone (715) 839-2621

June 2, 1994

(SENT TO LIST OF AGENCY PERSONNEL IN ATTENDANCE)

**RE: DRAFT MEETING MINUTES FOR THE MAY 18, 1994 MEETING DISCUSSING
THE RELICENSING OF THE HOLCOMBE PROJECT (FERC NO. 1982) AND
THE CHIPPEWA FALLS PROJECT (FERC NO. 2440).**

Enclosed are the draft meeting minutes from the May 18, 1994 meeting discussing issues concerning relicensing studies at the Holcombe Project and the development of compliance plans for the Chippewa Falls Project.

Please review and send me your comments by June 20 so that the minutes can be finalized as soon as possible. If you have any comments or questions in regards to this matter, please feel free to give me a call at 715/839-1353.

Sincerely,

Robert W. Olson
Coordinator, Licensing

Enclosure

c: Lloyd Everhart (NSPW)
Pam Rasmussen (NSPW)
Donnie Anderson (NSPW)

List of people attending the May 18, 1994 relicensing meeting on Holcombe (FERC No. 1982) and Chippewa Falls (FERC No. 2440) Hydro Projects.

Meeting Participants.

Tom Lovejoy (WDNR)
Lloyd Everhart (NSPW)
Rob Olson (NSPW)
Paul Laliberte (WDNR)
Buzz Sorge (WDNR)
Joe Kurz (WDNR)
Pam Rasmussen (NSPW)
Donnie Anderson (NSPW)
Larry Oborny (USFWS)
Brian Guthman (LHIA)
Monica Gross (TWL)

Holcombe and Chippewa Falls
Relicensing Meeting
May 18, 1994
Meeting Minutes

Attendees: See attached list.

Holcombe

1.0 Status of environmental studies.

1.1 Recreational Use Survey. Lloyd Everhart and Rob Olson spent some time discussing the recreational use assessment at Holcombe. NSPW has hired a person who lives on Lake Holcombe to conduct a recreational use survey on Lake Holcombe. The survey began on 7 May and will possibly extend into next winter depending on the quantity of use. A finalized study scope addressing recommendations from the agencies and the Lake Holcombe Improvement Association (LHIA) will be forwarded to the pertinent people.

1.2 Creel Survey. NSPW has hired a creel survey clerk to conduct a creel survey. The creel survey began on 7 May and will run until the end of March of 1995. The survey will be discontinued in November due to unpredictable weather and limited fishing opportunities. The clerk has gained some experience on Lake Holcombe helping Joe Kurz with fyke netting and shocking during his spring surveys.

It was discussed and decided that NSPW and the Agencies would cooperatively conduct a public information meeting to discuss all of the studies that are being performed on Lake Holcombe. The meeting will be held after sufficient data and results are available to make a meaningful presentation.

1.3 Water Quality Study (Section 22 - Corps of Engineers Grant). Buzz Sorge spent some time discussing the status of the Section 22 Grant for Lake Holcombe. An agreement needs to be made between the WDNR and the LHIA on the transfer of money to the Corps of Engineers. Total cost of the project is \$325,000 with NSPW and the WDNR each contributing \$50,000 to \$70,000. The grant work will begin this summer with the lake mapping effort. The budgeting and project specifics will be finalized soon and will be sent to all interested parties participating in the relicensing process.

1.4 Status of Wissota Grant Work. Buzz relayed information that Mike Delong (Winona State University) is in the process of sampling for recolonization rates of macroinvertebrates in Lake Wissota as part of the lake drawdown assessment. Sampling will be completed in mid-June and a final report will be issued by this September. A public information meeting on the findings of the EPA Grant will be held sometime next September.

1.5 Fish Stranding Remediation. It was decided between Joe and NSPW that some form of fish stranding assessment needs to be done downstream of the Holcombe spillway gates. NSPW

will set up an exercise with the appropriate resource agency people this summer to observe several different spillway gate operations and resolve any potential problems. NSPW's stated preference for correcting fish stranding areas is physical remediation.

1.6 General Biological Survey. Lloyd stated that the request for proposal (RFP) was sent out in April and NSPW has received proposals from four consulting firms. The biological studies will entail work on forage fish, catfish and sturgeon populations, spawning success of different fish species, fisheries work in the backwater bays and general observations of waterfowl, aquatic mammals, amphibians and reptiles. Joe will provide input to Lloyd to help him make a decision on who will be selected to do the work. A finalized scope of work will be sent to the resource agencies for their review.

Tom requested that Lloyd send him a copy of Terry Balding's mussel report on the lower Flambeau, Chippewa, and Jump Rivers. Joe mentioned that Bob Hay, a herpetologist with the WDNR in Madison, should be contacted about pertinent studies taking place at Holcombe. There was mutual agreement between several of the agency people that Dave Heath of the WDNR become involved early in the relicensing process at Holcombe to avoid some of the last minute delays experienced at other projects.

2.0 Attempts at resolution of disagreements on entrainment/turbine mortality, upstream fish passage and downstream flow concerns.

2.1 Entrainment/Turbine Mortality. Lloyd met recently with Harza Engineering concerning possible studies at Holcombe. Harza has had a lot of experience conducting and reviewing fish entrainment and turbine mortality studies. Harza will be preparing a feasibility study of doing an entrainment study at Holcombe. They will review information from other entrainment studies performed and based on their experience make recommendations for potential study alternatives for the Holcombe project.

Initial conclusions from Harza indicate that turbulence and velocity may be a serious problem at Holcombe which could discourage tailwater netting due to netting restrictions, high net induced mortality, and worker safety concerns. Lloyd stated that it might be possible to perform forebay netting although NSPW has some serious reservations. Tom mentioned that we need to gather information on mortality as well as species and numbers. Lloyd indicated that it might be possible to get mortality information through introduction and recovery of Turb'N Tagged fish.

Tom asked Joe if the WDNR has developed a standard or guidelines for protection measures to prevent or minimize entrainment and turbine mortality. Joe responded that they had not. Monica Gross indicated that many companies have looked into louvers and barrier nets. Lloyd responded that those devices have limited application and that the effectiveness has not been thoroughly tested. Joe stated that the primary fishery objective is to manage the flowages separately; meaning that the WDNR would like to see the fish remain in the flowages.

Lloyd indicated that it might be possible to collect entrainment data at Chippewa Falls and apply it at Holcombe. Chippewa Falls has one-half the flow as Holcombe without the water boil in

the tailrace. Tom questioned the group as to what happens if a study can't be performed. Lloyd stated that we would have to look at other sites and make comparisons. Tom stated that if things don't work out right away, get FERC involved. Lloyd stated that EPRI is interested in working with NSPW to test the effectiveness of the one inch racks at Chippewa Falls.

2.2 Upstream Fish Passage. NSPW plans to have Harza adapt the feasibility study that was compiled for Chippewa Falls for providing upstream fish passage at the Holcombe dam. They will look at trap and transfer, elevators and ladders. Tom mentioned that Holcombe is a more conducive site in comparison to Chippewa Falls because of the pool staging area downstream. Joe felt that NSPW needs to evaluate the different systems available and state the limitations. Tom agreed and felt that a determination of possible locations of the facility should be included in the feasibility study.

Tom questioned Joe whether upstream fish passage was necessary at Holcombe. Joe felt it was necessary considering the downstream movement of fish. Monica stated that the WDNR and hydro owners in the eastern part of the state are looking at upstream fish passage. Two Canadian experts are in the state soon to look at several sites on the Menomonie River. Joe felt that an attempt should be made to get the two experts to look at upstream fish passage at all of the Chippewa River projects. Monica tried to contact these people about coming to the area and looking at the Chippewa River projects but arrangements were not made because of the short notice.

Joe and Lloyd will discuss feasibility of providing upstream fish passage at Holcombe as the Harza study proceeds.

2.3 Downstream Flow Concerns. Lloyd stated that NSPW is opposed to doing an IFIM study below Cornell. NSPW believes that the WDNR should honor the previous agreement between NSPW and WDNR made in the mid-1970's. At that time, a Memorandum of Understanding was signed between NSPW and the WDNR which stipulates that the flow issue was considered resolved if the minimum flow unit was placed in the plant. The minimum flow unit was installed which resulted in a significant economic investment by NSPW. Tom responded to Lloyd that times have changed and techniques and methods of assessing flow conditions have changed. NSPW responded that the minimum flow machine provides the only means of delivering increased minimum flows without spilling water through spillway gates. NSPW then repeated its offer to operate the minimum flow machine at full gate, rather than efficient gate, which will increase the volume of flow to approximately 400 cfs. This offer was viewed as unacceptable by the WDNR because they believe they need IFIM data to assess habitat conditions under various flows.

Tom questioned Lloyd as to what went on at the meeting with George Meyer (Secretary, WDNR). Lloyd mentioned that the same issues addressed last Fall with the district directors were talked about at the meeting. No commitments were made at the meeting. Lloyd stated that NSPW tried to make George aware of the economics of the Chippewa River projects and the importance of peaking operations. George indicated that the Department would seek environmental protection measures that make economic sense and that economic viability of hydro projects will not be sacrificed.

Tom questioned how to address downstream flow concerns if a study is not performed. Lloyd asked whether or not there were any other alternatives. Tom mentioned that this issue should be revisited in the next several weeks and one last attempt should be made before taking it to FERC. Tom also mentioned that a study should be done up front so that it doesn't delay receiving the license like on past projects. Joe felt that it was a waste of time to discuss the flow issue further and that FERC should be the one to decide what needs to be done below Cornell. Joe stated that his concern was determining a flow that would be suitable for the upper river.

What route do we take? Joe suggested that we start immediately to avoid delays in receiving the license. Lloyd stated that NSPW would discuss this further within the Company. It was decided that Lloyd and Tom would get together in two weeks to discuss this issue further and try to come to some form of agreement and proceed ahead.

3.0 Comprehensive Target Species Reintroduction Plan. NSPW agreed to participate in a target species reintroduction plan as an alternative to providing upstream fish passage. There was consensus among the Agency personnel to involve Dave Heath in the reintroduction plan. Joe felt that it is necessary to expand habitat for endangered and threatened species. A meeting should be scheduled with Joe, Tom, Lloyd and Dave to discuss this issue and should include a site tour of the Chippewa River projects. Detailed maps of the projects should be developed for the site tour.

Chippewa Falls

Development of study and management plans to satisfy license articles.

1.0 Recreational Plan

1.1 Flowage Boat Landing. Pam Rasmussen stated that NSPW would like to wait until the new bridge corridor is chosen before upgrading or building any landing. If the bridge corridor over the boat landing is chosen, the Wisconsin DOT may be able to help with the redevelopment of a new boat landing elsewhere. If an alternate bridge corridor is chosen, NSPW will work with the City of Chippewa Falls and redevelop the existing boat landing. The boat landing will be redeveloped within one year of a decision on the bridge corridor. Joe and Tom concurred with the plan.

1.2 Downstream Boat Landing. Pam mentioned that improvements to the existing tailwater boat landing could be made by angling the existing landing slightly upstream toward the bridge. The water depths at this location are more suitable for loading and unloading boats. Concrete pads will be added for improved access. The current parking area will be expanded and picnic tables will be added along the shoreline. The improvements at this site will be completed by December of 1994. The group was in agreement on this issue.

1.3 Handicapped-Accessible Fishing Pier. Joe stated that the handicapped fishing pier should be set over the water to enable users easy handling of any fish. Joe suggested that Pam contact Mike Ries of the WDNR in Eau Claire for specifics about design and construction. Joe also

mentioned that a general rule is to allow approximately eight feet of space per angler. Therefore, a pier capable of handling five anglers would be approximately 40 feet in length.

1.4 Canoe Portage Trail. Pam proposed to move the existing canoe portage trail to hook-up to the take-out point upstream of the Highway 124 bridges and a put-in point in Duncan Creek. The trail would cross Court Street which is not a heavily utilized street. Two reasons cited for moving the existing canoe portage include safety concerns with the existing take-out point being too close to the hydro plant intake area and the steepness of the launching area. Tom and Larry Oborny agreed that the proposed canoe portage trail is suitable and should proceed.

2.0 Land Management Plan. Pam stated that NSPW does not propose any active land management of project lands. Project lands will remain in their current condition and will remain open to the public for recreational use. Pam expressed concern about the large amount of beaver activity in the vicinity of the hiking trail. Joe suggested to contact Al Walker of the City of Chippewa Falls for possible alternatives. The land management plan was mutually agreed to by the Agencies.

3.0 Purple Loosestrife Management Plan. NSPW proposes to perform annual surveys in late-July of the wetland areas around the Chippewa Falls Flowage. Any isolated purple loosestrife plant found within the project area will be removed before it goes to seed. The proposed plan was agreed to by the Agencies.

4.0 Bald Eagle Management Plan. Pam stated that a bald eagle management plan would be developed when nesting or perching eagles are observed on project lands. In the meantime, NSPW proposes to maintain project lands in their current state.

5.0 Ramping Rates. Lloyd questioned the Agencies as to what they were looking for in terms of ramping rates below the Chippewa Falls Project. Tom responded that they felt that ramping of the spillway gates was important. Lloyd reminded the group that there may be problems with ramping spillway gates at Chippewa Falls because they must be operated in concert with the automatic gates at Wissota upstream. Tom suggested that during the ramping rate study we work with the amount of water being passed through the controllable gate at Wissota. The group agreed to address this flow during the ramping rate exercise. Joe's concerns below the spillway are at gates one, two and nine. Joe suggested that gates one and two should be closed first and then number nine. Joe also felt that ramping between seasonal flows (1,000 to 785 cfs) was not necessary.

A ramping rate study will be performed some time this summer (time and date to be determined).

6.0 Dissolved Oxygen Monitoring Plan. Paul Laliberte has reviewed the DO monitoring plan and considers the plan adequate. Commencement of the study will be in June of 1995.

7.0 Compliance Plan for Headwater and Minimum Flow Requirements. The agencies were generally in agreement over the compliance plan. Paul expressed an interest in getting percent

exceedance flows using instantaneous counts versus the percent exceedance flows obtained from the USGS using daily average flow. NSPW resolved to look into what can be done to come up with this information.

8.0 Channel Modifications. Lloyd stated that much of the work in the channels and shoal areas was completed before the license was issued. Joe stated that the current conditions of the stranding areas are adequate for the time being but should be monitored annually or as high flows dictate. NSPW agreed to perform periodic monitoring and make channel modifications as necessary.

Lloyd asked Joe if they would have any problems with NSPW moving some of the rock located below the spillway gates for riprapping of the south bank. Joe felt that this was okay as long as depressions were not left behind that fish could become stranded if spillway gates were closed. Lloyd stated that rocks moved as part of the channel modifications could possibly be used for boulder placement and habitat improvements downstream.

9.0 Entrainment Reduction Plan. NSPW may be working with EPRI on an effectiveness study of reduced trash rack spacing since there haven't been any studies done around the Midwest on the effectiveness of reduced trash rack spacing. Operators are currently monitoring the operational characteristics of the one inch trash racks on a daily basis. NSPW intends to develop plans for the effectiveness monitoring this summer or fall after the construction schedule for the turbine rehabilitation project is better defined.

10.0 Winter Drawdown Effects on River Channel Morphology. Paul has spent some time researching possible effects of different flow regimes on channel morphology. The flow that determines channel shape is the bank full flow which is approximately 58,000 cfs on the Chippewa River. Daily fluctuations in water levels has minimal impact on channel shape. The only area in the Chippewa River where there would be appreciable effect on changes in channel shape is downstream of Dells where the substrate is predominately shifting sand and the river is free-flowing. Cumulative drawdowns on the upstream flowages cut off the river flow peaks due to changing drawdown procedures will result in changes in river morphology.

Paul felt that it was important to look into the cumulative benefits of drawdowns on the entire system versus benefits provided by individual projects. Paul suggested consulting with an expert on river hydrology to determine this value in terms of potential losses due to flooding. Paul mentioned that Gary Lepak of the WDNR in Eau Claire would have information on property losses associated with different magnitudes of floods along the Chippewa River. Paul will work with Rob to update the information presented in the 1952 flood analysis from the Corps of Engineers.

The next Holcombe relicensing meeting will be held on August 3, 1994 at 9:00 AM. The meeting will be held at NSPW's Western Avenue Service Center. Detailed maps will be forwarded at the time the formal meeting announcement is sent out.



June 20, 1994



Northern States Power Company

100 North Barstow Street
P.O. Box 8
Eau Claire, WI 54702-0008
Telephone (715) 839-2621

Mr. Larry Oborny
U.S. Fish & Wildlife Service
1015 Challenger Court
Green Bay, WI 54311

U.S. Army Engineers District
St. Paul District
Attn: EDM-Loss, Room 1421
180 E. Kellogg Blvd.
St. Paul, MN 55101-1479

Mr. Tom Lovejoy
DNR, WD Headquarters
1300 W. Clairemont Avenue
Eau Claire, WI 54702

Mr. Joe Kurz
DNR, Courthouse
711 N. Bridge St.
Chippewa Falls, WI 54729

Dear Sirs:

RE: Compliance Plans for Articles 406 and 407 of the Chippewa Falls Hydro Project License (FERC NO. 2440).

The following enclosures are draft plans for performing channel modifications and monitoring the effectiveness of the channel modifications downstream from the Chippewa Falls hydro project. Channel modifications were performed during the summer of 1992. Photographs that are mentioned in the text have not been included in this submittal but will be submitted in the finalized plans. The majority of these photographs were sent to Joe Kurz and Jim Fossum in a previous submittal.

We are required to allow you a minimum of 30 days to review and comment on the enclosed plans. The finalized plans are due to the FERC on July 13, 1994. If you could get your comments and recommendations to me as soon as possible, we may be able to make the July 13th deadline.

If you have any comments, questions or recommendations on the plans, please feel free to give me a call at 715/839-1353.

