

MEMORANDUM FOR THE RECORD

COORDINATION TITLE – 16DET06 Minto Fish Facility Power Issues**DATE** – 24 October 2016**PROJECT** – Detroit/Big Cliff Dams, Minto Fish Facility**RESPONSE DATE** – 07 November 2016**Description of the problem**

On October 15, 2016, a storm caused numerous power outages and brown outs at the Minto Fish Facility. Two of the pumps experienced under current faults while another pump was out for maintenance (bearing replacement) resulting in having one pump to operate the facility providing 9 cfs to the pre-sort pool. There were approximately 30 fish in the pre-sort pool and all survived.

Type of change/outage required

NA

Impact on facility operation

Three pumps providing the main facility water supply were inoperable during the brown outs and power outages during the storm while another pump was out for a bearing replacement. One pump functioned during the storm to provide some water to the pre-sort pool. Flows were not adequate to operate at design criteria.

Dates of impacts/repairs

October 15

Length of time for repairs

TBD, dependent on determination of cause

Expected impacts on fish

There were minimal impacts to fish due to quick response by ODFW and Willamette Valley Project staff.

Comments from agenciesExcerpt from W-FPOM minutes (Oct):

“16DET06 MFR Minto Fish Facility Power Issues – This MFR documents the power outages (i.e. black outs and brown outs) that caused pumps to trip offline caused by the storm on Oct 15th. Previous MFRs document other power issues related to circuit breakers and outlined the path forward on potential solutions. Currently, all the CT cards on the pumps are being replaced and several communication cards have been replaced. Originally it was thought that the whole VFD was bad so two new VFDs have been ordered and are spares. The CT and communication cards are components of the VFD drive. The pump parts are not interchangeable between dams. Meyer asked about the backup generator and why it didn’t come on. Throughout all of the power

outages, only once did the backup generator not come on. Engineers believe that the problem stemmed from a combination of the CT cards and breaker settings that were too high. A power analyzer was installed to check the current supplied to the facility. This issue will remain on the agenda under Updates so that everyone can see how the fix is progressing. **ACTION: Hall will check with electricians about the breaker setting levels.** With all new bearings and CT cards, the project is optimistic that all pumps will function for the arrival of juveniles on Nov 7. Traylor read an email from the engineer that looked into the problem citing that this was an unusual situation without an easy fix. Since then Minto lost power nine times in fifteen hours and every time the generator kicked on. An engineer from Portland has been included on all of the email and Hall will follow up to make sure that the electricians and engineers are working together. **ACTION: Hall will contact the engineer to learn the status of the problem.**

Further Discussion (September MFRs):

16DET04 MFR Minto Fish Facility Power Outage

16DET05 MFR Minto Fish Facility Mortalities – This MOC was discussed last month. Walker recapped that the hoist breaker tripped causing sixty adult spring chinook mortalities and staff could not reach the breaker. An engineer is looking into the issue but at this point the permanent fix is unknown. The breaker is part of the hoist so it can't easily be moved. A trip is being planned to walk through and Mackey suggested scheduling the trip with Meyer for his input.”

Excerpt from HMT minutes (Oct):

