

Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

PUBLIC AFFAIRS

April 27, 2012

In reply refer to: DK-7

Attn: Douglas Albright
Actuation Test Equipment Company
3393 Eddie Road
Winnebago, IL 61088

FOIA #BPA-2012-01066-F

Dear Mr. Albright:

This is a final response to your request for information from the Bonneville Power Administration.

You have requested the following:

Copies of any documents from the BPA Hydro Optimization Team (HOT) meetings after April 2010; specifically, agendas, hand-ins, hand-outs, overhead slides, reports and a listing of any funds expended for FCRPS hydropower.

Response:

Enclosed are all documents found in response to your request; they are released in their entirety.

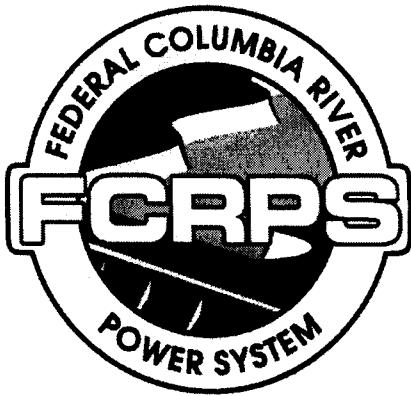
Pursuant to 10 CFR 1004.8, if you are dissatisfied with this determination, or the adequacy of the search, you may appeal in writing within 30 calendar days of receipt of a final response letter. The appeal should be made to the Director, Office of Hearings and Appeals, HG-1, Department of Energy, 1000 Independence Avenue, SW, Washington, DC 20585-1615. The written appeal, including the envelope, must clearly indicate that a FOIA Appeal is being made.

The fees associated with this request totaled \$81.80. A copy of the fee computation sheet is also enclosed. An invoice in this amount will be mailed separately.

I appreciate the opportunity to assist you. Please contact Kim Winn, Communications Specialist, at 503-230-5273 with any questions about this letter.

Sincerely,

/s/Christina J. Munro
Christina J. Munro
Freedom of Information Act/Privacy Act Officer



Hydro-Optimization Team Meeting Corps

**Monday, April 19, 2010
12:00 pm – 5:00 pm**

**Tuesday, April 20, 2010
8:00 am – 12:00 pm**

Conference Phone:

1 (888) 422-7128

PARTICIPANT CODE: 291350

@ McNary Theater

CO-CHAIRS: Larry Haas (Corps); Tom Murphy (BPA)

Agenda

12:00 pm - 5:00 pm – Day 1

1. Introductions, review agenda, actions, adopt last minutes, review charter
2. McNary GBO - Dan Ramirez, Waylon Bowers
3. Bonneville, The Dalles and John Day GBO – Waylon Bowers, Dan Ramirez
4. Health Check - Waylon Bowers, Pat Keller
5. Chief Joseph Individual Unit (Units 17-27) Flow Tables for T2 – Dan Ramirez
6. Chief Joseph Accusonic Flow Meters and Scintillation Frame Testing (Absolute Flow) - Dan Ramirez, Dan Patla
7. John Day Blade Sensor - Dan Ramirez
8. 3D CAM Operation Surveys - Dan Ramirez, Calvin Hsieh
9. Chief Joseph and Dworshak Flow Meter Data to GDACS – Richard Nelson
10. Optimization Type 2 (T2) – Larry Haas
11. Lower Granite Accusonic Flow Meter "Clean up" - Dan Ramirez
12. Other Items

SUBAGREEMENT

- PPEI Status

Larry Haas

DRAFT

**HOT MEETING
MCNARY THEATER
APRIL 19, 2010**

Attendee List

Sydney Foster – NWW
Leah Wickstrom - NWS
Jordan Fink - NWD
Waylon Bowers - HDC
Nathan Henshaw - HDC
Pat Tormala - HDC
Ben Elder - HDC
John Yen - HDC
Quyen Nguyen – BO
Dan Ramirez - HDC
Dan Patla -HDC
David Mackintosh - JDA
Rick Reiner - TDA
Ed Miska - NWD
Larry Haas – HDC and co-chair
Tom Murphy – BPA and co-chair
Carolyn Foote – NWW PM
Tiffany Newton - BPA
Richard Nelson - HDC

INTRODUCTION SUMMARY

Larry Haas (Corps – co-chair) led introductions and reviewed the agenda. The draft summary was reviewed from last meeting and not approved yet due to follow up needed. The actions list was reviewed at the meeting.

Larry Haas (Corps) introduced all the project managers for each District office.

PM's

Leah Wickstrom – NWS
Carolyn Foote – NWW
Daryl Melton – NWP

MCNARY GBO TESTING

The committee discussed the challenges for BPA - tracking and measuring performance of all improvements.

Larry Haas (Corps) presented a matrix schedule showing GBO by project for 2010 through 2013. Working on four projects at a time for ordering equipment.

BON, TDA, and JDA, GBOs – GATE BLADE OPTIMIZER

John Yen gave an overview of Bonneville, The Dalles, and John Day GBO project. The Bonneville GBO box has been installed and receiving accurate data reading. John presented charts of the flow and valve status and flush command system.

Presented background of McNary's GBO. The project is about 90% complete, and the next step is to write a Users Manual.

Dan Ramirez mentioned he needs to review the second set of data for T1.

Questions were asked about the 1% operating tables and the need to update fish tables, plus involve the fisheries more.

HEALTH CHECK

Waylon Bowers (Corps) reported nothing new for Health Check. Currently working on developing a multi-year plan. Currently, monitoring the CAM process.

Questions were asked about what to do with FY10 data and implementation and if alarms show up on the system. What is a health check concept?

The Hot Team discussed the purpose of Health Check and how this helps operators to diagnose a problem if data is off. Ed Miska reported he has written a Health Check "Options Paper" and will distribute to the HOT Team.

Background on Health Check: *A monitoring function that examines certain key data to determine if systems are operating as planned. An example could be a system external from GBO that would monitor turbine-generator head, gate angle, blade angle, and power (megawatts) and alarm if these variables are outside the optimum operating point (if effect, a "health check" of the GBO system). An internal health check system could be redundant sensors within a GBO that are compared to determine failure.*

The general concept health check was approved by the HOT sometime in the past, but has not been implemented to date. There are many reasons for this (priority, specific details of work scope, resources, etc.). The topic continues to generate lively debate. Action item is for Miska to provide HDC with a copy of a health check document he prepared some years ago, and HDC to conduct a brainstorming session to examine the specific proposals, and recommend which, if any, should be implemented.

CHIEF JOSEPH INDIVIDUAL UNTIS (17-27) FLOW TABLES for T2

Dan Ramirez (Corps) reported unit testing starts in May 2010. In the interim, the goal is to gather individual performance data for 11 new units.

Anticipating, no problems on this project, and a summary analysis report about flow meter units will be developed and used for T2 Chief Joseph accusonic flow meter and testing at Kootenay. The next step is to implement a program to get absolute flow meter data.

CHIEF JOSEPH ACCUSONIC FLOW METERS AND SCINTILLATION FRAME TESTING (ABSOLUTE FLOW)

Dan Ramirez (Corps) reported scintillation testing will be conducted in November 2010. The same time as the performance test of unit #11 at Chief Joseph.

Questions were asked about costs between pressure times vs. one day testing. Also, the committee discussed using the Caldon, rather than accusonics due to costs and if testing fails. Unit #7 is scheduled for testing in November 2010 and could be delayed until December 2010.

The Winter Kennedy contract was just awarded for \$90K for flushing the unit at Chief Joseph. If scintillation testing goes positively, then scintillation could run across the power house.

Tom Murphy (BPA) asked the HOT Team for feedback on whether to do relative index testing for Chief Joseph for units #17-27 and assess the impacts and benefits first, then make a decision whether to move forward on testing for units 1-16 and evaluate if the same benefit occurs. The HOT Team discussed preparation and advanced planning will be beneficial on this project, and having a contract prepared ahead of time for unit's #1-16 if the test results are positive to move forward on this project.

JOHN DAY BLADE SENSOR

Waylon Bower (Corps) reported on measuring blade angle sensors at John Day to test for more accurate readings. Currently a leak has been found from a conduit at John Day in the junction box which flooded and destroyed some equipment at the project. The project was inspected to see how many sensors worked. Most sensors are still working, but it's unknown if the upper and lower sensors will work again.

Two possible options were considered to fix the sensor problem.

#1 – Contact HoodTech to work on this project and develop a plan to assess what sensors worked previously and try to acquire the data to fix the problem.

#2 – Do the sensor work in-house? Need to wait for a dry period to fix the junction box and use existing data in the interim.

The HOT Team discussed the best possible time for an outage and slides were presented showing pictures of the leaking conduit and damage.

Proposal: The HOT Team will request funding from the Capital Workgroup on GBO next week at the Capital Workgroup meeting.

3D CAM OPERATIONS SURVEY

Dan Ramirez (Corps) reported another round of surveys was conducted at Walla Walla. Preliminary results have been completed. No real problems were found, except for a few

minor sensor issues at Little Goose and Lower Monumental. Dan mentioned all the transducer, calibration, and reliability issues have been resolved.

CHIEF JOSEPH and DWORSHAK FLOW METER DATA TO GDACS

The HOT Team discussed getting the signal cards purchased and wired into the GDACS I/O.

LOWER GRANITE FLOW METERS

Dan Patla (Corps) gave a presentation on Lower Granite flow meters and explained the installation wiring problems of vertical vs. horizontal flow meters.

The HOT Team discussed possible options for fixing the wiring problems and reviewed the wiring installation option for BAY A: path 1 and 18 showed no signal.

The HOT Team discussed getting a copy of the original wiring diagram from Accusonics.

OPTIMIZATION TYPE 2 (T2)

Larry Haas (Corps) mentioned nothing new to report, except funding for the subagreement was revised, and Grand Coulee T2 testing is happening. T2 is operating at Chief Joseph, The Dalles, Bonneville, John Day, and McNary.

FCRPS SHAREPOINT EBSITE

Ed Miska (Corps) reported the FCRPS SharePoint website is moving forward and asked the HOT Team what type of information does the team want on the HOT website. What type of information should be transferred from the old website to the new website? Ed mentioned that all committees need to designate a point of contact for their site.

Ed Miska (Corps) is currently working on access and permission levels for all committees and asked the HOT Team members to list their user name and ID number on the sign up sheet.