Sincerely,

Robert W. Olson
Coordinator, Licensing

Enclosures

c: Lloyd Everhart (NSPW)

**COMPLIANCE PLAN FOR MAKING CHANNEL
MODIFICATIONS DOWNSTREAM OF THE
CHIPPEWA FALLS HYDRO PROJECT**

ARTICLE 406

CHIPPEWA FALLS LICENSE (FERC NO 2440)

**PLAN TO COMPLY WITH ARTICLE 406 OF THE
CHIPPEWA FALLS LICENSE (FERC NO. 2440)**

ARTICLE 406 DOCUMENTATION

Within 180 days of license issuance, the Licensee shall file with the Commission, for approval, a plan to make channel modifications in the Chippewa River downstream of the project.

The Licensee has already performed the necessary channel modifications downstream from the Chippewa Falls Project. The following information describes the locations of some of the fish entrapment areas and the modifications that were made to remedy the situation.

1.0 Location and description of previous channel modifications. The Licensee made modifications to portions of the river channel downstream of the Chippewa Falls Project in 1992. The modifications took place directly downstream from the dam spillway and in the shoal areas located along a 2.5 mile river segment between the Chippewa Falls Project and the U.S. Highway 53 bridge. The work was done in direct consultation with the Wisconsin Department of Natural Resources (WDNR) and the U.S. Fish and Wildlife Service (USFWS). The following is a description of the channel modification projects that have been completed as part of the relicensing of the Chippewa Falls Project.

1.1 Channel modifications below the spillway gates. In July and August of 1992, heavy equipment operators from NSPW's special construction group dredged channels that connected several of the pools located directly downstream of the spillway gates to the main channel of the river. The intention of this project was to allow fish that became trapped in the pools after closure of the spillway gates to move downstream to the main river channel. The channel modifications in this area have reduced the elevation of the pools slightly but has offered fish an escape route to the main river.

The problems with fish stranding downstream of the Chippewa Falls spillway have occurred below spillway gates #1, #2, #4, and #9 through #13. A channel was dredged through rock rubble and bedrock from the pool below spillway gate #4 down to the main river channel (see picture #1). An escape channel was also excavated that connected the large pool downstream of spillway gates #9 through #13 to the main river channel (see picture #2). The excavation of the two channels involved moving rock rubble and pulverizing sections of bedrock to open up channels of suitable depth for fish movement. Additional rock was excavated out of the area downstream of spillway gates #1 and #2 to eliminate additional fish stranding areas (picture #3).

The excavated material was reestablished on-site and was used to armor the boundaries of the channels or to fill in depressions in the exposed bedrock to prevent further fish stranding during the closing of the spillway gates. The integrity of the channels has held up very well through

two spring runoff seasons as well as through the flood of 1993. The Licensee proposes to survey these areas in the future after flow events greater than 35,000 cfs to insure that flows do not relocate some of the rock rubble material in the channels.

The channel modification project below the spillway has had limited environmental impact on the aquatic resources in this area. Fish stranding incidents have been reduced significantly since the project was completed and these improvements far outweigh any environmental impact that the channel modification project may have had on the aquatic resources in this segment of river.

The Licensee met recently with the WDNR and the USFWS to discuss the development of compliance plans for the Chippewa Falls Project (May 18, 1994 meeting, Attachment A, Section 8.0). Personnel from the WDNR's fishery management staff indicated that the current condition of the channels below the spillway gates is adequate but should be monitored annually or as high flows dictate. The Licensee has agreed to do further modifications if the periodic monitoring indicates additional entrapment areas have redeveloped.

The Licensee proposed a plan to the Agencies to remove some of the loose boulders downstream from the Chippewa Falls spillway for stabilization of the south bank of the spillway section. Removal of the rocks should alleviate some of the future problems that might occur as high flows relocate the rock rubble material. The WDNR's fish manager agreed to allow NSPW to use the rock rubble for riprapping the south bank of the spillway as long as depressions were not left behind that could result in potential fish stranding pockets. The removal of rock rubble for the dike stabilization project will be completed in 1994.

1.2 Channel modifications in the shoal areas. The second portion of the channel modification project involved remediation work on some of the shoal areas (cobble and gravel areas) between the Chippewa Falls Project and the U.S. Highway 53 bridge located approximately 2.5 miles downstream. Historically, these shoals acted as fish entrapment areas when flows were reduced at the Chippewa Falls Project. The purpose of the channel modifications in these areas was to insure that there were open escape channels that fish could utilize in the event that flows were reduced from the Chippewa Falls Project. The magnitude of the fish stranding areas were documented during the summer of 1988 and again during June of 1992 after the new minimum flows of 785 and 1,000 cfs had been negotiated. Channel modifications took place in July and August of 1992. The work was performed under low flow conditions (~500 cfs) to insure that escape channel depths would be adequate at flows well below the new minimum flows of 785 and 1,000 cfs.

The reshaped shoals were monitored immediately after spring runoff in April of 1993 and again after high flows in June of 1993 (60,300 cfs, USGS determined it to be between a five and ten year flood). A concern was that the dredged channels would fill in as a result of high flows relocating stream bottom materials. The monitoring survey indicated that all of the previously dredged channels remained opened and retained suitable water depths for fish escape. The

majority of the shoals monitored appeared to be in the same condition as the day that they were dredged.

The problems with fish stranding occurred at several of the shoal areas downstream of the Chippewa Falls project as a result of low flow conditions combined with the limited gradient. The locations of these shoal areas and the remediation efforts performed during the summer of 1992 are outlined below:

- Site #1. This area is located directly downstream of the Main Street bridge on the south side of the river (picture #4). This area includes four isolated pockets that were connected together and to the main river channel (picture #5).
- Site #2. Site #2 is located directly downstream of the Main Street bridge on the north side of the river (picture #6). This area included one isolated pool and one larger embayment which had a channel that remained open at 785 cfs (measured at USGS gage). This area was remedied during the 1992 work by connecting the isolated pool and embayment to the main channel through a dredged channel that followed the direction of flow in the river (picture #7).
- Site #3. This area is located directly downstream of the Chippewa Falls plant on the north side of the river between the north bank of the river and the two small islands (picture #8). A channel was dredged during the 1992 work which insures that sufficient water flow is present during low flow conditions in the channel and through the small pool between the two islands (picture #9).
- Site #4. The final area is located directly upstream of the U.S. Highway 53 bridge along the south shore of the river. This area includes three small isolated pools and one small embayment which were connected to the main river via a shallow channel (picture #10). This area was opened up during the 1992 work utilizing a series of channels that run into and out of the existing shallow pools (picture #11).

The material from the dredging in the shoal areas was comprised of a cobble/gravel/sand mixture. The material was used to fill depressions within the shoal. The impact to the aquatic resources was limited to disturbance of the bottom material which may have affected macroinvertebrates populations. The impact was likely inconsequential because the majority of the work was conducted on a portion of the shoals that are often dewatered.

The follow-up monitoring that has been conducted since the 1992 work indicates the openings have held up well in the two years since the original dredging. The Licensee will survey these areas on an annual basis or as high flows dictate. If additional fish stranding areas are located as part of the routine monitoring, the Licensee will bring in heavy equipment as soon as possible to remedy the situation.

2.0 Monitoring of the effectiveness of the channel modifications. A plan to monitor the effectiveness of the channel modifications through the term of the new license has been developed as part of Article 407 of the Chippewa Falls license. The plan details the monitoring strategy, consultation activities with the resource agencies, and a schedule of when specific items are to be completed.

**COMPLIANCE PLAN FOR MONITORING
THE EFFECTIVENESS OF THE CHANNEL
MODIFICATIONS DOWNSTREAM FROM THE
CHIPPEWA FALLS HYDRO PROJECT**

ARTICLE 407

CHIPPEWA FALLS LICENSE (FERC NO 2440)

**PLAN TO COMPLY WITH ARTICLE 407 OF THE
CHIPPEWA FALLS LICENSE (FERC NO. 2440)**

ARTICLE 407 DOCUMENTATION

Within 180 days of license issuance, the Licensee shall file with the Commission, for approval, a plan for studies to monitor the structural and functional integrity (i.e. boulder placement, channel depth, shoreline erosion, etc.) and biological effectiveness (i.e. presence of stranded fish) of the channel modifications required in article 406.

1.0 Monitoring objectives and activities. The objective of monitoring the channel modifications downstream of the Chippewa Falls Project is to insure that there are no possible fish entrapment areas. This includes areas that were identified as fish entrapment areas during surveys of 1988 and 1992 as well as any new areas that might develop through the course of the license term. The channel modifications will be visually surveyed annually to determine changes in channel morphology in the historical fish stranding areas.

Routine inspections in the spillway channel will be done after spillway gates are closed following high flow events ($\sim > 35,000$ cfs). This is routine protocol for hydro operators stationed at the Chippewa Falls Project. The shoal area improvements will also be surveyed after high flow events but less often than the area downstream from the spillway. Monitoring of the shoal areas will be performed each May or June after spring runoff flows have receded.

2.0 Methods to determine the effectiveness of the improvements.

2.1 Study methods and necessary materials to be used. The effectiveness of the channel modifications discussed in the Article 406 plan will be determined after high flood flows have occurred on the Chippewa River. Normal peaking flows from the Chippewa Falls Project do not appear to have the scouring ability to significantly change channel morphology downstream. The peak flow that has occurred below the Chippewa Falls Project since the channel modifications were made during the summer of 1992 was 60,300 cfs. This flow was recorded on June 21, 1993 at the USGS gage site. This value correlates to a flow that occurs approximately every five to ten years. The monitoring that occurred after the high flows indicated that the structural integrity of the shoal areas had been maintained. This demonstrates that flows necessary to substantially change the shoal areas downstream would have to be higher than the five to ten year flood flow.

The channel modifications made below the spillway gates also remained in good condition with the exception of a few small boulders that rolled down into the channels. Some of the boulders may have originated from local fisherman closing off the channels in order to intentionally strand fish for poaching purposes. The boulders did not restrict fish movement upstream or downstream from the pool areas.

2.2 Determining the effectiveness of channel modifications in the shoal areas. The most reasonable way to determine if the channel modifications in the shoal areas are adequate is to visually observe the improved areas at a reduced flow. Visual observations will be made from the bridge crossings and from walking along the edge of the river channel. The flow that the observations will be made at would be 785 cfs, which is the lowest of the two negotiated minimum flows. The low flow will enable hydro operators and biologists to readily determine whether or not channels from the isolated pools in the shoal areas have remained open to the river channel. The depths of the channels will be assessed at low flow to determine if fish are capable of escaping or entering the pool areas.

The Licensee agrees to perform an assessment of the shoal modifications on an annual basis or as high flows dictate (>60,000 cfs). The annual inspections of the shoal areas will be conducted in May or June of each year to insure channels remain open through the pool areas to prevent fish stranding incidents. The results of these inspections will be documented in a daily log book which will be made available to FERC inspectors during the annual inspection of the Chippewa Falls Project.

2.3 Determining effectiveness of channel modifications downstream from the spillway gates. The most efficient way to determine the effectiveness of the spillway channel improvements is to visually observe the two man-made channels after one or more of the spillway gates are closed. This assessment is routine practice for hydro operators stationed at the Chippewa Falls Project. If stranded fish are observed below the spillway gates, the hydro operators or other company personnel will net and return the fish to the main river channel. The incidence of fish stranding below the spillway gates will be documented which will include the number and species of fish.

Fish stranding below the spillway gates has been reduced significantly since the channel modifications were completed in 1992. Boulders will occasionally roll into the channels which may restrict fish movement. A project scheduled for 1994 will remove some of the rock rubble in the channel areas for placement on the south spillway dike. This project will further reduce the incidence of fish stranding as well as provide riprap for stabilization of the south spillway dike.

The Licensee will perform an assessment of the channel modifications below the spillway after all spillage events. The results of these inspections will be documented in the daily log book and this information will be made available to FERC during the annual inspection of the Chippewa Falls Project.

3.0 Schedule for implementing the monitoring studies, consulting with participating natural resource agencies and filing of monitoring results with the Commission.

Monitoring the effectiveness of channel modifications downstream from the Chippewa Falls Project has already begun and will continue through the course of the new license. The Licensee will continue to monitor the effectiveness of all channel modifications in the same way as in the

past through visual observations after approval from the Commission. The Licensee routinely consults with the resource agencies on issues effecting the aquatic resources of the Chippewa River and this will continue in the future. Results of the monitoring will be made available to the FERC during the annual inspection of the Chippewa Falls Project. If channel modifications are necessary during the term of the new license, the Licensee will file with the Commission a plan that details the scope of the project and the schedule for completing the necessary work. This will be done after in-depth consultation with the WDNR and the USFWS.

TELEPHONE CONVERSATION RECORD

DATE: 6/23/94 **TIME:** 8:20 A.M.
FROM: Tom Lovejoy **TO:** Rob Olson
715/839-3747 715/839-1353
PHONE: 608/788-4000 **PHONE:** 715/839-2692
COMPANY: WDNR **COMPANY:** Northern States Power
REGARDING: Article 406 & 407 of the Chippewa Falls License and the Resident
Recreational Use Survey for the Holcombe Flowage

Tom called me and he mentioned that he did not have any comments on the channel modification plan (Article 406) or the monitoring of the channel modifications (Article 407) below the Chippewa falls Hydro providing Joe Kurz was satisfied with the scope of work. I told Tom about the channel improvement that NSPW has scheduled for the next several weeks below Chippewa Falls and Wissota Hydros. Tom concurred with the modifications as long as Joe Kurz was contacted and in agreement. I assured Tom that Joe had been contacted and that he would be available to observe the work and recommend any additional modifications.

Tom also mentioned that he had reviewed the "resident" recreational use survey for the Holcombe Flowage and was satisfied with the scope of work and was not going to comment.

**COMPLIANCE PLAN FOR MONITORING
THE EFFECTIVENESS OF THE CHANNEL
MODIFICATIONS DOWNSTREAM FROM THE
CHIPPEWA FALLS HYDRO PROJECT**

ARTICLE 407

CHIPPEWA FALLS LICENSE (FERC NO. 2440)

**PLAN TO COMPLY WITH ARTICLE 407 OF THE
CHIPPEWA FALLS LICENSE (FERC NO. 2440)**

ARTICLE 407 DOCUMENTATION

Within 180 days of license issuance, the Licensee shall file with the Commission, for approval, a plan for studies to monitor the structural and functional integrity (i.e. boulder placement, channel depth, shoreline erosion, etc.) and biological effectiveness (i.e. presence of stranded fish) of the channel modifications required in article 406.

1.0 Monitoring objectives and activities. The objective of monitoring the channel modifications downstream of the Chippewa Falls Project is to insure that there are no possible fish entrapment areas. This includes areas that were identified as fish entrapment areas during surveys of 1988 and 1992 as well as any new areas that might develop through the course of the license term. The channel modifications will be visually surveyed annually to determine changes in channel morphology in the historical fish stranding areas.

Routine inspections in the spillway channel will be done after spillway gates are closed following high flow events ($\sim > 35,000$ cfs). This is routine protocol for hydro operators stationed at the Chippewa Falls Project. The shoal area improvements will also be surveyed after high flow events but less often than the area downstream from the spillway. Monitoring of the shoal areas will be performed each May or June after spring runoff flows have receded.

The Licensee consulted with the Wisconsin Department of Natural Resources (WDNR), the U.S. Fish and Wildlife Service (USFWS) and the Corps of Engineers (COE) in regards to development of this plan (Attachment A).

2.0 Methods to determine the effectiveness of the improvements.

2.1 Study methods and necessary materials to be used. The effectiveness of the channel modifications discussed in the Article 406 plan will be determined after high flood flows have occurred on the Chippewa River. Normal peaking flows from the Chippewa Falls Project do not appear to have the scouring ability to significantly change channel morphology downstream. The peak flow that has occurred below the Chippewa Falls Project since the channel modifications were made during the summer of 1992 was 60,300 cfs. This flow was recorded on June 21, 1993 at the USGS gage site. This value correlates to a flow that occurs approximately every five to ten years. The monitoring that occurred after the high flows indicated that the structural integrity of the shoal areas had been maintained. This demonstrates that flows necessary to substantially change the shoal areas downstream would have to be higher than the five to ten year flood flow.

The channel modifications made below the spillway gates also remained in good condition with the exception of a few small boulders that rolled down into the channels. Some of the boulders

may have originated from local fisherman closing off the channels in order to intentionally strand fish for poaching purposes. The boulders did not restrict fish movement upstream or downstream from the pool areas.

2.2 Determining the effectiveness of channel modifications in the shoal areas. The most reasonable way to determine if the channel modifications in the shoal areas are adequate is to visually observe the improved areas at a reduced flow. Visual observations will be made from the bridge crossings and from walking along the edge of the river channel. The flow that the observations will be made at would be 785 cfs, which is the lowest of the two negotiated minimum flows. The low flow will enable hydro operators and biologists to readily determine whether or not channels from the isolated pools in the shoal areas have remained open to the river channel. The depths of the channels will be assessed at low flow to determine if fish are capable of escaping or entering the pool areas. The criteria to be used for evaluating fish stranding and entrapment areas can be found in the License Application (Volume II, Appendix E-8).

The Licensee agrees to perform an assessment of the shoal modifications on an annual basis or as high flows dictate (> 60,000 cfs). The annual inspections of the shoal areas will be conducted in May or June of each year to insure channels remain open through the pool areas to prevent fish stranding incidents. The results of these inspections will be documented in a daily log book which will be made available to FERC inspectors during the annual inspection of the Chippewa Falls Project.

2.3 Determining effectiveness of channel modifications downstream from the spillway gates. The most efficient way to determine the effectiveness of the spillway channel improvements is to visually observe the two man-made channels after one or more of the spillway gates are closed. This assessment is routine practice for hydro operators stationed at the Chippewa Falls Project. If stranded fish are observed below the spillway gates, the hydro operators or other company personnel will net and return the fish to the main river channel. The incidence of fish stranding below the spillway gates will be documented which will include the number and species of fish.