“**Marion Forks/Minto** (Grenbemer) – There was no major damage from storm and the weir was pulled in advance. The pathology report cited very few cases of BKD indicating that the early medicated treatment has worked. Smolts will be transferred down to Minto on November 7. At Minto, pump 4 returned to service after swapping the communication card from pump 1. All CT cards for the VFDs were replaced this week after discovering that they had been recalled. It was thought that the VFD had blown and a contract was awarded on September 30 to purchase two more VFDS. Pump 4 is using the old VFD with the new communication and CT cards. The two new VFDs will be spares. Pump 1 should return to service this week and the bearing will be replaced on pumps 2 and 3. All 5 pumps should be ready for fish on November 7th. There have been several brown and black outages due to high winds during the storm. Minto always had at least one pump running and could maintain about 8.5 CFS, enough to keep half the ladder running. All the issues during the storm were pre-CT card exchanged so Grenbemer is not expecting further problems. The project would like to extend JFR pipe before juveniles come especially since it is not in use right now. The engineer has already sent Traylor plans but Traylor needs to check with Mackey, Peterson and Willamette Valley engineers first. Couture stressed that the work window is small right now and otherwise the work will not get done until after the smolts are released in April. Grenbemer estimated that the work would take less than a day if they use prefab supports, forms and the extension on the pipe should be standard as well. A contractor would do the installation. Any fall protection requirements would be in the contract. Couture asked if an MFR should be written for Saturday's pump problems and power outage. Traylor compared the situation to the protocol used on the Columbia River dams. The ladder was out of criteria but there was no loss of fish. The Columbia River dam projects would cite this circumstances in their weekly report not an MFR. The maintenance work was scheduled during the time that there was a minimal risk to fish but the faults of the drives of the other pumps were unexpected. **ACTION: Grenbemer will send out a summary of the power outage.** Engineers have looked into moving the hoist breaker on the crane but it is more complicated than first thought. The next step is unknown. **ACTION: Traylor will to look into moving breaker on crane.** Foster has a similar situation. The breaker is on the hoist itself and not in a fixed location. On the issue when the generator did not kick on during a power outage, Tim Ernster had sent out an

email outlining the details of the situation. It was explained that everything functioned as it was supposed to so there isn't an easy solution. There was a breaker sensitivity that was set too high and a power analyzer has been installed. **ACTION: Traylor will follow up on any further actions for the Detroit project to take on the generator problem.** Traylor suggested doing weekly and daily inspection reporting to document issues that occur.”

-----Original Message-----

From: Butler, James C NWP
Sent: Thursday, October 20, 2016 4:58 PM
To: Walker, Christopher NWP <Christopher.E.Walker@usace.army.mil>
Cc: Traylor, Andrew NWP <Andrew.W.Traylor@usace.army.mil>
Subject: Minto Update

Gents,

We are doing great at Minto, we have the new CT's for the VFD's installed and that should correct our electrical trips on the FWS pumps, we are awaiting a part from North Coast Electric to repair #4 FWS VFD and return to full service, we have it temporarily running due to the new CT's installed.

We have completed the recirc by-pass piping project allowing us to perform maintenance without draining a pond, good stuff. We are close to having the air dryer installed, have the electrical portion done, awaiting on parts for the mechanical install, will have this done by COB next week.

We received #1 FWS motor back from the shop with the new bearings installed and will put that back in the hole on Monday. Then we will pull the remaining two motors for repair and get those to the shop. We anticipate a quick turn around and will have Minto completed by November 3rd COB. This allows plenty of time for ODFW to bring their smolts down beginning Nov 7th. At no time will there be less than 3 pumps available, no worries.

I will update you on progress next week, enjoy your weekend.

Jim

James C. Butler
Maintenance Crew Supervisor
Detroit & Big Cliff Dams
USACE, Portland District
Office: 503 854-3979
Mobile: 541 731-7714

-----Original Message-----

From: Walker, Christopher NWP
Sent: Friday, October 21, 2016 12:55 PM
To: 'Ed Meyer - NOAA Federal' <ed.meyer@noaa.gov>
Cc: Stephanie Burchfield <stephanie.burchfield@noaa.gov>; Traylor, Andrew NWP <Andrew.W.Traylor@usace.army.mil>; Mackey, Tammy M NWP <Tammy.M.Mackey@usace.army.mil>; Greg Grenbemer (greg.a.grenbemer@state.or.us) <greg.a.grenbemer@state.or.us>
Subject: RE: [EXTERNAL] Fwd: Minto

Hi Ed,

I will put together a memorandum for the record (MFR). I will need to talk to Greg Grenbemer about specifics. We can create a new MFR or amend an existing MFR as mentioned below.