CHARTER

The HOT Team reviewed the proposed changes to the charter and made revisions at the meeting. The HOT Team made a few minor edits and decided to eliminate #5 (Oversees and monitors optimization program). Ed Miska (Corps) will make the final edits to the HOT Team charter and distribute the charter back to the team for final review.

Questions were asked about the purpose of the charter and discussed if the HOT Team is operating at the program vs. the project level.

The HOT Team committee discussed how the team makes decisions and mentioned they use the consensus method which works best for the team.

The HOT Team meets 2 to 3 times annually.

NEXT MEETING

The HOT Team decided to meet October 13-14, 2010 at McNary Dam.

ACTION ITEMS

1. *Waylon Bowers will follow up on purchasing 10 GBO PLC boxes.*
2. *Richard Nelson will remind the Governor Team about the GBO no change in schedule at The Dalles for testing.*
3. *Dan Ramirez will send preliminary e-mailed results of the CHJ testing of unit's #17-27 before the HOT Team makes a decision to go forth with testing of units 1-16.*
4. *David MacKintosh will continue data collection for JDA unit #16 to decide on maintenance needed for the leak of blade sensors and fix the junction box in the dry period (permanent installation or not). Next steps determine repair strategy. Waylon will contact HoodTech on proposal for data acquisition.*
5. *Carolyn Foote will follow up with the Dworshak flow meter accusonic equipment purchase.*
6. *Dan Patla will follow up with aaccusonics to get Lower Granite wiring diagram, firm pricing for permanent installation costs, and schedule for de-watering.*
7. *Ed Miska will follow up on the FCRPS Website SharePoint access for users (HOT Team Committee) and check into FOIA issue about posting draft materials on the site (open or closed files).*
8. *Ed Miska will revise the HOT Team charter with suggested changes and distribute to the HOT Team Committee. The final charter will be posted on the new SharePoint site.*

Revised 10/19/05

Hydrogeneration Optimization Team

Charter

In accordance with the goal of the Federal Columbia River Power System (FCRPS) Asset Management Strategy to maximize the value of the FCRPS, we will develop tools and strategies for enhancing net revenues through hydrogeneration optimization and efficiency improvements. This is a partnership of the US Army Corps of Engineers, Bonneville Power Administration, and the Bureau of Reclamation. Our end products are recommendations to the JOC, through the Capital Workgroup, on improving efficiency at the project level. Implementation will be accomplished through normal business practices.

Attachments:

1. Asset Management Strategy for the FCRPS
2. Clarification of what HOT does/does not do (*see page 2 of charter*)

What HOT Does:

1. Recommends overall priorities of optimization at the program level
2. Conducts studies in support of the optimization priorities
 - a. Tasks others to do these studies through project managers and program managers
3. Supports District Program Managers HOTA related capital proposals to the CWG
 - a. assists in preparation of the decision document
 - b. supports decision at the CWG
4. Assesses success of optimization projects
5. Oversees (monitors) optimization program
 - a. Identifying
 - b. Prioritizing
 - c. Implementing
 - d. Coordinating

What HOT Does Not Do:

1. Execute projects
2. Write subagreements



Hydro-Optimization Team Meeting Corps

Thursday, October 21, 2010
10:00 am – 2:00 pm

Working Lunch

Conference Phone:
503-230-3344 passcode: 8776

@ McNary Theater

CO-CHAIRS: Larry Haas (Corps); Tom Murphy (BPA)

Agenda

10:00 am – 2:00 pm

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SUBAGREEMENT

- PPEI Status

Larry Haas

Wrap Up

- Review actions items today
- Set next meeting date
- Add new topics for next meeting
- Other???

***** NEXT MEETING TBD*****

Hydro Optimization Team Consensus Decision Levels

1. I can say an unqualified “yes” to the proposed decision. I am satisfied that the decision is an expression of the wisdom of the group.
2. I find the proposed decision perfectly acceptable.
3. I can live with the proposed decision, although I am not especially enthusiastic about it.
4. I do not fully agree with the proposed decision and need to register my view about it. However, I do not choose to block the decision. I am willing to trust the wisdom of the group.
5. I do not agree with the decision and feel the need to stand in the way of acceptance.
6. I feel we have no clear sense of unity in the Team. We need to do more work before consensus can be reached.

USACE

Health Check

Work Plan

CENWP-HDC-E

10/5/2010

Intro and Problem Statement

Health Check is a system designed to identify problems with automated controls or sensors. A malfunctioning sensor or control can cause inefficiencies and even dangerous operating conditions if the problem is not addressed. For example, a Kaplan type turbine requires the blades to be positioned at a specific angle for a given combination of wicket gate opening and head level in order to operate at maximum efficiency. A faulty head, gate, or blade reading could cause the turbine to operate at a less efficient point without anyone knowing. Over time, this loss in efficiency can result in a significant loss in revenue.

In order to ensure maximum generating efficiency and reliability, Health Check will monitor sensors for bad signals and produce an alert if a faulty sensor is detected. This will be accomplished through a bottom-up approach.

First, where self-diagnostic sensors are available, they can replace existing sensors and provide a simple way to alert that a signal has a problem. For other parameters being monitored, it may be possible to replace existing sensors with more accurate ones. This approach requires minimal expenditure up front and allows Health Check to be quickly implemented after proper sensors are identified.

With sensors already in place, more functionality will be added to the system later, such as logging and trending data to catch a signal drifting out of calibration over time. A computer or PLC-based system can monitor inputs from many sensors and perform trending calculations. This would allow detection of the head/gate/blade relationship not matching past data, for example. Physically repeatable points for certain parameters, such as gate position and blade angle, also provide a way to check that sensors are properly calibrated. If a sensor has drifted out of calibration, the computer or PLC can trigger an alert so that corrective action can be taken at the soonest convenient time.

Parameters currently being monitored that will be included in Health Check are:

- Wicket gate position
- Forebay level
- Tailwater level
- Kaplan blade angle
- Power (MW)

Each of these parameters will be discussed in more detail in the sections that follow. Where several types of sensors are available for one parameter, a study should be performed to determine the best option. The study can be accomplished by installing multiple sensor types on units at one project.

Wicket Gate Position

An accurate reading of wicket gate position is critical for determining the blade angle for optimum generating efficiency. Gate position is currently measured in two different ways. NWP projects use a

Revised 10/19/05

Hydrogeneration Optimization Team

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What HOT Does:

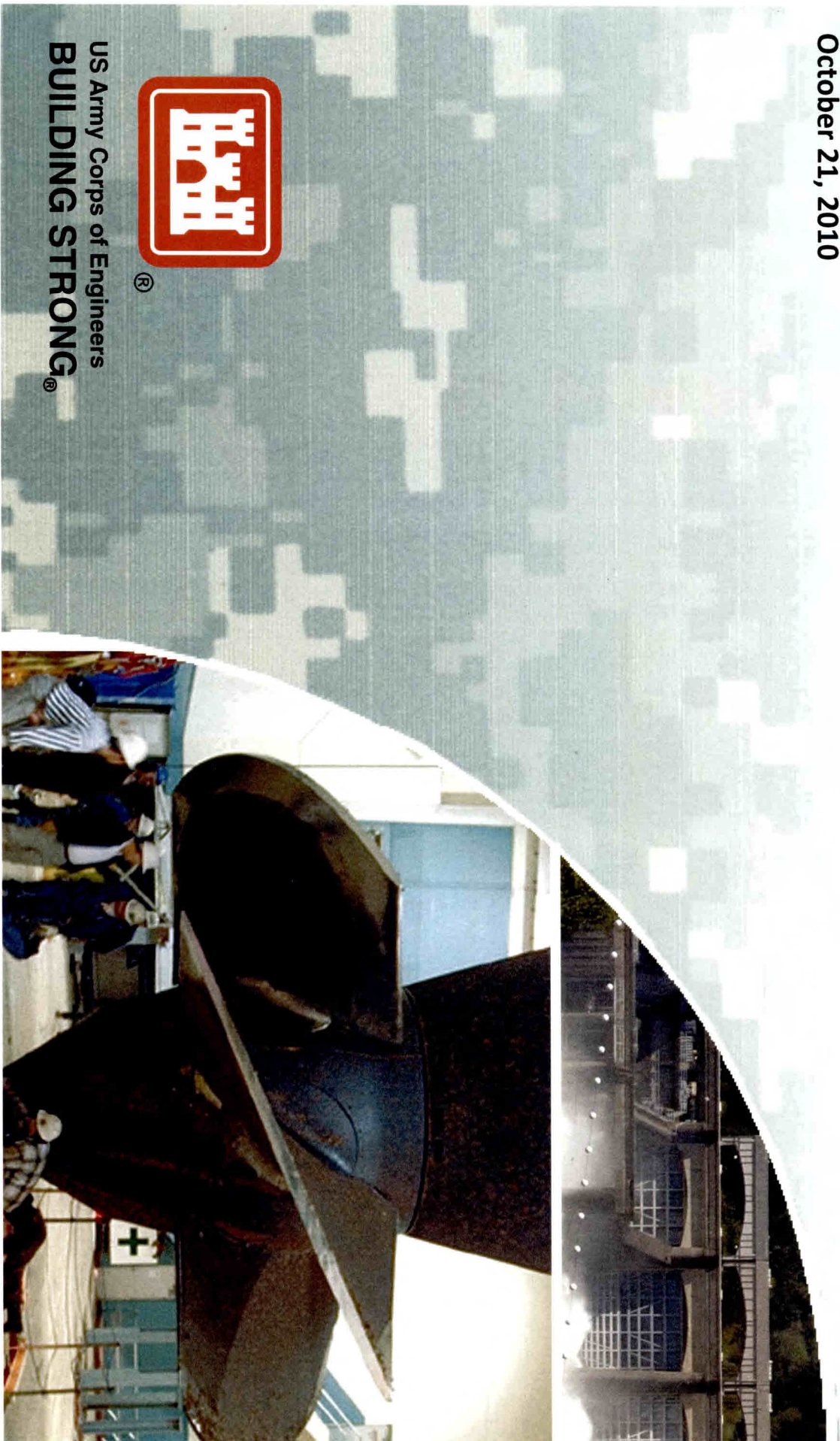
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 - b. Prioritizing
 - c. Implementing
 - d. Coordinating

What HOT Does Not Do:

1. Execute projects
2. Write subagreements

HOT Meeting PPEI

October 21, 2010



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Introductions

- BPA
- USACE



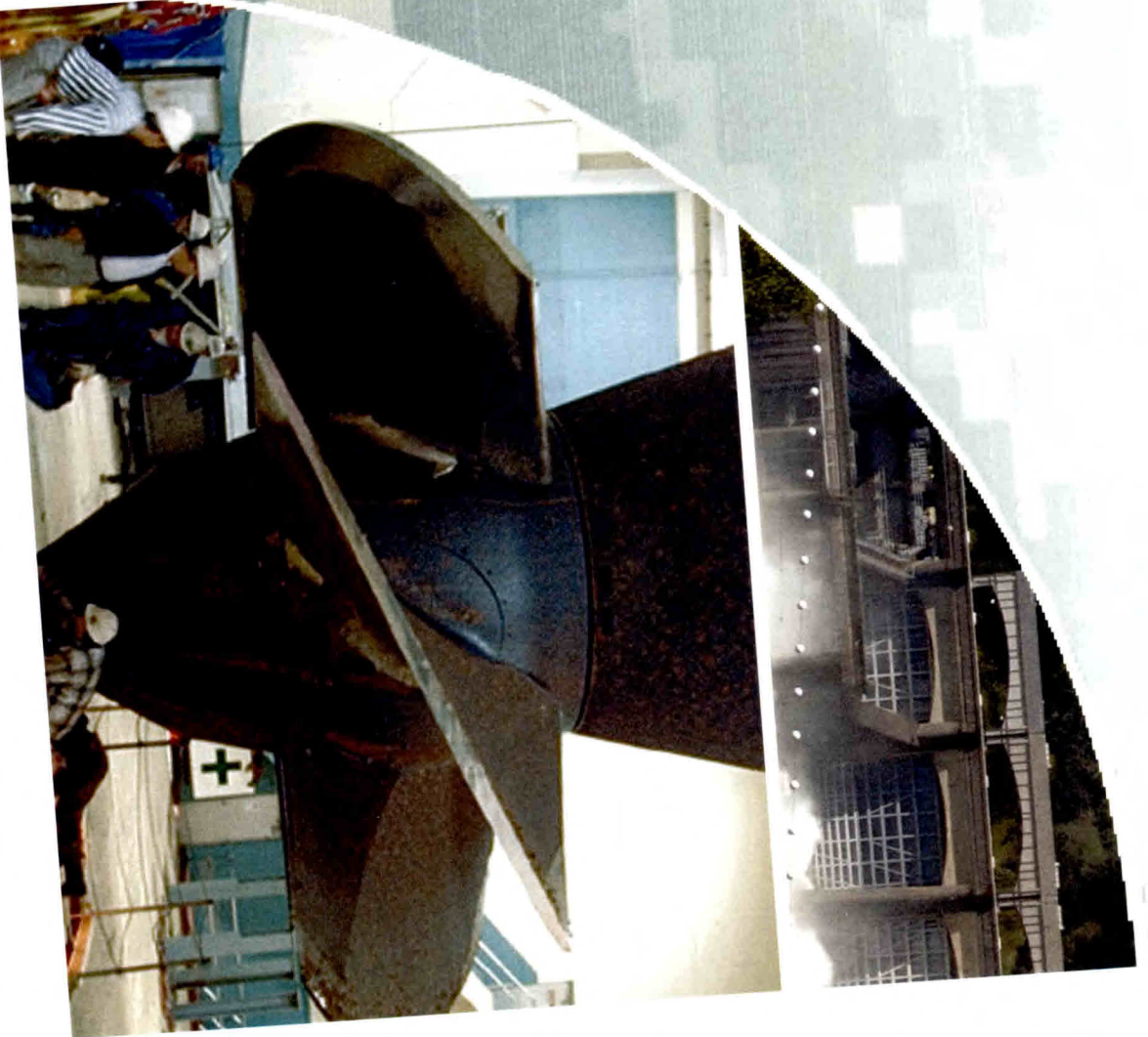
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McNary GBO PPEI

October 21, 2010



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McNary GBO

- First round of data set was inadequate
- Modified the software to include more data sampling (increased perturbation)
- Moved the GBO equipment back to Units 11-14
- CIP standards required movement of equipment
- Modified schedule to accommodate