Fish stranding below the spillway gates has been reduced significantly since the channel modifications were completed in 1992. Boulders will occasionally roll into the channels which may restrict fish movement. A project scheduled for 1994 will remove some of the rock rubble in the channel areas for placement on the south spillway dike. This project will further reduce the incidence of fish stranding as well as provide riprap for stabilization of the south spillway dike.

The Licensee will perform an assessment of the channel modifications below the spillway after all spillage events. The results of these inspections will be documented in the daily log book and this information will be made available to FERC during the annual inspection of the Chippewa Falls Project. An additional form will be used which details the species and number

of fish stranded, the location of the fish stranding incidents, the progression of gate closure, the rate of gate closure and the quantity of flow reduced.

3.0 Schedule for implementing the monitoring studies, consulting with participating natural resource agencies and filing of monitoring results with the Commission. Monitoring the effectiveness of channel modifications downstream from the Chippewa Falls Project has already begun and will continue through the course of the new license. The Licensee will continue to monitor the effectiveness of all channel modifications in the same way as in the past through visual observations after approval from the Commission. The Licensee routinely consults with the resource agencies on issues effecting the aquatic resources of the Chippewa River and this will continue in the future. Results of the monitoring will be made available to the FERC during the annual inspection of the Chippewa Falls Project and the resource agencies, upon request. If additional channel modifications are necessary during the term of the new license, the Licensee will file with the Commission a plan that details the scope of the project and the schedule for completing the necessary work. Periodic maintenance of the existing channels is anticipated and will be performed without notification to the FERC. This will be done after in-depth consultation with the WDNR and the USFWS.

ATTACHMENT A
AGENCY CORRESPONDENCE



Sent 6/3/94

Northern States Power Company

100 North Barstow Street
P.O. Box 8
Eau Claire, WI 54702-0008
Telephone (715) 839-2621

June 2, 1994

(SENT TO LIST OF AGENCY PERSONNEL IN ATTENDANCE)

**RE: DRAFT MEETING MINUTES FOR THE MAY 18, 1994 MEETING DISCUSSING
THE RELICENSING OF THE HOLCOMBE PROJECT (FERC NO. 1982) AND
THE CHIPPEWA FALLS PROJECT (FERC NO. 2440).**

Enclosed are the draft meeting minutes from the May 18, 1994 meeting discussing issues concerning relicensing studies at the Holcombe Project and the development of compliance plans for the Chippewa Falls Project.

Please review and send me your comments by June 20 so that the minutes can be finalized as soon as possible. If you have any comments or questions in regards to this matter, please feel free to give me a call at 715/839-1353.

Sincerely,

Robert W. Olson
Coordinator, Licensing

Enclosure

c: Lloyd Everhart (NSPW)
Pam Rasmussen (NSPW)
Donnie Anderson (NSPW)

List of people attending the May 18, 1994 relicensing meeting on Holcombe (FERC No. 1982) and Chippewa Falls (FERC No. 2440) Hydro Projects.

Meeting Participants.

Tom Lovejoy (WDNR)
Lloyd Everhart (NSPW)
Rob Olson (NSPW)
Paul Laliberte (WDNR)
Buzz Sorge (WDNR)
Joe Kurz (WDNR)
Pam Rasmussen (NSPW)
Donnie Anderson (NSPW)
Larry Oborny (USFWS)
Brian Guthman (LHIA)
Monica Gross (IWL)



Sent 6/3/94

Northern States Power Company

100 North Barstow Street
P.O. Box 8
Eau Claire, WI 54702-0008
Telephone (715) 839-2621

June 2, 1994

(SENT TO LIST OF AGENCY PERSONNEL IN ATTENDANCE)

**RE: DRAFT MEETING MINUTES FOR THE MAY 18, 1994 MEETING DISCUSSING
THE RELICENSING OF THE HOLCOMBE PROJECT (FERC NO. 1982) AND
THE CHIPPEWA FALLS PROJECT (FERC NO. 2440).**

Enclosed are the draft meeting minutes from the May 18, 1994 meeting discussing issues concerning relicensing studies at the Holcombe Project and the development of compliance plans for the Chippewa Falls Project.

Please review and send me your comments by June 20 so that the minutes can be finalized as soon as possible. If you have any comments or questions in regards to this matter, please feel free to give me a call at 715/839-1353.

Sincerely,

Robert W. Olson
Coordinator, Licensing

Enclosure

c: Lloyd Everhart (NSPW)
Pam Rasmussen (NSPW)
Donnie Anderson (NSPW)

List of people attending the May 18, 1994 relicensing meeting on Holcombe (FERC No. 1982) and Chippewa Falls (FERC No. 2440) Hydro Projects.

Meeting Participants.

Tom Lovejoy (WDNR)
Lloyd Everhart (NSPW)
Rob Olson (NSPW)
Paul Laliberte (WDNR)
Buzz Sorge (WDNR)
Joe Kurz (WDNR)
Pam Rasmussen (NSPW)
Donnie Anderson (NSPW)
Larry Oborny (USFWS)
Brian Guthman (LHIA)
Monica Gross (IWL)

Holcombe and Chippewa Falls
Relicensing Meeting
May 18, 1994
Meeting Minutes

Attendees: See attached list.

Holcombe

1.0 Status of environmental studies.

1.1 Recreational Use Survey. Lloyd Everhart and Rob Olson spent some time discussing the recreational use assessment at Holcombe. NSPW has hired a person who lives on Lake Holcombe to conduct a recreational use survey on Lake Holcombe. The survey began on 7 May and will possibly extend into next winter depending on the quantity of use. A finalized study scope addressing recommendations from the agencies and the Lake Holcombe Improvement Association (LHIA) will be forwarded to the pertinent people.

1.2 Creel Survey. NSPW has hired a creel survey clerk to conduct a creel survey. The creel survey began on 7 May and will run until the end of March of 1995. The survey will be discontinued in November due to unpredictable weather and limited fishing opportunities. The clerk has gained some experience on Lake Holcombe helping Joe Kurz with fyke netting and shocking during his spring surveys.

It was discussed and decided that NSPW and the Agencies would cooperatively conduct a public information meeting to discuss all of the studies that are being performed on Lake Holcombe. The meeting will be held after sufficient data and results are available to make a meaningful presentation.

1.3 Water Quality Study (Section 22 - Corps of Engineers Grant). Buzz Sorge spent some time discussing the status of the Section 22 Grant for Lake Holcombe. An agreement needs to be made between the WDNR and the LHIA on the transfer of money to the Corps of Engineers. Total cost of the project is \$325,000 with NSPW and the WDNR each contributing \$50,000 to \$70,000. The grant work will begin this summer with the lake mapping effort. The budgeting and project specifics will be finalized soon and will be sent to all interested parties participating in the relicensing process.

1.4 Status of Wisconsin Grant Work. Buzz relayed information that Mike Delong (Winona State University) is in the process of sampling for recolonization rates of macroinvertebrates in Lake Wisconsin as part of the lake drawdown assessment. Sampling will be completed in mid-June and a final report will be issued by this September. A public information meeting on the findings of the EPA Grant will be held sometime next September.

1.5 Fish Stranding Remediation. It was decided between Joe and NSPW that some form of fish stranding assessment needs to be done downstream of the Holcombe spillway gates. NSPW

will set up an exercise with the appropriate resource agency people this summer to observe several different spillway gate operations and resolve any potential problems. NSPW's stated preference for correcting fish stranding areas is physical remediation.

1.6 General Biological Survey. Lloyd stated that the request for proposal (RFP) was sent out in April and NSPW has received proposals from four consulting firms. The biological studies will entail work on forage fish, catfish and sturgeon populations, spawning success of different fish species, fisheries work in the backwater bays and general observations of waterfowl, aquatic mammals, amphibians and reptiles. Joe will provide input to Lloyd to help him make a decision on who will be selected to do the work. A finalized scope of work will be sent to the resource agencies for their review.

Tom requested that Lloyd send him a copy of Terry Balding's mussel report on the lower Flambeau, Chippewa, and Jump Rivers. Joe mentioned that Bob Hay, a herpetologist with the WDNR in Madison, should be contacted about pertinent studies taking place at Holcombe. There was mutual agreement between several of the agency people that Dave Heath of the WDNR become involved early in the relicensing process at Holcombe to avoid some of the last minute delays experienced at other projects.

2.0 Attempts at resolution of disagreements on entrainment/turbine mortality, upstream fish passage and downstream flow concerns.

2.1 Entrainment/Turbine Mortality. Lloyd met recently with Harza Engineering concerning possible studies at Holcombe. Harza has had a lot of experience conducting and reviewing fish entrainment and turbine mortality studies. Harza will be preparing a feasibility study of doing an entrainment study at Holcombe. They will review information from other entrainment studies performed and based on their experience make recommendations for potential study alternatives for the Holcombe project.

Initial conclusions from Harza indicate that turbulence and velocity may be a serious problem at Holcombe which could discourage tailwater netting due to netting restrictions, high net induced mortality, and worker safety concerns. Lloyd stated that it might be possible to perform forebay netting although NSPW has some serious reservations. Tom mentioned that we need to gather information on mortality as well as species and numbers. Lloyd indicated that it might be possible to get mortality information through introduction and recovery of Turb'N Tagged fish.

Tom asked Joe if the WDNR has developed a standard or guidelines for protection measures to prevent or minimize entrainment and turbine mortality. Joe responded that they had not. Monica Gross indicated that many companies have looked into louvers and barrier nets. Lloyd responded that those devices have limited application and that the effectiveness has not been thoroughly tested. Joe stated that the primary fishery objective is to manage the flowages separately; meaning that the WDNR would like to see the fish remain in the flowages.

Lloyd indicated that it might be possible to collect entrainment data at Chippewa Falls and apply it at Holcombe. Chippewa Falls has one-half the flow as Holcombe without the water boil in

the tailrace. Tom questioned the group as to what happens if a study can't be performed. Lloyd stated that we would have to look at other sites and make comparisons. Tom stated that if things don't work out right away, get FERC involved. Lloyd stated that EPRI is interested in working with NSPW to test the effectiveness of the one inch racks at Chippewa Falls.

2.2 Upstream Fish Passage. NSPW plans to have Harza adapt the feasibility study that was compiled for Chippewa Falls for providing upstream fish passage at the Holcombe dam. They will look at trap and transfer, elevators and ladders. Tom mentioned that Holcombe is a more conducive site in comparison to Chippewa Falls because of the pool staging area downstream. Joe felt that NSPW needs to evaluate the different systems available and state the limitations. Tom agreed and felt that a determination of possible locations of the facility should be included in the feasibility study.

Tom questioned Joe whether upstream fish passage was necessary at Holcombe. Joe felt it was necessary considering the downstream movement of fish. Monica stated that the WDNR and hydro owners in the eastern part of the state are looking at upstream fish passage. Two Canadian experts are in the state soon to look at several sites on the Menomonee River. Joe felt that an attempt should be made to get the two experts to look at upstream fish passage at all of the Chippewa River projects. Monica tried to contact these people about coming to the area and looking at the Chippewa River projects but arrangements were not made because of the short notice.

Joe and Lloyd will discuss feasibility of providing upstream fish passage at Holcombe as the Harza study proceeds.

2.3 Downstream Flow Concerns. Lloyd stated that NSPW is opposed to doing an IFIM study below Cornell. NSPW believes that the WDNR should honor the previous agreement between NSPW and WDNR made in the mid-1970's. At that time, a Memorandum of Understanding was signed between NSPW and the WDNR which stipulates that the flow issue was considered resolved if the minimum flow unit was placed in the plant. The minimum flow unit was installed which resulted in a significant economic investment by NSPW. Tom responded to Lloyd that times have changed and techniques and methods of assessing flow conditions have changed. NSPW responded that the minimum flow machine provides the only means of delivering increased minimum flows without spilling water through spillway gates. NSPW then repeated its offer to operate the minimum flow machine at full gate, rather than efficient gate, which will increase the volume of flow to approximately 400 cfs. This offer was viewed as unacceptable by the WDNR because they believe they need IFIM data to assess habitat conditions under various flows.

Tom questioned Lloyd as to what went on at the meeting with George Meyer (Secretary, WDNR). Lloyd mentioned that the same issues addressed last Fall with the district directors were talked about at the meeting. No commitments were made at the meeting. Lloyd stated that NSPW tried to make George aware of the economics of the Chippewa River projects and the importance of peaking operations. George indicated that the Department would seek environmental protection measures that make economic sense and that economic viability of hydro projects will not be sacrificed.

Tom questioned how to address downstream flow concerns if a study is not performed. Lloyd asked whether or not there were any other alternatives. Tom mentioned that this issue should be revisited in the next several weeks and one last attempt should be made before taking it to FERC. Tom also mentioned that a study should be done up front so that it doesn't delay receiving the license like on past projects. Joe felt that it was a waste of time to discuss the flow issue further and that FERC should be the one to decide what needs to be done below Cornell. Joe stated that his concern was determining a flow that would be suitable for the upper river.

What route do we take? Joe suggested that we start immediately to avoid delays in receiving the license. Lloyd stated that NSPW would discuss this further within the Company. It was decided that Lloyd and Tom would get together in two weeks to discuss this issue further and try to come to some form of agreement and proceed ahead.

3.0 Comprehensive Target Species Reintroduction Plan. NSPW agreed to participate in a target species reintroduction plan as an alternative to providing upstream fish passage. There was consensus among the Agency personnel to involve Dave Heath in the reintroduction plan. Joe felt that it is necessary to expand habitat for endangered and threatened species. A meeting should be scheduled with Joe, Tom, Lloyd and Dave to discuss this issue and should include a site tour of the Chippewa River projects. Detailed maps of the projects should be developed for the site tour.

Chippewa Falls

Development of study and management plans to satisfy license articles.

1.0 Recreational Plan

1.1 Flowage Boat Landing. Pam Rasmussen stated that NSPW would like to wait until the new bridge corridor is chosen before upgrading or building any landing. If the bridge corridor over the boat landing is chosen, the Wisconsin DOT may be able to help with the redevelopment of a new boat landing elsewhere. If an alternate bridge corridor is chosen, NSPW will work with the City of Chippewa Falls and redevelop the existing boat landing. The boat landing will be redeveloped within one year of a decision on the bridge corridor. Joe and Tom concurred with the plan.

1.2 Downstream Boat Landing. Pam mentioned that improvements to the existing tailwater boat landing could be made by angling the existing landing slightly upstream toward the bridge. The water depths at this location are more suitable for loading and unloading boats. Concrete pads will be added for improved access. The current parking area will be expanded and picnic tables will be added along the shoreline. The improvements at this site will be completed by December of 1994. The group was in agreement on this issue.

1.3 Handicapped-Accessible Fishing Pier. Joe stated that the handicapped fishing pier should be set over the water to enable users easy handling of any fish. Joe suggested that Pam contact Mike Ries of the WDNR in Eau Claire for specifics about design and construction. Joe also

mentioned that a general rule is to allow approximately eight feet of space per angler. Therefore, a pier capable of handling five anglers would be approximately 40 feet in length.

1.4 Canoe Portage Trail. Pam proposed to move the existing canoe portage trail to hook-up to the take-out point upstream of the Highway 124 bridges and a put-in point in Duncan Creek. The trail would cross Court Street which is not a heavily utilized street. Two reasons cited for moving the existing canoe portage include safety concerns with the existing take-out point being too close to the hydro plant intake area and the steepness of the launching area. Tom and Larry Oborny agreed that the proposed canoe portage trail is suitable and should proceed.

2.0 Land Management Plan. Pam stated that NSPW does not propose any active land management of project lands. Project lands will remain in their current condition and will remain open to the public for recreational use. Pam expressed concern about the large amount of beaver activity in the vicinity of the hiking trail. Joe suggested to contact Al Walker of the City of Chippewa Falls for possible alternatives. The land management plan was mutually agreed to by the Agencies.

3.0 Purple Loosestrife Management Plan. NSPW proposes to perform annual surveys in late-July of the wetland areas around the Chippewa Falls Flowage. Any isolated purple loosestrife plant found within the project area will be removed before it goes to seed. The proposed plan was agreed to by the Agencies.

4.0 Bald Eagle Management Plan. Pam stated that a bald eagle management plan would be developed when nesting or perching eagles are observed on project lands. In the meantime, NSPW proposes to maintain project lands in their current state.

5.0 Ramping Rates. Lloyd questioned the Agencies as to what they were looking for in terms of ramping rates below the Chippewa Falls Project. Tom responded that they felt that ramping of the spillway gates was important. Lloyd reminded the group that there may be problems with ramping spillway gates at Chippewa Falls because they must be operated in concert with the automatic gates at Wissota upstream. Tom suggested that during the ramping rate study we work with the amount of water being passed through the controllable gate at Wissota. The group agreed to address this flow during the ramping rate exercise. Joe's concerns below the spillway are at gates one, two and nine. Joe suggested that gates one and two should be closed first and then number nine. Joe also felt that ramping between seasonal flows (1,000 to 785 cfs) was not necessary.

A ramping rate study will be performed some time this summer (time and date to be determined).

6.0 Dissolved Oxygen Monitoring Plan. Paul Laliberte has reviewed the DO monitoring plan and considers the plan adequate. Commencement of the study will be in June of 1995.

7.0 Compliance Plan for Headwater and Minimum Flow Requirements. The agencies were generally in agreement over the compliance plan. Paul expressed an interest in getting percent

exceedance flows using instantaneous counts versus the percent exceedance flows obtained from the USGS using daily average flow. NSPW resolved to look into what can be done to come up with this information.

8.0 Channel Modifications. Lloyd stated that much of the work in the channels and shoal areas was completed before the license was issued. Joe stated that the current conditions of the stranding areas are adequate for the time being but should be monitored annually or as high flows dictate. NSPW agreed to perform periodic monitoring and make channel modifications as necessary.