As for pumps, we are replacing bearings and faulty cards so pumps don't go down in the future. It may also help with power issues we are having. We just awarded a contract for two new pumps that will be stored onsite as backups. These are supposed to arrive within 45 days. After these actions are complete, we will have 5 working pumps installed and two backups in a warehouse.

The backup generator is not firing up because it has been a mixed back of breaker issues and brown outs.

MFR 16DET04 explains some follow up actions and I will get more details.

" 1. CB-2 appeared to trip on an overcurrent, but there are no signs of permanent equipment damage. Most electrical faults are temporary, so the electrical protective devices are there to prevent permanent equipment damage until it can be verified that the fault is no longer present. The system worked as designed.

2. A power analyzer was installed to monitor for any abnormal power conditions. Nothing abnormal has been detected yet.

3. Current protective settings were compared to the design settings. It appears the current settings are more sensitive than recommended in the design. The crew may make protective device settings changes in the future if directed by an engineer."

We have been discussing these issues at W-FPOM and Hatchery Management Team regularly.

Chris Walker
U.S. Army Corps of Engineers
Operations Division
Fish Biologist
Willamette Fish Operations Coordinator
w: 503-808-4316
c: 503-887-6452

http://www.nwd-wc.usace.army.mil/tmt/documents/FPOM/2010/Willamette_Coordination/

-----Original Message-----

From: Ed Meyer - NOAA Federal [mailto:ed.meyer@noaa.gov]
Sent: Friday, October 21, 2016 11:33 AM
To: Walker, Christopher NWP <Christopher.E.Walker@usace.army.mil>
Cc: Stephanie Burchfield <stephanie.burchfield@noaa.gov>; Traylor, Andrew NWP <Andrew.W.Traylor@usace.army.mil>; Mackey, Tammy M NWP <Tammy.M.Mackey@usace.army.mil>
Subject: Re: [EXTERNAL] Fwd: Minto

Thanks Chris but the attached memos do not cover the incident which occurred on October 15 (as reported by Greg Grebemer on October 17). MFR's should be prepared for each of these incidents so that a chronic problem can be documented, a solution determined and funding/manpower/resources allocated to correct the problem. In the

FCRPS, every instance such as this would be documented with an MFR and sent out the the FPOM. This should be the same for the Willamette. Please prepare a MFR for any instances that occure (including the one on October 15th). Thanks.

At Minto, why are we down to so few pumps and why has one pump been out of service for over 16 months? If we are having power outages, why aren't the back up generators operating? Other than the fish loss during the hopper incident, it sounds like we have been lucky so far that more fish haven't died.

Ed

=====

Edward Meyer
Fish Passage Engineer
National Marine Fisheries Service - West Coast Region
1201 NE Lloyd Blvd, Suite 1100
Portland OR 97232

503/230-5411

On Fri, Oct 21, 2016 at 11:02 AM, Walker, Christopher NWP
<Christopher.E.Walker@usace.army.mil
<mailto:Christopher.E.Walker@usace.army.mil> > wrote:

Hello Ed,

This was discussed at W-FPOM last month and memos were sent out. Memos regarding these incidents are also attached and posted at the link below.

I will add these to the agenda for W-FPOM next week for additional discussion and can amend the MFR to include the latest breaker trip.

Chris Walker
U.S. Army Corps of Engineers
Operations Division
Fish Biologist
Willamette Fish Operations Coordinator
w: 503-808-4316 <tel:503-808-4316>
c: 503-887-6452 <tel:503-887-6452>

-----Original Message-----

From: Ed Meyer - NOAA Federal S
Sent: Friday, October 21, 2016 9:01 AM
To: Traylor, Andrew NWP
Walker, Christopher NWP Mackey, Tammy M NWP
Cc: Stephanie Burchfield
Subject: [EXTERNAL] Fwd: Minto

Andy and Chris,

Would you please send us the COE's Memorandum for the Record (MFR) for all these incidents occuring at the Minto facility? We are interested in why these outages are occuring and how the COE plans to correct the situation. Thanks.