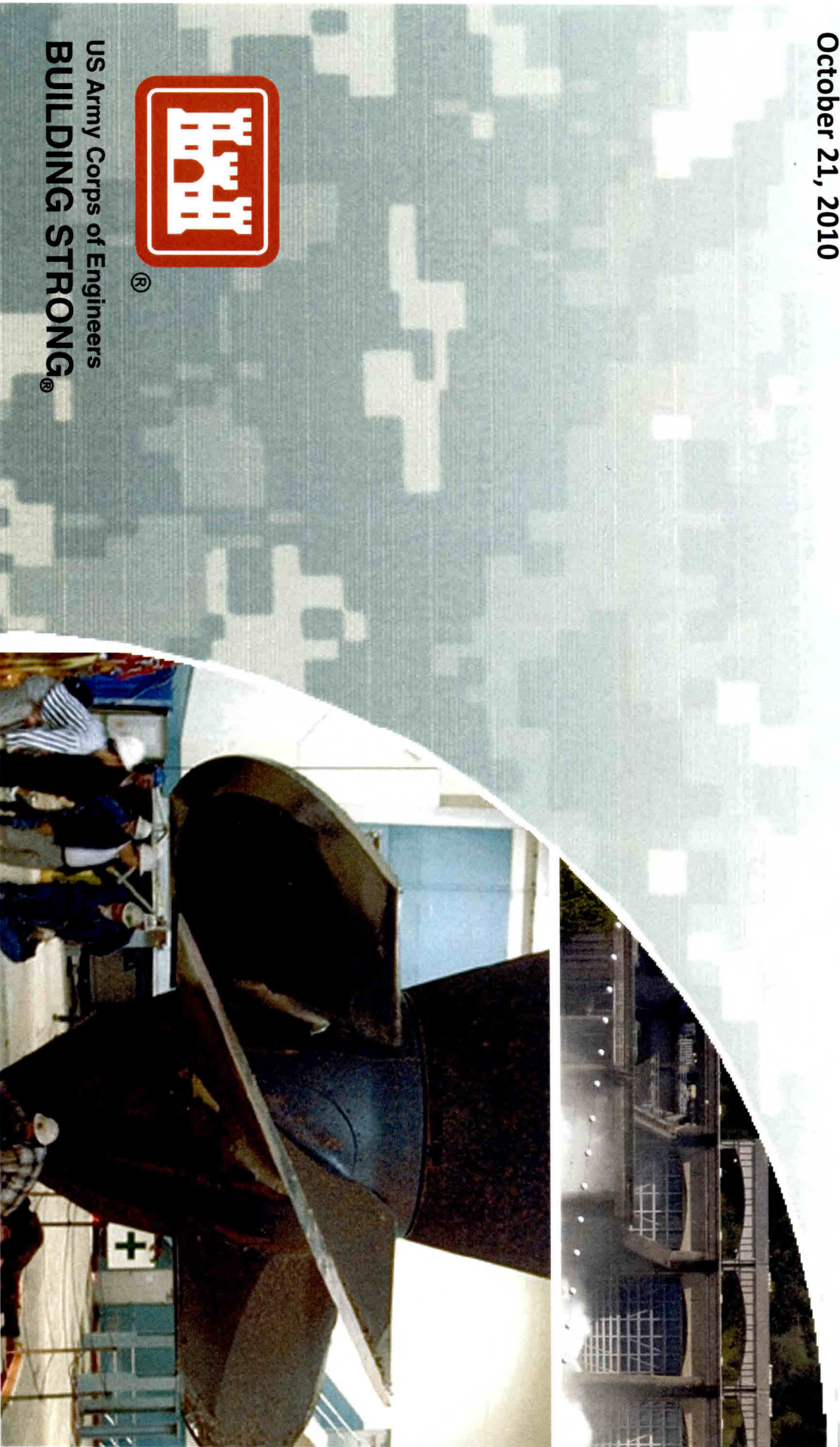


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Gate Blade Optimization

Status Update

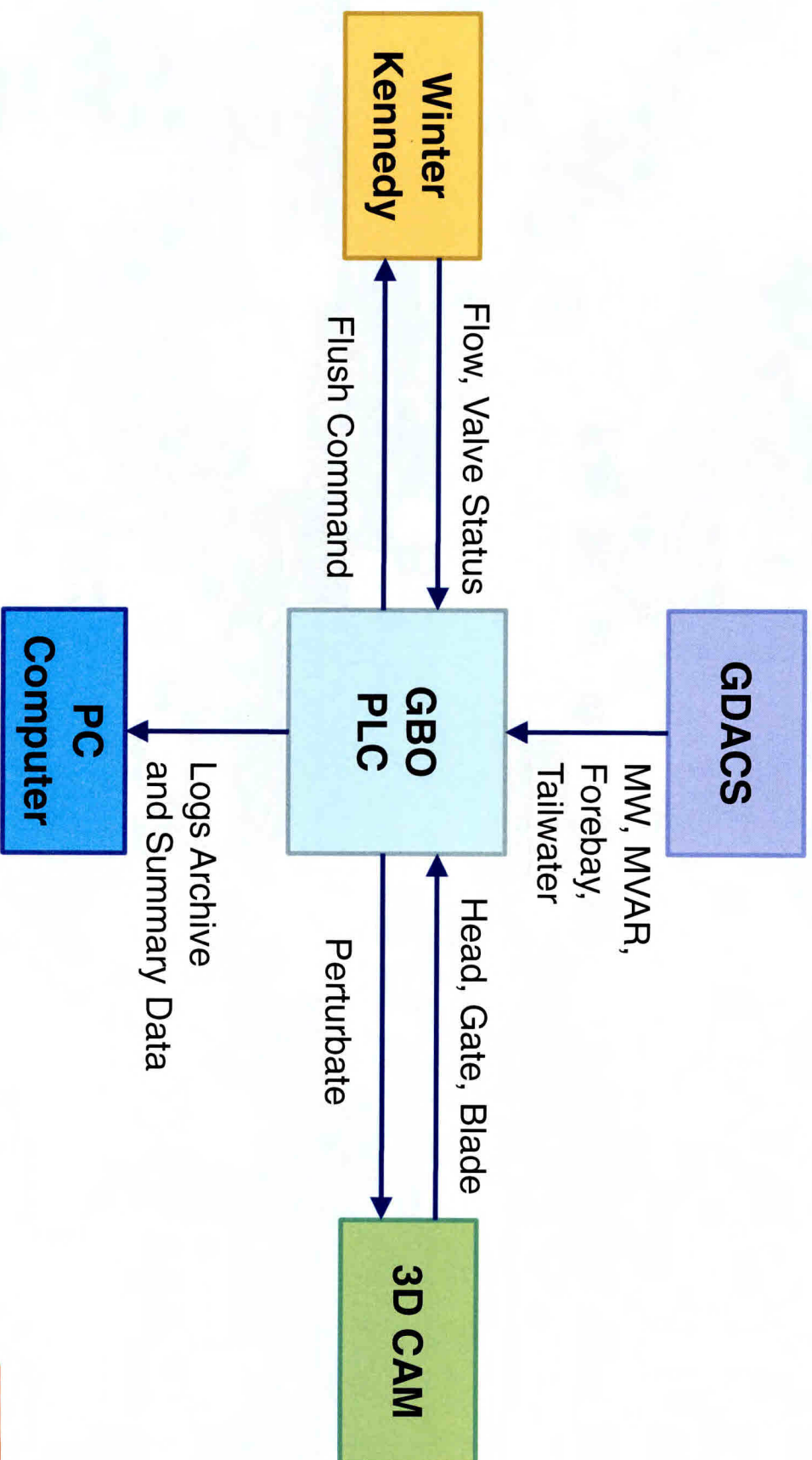
October 21, 2010



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GBO System Overview



Status Update

- Installed and field tested at Bonneville PH2, John Day, and The Dalles
- Six contracted Winter-Kennedy systems delivered to John Day
- All GBO parts have been received



Status Update

- Data has been retrieved and is being analyzed
- Example data from John Day

Date & Time	Target Blade Angle	Blade Angle	Net Head	Wicket Gate	MVAR	MW	WK Feet of Water	Pert. Deg
7/7/2010 0:13	2.47	2.77	102.56	62.62	-49.37	95.17	12.46	0.30
7/7/2010 0:14	2.39	2.76	102.57	62.39	-49.54	94.99	11.07	0.30
7/7/2010 0:15	2.41	2.72	102.55	62.46	-50.21	95.13	19.19	0.30
7/7/2010 0:16	2.47	2.76	102.67	62.55	-50.41	95.08	11.21	0.30
7/7/2010 0:22	3.81	4.19	102.74	65.94	-48.80	102.08	12.83	0.30
7/7/2010 0:24	3.94	4.29	102.83	66.19	-49.03	102.23	13.92	0.30
7/7/2010 0:25	3.82	4.19	102.75	65.95	-49.00	102.06	17.32	0.30
7/7/2010 0:26	3.87	4.24	102.83	66.03	-49.02	102.15	13.82	0.30
7/7/2010 0:27	3.81	4.17	102.76	65.92	-49.25	101.93	18.44	0.30
7/7/2010 0:28	3.77	4.12	102.78	65.81	-49.43	101.70	12.70	0.30



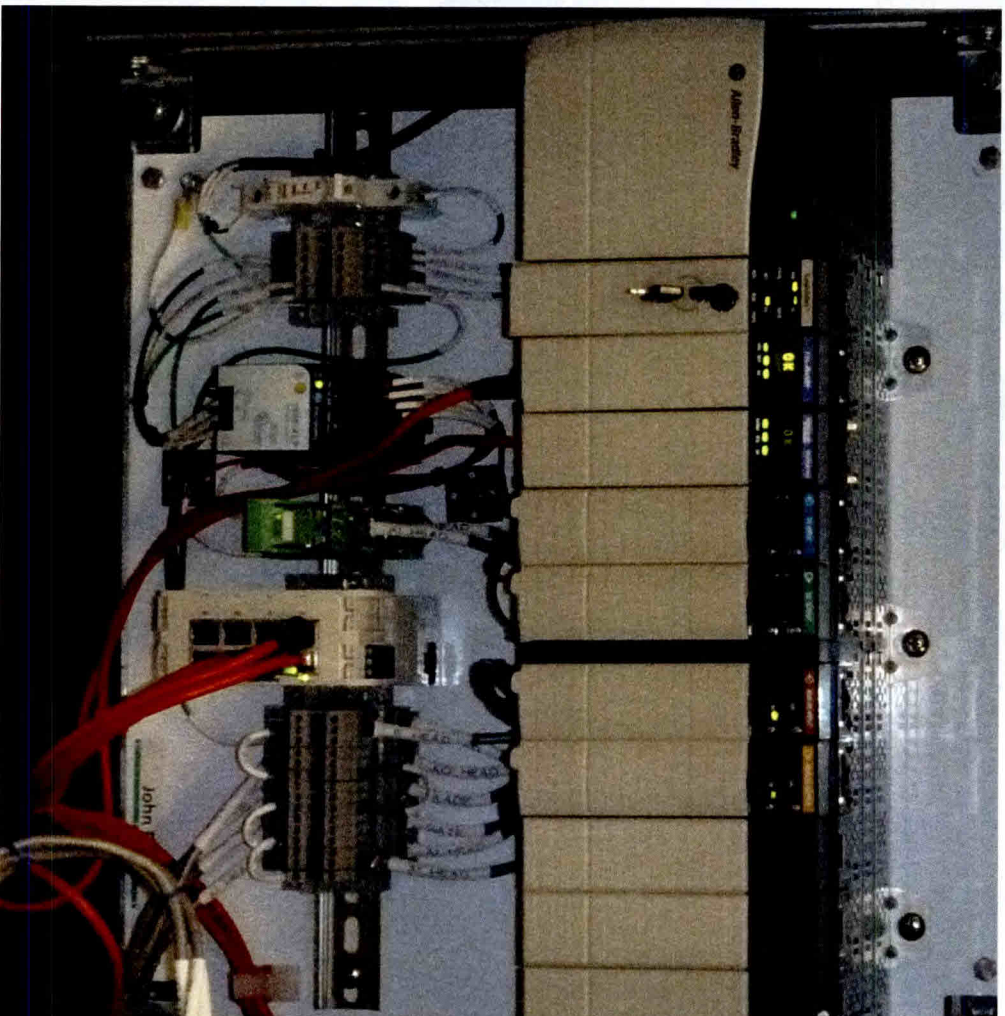
Status Update

- Field testing one completed production build at The Dalles on October 19, 2010



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Status Update



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Status Update

- Production building in progress



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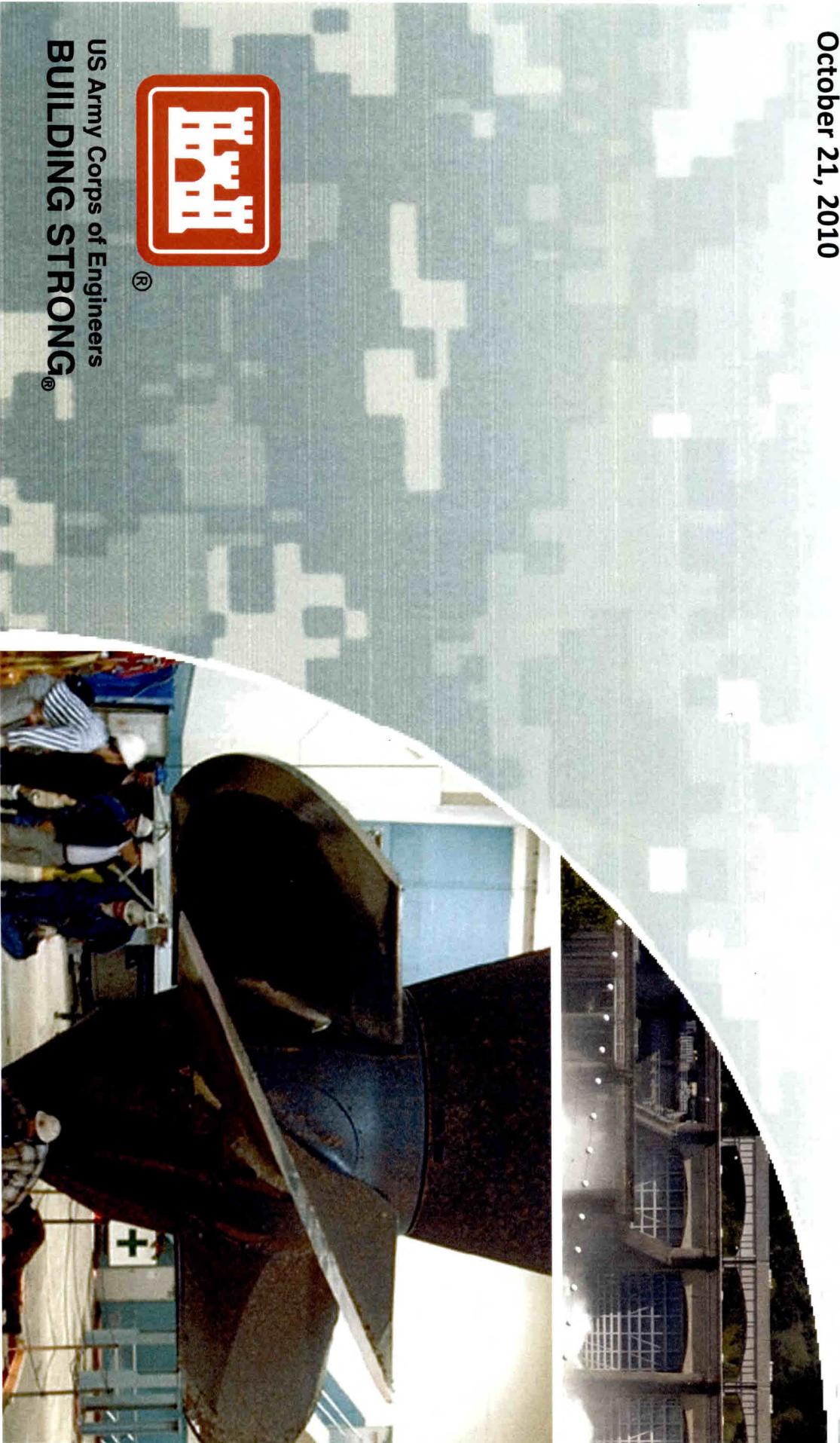
Future Work