Lloyd asked Joe if they would have any problems with NSPW moving some of the rock located below the spillway gates for riprapping of the south bank. Joe felt that this was okay as long as depressions were not left behind that fish could become stranded if spillway gates were closed. Lloyd stated that rocks moved as part of the channel modifications could possibly be used for boulder placement and habitat improvements downstream.

9.0 Entrainment Reduction Plan. NSPW may be working with EPRI on an effectiveness study of reduced trash rack spacing since there haven't been any studies done around the Midwest on the effectiveness of reduced trash rack spacing. Operators are currently monitoring the operational characteristics of the one inch trash racks on a daily basis. NSPW intends to develop plans for the effectiveness monitoring this summer or fall after the construction schedule for the turbine rehabilitation project is better defined.

10.0 Winter Drawdown Effects on River Channel Morphology. Paul has spent some time researching possible effects of different flow regimes on channel morphology. The flow that determines channel shape is the bank full flow which is approximately 58,000 cfs on the Chippewa River. Daily fluctuations in water levels has minimal impact on channel shape. The only area in the Chippewa River where there would be appreciable effect on changes in channel shape is downstream of Dells where the substrate is predominately shifting sand and the river is free-flowing. Cumulative drawdowns on the upstream flowages cut off the river flow peaks due to changing drawdown procedures will result in changes in river morphology.

Paul felt that it was important to look into the cumulative benefits of drawdowns on the entire system versus benefits provided by individual projects. Paul suggested consulting with an expert on river hydrology to determine this value in terms of potential losses due to flooding. Paul mentioned that Gary Lepak of the WDNR in Eau Claire would have information on property losses associated with different magnitudes of floods along the Chippewa River. Paul will work with Rob to update the information presented in the 1952 flood analysis from the Corps of Engineers.

The next Holcombe relicensing meeting will be held on August 3, 1994 at 9:00 AM. The meeting will be held at NSPW's Western Avenue Service Center. Detailed maps will be forwarded at the time the formal meeting announcement is sent out.



Northern States Power Company

100 North Barstow Street
P.O. Box 8
Eau Claire, WI 54702-0008
Telephone (715) 839-2621

June 20, 1994

Mr. Larry Oborny
U.S. Fish & Wildlife Service
1015 Challenger Court
Green Bay, WI 54311

U.S. Army Engineers District
St. Paul District
Attn: EDM-Loss, Room 1421
180 E. Kellogg Blvd.
St. Paul, MN 55101-1479

Mr. Tom Lovejoy
DNR, WD Headquarters
1300 W. Clairemont Avenue
Eau Claire, WI 54702

Mr. Joe Kurz
DNR, Courthouse
711 N. Bridge St.
Chippewa Falls, WI 54729

Dear Sirs:

RE: Compliance Plans for Articles 406 and 407 of the Chippewa Falls Hydro Project License (FERC NO. 2440).

The following enclosures are draft plans for performing channel modifications and monitoring the effectiveness of the channel modifications downstream from the Chippewa Falls hydro project. Channel modifications were performed during the summer of 1992. Photographs that are mentioned in the text have not been included in this submittal but will be submitted in the finalized plans. The majority of these photographs were sent to Joe Kurz and Jim Fossum in a previous submittal.

We are required to allow you a minimum of 30 days to review and comment on the enclosed plans. The finalized plans are due to the FERC on July 13, 1994. If you could get your comments and recommendations to me as soon as possible, we may be able to make the July 13th deadline.

If you have any comments, questions or recommendations on the plans, please feel free to give me a call at 715/839-1353.

Sincerely,

Robert W. Olson
Coordinator, Licensing

Enclosures

c: Lloyd Everhart (NSPW)

**COMPLIANCE PLAN FOR MAKING CHANNEL
MODIFICATIONS DOWNSTREAM OF THE
CHIPPEWA FALLS HYDRO PROJECT**

ARTICLE 406

CHIPPEWA FALLS LICENSE (FERC NO 2440)

**PLAN TO COMPLY WITH ARTICLE 406 OF THE
CHIPPEWA FALLS LICENSE (FERC NO. 2440)**

ARTICLE 406 DOCUMENTATION

Within 180 days of license issuance, the Licensee shall file with the Commission, for approval, a plan to make channel modifications in the Chippewa River downstream of the project.

The Licensee has already performed the necessary channel modifications downstream from the Chippewa Falls Project. The following information describes the locations of some of the fish entrapment areas and the modifications that were made to remedy the situation.

1.0 Location and description of previous channel modifications. The Licensee made modifications to portions of the river channel downstream of the Chippewa Falls Project in 1992. The modifications took place directly downstream from the dam spillway and in the shoal areas located along a 2.5 mile river segment between the Chippewa Falls Project and the U.S. Highway 53 bridge. The work was done in direct consultation with the Wisconsin Department of Natural Resources (WDNR) and the U.S. Fish and Wildlife Service (USFWS). The following is a description of the channel modification projects that have been completed as part of the relicensing of the Chippewa Falls Project.

1.1 Channel modifications below the spillway gates. In July and August of 1992, heavy equipment operators from NSPW's special construction group dredged channels that connected several of the pools located directly downstream of the spillway gates to the main channel of the river. The intention of this project was to allow fish that became trapped in the pools after closure of the spillway gates to move downstream to the main river channel. The channel modifications in this area have reduced the elevation of the pools slightly but has offered fish an escape route to the main river.

The problems with fish stranding downstream of the Chippewa Falls spillway have occurred below spillway gates #1, #2, #4, and #9 through #13. A channel was dredged through rock rubble and bedrock from the pool below spillway gate #4 down to the main river channel (see picture #1). An escape channel was also excavated that connected the large pool downstream of spillway gates #9 through #13 to the main river channel (see picture #2). The excavation of the two channels involved moving rock rubble and pulverizing sections of bedrock to open up channels of suitable depth for fish movement. Additional rock was excavated out of the area downstream of spillway gates #1 and #2 to eliminate additional fish stranding areas (picture #3).

The excavated material was reestablished on-site and was used to armor the boundaries of the channels or to fill in depressions in the exposed bedrock to prevent further fish stranding during the closing of the spillway gates. The integrity of the channels has held up very well through

two spring runoff seasons as well as through the flood of 1993. The Licensee proposes to survey these areas in the future after flow events greater than 35,000 cfs to insure that flows do not relocate some of the rock rubble material in the channels.

The channel modification project below the spillway has had limited environmental impact on the aquatic resources in this area. Fish stranding incidents have been reduced significantly since the project was completed and these improvements far outweigh any environmental impact that the channel modification project may have had on the aquatic resources in this segment of river.

The Licensee met recently with the WDNR and the USFWS to discuss the development of compliance plans for the Chippewa Falls Project (May 18, 1994 meeting, Attachment A, Section 8.0). Personnel from the WDNR's fishery management staff indicated that the current condition of the channels below the spillway gates is adequate but should be monitored annually or as high flows dictate. The Licensee has agreed to do further modifications if the periodic monitoring indicates additional entrapment areas have redeveloped.

The Licensee proposed a plan to the Agencies to remove some of the loose boulders downstream from the Chippewa Falls spillway for stabilization of the south bank of the spillway section. Removal of the rocks should alleviate some of the future problems that might occur as high flows relocate the rock rubble material. The WDNR's fish manager agreed to allow NSPW to use the rock rubble for riprapping the south bank of the spillway as long as depressions were not left behind that could result in potential fish stranding pockets. The removal of rock rubble for the dike stabilization project will be completed in 1994.

1.2 Channel modifications in the shoal areas. The second portion of the channel modification project involved remediation work on some of the shoal areas (cobble and gravel areas) between the Chippewa Falls Project and the U.S. Highway 53 bridge located approximately 2.5 miles downstream. Historically, these shoals acted as fish entrapment areas when flows were reduced at the Chippewa Falls Project. The purpose of the channel modifications in these areas was to insure that there were open escape channels that fish could utilize in the event that flows were reduced from the Chippewa Falls Project. The magnitude of the fish stranding areas were documented during the summer of 1988 and again during June of 1992 after the new minimum flows of 785 and 1,000 cfs had been negotiated. Channel modifications took place in July and August of 1992. The work was performed under low flow conditions (~500 cfs) to insure that escape channel depths would be adequate at flows well below the new minimum flows of 785 and 1,000 cfs.

The reshaped shoals were monitored immediately after spring runoff in April of 1993 and again after high flows in June of 1993 (60,300 cfs, USGS determined it to be between a five and ten year flood). A concern was that the dredged channels would fill in as a result of high flows relocating stream bottom materials. The monitoring survey indicated that all of the previously dredged channels remained opened and retained suitable water depths for fish escape. The

majority of the shoals monitored appeared to be in the same condition as the day that they were dredged.

The problems with fish stranding occurred at several of the shoal areas downstream of the Chippewa Falls project as a result of low flow conditions combined with the limited gradient. The locations of these shoal areas and the remediation efforts performed during the summer of 1992 are outlined below:

- Site #1. This area is located directly downstream of the Main Street bridge on the south side of the river (picture #4). This area includes four isolated pockets that were connected together and to the main river channel (picture #5).
- Site #2. Site #2 is located directly downstream of the Main Street bridge on the north side of the river (picture #6). This area included one isolated pool and one larger embayment which had a channel that remained open at 785 cfs (measured at USGS gage). This area was remedied during the 1992 work by connecting the isolated pool and embayment to the main channel through a dredged channel that followed the direction of flow in the river (picture #7).
- Site #3. This area is located directly downstream of the Chippewa Falls plant on the north side of the river between the north bank of the river and the two small islands (picture #8). A channel was dredged during the 1992 work which insures that sufficient water flow is present during low flow conditions in the channel and through the small pool between the two islands (picture #9).
- Site #4. The final area is located directly upstream of the U.S. Highway 53 bridge along the south shore of the river. This area includes three small isolated pools and one small embayment which were connected to the main river via a shallow channel (picture #10). This area was opened up during the 1992 work utilizing a series of channels that run into and out of the existing shallow pools (picture #11).

The material from the dredging in the shoal areas was comprised of a cobble/gravel/sand mixture. The material was used to fill depressions within the shoal. The impact to the aquatic resources was limited to disturbance of the bottom material which may have affected macroinvertebrates populations. The impact was likely inconsequential because the majority of the work was conducted on a portion of the shoals that are often dewatered.

The follow-up monitoring that has been conducted since the 1992 work indicates the openings have held up well in the two years since the original dredging. The Licensee will survey these areas on an annual basis or as high flows dictate. If additional fish stranding areas are located as part of the routine monitoring, the Licensee will bring in heavy equipment as soon as possible to remedy the situation.

2.0 Monitoring of the effectiveness of the channel modifications. A plan to monitor the effectiveness of the channel modifications through the term of the new license has been developed as part of Article 407 of the Chippewa Falls license. The plan details the monitoring strategy, consultation activities with the resource agencies, and a schedule of when specific items are to be completed.

**COMPLIANCE PLAN FOR MONITORING
THE EFFECTIVENESS OF THE CHANNEL
MODIFICATIONS DOWNSTREAM FROM THE
CHIPPEWA FALLS HYDRO PROJECT**

ARTICLE 407

CHIPPEWA FALLS LICENSE (FERC NO 2440)

**PLAN TO COMPLY WITH ARTICLE 407 OF THE
CHIPPEWA FALLS LICENSE (FERC NO. 2440)**

ARTICLE 407 DOCUMENTATION

Within 180 days of license issuance, the Licensee shall file with the Commission, for approval, a plan for studies to monitor the structural and functional integrity (i.e. boulder placement, channel depth, shoreline erosion, etc.) and biological effectiveness (i.e. presence of stranded fish) of the channel modifications required in article 406.

1.0 Monitoring objectives and activities. The objective of monitoring the channel modifications downstream of the Chippewa Falls Project is to insure that there are no possible fish entrapment areas. This includes areas that were identified as fish entrapment areas during surveys of 1988 and 1992 as well as any new areas that might develop through the course of the license term. The channel modifications will be visually surveyed annually to determine changes in channel morphology in the historical fish stranding areas.

Routine inspections in the spillway channel will be done after spillway gates are closed following high flow events ($\sim > 35,000$ cfs). This is routine protocol for hydro operators stationed at the Chippewa Falls Project. The shoal area improvements will also be surveyed after high flow events but less often than the area downstream from the spillway. Monitoring of the shoal areas will be performed each May or June after spring runoff flows have receded.

2.0 Methods to determine the effectiveness of the improvements.

2.1 Study methods and necessary materials to be used. The effectiveness of the channel modifications discussed in the Article 406 plan will be determined after high flood flows have occurred on the Chippewa River. Normal peaking flows from the Chippewa Falls Project do not appear to have the scouring ability to significantly change channel morphology downstream. The peak flow that has occurred below the Chippewa Falls Project since the channel modifications were made during the summer of 1992 was 60,300 cfs. This flow was recorded on June 21, 1993 at the USGS gage site. This value correlates to a flow that occurs approximately every five to ten years. The monitoring that occurred after the high flows indicated that the structural integrity of the shoal areas had been maintained. This demonstrates that flows necessary to substantially change the shoal areas downstream would have to be higher than the five to ten year flood flow.

The channel modifications made below the spillway gates also remained in good condition with the exception of a few small boulders that rolled down into the channels. Some of the boulders may have originated from local fisherman closing off the channels in order to intentionally strand fish for poaching purposes. The boulders did not restrict fish movement upstream or downstream from the pool areas.

2.2 Determining the effectiveness of channel modifications in the shoal areas. The most reasonable way to determine if the channel modifications in the shoal areas are adequate is to visually observe the improved areas at a reduced flow. Visual observations will be made from the bridge crossings and from walking along the edge of the river channel. The flow that the observations will be made at would be 785 cfs, which is the lowest of the two negotiated minimum flows. The low flow will enable hydro operators and biologists to readily determine whether or not channels from the isolated pools in the shoal areas have remained open to the river channel. The depths of the channels will be assessed at low flow to determine if fish are capable of escaping or entering the pool areas.

The Licensee agrees to perform an assessment of the shoal modifications on an annual basis or as high flows dictate (>60,000 cfs). The annual inspections of the shoal areas will be conducted in May or June of each year to insure channels remain open through the pool areas to prevent fish stranding incidents. The results of these inspections will be documented in a daily log book which will be made available to FERC inspectors during the annual inspection of the Chippewa Falls Project.

2.3 Determining effectiveness of channel modifications downstream from the spillway gates. The most efficient way to determine the effectiveness of the spillway channel improvements is to visually observe the two man-made channels after one or more of the spillway gates are closed. This assessment is routine practice for hydro operators stationed at the Chippewa Falls Project. If stranded fish are observed below the spillway gates, the hydro operators or other company personnel will net and return the fish to the main river channel. The incidence of fish stranding below the spillway gates will be documented which will include the number and species of fish.

Fish stranding below the spillway gates has been reduced significantly since the channel modifications were completed in 1992. Boulders will occasionally roll into the channels which may restrict fish movement. A project scheduled for 1994 will remove some of the rock rubble in the channel areas for placement on the south spillway dike. This project will further reduce the incidence of fish stranding as well as provide riprap for stabilization of the south spillway dike.

The Licensee will perform an assessment of the channel modifications below the spillway after all spillage events. The results of these inspections will be documented in the daily log book and this information will be made available to FERC during the annual inspection of the Chippewa Falls Project.

3.0 Schedule for implementing the monitoring studies, consulting with participating natural resource agencies and filing of monitoring results with the Commission.

Monitoring the effectiveness of channel modifications downstream from the Chippewa Falls Project has already begun and will continue through the course of the new license. The Licensee will continue to monitor the effectiveness of all channel modifications in the same way as in the

past through visual observations after approval from the Commission. The Licensee routinely consults with the resource agencies on issues effecting the aquatic resources of the Chippewa River and this will continue in the future. Results of the monitoring will be made available to the FERC during the annual inspection of the Chippewa Falls Project. If channel modifications are necessary during the term of the new license, the Licensee will file with the Commission a plan that details the scope of the project and the schedule for completing the necessary work. This will be done after in-depth consultation with the WDNR and the USFWS.

TELEPHONE CONVERSATION RECORD

DATE: 6/23/94 **TIME:** 8:20 A.M.
FROM: Tom Lovejoy **TO:** Rob Olson
715/839-3747 715/839-1353
PHONE: 608/788-4000 **PHONE:** 715/839-2692
COMPANY: WDNR **COMPANY:** Northern States Power
REGARDING: Article 406 & 407 of the Chippewa Falls License and the Resident
Recreational Use Survey for the Holcombe Flowage

Tom called me and he mentioned that he did not have any comments on the channel modification plan (Article 406) or the monitoring of the channel modifications (Article 407) below the Chippewa falls Hydro providing Joe Kurz was satisfied with the scope of work. I told Tom about the channel improvement that NSPW has scheduled for the next several weeks below Chippewa Falls and Wissota Hydros. Tom concurred with the modifications as long as Joe Kurz was contacted and in agreement. I assured Tom that Joe had been contacted and that he would be available to observe the work and recommend any additional modifications.

Tom also mentioned that he had reviewed the "resident" recreational use survey for the Holcombe Flowage and was satisfied with the scope of work and was not going to comment.

**COMPLIANCE PLAN FOR MANAGING PROJECT LANDS,
MONITORING PROJECT WETLANDS FOR PURPLE LOOSESTRIFE,
AND PROTECTING POTENTIAL PERCH AND
NEST TREES ON PROJECT LANDS**

ARTICLES 410, 411, 412

CHIPPEWA FALLS LICENSE (FERC NO. 2440)

**PLAN TO COMPLY WITH ARTICLES 410, 411 & 412 OF THE
CHIPPEWA FALLS LICENSE (FERC NO. 2440)
LAND MANAGEMENT PLAN**

ARTICLE 410 DOCUMENTATION

The Licensee shall file with the Commission for approval a plan to manage the 38.36 acres of Licensee owned project lands for protection of environmentally sensitive areas.