Ed

=====

Edward Meyer
Fish Passage Engineer
National Marine Fisheries Service - West Coast Region
1201 NE Lloyd Blvd, Suite 1100
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----- Forwarded message -----

From: Stephanie Burchfield - NOAA Federal
Date: Wed, Oct 19, 2016 at 9:04 AM
Subject: Fwd: Minto
To: Edward Meyer <ed.meyer@noaa.gov>

More bad news for Minto. Will you send an email to Andy Traylor or Chris Walker or someone at the Corps, asking them to prepare a written report describing the cause of all these outages and what they are doing to fix the problems?

thanks.

Stephanie Burchfield
Fisheries Biologist
NOAA Fisheries West Coast Region
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Portland OR 97232

503-736-4720 <tel:503-736-4720> <tel:503-736-4720 <tel:503-736-4720> >

stephanie.burchfield@noaa.gov

----- Forwarded message -----

From: Traylor, Andrew NWP
Date: Mon, Oct 17, 2016 at 8:57 AM
Subject: RE: Minto
To: Ryan Couture <ryan.b.couture@state.or.us>
Greg Grenbemer <greg.a.grenbemer@state.or.us>
"Walker, Christopher NWP"
Cc: "Butler, James C NWP"
"Stephanie Burchfield - NOAA Federal"
Lance Kruzic <Lance.Kruzic@noaa.gov>

Agreed, thanks Greg, Jim and crews!

I'm glad we scheduled the bearing replacement, and this period of greater vulnerability, for a time when we knew no smolts or adults were on-hand.

-A

Andy Traylor
US Army Corps of Engineers
Operations Division

NWP Hatchery Coordinator
C 503.201.5810
O 503.808.4305

-----Original Message-----

From: Ryan Couture
Sent: Monday, October 17, 2016 8:39 AM
To: Greg Grenbemer
Walker, Christopher NWP <Christopher.E.Walker@usace.army.mil Traylor,
Andrew NWP
Cc: Butler, James C NWP
Stephanie Burchfield - NOAA Federal
'Lance Kruzic'
Subject: [EXTERNAL] RE: Minto

Hats off to Greg as well as Jim and his crew for the quick response on this. With either smolts or adults on hand this would have been much worse and could have resulted in a large fish loss.

Ryan Couture
Hatchery Coordinator
West Region-South Hatcheries

541-757-5228
541-207-2049

-----Original Message-----

From: Greg Grenbemer [mailto:greg.a.grenbemer@state.or.us]
Sent: Monday, October 17, 2016 8:33 AM
To: Walker, Christopher NWP <Christopher.E.Walker@usace.army.mil>;
Traylor, Andrew NWP <Andrew.W.Traylor@usace.army.mil>
Cc: Ryan Couture (ryan.b.couture@state.or.us)
<ryan.b.couture@state.or.us>; Butler, James C NWP
<James.C.Butler@usace.army.mil>; Stephanie Burchfield - NOAA Federal
(stephanie.burchfield@noaa.gov) <stephanie.burchfield@noaa.gov>
Subject: [EXTERNAL] Minto

Greetings, we had an event Saturday were the facility went down to only one pump running. Currently only 3 pumps are available(pump 1 out for bearing replacement and pump 4 out since May of 2015). With the numerous power outages and brown outs on Saturday two pumps experienced under current faults. Thanks to the quick response of Jim and his crew no fish were lost. The facility is not designed to run on one pump but it functioned with the one pump output of just under 9 CFGS which was enough to keep the few fish alive in the presort. Once again we were lucky not to have the post sort pools full of fish. We hope once the faulty CT cards are replaced the pumps will go back to functioning normally. Greg

Final results

Power was restored and the power issues continue to be worked on. Currently, 5 pumps are installed after bearings and other parts were replaced (e.g. CT cards). There will be two spare VFDs in storage if needed.

Please email or call with questions or concerns.

Thank you,

Chris Walker
NWP Operations Division Fish Section
503.808.4316
Christopher.E.Walker@usace.army.mil