- Complete building ten PLC carts
- Assemble six Winter-Kennedy Input/Output (I/O) systems at John Day
- On schedule to deploy GBO at John Day (Dec.), The Dalles (Feb.), and Bonneville (TBD)
- HDC-M examine data and develop new cam tables
- Install new curves



Health Check PPEI

October 21, 2010



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Health Check

- Work plan developed (see handout)
- If plan goes forward, FY11 Costs:

Labor Estimate

	Team Member	
	Hourly Rate	
Design test plan	GS-11 \$90	GS-13 \$135
Determine and order hardware	160	40
Installation drawings	120	16
Installation	80	8
Field test	40	0
Analyze results	20	0
Produce reports	80	16
	120	20
TOTAL HOURS FY11	620	100
TOTAL MEMBER COST FY11	\$55,800	\$13,500
TOTAL LABOR COST FY11	\$69,300	

Equipment Estimate

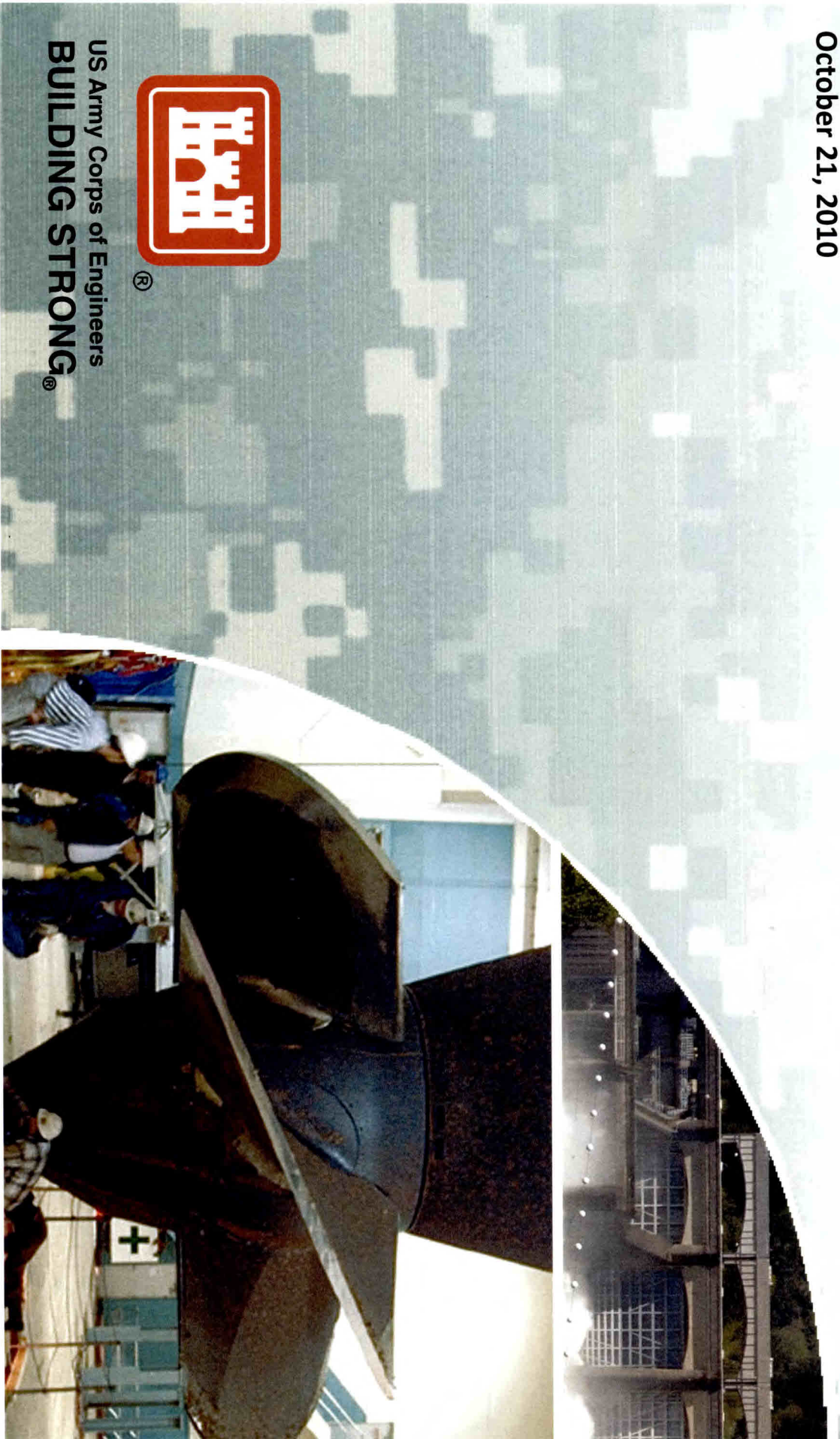
Item	Price ea.	Quantity	Price * Qty.
Rotary encoder	\$1,000	5	\$5,000
MLDT	\$1,000	2	\$2,000
LVDT	\$2,000	2	\$4,000
Radar level sensor	\$2,500	2	\$5,000
Radar level sensor w/ HART	\$2,500	2	\$5,000
PLC/PC data logging system	\$18,000	1	\$18,000
TOTAL EQUIPMENT COST			\$39,000



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Chief Joseph Individual Flow Tables PPEI

October 21, 2010

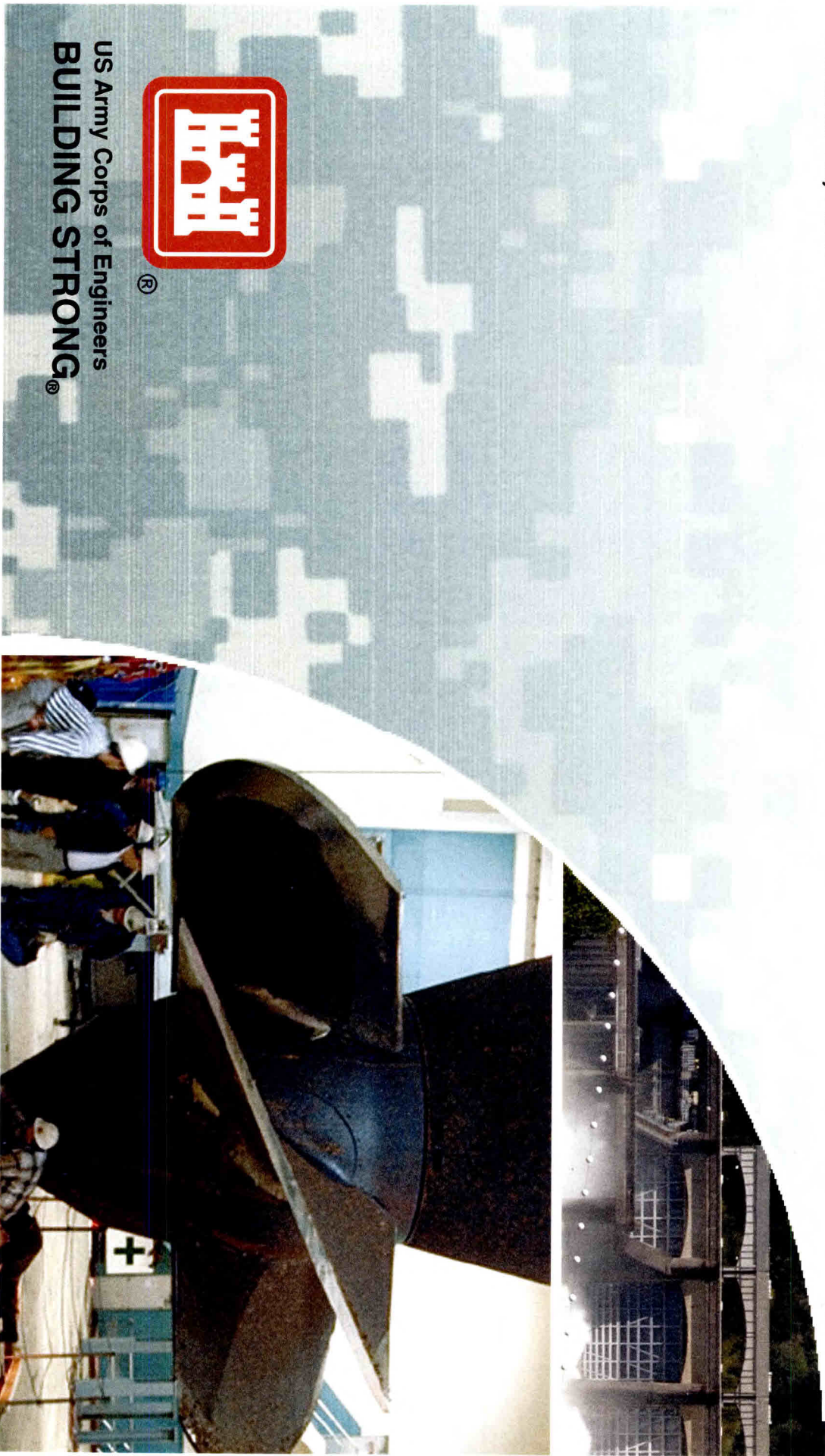


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Chief Joseph Absolute Flow PPEI