ARTICLE 411 DOCUMENTATION

The Licensee shall file with the Commission for approval a plan to monitor project wetlands, at least annually, for the presence of purple loosestrife (Lythrum salicaria).

ARTICLE 412 DOCUMENTATION

The Licensee shall protect potential perch and nest trees on the 38.36 acres for the bald eagle (Haliaeetus leucocephalus), a federally listed threatened species in Wisconsin. If during the term of the license, bald eagles begin perching and/or nesting on project lands, the Licensee shall file a plan with the Commission for monitoring perching and/or nesting activities and providing protective measures.

1.0 Environmentally Sensitive Areas

The majority of the 38.36 acres of project lands owned by NSPW are located near the powerhouse facility and are distributed among nine small parcels marked as Fee on Figure 1. One 7.26 acre tract is located near the dam spillway. The remaining parcels are located on narrow strips along both shorelines of the flowage upstream of the dam to the railroad bridge.

1.1 Protection and Enhancement Measures

Given the small size of the land holdings by NSPW on the Chippewa Falls Flowage, there will be no active management except for the proposed recreational facility enhancements. The lands are characterized by light sandy soils on the shorelines covered with an oak/pine forest assemblage. It is NSPW's objective to leave the land in a natural state, allowing natural succession to determine the land cover present. No development that will interfere with that objective is proposed.

NSPW is not aware of any specific sensitive areas within the lands it owns. Should such areas be identified, NSPW will consult with the Wisconsin Department of Natural Resources (WDNR) and the United States Fish & Wildlife Service (USFWS) to develop a plan to address and implement the appropriate management plans. The specifics of that plan will depend on the type of sensitive areas identified, their location

and the potential for disruption of the area. Purple loosestrife and sensitive area management will be undertaken in the future if deemed necessary.

1.1.1 Littoral zones

The shoreline of the Chippewa Falls Flowage is protected for aesthetics and from abuses by county floodplain and shoreline zoning ordinances. These zoning regulations control the shoreline and floodplain, setting strict standards for wells, sewage disposal systems, minimum building lot size, setbacks from the lake and river, building within the floodplain, removal of vegetation and commercial harvesting of timber.

NSPW plans on leaving the existing littoral zone undeveloped, allowing for the natural succession of the vegetation in that area.

1.1.2 Canopy trees

There will be no timber harvesting conducted on NSPW owned project lands. Trees will only be removed by NSPW to maintain a clear right-of-way for any overhead electrical power lines that cross the property. In those cases, only the trees that present a danger to the reliability of the power line will be removed.

1.1.3 Wetlands

The existing wetland areas on NSPW lands will remain intact. As previously stated, NSPW will leave the area in its natural state. No uses will be allowed that may degrade the area.

1.2 Allowable Uses

All facilities used for recreation will continue to be maintained for the safe and enjoyable use of the public. This includes the canoe portage and unimproved shoreline fishing areas upstream and downstream of the hydropower plant.

The public will be allowed to use NSPW lands for recreational purposes, with access restricted to specific areas for safety considerations. Lands necessary to maintain the safe operation of project facilities will continue to have restricted access. This includes lands adjacent to the hydropower plant and spillway, and the Chippewa Falls Substation. NSPW will also continue to use the small lay-down area used for storing equipment on the north shore, which does not have restricted access.

1.3 Allowable Uses Conditions

No permit system from NSPW is necessary for the allowable uses described in Section 1.2.

If during the term of the license, NSPW proposes to withdraw any of the 38.36 acres of project lands from the project, NSPW will obtain comments from the USFWS and WDNR before filing such a request with the Commission. The 1.14 acre parcel downstream of the project where the boat landing/day use area is being developed will be deeded to the City of Chippewa Falls once the improvements are complete.

1.4 Implementation Schedule

No change in NSPW's current management practices is required. Since there are no specific protective and enhancement measures proposed at this time, an implementation schedule is unnecessary.

1.5 Monitoring Program

NSPW-owned lands for the Chippewa Falls Project are all adjacent to the hydropower plant. These areas will be monitored yearly in conjunction with the purple loosestrife monitoring described in Section 2.1. Any changes or problems noted in the area will be documented and addressed by NSPW.

Since no implemented measures have been identified, the monitoring program will incorporate a walk-through visual inspection of NSPW-owned lands for any major changes or problems.

1.6 FERC Filing Schedule

Since no specific measures are being proposed by NSPW, a schedule for sending the results to the FERC is unnecessary.

2.0 Purple Loosestrife Management

2.1 Monitoring Method

NSPW has not found purple loosestrife on project lands. An NSPW biologist will survey the project wetlands by foot and boat during late July/early August of each year to determine if the species is present.

2.2 Monitoring Schedule

The Chippewa Falls Flowage will be monitored annually during late summer.

2.3 Monitoring Results

After a survey of project wetlands is complete, NSPW will send a brief report to the WDNR and USFWS outlining the results and recommendations.

2.4 Control Methods

Small clusters of plants will be removed by hand, if possible. Additional measures will include cutting the plants and applying an effective herbicide that is environmentally benign to the area. Should removal prove difficult, or large areas of the species be identified, NSPW will consult with the WDNR and USFWS to develop a plan to address and implement the appropriate management plans. The specifics of the plan and the entity responsible for the actual removal of the plants will be determined during consultation with the agencies.

3.0 Bald Eagle Protection

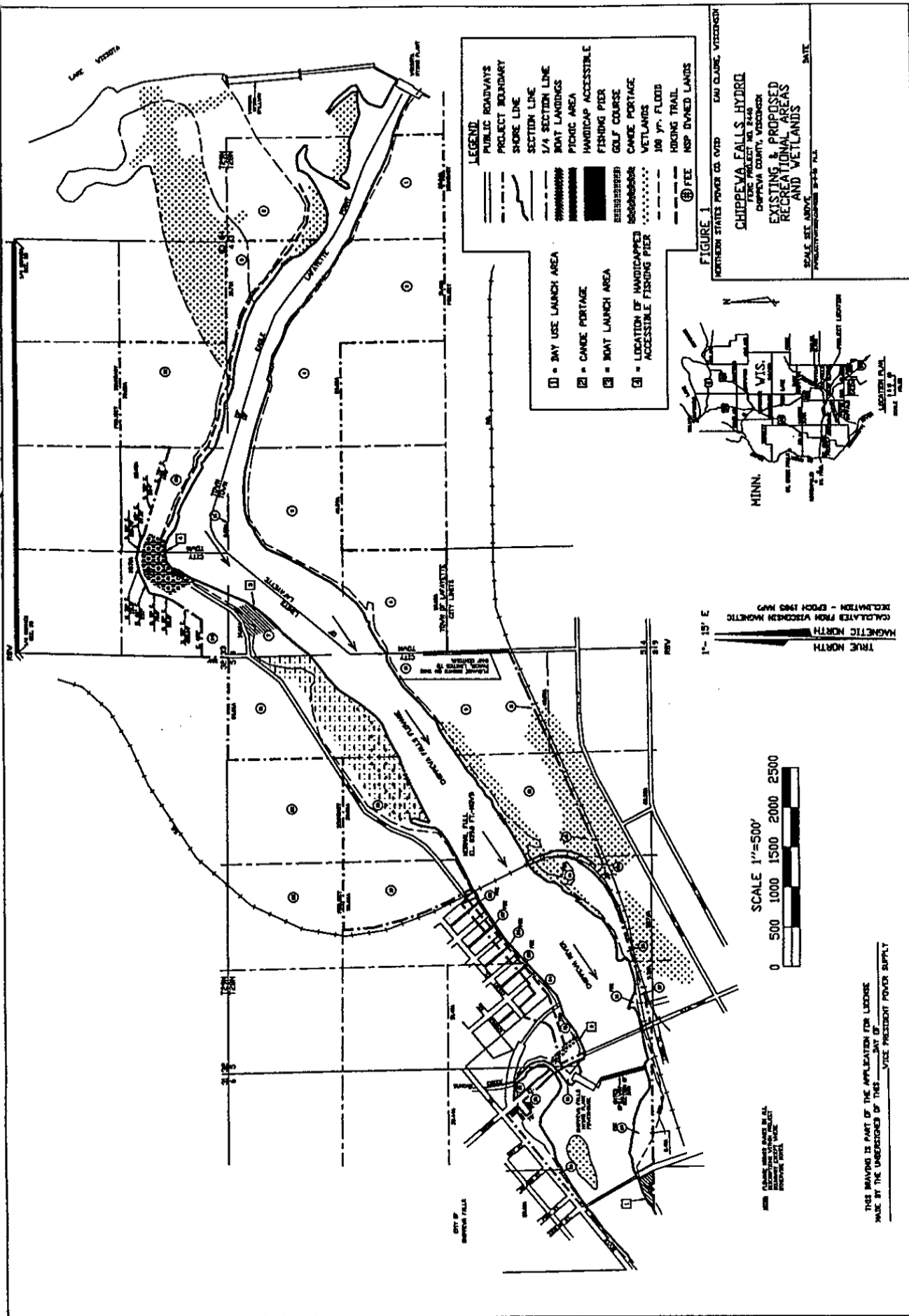
NSPW has not identified any bald eagle perching or nesting on NSPW-owned lands. These lands are located in an urban setting which may deter eagles from nesting, although it may not deter them from perching.

NSPW will not remove any potential perching or nesting trees 15 inches breast high or greater unless required to maintain a clear right-of-way for any overhead electrical power lines that cross the property. In those cases, only the trees that present a danger to the reliability of the power line will be removed.

If during the term of the license, bald eagles begin perching and/or nesting on NSPW-owned lands, NSPW will file a plan with the Commission for monitoring perching and/or nesting activities and provide protective measures. NSPW will follow state and federal agency management guidelines in developing the plan.

4.0 Agency Consultation

The WDNR and the USFWS were contacted during the development of this plan for their input. A draft land use plan was sent to the WDNR and the USFWS prior to a meeting held on May 18, 1994. At the meeting, the agencies concurred with the plan, and the minutes are included as Attachment A.



ATTACHMENT A

**MEETING MINUTES FOR THE FORMATION
OF MANAGEMENT PLANS FOR THE CHIPPEWA
FALLS PROJECT (FERC NO. 2440)**



Sent 6/3/94

Northern States Power Company

100 North Barstow Street
P.O. Box 8
Eau Claire, WI 54702-0008
Telephone (715) 839-2621

June 2, 1994

(SENT TO LIST OF AGENCY PERSONNEL IN ATTENDANCE)

**RE: DRAFT MEETING MINUTES FOR THE MAY 18, 1994 MEETING DISCUSSING
THE RELICENSING OF THE HOLCOMBE PROJECT (FERC NO. 1982) AND
THE CHIPPEWA FALLS PROJECT (FERC NO. 2440).**

Enclosed are the draft meeting minutes from the May 18, 1994 meeting discussing issues concerning relicensing studies at the Holcombe Project and the development of compliance plans for the Chippewa Falls Project.

Please review and send me your comments by June 20 so that the minutes can be finalized as soon as possible. If you have any comments or questions in regards to this matter, please feel free to give me a call at 715/839-1353.

Sincerely,

Robert W. Olson
Coordinator, Licensing

Enclosure

c: Lloyd Everhart (NSPW)
Pam Rasmussen (NSPW)
Donnie Anderson (NSPW)

List of people attending the May 18, 1994 relicensing meeting on Holcombe (FERC No. 1982) and Chippewa Falls (FERC No. 2440) Hydro Projects.

Meeting Participants.

Tom Lovejoy (WDNR)
Lloyd Everhart (NSPW)
Rob Olson (NSPW)
Paul Laliberte (WDNR)
Buzz Sorge (WDNR)
Joe Kurz (WDNR)
Pam Rasmussen (NSPW)
Donnie Anderson (NSPW)
Larry Oborny (USFWS)
Brian Guthman (LHIA)
Monica Gross (TWL)

Holcombe and Chippewa Falls
Relicensing Meeting
May 18, 1994
Meeting Minutes

Attendees: See attached list.

Holcombe

1.0 Status of environmental studies.

1.1 Recreational Use Survey. Lloyd Everhart and Rob Olson spent some time discussing the recreational use assessment at Holcombe. NSPW has hired a person who lives on Lake Holcombe to conduct a recreational use survey on Lake Holcombe. The survey began on 7 May and will possibly extend into next winter depending on the quantity of use. A finalized study scope addressing recommendations from the agencies and the Lake Holcombe Improvement Association (LHIA) will be forwarded to the pertinent people.

1.2 Creel Survey. NSPW has hired a creel survey clerk to conduct a creel survey. The creel survey began on 7 May and will run until the end of March of 1995. The survey will be discontinued in November due to unpredictable weather and limited fishing opportunities. The clerk has gained some experience on Lake Holcombe helping Joe Kurz with fyke netting and shocking during his spring surveys.

It was discussed and decided that NSPW and the Agencies would cooperatively conduct a public information meeting to discuss all of the studies that are being performed on Lake Holcombe. The meeting will be held after sufficient data and results are available to make a meaningful presentation.

1.3 Water Quality Study (Section 22 - Corps of Engineers Grant). Buzz Sorge spent some time discussing the status of the Section 22 Grant for Lake Holcombe. An agreement needs to be made between the WDNR and the LHIA on the transfer of money to the Corps of Engineers. Total cost of the project is \$325,000 with NSPW and the WDNR each contributing \$50,000 to \$70,000. The grant work will begin this summer with the lake mapping effort. The budgeting and project specifics will be finalized soon and will be sent to all interested parties participating in the relicensing process.

1.4 Status of Wissota Grant Work. Buzz relayed information that Mike Delong (Winona State University) is in the process of sampling for recolonization rates of macroinvertebrates in Lake Wissota as part of the lake drawdown assessment. Sampling will be completed in mid-June and a final report will be issued by this September. A public information meeting on the findings of the EPA Grant will be held sometime next September.

1.5 Fish Stranding Remediation. It was decided between Joe and NSPW that some form of fish stranding assessment needs to be done downstream of the Holcombe spillway gates. NSPW

will set up an exercise with the appropriate resource agency people this summer to observe several different spillway gate operations and resolve any potential problems. NSPW's stated preference for correcting fish stranding areas is physical remediation.

1.6 General Biological Survey. Lloyd stated that the request for proposal (RFP) was sent out in April and NSPW has received proposals from four consulting firms. The biological studies will entail work on forage fish, catfish and sturgeon populations, spawning success of different fish species, fisheries work in the backwater bays and general observations of waterfowl, aquatic mammals, amphibians and reptiles. Joe will provide input to Lloyd to help him make a decision on who will be selected to do the work. A finalized scope of work will be sent to the resource agencies for their review.

Tom requested that Lloyd send him a copy of Terry Balding's mussel report on the lower Flambeau, Chippewa, and Jump Rivers. Joe mentioned that Bob Hay, a herpetologist with the WDNR in Madison, should be contacted about pertinent studies taking place at Holcombe. There was mutual agreement between several of the agency people that Dave Heath of the WDNR become involved early in the relicensing process at Holcombe to avoid some of the last minute delays experienced at other projects.

2.0 Attempts at resolution of disagreements on entrainment/turbine mortality, upstream fish passage and downstream flow concerns.

2.1 Entrainment/Turbine Mortality. Lloyd met recently with Harza Engineering concerning possible studies at Holcombe. Harza has had a lot of experience conducting and reviewing fish entrainment and turbine mortality studies. Harza will be preparing a feasibility study of doing an entrainment study at Holcombe. They will review information from other entrainment studies performed and based on their experience make recommendations for potential study alternatives for the Holcombe project.

Initial conclusions from Harza indicate that turbulence and velocity may be a serious problem at Holcombe which could discourage tailwater netting due to netting restrictions, high net induced mortality, and worker safety concerns. Lloyd stated that it might be possible to perform forebay netting although NSPW has some serious reservations. Tom mentioned that we need to gather information on mortality as well as species and numbers. Lloyd indicated that it might be possible to get mortality information through introduction and recovery of Turb'N Tagged fish.

Tom asked Joe if the WDNR has developed a standard or guidelines for protection measures to prevent or minimize entrainment and turbine mortality. Joe responded that they had not. Monica Gross indicated that many companies have looked into louvers and barrier nets. Lloyd responded that those devices have limited application and that the effectiveness has not been thoroughly tested. Joe stated that the primary fishery objective is to manage the flowages separately; meaning that the WDNR would like to see the fish remain in the flowages.

Lloyd indicated that it might be possible to collect entrainment data at Chippewa Falls and apply it at Holcombe. Chippewa Falls has one-half the flow as Holcombe without the water boil in

the tailrace. Tom questioned the group as to what happens if a study can't be performed. Lloyd stated that we would have to look at other sites and make comparisons. Tom stated that if things don't work out right away, get FERC involved. Lloyd stated that EPRI is interested in working with NSPW to test the effectiveness of the one inch racks at Chippewa Falls.

2.2 Upstream Fish Passage. NSPW plans to have Harza adapt the feasibility study that was compiled for Chippewa Falls for providing upstream fish passage at the Holcombe dam. They will look at trap and transfer, elevators and ladders. Tom mentioned that Holcombe is a more conducive site in comparison to Chippewa Falls because of the pool staging area downstream. Joe felt that NSPW needs to evaluate the different systems available and state the limitations. Tom agreed and felt that a determination of possible locations of the facility should be included in the feasibility study.

Tom questioned Joe whether upstream fish passage was necessary at Holcombe. Joe felt it was necessary considering the downstream movement of fish. Monica stated that the WDNR and hydro owners in the eastern part of the state are looking at upstream fish passage. Two Canadian experts are in the state soon to look at several sites on the Menomonie River. Joe felt that an attempt should be made to get the two experts to look at upstream fish passage at all of the Chippewa River projects. Monica tried to contact these people about coming to the area and looking at the Chippewa River projects but arrangements were not made because of the short notice.

Joe and Lloyd will discuss feasibility of providing upstream fish passage at Holcombe as the Harza study proceeds.

2.3 Downstream Flow Concerns. Lloyd stated that NSPW is opposed to doing an IFIM study below Cornell. NSPW believes that the WDNR should honor the previous agreement between NSPW and WDNR made in the mid-1970's. At that time, a Memorandum of Understanding was signed between NSPW and the WDNR which stipulates that the flow issue was considered resolved if the minimum flow unit was placed in the plant. The minimum flow unit was installed which resulted in a significant economic investment by NSPW. Tom responded to Lloyd that times have changed and techniques and methods of assessing flow conditions have changed. NSPW responded that the minimum flow machine provides the only means of delivering increased minimum flows without spilling water through spillway gates. NSPW then repeated its offer to operate the minimum flow machine at full gate, rather than efficient gate, which will increase the volume of flow to approximately 400 cfs. This offer was viewed as unacceptable by the WDNR because they believe they need IFIM data to assess habitat conditions under various flows.

Tom questioned Lloyd as to what went on at the meeting with George Meyer (Secretary, WDNR). Lloyd mentioned that the same issues addressed last Fall with the district directors were talked about at the meeting. No commitments were made at the meeting. Lloyd stated that NSPW tried to make George aware of the economics of the Chippewa River projects and the importance of peaking operations. George indicated that the Department would seek environmental protection measures that make economic sense and that economic viability of hydro projects will not be sacrificed.

Tom questioned how to address downstream flow concerns if a study is not performed. Lloyd asked whether or not there were any other alternatives. Tom mentioned that this issue should be revisited in the next several weeks and one last attempt should be made before taking it to FERC. Tom also mentioned that a study should be done up front so that it doesn't delay receiving the license like on past projects. Joe felt that it was a waste of time to discuss the flow issue further and that FERC should be the one to decide what needs to be done below Cornell. Joe stated that his concern was determining a flow that would be suitable for the upper river.

What route do we take? Joe suggested that we start immediately to avoid delays in receiving the license. Lloyd stated that NSPW would discuss this further within the Company. It was decided that Lloyd and Tom would get together in two weeks to discuss this issue further and try to come to some form of agreement and proceed ahead.

3.0 Comprehensive Target Species Reintroduction Plan. NSPW agreed to participate in a target species reintroduction plan as an alternative to providing upstream fish passage. There was consensus among the Agency personnel to involve Dave Heath in the reintroduction plan. Joe felt that it is necessary to expand habitat for endangered and threatened species. A meeting should be scheduled with Joe, Tom, Lloyd and Dave to discuss this issue and should include a site tour of the Chippewa River projects. Detailed maps of the projects should be developed for the site tour.

Chippewa Falls

Development of study and management plans to satisfy license articles.

1.0 Recreational Plan

1.1 Flowage Boat Landing. Pam Rasmussen stated that NSPW would like to wait until the new bridge corridor is chosen before upgrading or building any landing. If the bridge corridor over the boat landing is chosen, the Wisconsin DOT may be able to help with the redevelopment of a new boat landing elsewhere. If an alternate bridge corridor is chosen, NSPW will work with the City of Chippewa Falls and redevelop the existing boat landing. The boat landing will be redeveloped within one year of a decision on the bridge corridor. Joe and Tom concurred with the plan.

1.2 Downstream Boat Landing. Pam mentioned that improvements to the existing tailwater boat landing could be made by angling the existing landing slightly upstream toward the bridge. The water depths at this location are more suitable for loading and unloading boats. Concrete pads will be added for improved access. The current parking area will be expanded and picnic tables will be added along the shoreline. The improvements at this site will be completed by December of 1994. The group was in agreement on this issue.

1.3 Handicapped-Accessible Fishing Pier. Joe stated that the handicapped fishing pier should be set over the water to enable users easy handling of any fish. Joe suggested that Pam contact Mike Ries of the WDNR in Eau Claire for specifics about design and construction. Joe also

mentioned that a general rule is to allow approximately eight feet of space per angler. Therefore, a pier capable of handling five anglers would be approximately 40 feet in length.

1.4 Canoe Portage Trail. Pam proposed to move the existing canoe portage trail to hook-up to the take-out point upstream of the Highway 124 bridges and a put-in point in Duncan Creek. The trail would cross Court Street which is not a heavily utilized street. Two reasons cited for moving the existing canoe portage include safety concerns with the existing take-out point being too close to the hydro plant intake area and the steepness of the launching area. Tom and Larry Oborny agreed that the proposed canoe portage trail is suitable and should proceed.

2.0 Land Management Plan. Pam stated that NSPW does not propose any active land management of project lands. Project lands will remain in their current condition and will remain open to the public for recreational use. Pam expressed concern about the large amount of beaver activity in the vicinity of the hiking trail. Joe suggested to contact Al Walker of the City of Chippewa Falls for possible alternatives. The land management plan was mutually agreed to by the Agencies.

3.0 Purple Loosestrife Management Plan. NSPW proposes to perform annual surveys in late-July of the wetland areas around the Chippewa Falls Flowage. Any isolated purple loosestrife plant found within the project area will be removed before it goes to seed. The proposed plan was agreed to by the Agencies.

4.0 Bald Eagle Management Plan. Pam stated that a bald eagle management plan would be developed when nesting or perching eagles are observed on project lands. In the meantime, NSPW proposes to maintain project lands in their current state.

5.0 Ramping Rates. Lloyd questioned the Agencies as to what they were looking for in terms of ramping rates below the Chippewa Falls Project. Tom responded that they felt that ramping of the spillway gates was important. Lloyd reminded the group that there may be problems with ramping spillway gates at Chippewa Falls because they must be operated in concert with the automatic gates at Wissota upstream. Tom suggested that during the ramping rate study we work with the amount of water being passed through the controllable gate at Wissota. The group agreed to address this flow during the ramping rate exercise. Joe's concerns below the spillway are at gates one, two and nine. Joe suggested that gates one and two should be closed first and then number nine. Joe also felt that ramping between seasonal flows (1,000 to 785 cfs) was not necessary.

A ramping rate study will be performed some time this summer (time and date to be determined).

6.0 Dissolved Oxygen Monitoring Plan. Paul Laliberte has reviewed the DO monitoring plan and considers the plan adequate. Commencement of the study will be in June of 1995.

7.0 Compliance Plan for Headwater and Minimum Flow Requirements. The agencies were generally in agreement over the compliance plan. Paul expressed an interest in getting percent

exceedance flows using instantaneous counts versus the percent exceedance flows obtained from the USGS using daily average flow. NSPW resolved to look into what can be done to come up with this information.

8.0 Channel Modifications. Lloyd stated that much of the work in the channels and shoal areas was completed before the license was issued. Joe stated that the current conditions of the stranding areas are adequate for the time being but should be monitored annually or as high flows dictate. NSPW agreed to perform periodic monitoring and make channel modifications as necessary.

Lloyd asked Joe if they would have any problems with NSPW moving some of the rock located below the spillway gates for riprapping of the south bank. Joe felt that this was okay as long as depressions were not left behind that fish could become stranded if spillway gates were closed. Lloyd stated that rocks moved as part of the channel modifications could possibly be used for boulder placement and habitat improvements downstream.

9.0 Entrainment Reduction Plan. NSPW may be working with EPRI on an effectiveness study of reduced trash rack spacing since there haven't been any studies done around the Midwest on the effectiveness of reduced trash rack spacing. Operators are currently monitoring the operational characteristics of the one inch trash racks on a daily basis. NSPW intends to develop plans for the effectiveness monitoring this summer or fall after the construction schedule for the turbine rehabilitation project is better defined.

10.0 Winter Drawdown Effects on River Channel Morphology. Paul has spent some time researching possible effects of different flow regimes on channel morphology. The flow that determines channel shape is the bank full flow which is approximately 58,000 cfs on the Chippewa River. Daily fluctuations in water levels has minimal impact on channel shape. The only area in the Chippewa River where there would be appreciable effect on changes in channel shape is downstream of Dells where the substrate is predominately shifting sand and the river is free-flowing. Cumulative drawdowns on the upstream flowages cut off the river flow peaks due to changing drawdown procedures will result in changes in river morphology.

Paul felt that it was important to look into the cumulative benefits of drawdowns on the entire system versus benefits provided by individual projects. Paul suggested consulting with an expert on river hydrology to determine this value in terms of potential losses due to flooding. Paul mentioned that Gary Lepak of the WDNR in Eau Claire would have information on property losses associated with different magnitudes of floods along the Chippewa River. Paul will work with Rob to update the information presented in the 1952 flood analysis from the Corps of Engineers.

The next Holcombe relicensing meeting will be held on August 3, 1994 at 9:00 AM. The meeting will be held at NSPW's Western Avenue Service Center. Detailed maps will be forwarded at the time the formal meeting announcement is sent out.

RECREATION PLAN

ARTICLE 413

CHIPPEWA FALLS LICENSE (FERC NO. 2440)

**PLAN TO COMPLY WITH ARTICLE 413 OF THE
CHIPPEWA FALLS LICENSE (FERC NO. 2440).
RECREATION PLAN**

ARTICLE 413 DOCUMENTATION

Within 180 days of the date of this license, the Licensee shall file with the Commission for approval, a final recreation plan that includes expansion or modification to the reservoir boat ramp, downstream boat landing, handicapped-accessible fishing pier, and relocation of the existing canoe portage trail.

1.0 Provisions to improve recreation facilities

During the relicensing process for the Chippewa Falls Hydro Project, the existing recreation facilities were critiqued for their adequacy to meet the existing recreational use on the Chippewa Falls Flowage. The basic premise of the improvements listed in this plan were agreed upon by NSPW and the agencies. This plan will describe the specific details of the improvements.

Figure 1 shows the location of the existing recreational facilities on the Chippewa Falls Flowage.

1.1 Reservoir Boat Landing

It was agreed upon after agency consultation that NSPW would widen and expand vehicle parking, turn-around areas and improve the boat ramp at the landing owned by the City of Chippewa Falls (City). NSPW will assist the City with improvements to this landing to allow for easier parking and access to the boat ramp. However, there are plans pending to construct a new bridge across the Chippewa Falls Flowage which may be located in the same area as the boat landing. There is an alternative bridge corridor which is located a short distance upstream, closer to the Wissota Hydro. NSPW and the City have agreed to delay discussions of specific improvements until the location of the new bridge is determined. If the corridor the boat landing is on is chosen, it appears that the improvements will be coordinated between NSPW, the City and the Wisconsin Department of Transportation as part of the bridge construction. If the bridge corridor is located on the alternate site, NSPW and the City will develop a plan for improving the existing landing. Specific needs of the disabled will be addressed during the boat landing plan development. If it is determined that the needs of the disabled can be safely accommodated, those measures will be included in the boat landing plan.

A final decision on the new bridge is expected in late 1994. Once a decision is rendered, NSPW will notify the FERC of the results and identify a filing date for a

revised recreation plan which will include details of the improvements to the reservoir boat landing.

1.2 Downstream Boat Landing

The unimproved boat launch area located in the Project tailwaters includes a vehicle turn-around area with an access to the river for canoes and small boats. NSPW has agreed to redevelop this landing as a public day use area and boat landing. Figure 2 shows a drawing of the area.

The area is located in the floodplain of the Chippewa River, so it will be developed to minimize damage from flooding. Picnic tables will be placed in several locations. The tables will be made of concrete or heavy plastic and will be secured to the site. Minimal clearing will be performed, except to allow for access to the picnic tables.

The City has requested that the landing be developed to provide access for small boats and canoes. The river near the landing is shallow and rocky for a considerable distance, presenting restrictions for larger boats and motors. The landing area will be stabilized and upgraded to allow for adequate access under the new minimum flow of 785 cfs. An area will be leveled and developed for vehicle parking.

Approximately one inch of substrate has been placed on the road by the City which has stabilized the launching area. Additional work will be done to minimize erosion from the storm sewer located in the rip-rap along the access road.

Once the improvements are complete, NSPW will formally propose the land donation to the City of Chippewa Falls.

1.3 Handicapped-accessible fishing pier

NSPW will install a handicapped-accessible fishing dock at the city well field site adjacent to the north side of the project reservoir. Figure 3 shows a drawing of the area. A gradually sloping path will be developed to the fishing pier, which will be built on the shoreline above the normal high water mark. This will reduce the chance for ice/water damage during spring thaw or runoff conditions. The base of the structure will be concrete and the hand rails will be treated wood. The structure will be designed to allow the appropriate amount of frontage and access for wheel chairs following guidelines set up by the Wisconsin Department of Natural Resources (WDNR).

1.4 Canoe portage

A primary goal of NSPW and the agencies during the licensing process was to relocate the existing canoe portage to eliminate the need for portage users to cross STH 124. The route proposed in the License Application has been assessed along with an

alternative route. The portage proposed in the License Application required the canoeists to follow a steep path located near the Chippewa Falls plant. This path is located on a rocky point which would make carrying a canoe down to the Chippewa River difficult. A considerable amount of work and materials would be required to make this area more accessible and it would still be awkward for portaging a canoe.

The new STH 124 bridge construction has opened up the NSPW property south of Duncan Creek to allow for development of a safe path to the creek. NSPW will locate the canoe take-out at the existing location, with the portage crossing Court Street to follow a developed path down to Duncan Creek. Figure 4 shows a drawing of the area.

The appropriate signs will be placed to identify the take-out area, portage trail and canoe put-in area.

1.5 Constant minimum downstream flow

NSPW has worked with the agencies in regard to the establishment of a future minimum flow in the tailwaters of the Chippewa Falls Project. A minimum flow of 1000 cfs will be released from the flowage from April 15 to May 31 and 785 cfs during the period from June 1 to April 14. The minimum flow of 785 cfs will facilitate increased canoe and small boat use in the tailwater area of the project and should improve fishing. Overall, the higher minimum flow should promote increased use of project waters and result in a more pleasurable outdoor experience for recreational users than in the past.

The new minimum flow will become effective when NSPW completes installation of a new adjustable propeller-type turbine or on December 31, 1994, whichever comes first.

1.6 Other

NSPW proposed in the License Application to improve the existing unimproved hiking trail on an old railroad corridor north of NSPW's Chippewa Substation. At the time this recreational plan was being developed, the City of Chippewa Falls' plans for the Chippewa Falls Bike trail were still being discussed. A final decision on the trail route will be determined by late 1994 or early 1995.

Although not formally required in the FERC order, NSPW will work with the City on developing the trail as a portion of their bike trail. If the plans for the City bike trail fail, NSPW will still improve the existing trail. Those improvements will include replacing the sand path with a more suitable substrate, minimal brushing of vegetation, and installing signs identifying the trail.

2.0 Handicap-accessible facilities

NSPW considered the needs of the handicapped in the review for improvements of the recreational facilities on the Chippewa Falls Flowage. The handicapped-accessible fishing pier will provide a barrier-free shoreline fishing structure on the Chippewa Falls Flowage. No handicapped accessible accommodations were included in the canoe portage, downstream boat landing, or reservoir boat ramp. Plans for these facilities are currently under development, and if it is determined that the needs of the disabled can be safely accommodated, those measures will be included in the final plans.

3.0 Signs

Once the recreational improvements are in place, the appropriate signs will be developed to identify the facilities. A project sign will be developed in accordance with Part 8 of the FERC regulations.

4.0 Drawings and specifications

The plans for the downstream boat landing, canoe portage and handicap fishing pier areas are included as Figures 2,3 and 4, respectively.

NSP will follow the appropriate erosion and sediment control plans as outlined in the *Wisconsin Construction Site Best Management Practice Handbook*.