October 21, 2010

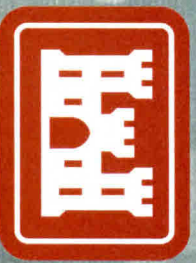
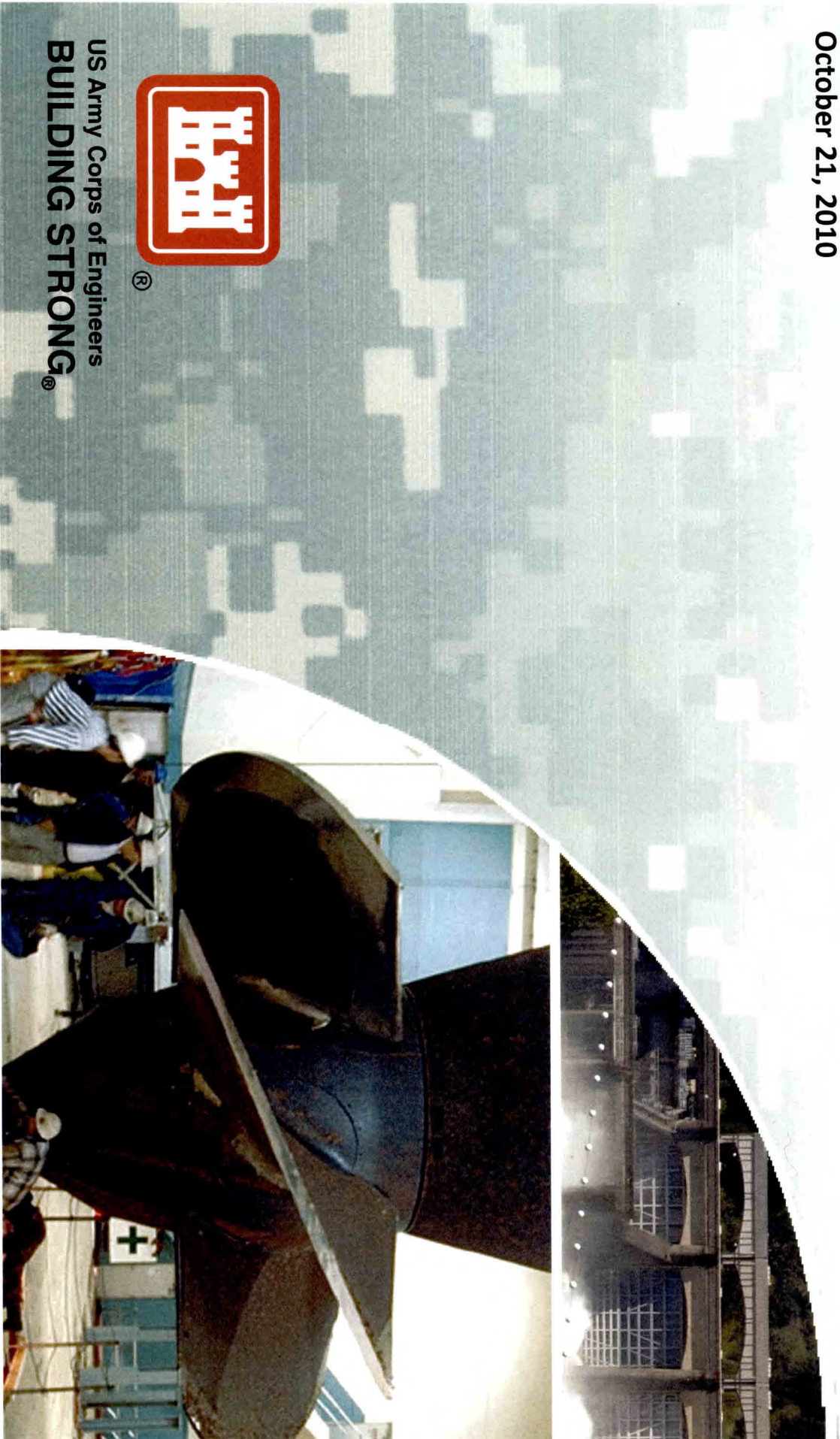


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John Day Blade Angle Measurement PPEI

October 21, 2010



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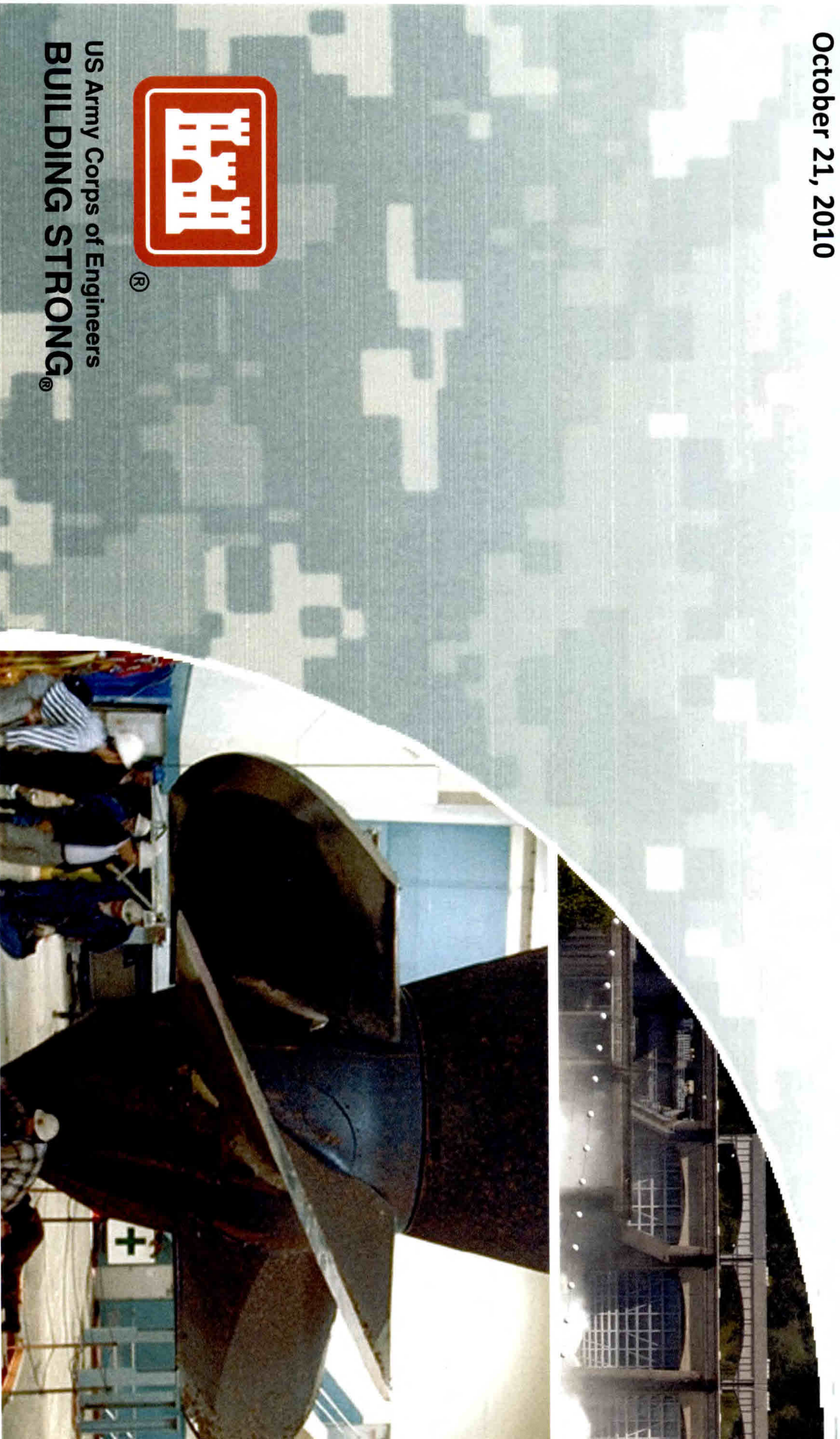
BAM

- September 2010 testing
 - ▶ 2/2 Banner optical sensors functional
 - ▶ 1/2 PCB sensors functional (one is shorted)
 - ▶ 0/2 Honeywell pressure probes working (could be probe or wiring)
 - ▶ 2/2 Inprox sensors functional, but noisy with incorrect frequencies
- Task order
 - ▶ IDIQ with HDR to HoodTech – draft in A/E Unit
 - ▶ Install their equipment to use our optical sensors
 - ▶ Data gather for 30 days
 - ▶ Report on BAM versus LVDT
 - ▶ Determine if we want to do long term data gathering



3D CAM Operational Surveys PPEI

October 21, 2010



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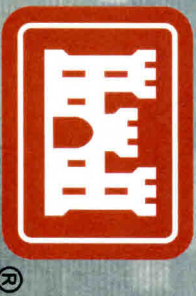
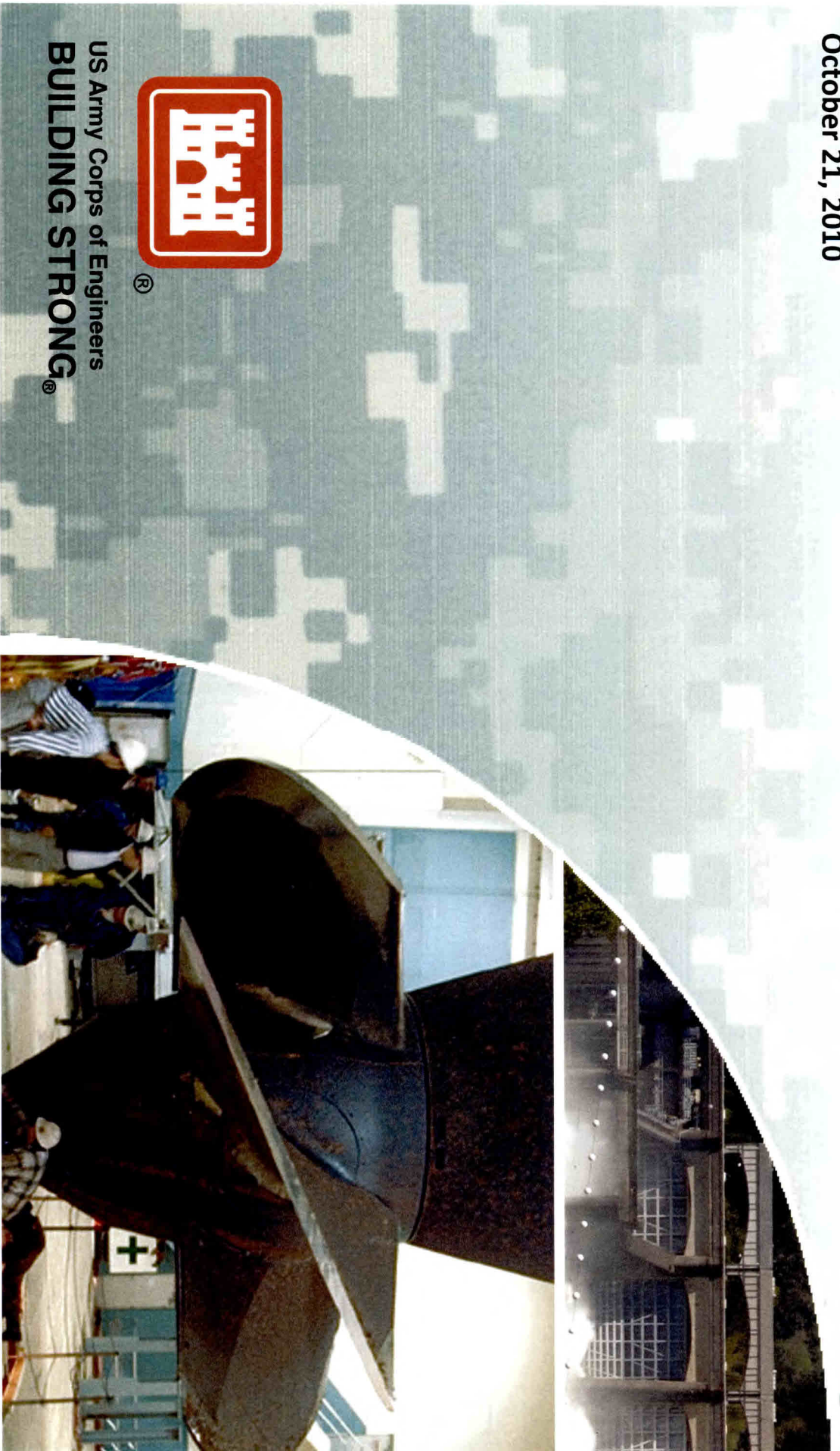
3D CAM

- Fall surveys complete
- No widespread issues
- McNary
 - ▶ 2 units are experiencing more frequent than desired CAM faults
 - ▶ 4 units having head signal issues
- Little Goose
 - ▶ Calibration problems on most units, will engage Project



Flow Meter Data to GDACS PPEI

October 21, 2010



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Optimization Type 2 (T2) PPEI

October 21, 2010



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Lower Granite Flow Meter Clean-Up PPEI

October 21, 2010



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Hydro-Optimization Team Meeting Corps

Tuesday, May 10, 2011
12:00 pm – 5:00 pm

Conference Phone:
503-230-3344 passcode: 9009

@ Room 346

CO-CHAIRS: Larry Haas (Corps); Tom Murphy (BPA)

Agenda

12:00 pm – 5:00 pm

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SUBAGREEMENT

- PPEI Status

Larry Haas

Wrap Up

- Review actions items today
- Set next meeting date
- Add new topics for next meeting

- Other???

***** NEXT MEETING TBD*****

Hydro Optimization Team Consensus Decision Levels

1. I can say an unqualified “yes” to the proposed decision. I am satisfied that the decision is an expression of the wisdom of the group.
2. I find the proposed decision perfectly acceptable.
3. I can live with the proposed decision, although I am not especially enthusiastic about it.
4. I do not fully agree with the proposed decision and need to register my view about it. However, I do not choose to block the decision. I am willing to trust the wisdom of the group.
5. I do not agree with the decision and feel the need to stand in the way of acceptance.
6. I feel we have no clear sense of unity in the Team. We need to do more work before consensus can be reached.

DRAFT SUMMARY

HOT MEETING MCNARY THEATER MAY 10, 2011

Attendee List

Waylon Bowers – HDC
Sydney Foster – Corps
Robert Siedmah – Corps
Dan Ramirez - HDC
Dan Patla –HDC
Waylon Bowers – HDC
Ed Miska - NWD
Larry Haas – HDC and co-chair
Tom Murphy – BPA and co-chair
Dick Nelson - BPA
Carolyn Foote – NWW PM
Tiffany Newton - BPA
Robert vanderBorg – NWP
Quien Nuyen – Corps (on phone)
George Brown – BPA

INTRODUCTION SUMMARY

Larry Haas (Corps – co-chair) and Tom Murphy (BPA) led introductions and reviewed the agenda. The draft summary was reviewed from last meeting and not approved yet due to follow up needed. The actions list was revised at the meeting.

Added topic: Renewable Energy Credits

Personnel Changes: Dennis Radunzel replaced Leah Wickstrom for Seattle District. Scott Bennett is at Chief Joseph.

PM's

Dennis Radunzel – NWS
Carolyn Foote – NWW
Daryl Melton – NWP

RENEWABLE ENERGY CREDIT CALCULATION

Tom Murphy (BPA) presented slides on Renewable Energy Credit Calculations.



HOTMay2011.pdf

Highlights:

- State of Oregon working on an efficiency calculation for all amounts of Renewable Energy Credits (RECs)
- Federal agencies working on developing a method to calculate and track REC's.
- Anticipating this will be a national trend
- Federal government (for Oregon only) is not willing to sell credits, but putting renewable energy into portfolios which includes 9 new runners for Grand Coulee/T2 installation and at Chief Joseph.
- The benefits will be shared by 50-60 utilities
- Regis is the "Clearing House" to show how much wind energy can be generated.
- Baseline improvement varies with time of day and flow
- Does this fall under PPEI? An agreement will be needed with the Corps and Reclamation to turn over Renewable Energy Credits (RECs)
- There is a possibility to retain the RECs
- Discussed value of RECs
- Few Mid C's have written regulations that allow them to receive energy credit
- Mid-C's agreement with Washington is still in place
- What about governor impacts?
- Need to make improvements at T2 installation for Chief Joseph to get credit for REC's
- How do we achieve penalties? Assuming different states will have different ones?
- Review of anticipated GBO data curves, index text results and higher and lower curves based on original settings.
- CAM testing - differences in data results were not very significant
- Questions were asked about power house 1&2 at Bonneville
- Starting to get in data and calculate gross head results - see slide 2

REVISED CHARTER

Ed Miska (Corps) reviewed the Corps HOT Team (revised) Charter. See version 4/15/2010.

Suggested changes: change program managers to project managers. Also, added the words does not execute projects.

The committee reviewed the old charter and revised charter.

VOTING:

The Corps HOT Team voted all 1, 2, 3's and no 4, 5, 6's and approved the charter.

GATE BLADE OPTIMIZER

NWW GBO

Dan Patla (Corps) discussed preliminary data measuring the following on the gate blade optimizer at McNary (4 units):

- Head
- Flow
- Wicket Gate Opening
- Blade Angle
- Power

Dan discussed work timelines and challenges with switching to a PLC platform.

The HOT Team discussed upcoming funding needs.

NWP GBO

Dan Patla (Corps) reported the following on The Dalles (2 units) and John Day (4 units) GBO:

- GBOs developed to interface with NWP 3D cam controllers
- GBOs deployment schedule at The Dalles and John Day discussed.
- Software updates dealing with unforeseen data logging problems
- Scripting fixes were developed

JDA BLADE ANGLE MEASUREMENT

Waylon Bowers (Corps) reported the following:

- Hoodtech was hired
- Corps' previously installed sensors and cables
- BAM – testing, task orders, and data gathered
- Results – bias differences in measurement due to how BAM measures blade angle (near blade centerline) and how field personnel measures (at leading and trailing edges of blade)Hysteresis
- Repeatable blade angles
- Operationally nothing to be gained by additional measuring
- Report is being developed
- Take aways: The Repeatable Blade Project will be put on hold. Another test will be conducted in two years.

Dan Ramirez will follow up with Dan Watson about possibly measuring blade angle during maintenance and developing a plan.

FY11 HEALTH CHECK

Waylon Bowers (Corps) reported the status of FY11 Health Check as follows:

- Determine sensors to install for comparison and analysis (e.g., linear vs. rotary sensors, MLDT vs. LVDT, HART vs. non-HART radar sensors)
- Order sensors
- Write test plan
- Installation of sensors on one unit
- Perform testing and analyze results
- Determine best sensors/methods to use and install sensors on more units
- The HOT committee reviewed charts of The Dalles tail water head and forebay
- Linear vs. Rotary
- Purchase order written and waiting for results

CHIEF JOSEPH FLOW TABLES

Dan Ramirez (Corps) showed flow tables of Chief Joseph unit #21 and reported on progress.

- Units 17-27 testing happened in 2010.
- Most units showed similar data shape.
- Summary results – peak at 92mw (peak efficiency)
- All unit curves implemented for units 17-27 flow tables for T2 and will be put into GDACS
- What are the benefits?
- Currently project is on hold for reporting until August data comes out.

Tom Murphy (BPA) suggested using a Pi calculation to do a comparison of the analysis.

CHIEF JOSEPH FLOW ABSOLUTE FLOW

Dan Ramirez (Corps) reported on Chief Joseph Absolute Flow as follows:

- Performance testing happened in April 2011
- New flow metrics were added into the simulation testing for units # 11 and 15
- Issues with reference flow meter configuration identified
- Waiting for results from simulations
- Reprocess the data? Pull results from scintillation testing?

- Discussed possibility of adding flow meters and not use scintillation

3D CAM OPERATIONS SURVEYS

Dan Ramirez (Corps) reported on 3D cam operations surveys.

- No data from Walla Walla
- Other data being processed
- No wide spread issues, except Lower Granite.
 - Loss of preferred AC power resulted in erroneous head inputs into 3D cam controller. Half of units affected for extended period. .
 - Plant personnel have resolved issue

CHIEF JOSEPH FLOW METER DATA TO GDACS

Larry Haas (Corps) reported making some progress on Chief Joseph meter data to GDACS. Stay tuned...

LOWER GRANITE ACCUSONIC FLOW

Dan Patla reported on the cleanup effort at Lower Granite. Discussed background on installations, A, B, C paths, problems with leaks, and inspection of transducers.

Results were good on all tested paths.

HDC will provide designs for electrical work needed. The holes will be plugged at Lower Granite and drawings and specs twill be provided. HDC will be hiring a contractor to work on flow metering.

SUBAGREEMENT PPEI

Larry Haas (Corps) discussed reprogramming needs from FY11-FY12 due to schedule delays to cover FY13 expenditures. Hopefully, no amendment will be needed for FY12.

NEXT MEETING

The HOT Team committee decided the next meeting is scheduled for October 26-27 at McNary.

Attached are slides presented at the HOT Team meeting.