5.0 Construction Schedule

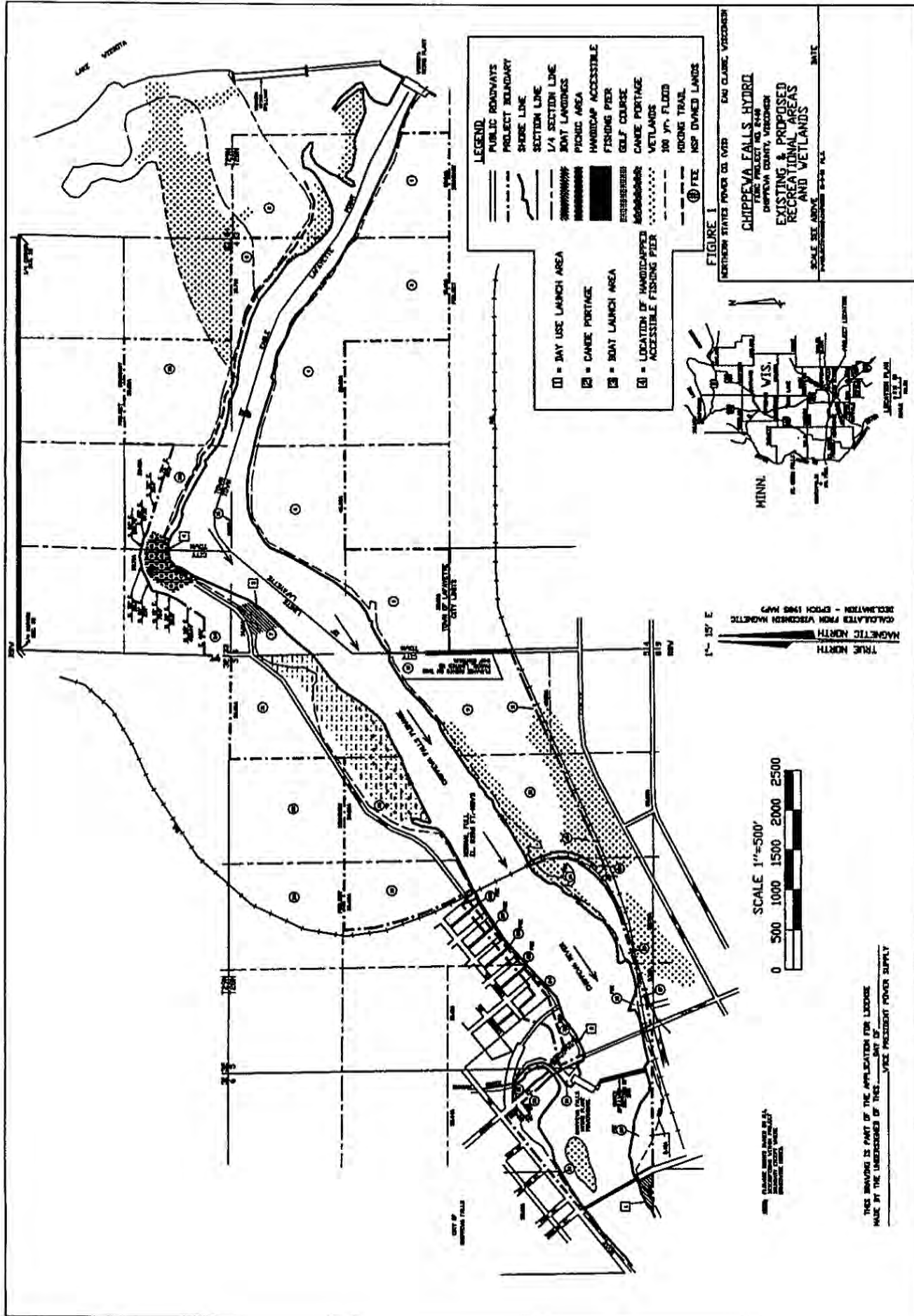
The following construction schedule is proposed by NSPW:

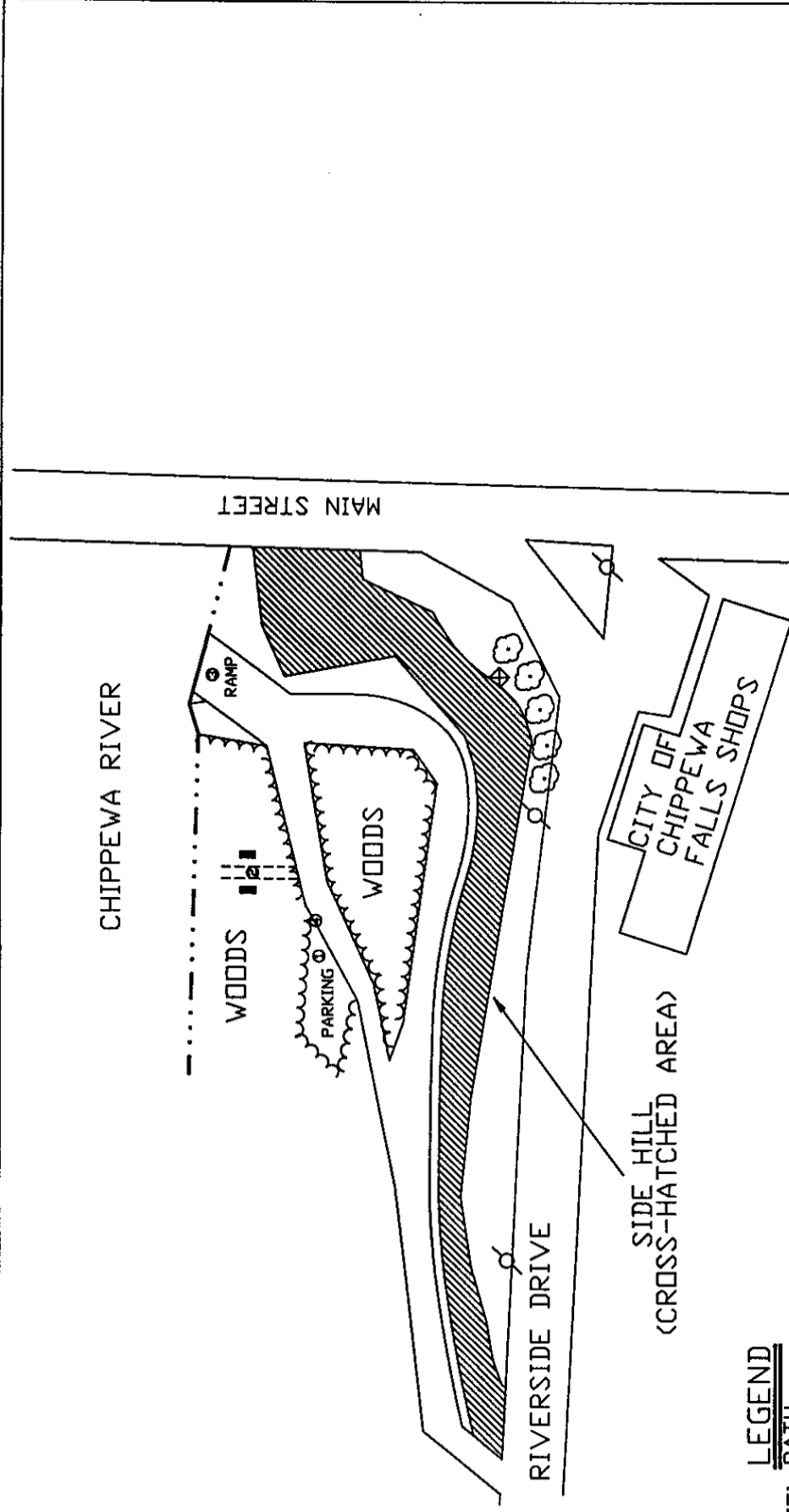
<i>Facility</i>	<i>Completion Date</i>
Reservoir Boat Landing	Pending decision on new bridge*
Downstream Boat Landing	12/31/94
Handicapped-Accessible Fishing Pier	12/31/94
Canoe Portage	12/31/94
Hiking Trail	Pending decision on Chippewa Falls bike trail*

*Once decision is made, NSPW will file plans within one year.

6.0 Agency Consultation

The City, WDNR and the United States Fish & Wildlife Service (USFWS) were contacted during the development of this plan for their input. A meeting with the City was held on March 30, 1994. The plan was discussed with them and met their approval. The meeting minutes are included as Attachment A. A draft recreation plan was sent to the WDNR and the USFWS prior to a meeting held on May 18, 1994. At the meeting, the agencies concurred with the plan, and the minutes are included as Attachment B.





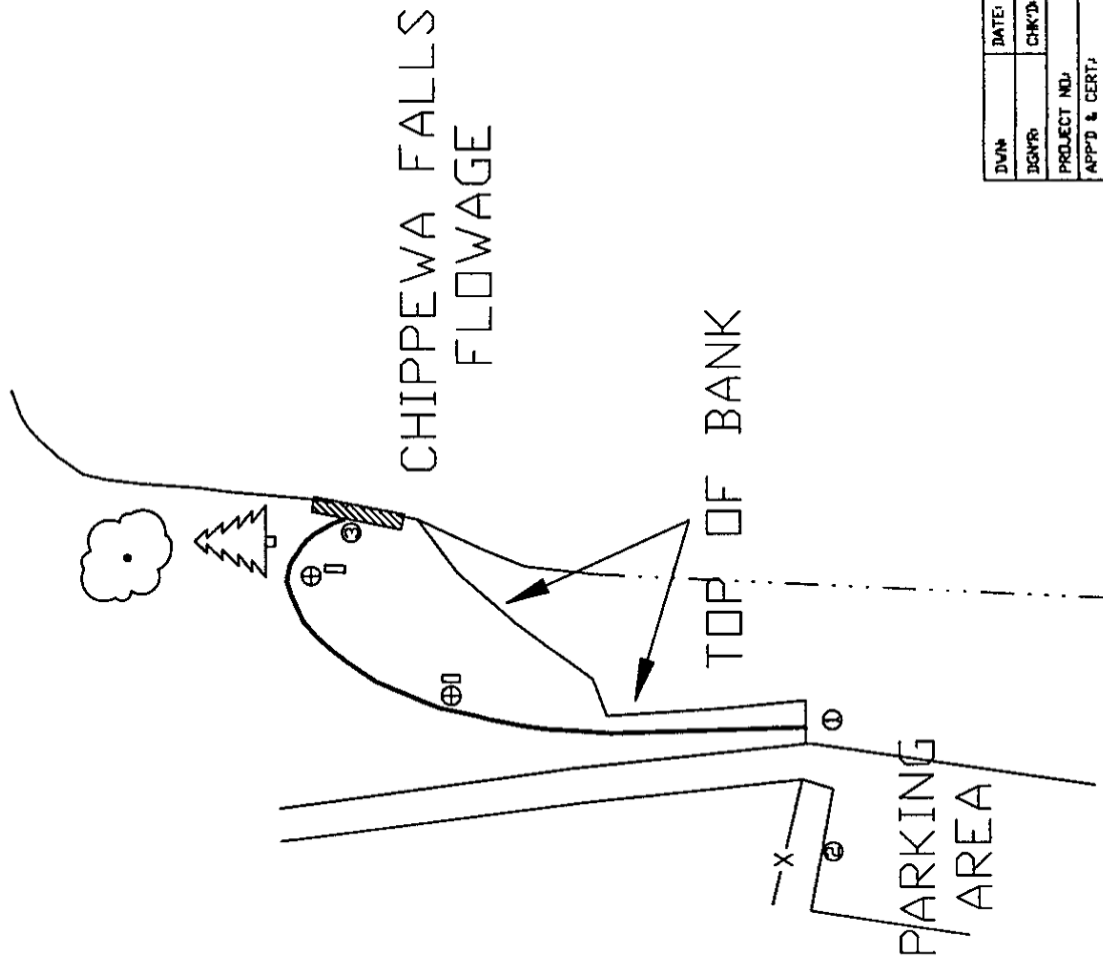
LEGEND

--- PATH

■ PICNIC TABLES
DESCRIPTIONS:

- ① ANGLE PARKING FOR UP TO 4 VEHICLES
- ② PICNIC AREA - 2 TABLES (SECURED TO THE SITE)
- ③ BOAT LAUNCH - WILL BE ANGLED UPSTREAM
- ④ PARKING SIGN (2'X2')

DWG	DATE	SIGNIFICANT NO.	GROUP	1	2	3	4	5	6
DWG	CHK'D								
PROJECT NO.		FIGURE 2							
APP'D & CERT'D		BOAT LANDING PROPOSAL							
FILED		J:\PROJECTS\HYDRON\RGBCHIPI.DWG							
NORTHERN STATES POWER COMPANY		SCALE: 1"=100'		REV.		ND			
EAU CLAIRE, WI									



— PATH
⊕ REST AREA
▨ FISHING PIER
□ PARK BENCH

- ① SIGN FOR HANDICAPPED-ACCESSIBLE FISHING PARKING SIGN
- ② HANDICAPPED PARKING SIGN
- ③ FISHING PIER WILL BE CONSTRUCTED ON THE SHORELINE. A RAILING WILL BE ATTACHED FOR ADDITIONAL SAFETY. FOUR INDIVIDUAL FISHING AREAS WILL BE DEVELOPED ON THE PIER.

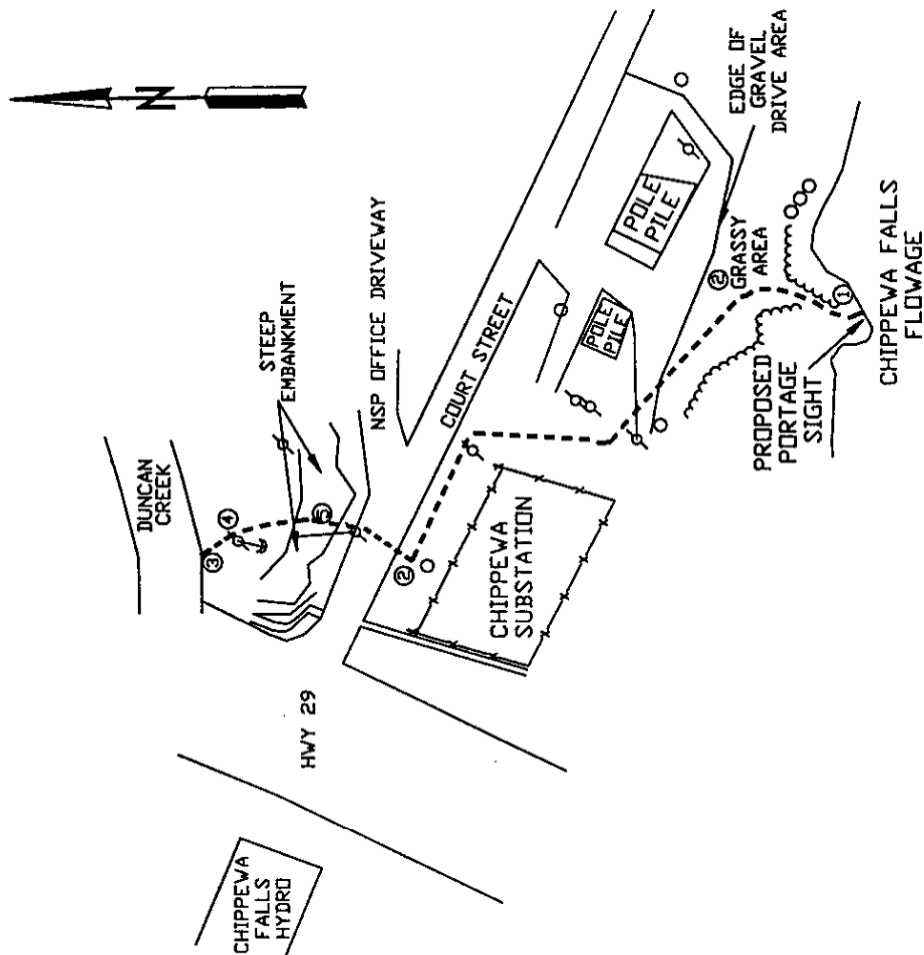
DWN	DATE:	SIGNIFICANT NEL		1		2	3	4	5		6
IGNR	CHK'D	GROUP									
PROJECT NEL		<p>FIGURE 3 HANDICAPPED ACCESSIBLE FISHING PIER PROPOSAL</p>									
APP'D & CERT:		J:\PROJECTS\HYDR\RGBCHIP3.DWG									
FILMED		<p>SCALE: 1"=100'</p> <p>REV: _____</p>									
<p>NORTHERN STATES POWER COMPANY EAU CLAIRE, WI</p>											
<p>ND -----</p>											

LEGEND

-----PORTAGE TRAIL

DESCRIPTIONS:

- ① TAKE OUT SIGN (2'X2')
- ② CANOE PORTAGE DIRECTION SIGN (2'X2')
- ③ CANOE PUT-IN SIGN (2'X2')
- ④ DEVELOP FLAT AREA FOR PUTTING CANOES
- ⑤ FILL AND DEVELOP WALK AREA DOWN STEEP SLOPE



DIV#	DATE	SIGNIFICANT NO.						
DGN#	CHK'D	GROUP	1	2	3	4	5	6
PROJECT NO.	FIGURE 4							
APP'D & CERT.	PORTAGE PROPOSAL							
FILED	J:\PROJECTS\HYDRO\RGBCHIP2.DWG							
NORTHERN STATES POWER COMPANY EAU CLAIRE, WI			SCALE: 1"=100'			REV:		
ND			ND			ND		

ATTACHMENT A
CORRESPONDENCE WITH THE
CITY OF CHIPPEWA FALLS

**CHIPPEWA FALLS HYDRO PROJECT
MARCH 30, 1994 MEETING
RECREATIONAL FACILITIES/PLAN
NSPW & CITY OF CHIPPEWA FALLS
CHIPPEWA FALLS CITY HALL**

Attendees:

NSPW:	Steve Sletner	City of Chippewa Falls:	Rod Pike
	Rob Olson		Bill Faherty
	Tina Ball		Jayson Smith
	Pam Rasmussen		Glen Zwiefelhofer
			John Allen

Items discussed at City Hall and at project locations:

Widen and expand vehicle parking, turn-around areas and a boat ramp at the landing owned by the City of Chippewa Falls

The new bridge proposed for Chippewa Falls has two potential locations. One is over the site of the existing boat landing and the other is further upstream, closer to the Wissota Hydro. No improvements will be discussed or planned until the location of the new bridge is determined. If the corridor the boat landing is on is chosen, improvements may be coordinated as part of the bridge construction. If the corridor is not chosen, NSPW and the City will develop a plan for improving the landing. Matching funds may be available for the City for the project.

Handicap facilities will be addressed once plans are developed

Redevelop the existing unimproved boat landing located downstream of the dam as a public day use area and boat landing

The area was reviewed in the field. It is located in the Chippewa River flood plain. The City requested that it be developed to allow for minimal damage by flooding. The City will have recyclable containers and rest rooms up near the ball field. Picnic tables will be placed in several locations. They will be concrete or heavy plastic and secured to the site. Minimal clearing will be done, except in areas around the placement of the tables. A survey of the area will be done by NSPW.

Approximately 1 inch of substrate has been placed on the road by the City which has helped stabilize the area. Additional work will be required to stabilize the area where the storm sewer is located in the rip-rap along the road and drains water into the River.

The City requested that the landing remain in similar state and be considered a canoe put-in. The area is shallow and rocky for a considerable distance, presenting restrictions for larger boats and motors. The area should continue to provide for small boats and canoes to be carried to the river. An area will be leveled and developed for parking for vehicles.

The land donation will need to be a formal proposal by NSP to the city and sent to the Mayor (copy Rod Pike).

Handicap facilities: Due to water fluctuations and the potential for flooding, the boat landing will not be geared towards handicap facilities. The parking and picnic table locations will be reviewed for their ability to accommodate handicapped persons.

Install a handicapped-accessible fishing dock at the city well field site adjacent to the project reservoir

The day use area at the city well field on the north side of the flowage will be the location of the fishing "dock". The site will be surveyed by NSP and a project map developed. The area appeared to be able to allow for the development of a gradually sloping path to the fishing area. The fishing "pier" itself will be built on the shoreline, in a similar style as the dock up by Jim Falls, except the base will be on the shore will not extend out into the water. This will reduce the chance for ice/water damage from the river during thaw and storm conditions. The base of the structure would be concrete with the hand rails made of wood and designed to allow easy access for wheel chairs.

Relocate the existing canoe portage to that portage users can avoid crossing STH 124

The primary goal for the canoe route is to eliminate the need for canoeists to cross STH 124. The route proposed in the application was reviewed as well as an alternative. The alternative route appears preferable and will bring the canoeists out in the existing location, they will then cross Court street and follow a developed path down to Duncan Creek. A detailed survey and drawing will be developed by NSP.

The new STH 124 bridge construction has opened up the NSP property south of Duncan Creek to allow for a safe path to be developed to the stream. The portage proposed in the License application required the canoeists to follow a steep path near the Chippewa Falls plant. A considerable amount of work would be required to make that area safe for users carrying a canoe. This new route appears to be safer

Hiking trail on old railroad corridor north of NSP's Chippewa Substation

Chippewa Falls Bike trail is stilling in the planning stages. The trail on NSP property is still a potential route. Actual route will be determined by late 1994 or early 1995.

ATTACHMENT B

**MEETING MINUTES FOR THE FORMATION
OF MANAGEMENT PLANS FOR THE CHIPPEWA
FALLS PROJECT (FERC NO. 2440)**



Sent 6/3/94

Northern States Power Company

100 North Barstow Street
P.O. Box 8
Eau Claire, WI 54702-0008
Telephone (715) 839-2621

June 2, 1994

(SENT TO LIST OF AGENCY PERSONNEL IN ATTENDANCE)

**RE: DRAFT MEETING MINUTES FOR THE MAY 18, 1994 MEETING DISCUSSING
THE RELICENSING OF THE HOLCOMBE PROJECT (FERC NO. 1982) AND
THE CHIPPEWA FALLS PROJECT (FERC NO. 2440).**

Enclosed are the draft meeting minutes from the May 18, 1994 meeting discussing issues concerning relicensing studies at the Holcombe Project and the development of compliance plans for the Chippewa Falls Project.

Please review and send me your comments by June 20 so that the minutes can be finalized as soon as possible. If you have any comments or questions in regards to this matter, please feel free to give me a call at 715/839-1353.

Sincerely,

Robert W. Olson

Robert W. Olson
Coordinator, Licensing

Enclosure

c: Lloyd Everhart (NSPW)
Pam Rasmussen (NSPW)
Donnie Anderson (NSPW)

List of people attending the May 18, 1994 relicensing meeting on Holcombe (FERC No. 1982) and Chippewa Falls (FERC No. 2440) Hydro Projects.

Meeting Participants.

Tom Lovejoy (WDNR)
Lloyd Everhart (NSPW)
Rob Olson (NSPW)
Paul Laliberte (WDNR)
Buzz Sorge (WDNR)
Joe Kurz (WDNR)
Pam Rasmussen (NSPW)
Donnie Anderson (NSPW)
Larry Oborny (USFWS)
Brian Guthman (LHIA)
Monica Gross (IWL)

Holcombe and Chippewa Falls
Relicensing Meeting
May 18, 1994
Meeting Minutes

Attendees: See attached list.

Holcombe

1.0 Status of environmental studies.

1.1 Recreational Use Survey. Lloyd Everhart and Rob Olson spent some time discussing the recreational use assessment at Holcombe. NSPW has hired a person who lives on Lake Holcombe to conduct a recreational use survey on Lake Holcombe. The survey began on 7 May and will possibly extend into next winter depending on the quantity of use. A finalized study scope addressing recommendations from the agencies and the Lake Holcombe Improvement Association (LHIA) will be forwarded to the pertinent people.

1.2 Creel Survey. NSPW has hired a creel survey clerk to conduct a creel survey. The creel survey began on 7 May and will run until the end of March of 1995. The survey will be discontinued in November due to unpredictable weather and limited fishing opportunities. The clerk has gained some experience on Lake Holcombe helping Joe Kurz with fyke netting and shocking during his spring surveys.

It was discussed and decided that NSPW and the Agencies would cooperatively conduct a public information meeting to discuss all of the studies that are being performed on Lake Holcombe. The meeting will be held after sufficient data and results are available to make a meaningful presentation.

1.3 Water Quality Study (Section 22 - Corps of Engineers Grant). Buzz Sorge spent some time discussing the status of the Section 22 Grant for Lake Holcombe. An agreement needs to be made between the WDNR and the LHIA on the transfer of money to the Corps of Engineers. Total cost of the project is \$325,000 with NSPW and the WDNR each contributing \$50,000 to \$70,000. The grant work will begin this summer with the lake mapping effort. The budgeting and project specifics will be finalized soon and will be sent to all interested parties participating in the relicensing process.

1.4 Status of Wissota Grant Work. Buzz relayed information that Mike Delong (Winona State University) is in the process of sampling for recolonization rates of macroinvertebrates in Lake Wissota as part of the lake drawdown assessment. Sampling will be completed in mid-June and a final report will be issued by this September. A public information meeting on the findings of the EPA Grant will be held sometime next September.

1.5 Fish Stranding Remediation. It was decided between Joe and NSPW that some form of fish stranding assessment needs to be done downstream of the Holcombe spillway gates. NSPW

will set up an exercise with the appropriate resource agency people this summer to observe several different spillway gate operations and resolve any potential problems. NSPW's stated preference for correcting fish stranding areas is physical remediation.

1.6 General Biological Survey. Lloyd stated that the request for proposal (RFP) was sent out in April and NSPW has received proposals from four consulting firms. The biological studies will entail work on forage fish, catfish and sturgeon populations, spawning success of different fish species, fisheries work in the backwater bays and general observations of waterfowl, aquatic mammals, amphibians and reptiles. Joe will provide input to Lloyd to help him make a decision on who will be selected to do the work. A finalized scope of work will be sent to the resource agencies for their review.

Tom requested that Lloyd send him a copy of Terry Balding's mussel report on the lower Flambeau, Chippewa, and Jump Rivers. Joe mentioned that Bob Hay, a herpetologist with the WDNR in Madison, should be contacted about pertinent studies taking place at Holcombe. There was mutual agreement between several of the agency people that Dave Heath of the WDNR become involved early in the relicensing process at Holcombe to avoid some of the last minute delays experienced at other projects.

2.0 Attempts at resolution of disagreements on entrainment/turbine mortality, upstream fish passage and downstream flow concerns.

2.1 Entrainment/Turbine Mortality. Lloyd met recently with Harza Engineering concerning possible studies at Holcombe. Harza has had a lot of experience conducting and reviewing fish entrainment and turbine mortality studies. Harza will be preparing a feasibility study of doing an entrainment study at Holcombe. They will review information from other entrainment studies performed and based on their experience make recommendations for potential study alternatives for the Holcombe project.

Initial conclusions from Harza indicate that turbulence and velocity may be a serious problem at Holcombe which could discourage tailwater netting due to netting restrictions, high net induced mortality, and worker safety concerns. Lloyd stated that it might be possible to perform forebay netting although NSPW has some serious reservations. Tom mentioned that we need to gather information on mortality as well as species and numbers. Lloyd indicated that it might be possible to get mortality information through introduction and recovery of Turb'N Tagged fish.

Tom asked Joe if the WDNR has developed a standard or guidelines for protection measures to prevent or minimize entrainment and turbine mortality. Joe responded that they had not. Monica Gross indicated that many companies have looked into louvers and barrier nets. Lloyd responded that those devices have limited application and that the effectiveness has not been thoroughly tested. Joe stated that the primary fishery objective is to manage the flowages separately; meaning that the WDNR would like to see the fish remain in the flowages.

Lloyd indicated that it might be possible to collect entrainment data at Chippewa Falls and apply it at Holcombe. Chippewa Falls has one-half the flow as Holcombe without the water boil in

the tailrace. Tom questioned the group as to what happens if a study can't be performed. Lloyd stated that we would have to look at other sites and make comparisons. Tom stated that if things don't work out right away, get FERC involved. Lloyd stated that EPRI is interested in working with NSPW to test the effectiveness of the one inch racks at Chippewa Falls.

2.2 Upstream Fish Passage. NSPW plans to have Harza adapt the feasibility study that was compiled for Chippewa Falls for providing upstream fish passage at the Holcombe dam. They will look at trap and transfer, elevators and ladders. Tom mentioned that Holcombe is a more conducive site in comparison to Chippewa Falls because of the pool staging area downstream. Joe felt that NSPW needs to evaluate the different systems available and state the limitations. Tom agreed and felt that a determination of possible locations of the facility should be included in the feasibility study.

Tom questioned Joe whether upstream fish passage was necessary at Holcombe. Joe felt it was necessary considering the downstream movement of fish. Monica stated that the WDNR and hydro owners in the eastern part of the state are looking at upstream fish passage. Two Canadian experts are in the state soon to look at several sites on the Menomonie River. Joe felt that an attempt should be made to get the two experts to look at upstream fish passage at all of the Chippewa River projects. Monica tried to contact these people about coming to the area and looking at the Chippewa River projects but arrangements were not made because of the short notice.

Joe and Lloyd will discuss feasibility of providing upstream fish passage at Holcombe as the Harza study proceeds.

2.3 Downstream Flow Concerns. Lloyd stated that NSPW is opposed to doing an IFIM study below Cornell. NSPW believes that the WDNR should honor the previous agreement between NSPW and WDNR made in the mid-1970's. At that time, a Memorandum of Understanding was signed between NSPW and the WDNR which stipulates that the flow issue was considered resolved if the minimum flow unit was placed in the plant. The minimum flow unit was installed which resulted in a significant economic investment by NSPW. Tom responded to Lloyd that times have changed and techniques and methods of assessing flow conditions have changed. NSPW responded that the minimum flow machine provides the only means of delivering increased minimum flows without spilling water through spillway gates. NSPW then repeated its offer to operate the minimum flow machine at full gate, rather than efficient gate, which will increase the volume of flow to approximately 400 cfs. This offer was viewed as unacceptable by the WDNR because they believe they need IFIM data to assess habitat conditions under various flows.

Tom questioned Lloyd as to what went on at the meeting with George Meyer (Secretary, WDNR). Lloyd mentioned that the same issues addressed last Fall with the district directors were talked about at the meeting. No commitments were made at the meeting. Lloyd stated that NSPW tried to make George aware of the economics of the Chippewa River projects and the importance of peaking operations. George indicated that the Department would seek environmental protection measures that make economic sense and that economic viability of hydro projects will not be sacrificed.

Tom questioned how to address downstream flow concerns if a study is not performed. Lloyd asked whether or not there were any other alternatives. Tom mentioned that this issue should be revisited in the next several weeks and one last attempt should be made before taking it to FERC. Tom also mentioned that a study should be done up front so that it doesn't delay receiving the license like on past projects. Joe felt that it was a waste of time to discuss the flow issue further and that FERC should be the one to decide what needs to be done below Cornell. Joe stated that his concern was determining a flow that would be suitable for the upper river.

What route do we take? Joe suggested that we start immediately to avoid delays in receiving the license. Lloyd stated that NSPW would discuss this further within the Company. It was decided that Lloyd and Tom would get together in two weeks to discuss this issue further and try to come to some form of agreement and proceed ahead.

3.0 Comprehensive Target Species Reintroduction Plan. NSPW agreed to participate in a target species reintroduction plan as an alternative to providing upstream fish passage. There was consensus among the Agency personnel to involve Dave Heath in the reintroduction plan. Joe felt that it is necessary to expand habitat for endangered and threatened species. A meeting should be scheduled with Joe, Tom, Lloyd and Dave to discuss this issue and should include a site tour of the Chippewa River projects. Detailed maps of the projects should be developed for the site tour.

Chippewa Falls

Development of study and management plans to satisfy license articles.

1.0 Recreational Plan

1.1 Flowage Boat Landing. Pam Rasmussen stated that NSPW would like to wait until the new bridge corridor is chosen before upgrading or building any landing. If the bridge corridor over the boat landing is chosen, the Wisconsin DOT may be able to help with the redevelopment of a new boat landing elsewhere. If an alternate bridge corridor is chosen, NSPW will work with the City of Chippewa Falls and redevelop the existing boat landing. The boat landing will be redeveloped within one year of a decision on the bridge corridor. Joe and Tom concurred with the plan.

1.2 Downstream Boat Landing. Pam mentioned that improvements to the existing tailwater boat landing could be made by angling the existing landing slightly upstream toward the bridge. The water depths at this location are more suitable for loading and unloading boats. Concrete pads will be added for improved access. The current parking area will be expanded and picnic tables will be added along the shoreline. The improvements at this site will be completed by December of 1994. The group was in agreement on this issue.

1.3 Handicapped-Accessible Fishing Pier. Joe stated that the handicapped fishing pier should be set over the water to enable users easy handling of any fish. Joe suggested that Pam contact Mike Ries of the WDNR in Eau Claire for specifics about design and construction. Joe also

mentioned that a general rule is to allow approximately eight feet of space per angler. Therefore, a pier capable of handling five anglers would be approximately 40 feet in length.

1.4 Canoe Portage Trail. Pam proposed to move the existing canoe portage trail to hook-up to the take-out point upstream of the Highway 124 bridges and a put-in point in Duncan Creek. The trail would cross Court Street which is not a heavily utilized street. Two reasons cited for moving the existing canoe portage include safety concerns with the existing take-out point being too close to the hydro plant intake area and the steepness of the launching area. Tom and Larry Oborny agreed that the proposed canoe portage trail is suitable and should proceed.

2.0 Land Management Plan. Pam stated that NSPW does not propose any active land management of project lands. Project lands will remain in their current condition and will remain open to the public for recreational use. Pam expressed concern about the large amount of beaver activity in the vicinity of the hiking trail. Joe suggested to contact Al Walker of the City of Chippewa Falls for possible alternatives. The land management plan was mutually agreed to by the Agencies.

3.0 Purple Loosestrife Management Plan. NSPW proposes to perform annual surveys in late-July of the wetland areas around the Chippewa Falls Flowage. Any isolated purple loosestrife plant found within the project area will be removed before it goes to seed. The proposed plan was agreed to by the Agencies.

4.0 Bald Eagle Management Plan. Pam stated that a bald eagle management plan would be developed when nesting or perching eagles are observed on project lands. In the meantime, NSPW proposes to maintain project lands in their current state.

5.0 Ramping Rates. Lloyd questioned the Agencies as to what they were looking for in terms of ramping rates below the Chippewa Falls Project. Tom responded that they felt that ramping of the spillway gates was important. Lloyd reminded the group that there may be problems with ramping spillway gates at Chippewa Falls because they must be operated in concert with the automatic gates at Wissota upstream. Tom suggested that during the ramping rate study we work with the amount of water being passed through the controllable gate at Wissota. The group agreed to address this flow during the ramping rate exercise. Joe's concerns below the spillway are at gates one, two and nine. Joe suggested that gates one and two should be closed first and then number nine. Joe also felt that ramping between seasonal flows (1,000 to 785 cfs) was not necessary.

A ramping rate study will be performed some time this summer (time and date to be determined).

6.0 Dissolved Oxygen Monitoring Plan. Paul Laliberte has reviewed the DO monitoring plan and considers the plan adequate. Commencement of the study will be in June of 1995.

7.0 Compliance Plan for Headwater and Minimum Flow Requirements. The agencies were generally in agreement over the compliance plan. Paul expressed an interest in getting percent

exceedance flows using instantaneous counts versus the percent exceedance flows obtained from the USGS using daily average flow. NSPW resolved to look into what can be done to come up with this information.

8.0 Channel Modifications. Lloyd stated that much of the work in the channels and shoal areas was completed before the license was issued. Joe stated that the current conditions of the stranding areas are adequate for the time being but should be monitored annually or as high flows dictate. NSPW agreed to perform periodic monitoring and make channel modifications as necessary.

Lloyd asked Joe if they would have any problems with NSPW moving some of the rock located below the spillway gates for riprapping of the south bank. Joe felt that this was okay as long as depressions were not left behind that fish could become stranded if spillway gates were closed. Lloyd stated that rocks moved as part of the channel modifications could possibly be used for boulder placement and habitat improvements downstream.

9.0 Entrainment Reduction Plan. NSPW may be working with EPRI on an effectiveness study of reduced trash rack spacing since there haven't been any studies done around the Midwest on the effectiveness of reduced trash rack spacing. Operators are currently monitoring the operational characteristics of the one inch trash racks on a daily basis. NSPW intends to develop plans for the effectiveness monitoring this summer or fall after the construction schedule for the turbine rehabilitation project is better defined.

10.0 Winter Drawdown Effects on River Channel Morphology. Paul has spent some time researching possible effects of different flow regimes on channel morphology. The flow that determines channel shape is the bank full flow which is approximately 58,000 cfs on the Chippewa River. Daily fluctuations in water levels has minimal impact on channel shape. The only area in the Chippewa River where there would be appreciable effect on changes in channel shape is downstream of Dells where the substrate is predominately shifting sand and the river is free-flowing. Cumulative drawdowns on the upstream flowages cut off the river flow peaks due to changing drawdown procedures will result in changes in river morphology.

Paul felt that it was important to look into the cumulative benefits of drawdowns on the entire system versus benefits provided by individual projects. Paul suggested consulting with an expert on river hydrology to determine this value in terms of potential losses due to flooding. Paul mentioned that Gary Lepak of the WDNR in Eau Claire would have information on property losses associated with different magnitudes of floods along the Chippewa River. Paul will work with Rob to update the information presented in the 1952 flood analysis from the Corps of Engineers.

The next Holcombe relicensing meeting will be held on August 3, 1994 at 9:00 AM. The meeting will be held at NSPW's Western Avenue Service Center. Detailed maps will be forwarded at the time the formal meeting announcement is sent out.