HOT Meeting
5MAY2011.pdf

ACTION ITEMS

Tom Murphy will invite Deb Malin to a future meeting to give a presentation on Renewable Energy Credits (RECs)

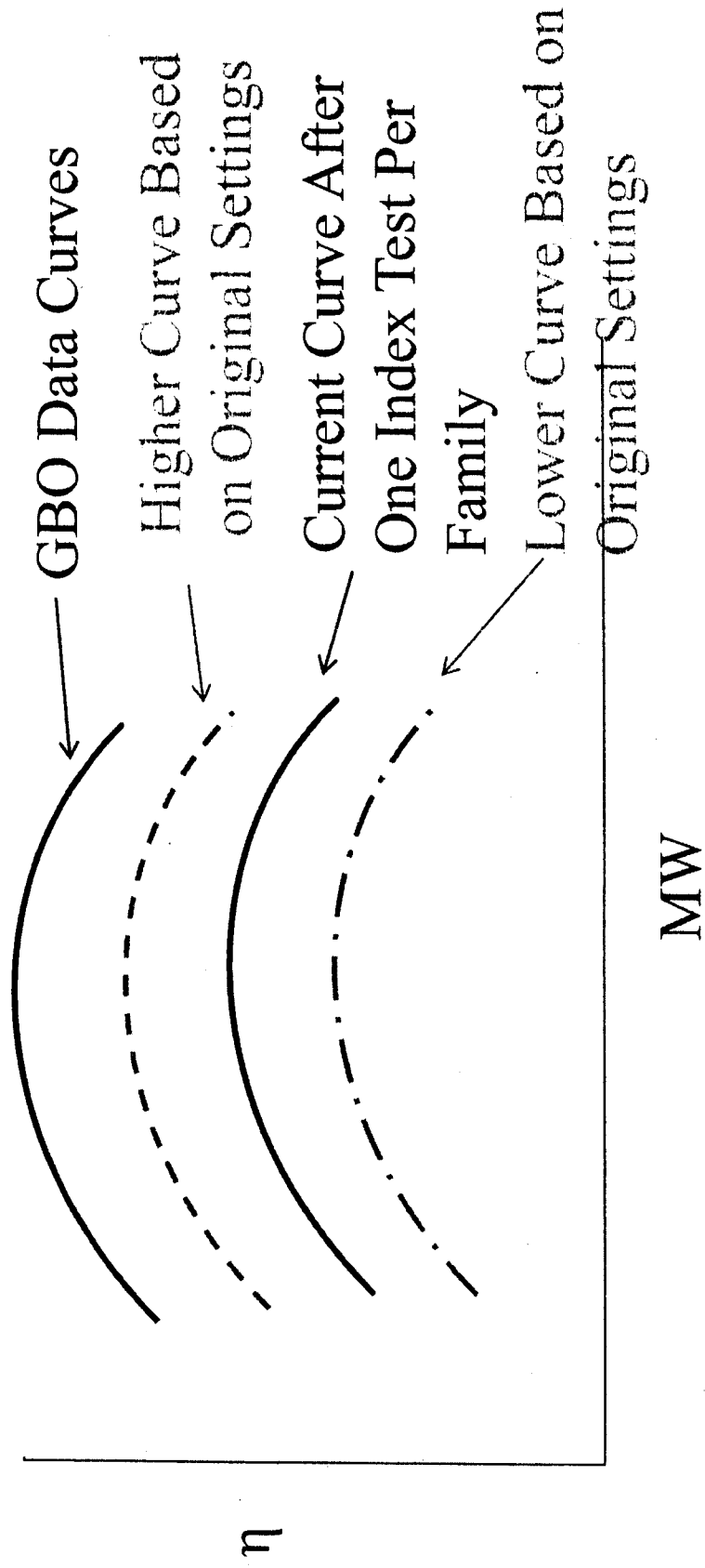
Tom Murphy will follow up on frequency movements in the gates for wind curve analysis for REC's which will be included in a study.

Carolyn Foote will follow up on the status for Heath Check funding at McNary.

Tom Murphy and Dan Ramirez will follow up on Pi calculation comparison for Chief Joseph flow tables (July-August operating at peak).

Larry Haas, Ed Miska, and Tom Murphy will coordinate a meeting to discuss budget reprogramming - PPEI Subagreement for FY11-FY13.

Renewable Energy Credit Calculation



RECs (Cont)

- ◆ **Difference between Current Curves After One Index Test Per Family and Curves Based on Original Settings is work done prior to Jan 2007 and does not qualify**
- ◆ **Difference between GBO Data Curves and Current Curves After One Index Test Per Family is work done after Jan 2007 and qualifies for RECs**

Charter

Hydrogeneration Optimization Team

Approved 10 May 2011

In accordance with the goal of the Federal Columbia River Power System (FCRPS) Asset Management Strategy to maximize the value of the FCRPS, we will develop tools and strategies for enhancing net revenues through hydrogeneration optimization and efficiency improvements. This is a partnership of the US Army Corps of Engineers and the Bonneville Power Administration. Our responsibility is oversight and recommendations to the JOC, through the Capital Workgroup. Implementation will be accomplished through normal Corps project management business practices.

What HOT Does:

1. Recommends overall priorities of optimization at the program level;
2. Identifies and prioritizes optimization opportunities;
3. Initiates studies in support of the optimization priorities;
4. Tasks others to develop detailed program costs and schedules;
5. Supports the Capital Work Group and JOC by evaluating and then approving/altering/disapproving detailed program plans;
6. Follows ongoing work to evaluate cost and schedules and alter the plan as appropriate;
7. Helps District Program Managers define and schedule appropriate work;
8. Assists in preparation of the Decision Support Document
9. Evaluates/approves each change in direction or schedule that is recommended to the Capital Work Group;
10. Assesses success of optimization projects;
11. Oversees overall program and looks for synergy with other non-HOT jobs;
12. Assures proper coordination is occurring;
13. Works and coordinates with other agencies to obtain synergy from their optimization programs.

What HOT Does Not Do:

1. Write subagreements – Performed by Project Managers with help from the HOT team.
2. Execute projects.

HOT Meeting

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May 10, 2011



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Kick Off

- Introductions
- Review Agenda
- Actions
- Adopt Last Minutes
- Review Revised Charter

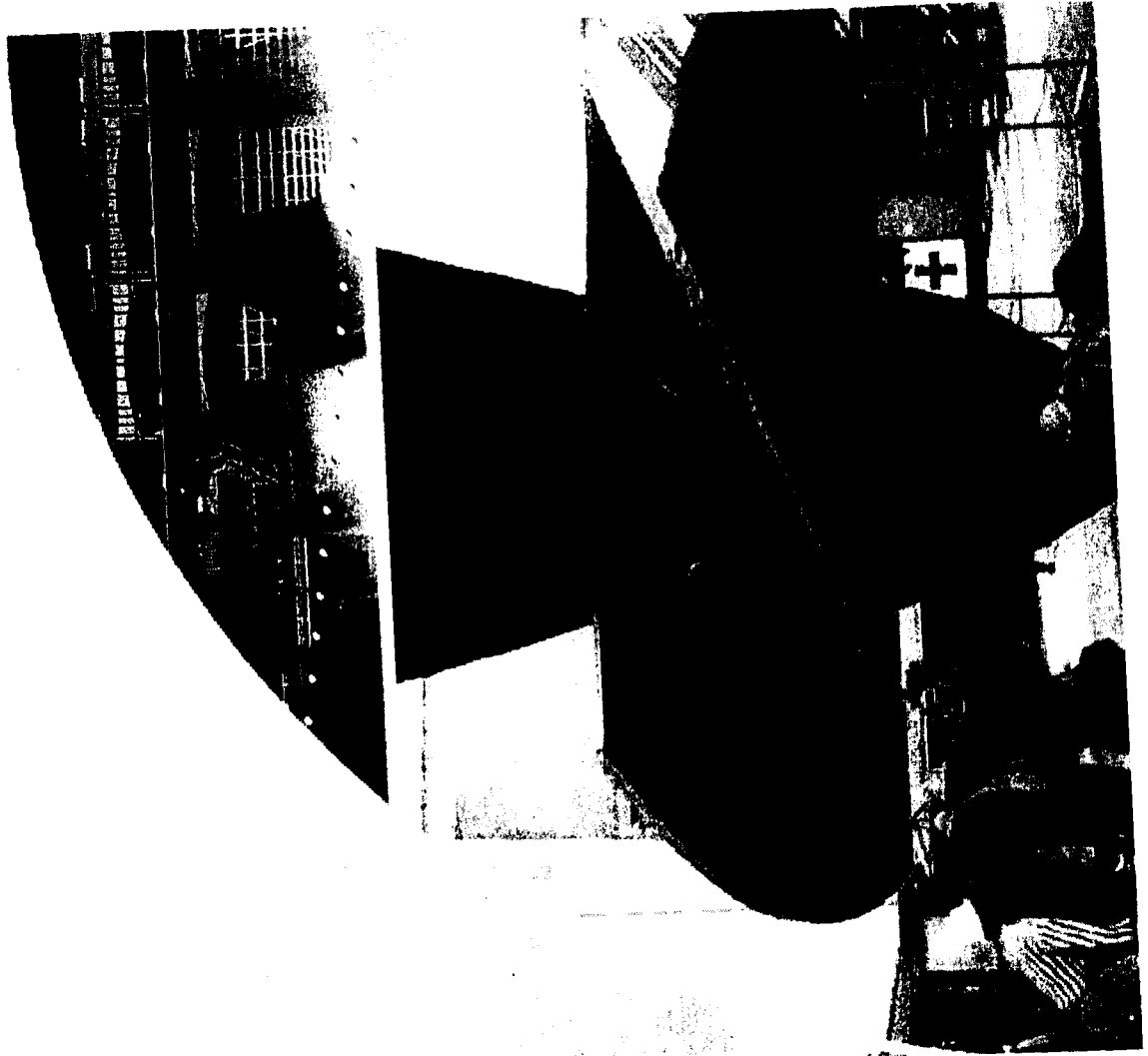


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McNary GBO

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Background

- Gate-Blade-Optimizer (GBO)
- Efficiency
 - ▶ Head (Water Elevation Difference)
 - ▶ Flow
 - ▶ Wicket Gate Opening
 - ▶ Blade Angle
 - ▶ Power
- In the background testing



Timeline of Work

- 26 JAN 2011 – Switch to PLC Platform, one unit trial
- 2 FEB 2011 – All units switched on (Units 14, 13, 11, 8). Unit 8 turned off after departure
- 29 MAR 2011 – GBOs identified as security threat and turned off
- 5 APR 2011 – GBOs security cleared and turned on
- 21 APR 2011 – GBOs identified as fighting 3D Cams on low blade angles; turned off.
- 3 MAY 2011 – 3D Cams fix deployed



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Switch to PLC Platform

- OPC sampling limitations (10 Hz vs 50 Hz)
- LabVIEW GBO computer failures
- LabVIEW failures
- Excessive time to investigate LabVIEW
- Difficult to support two different platforms
- NERC/CIP requirements
- PLC platform is identical to digital governors



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Challenges

- Sample rate
- NERC/CIP
- 3D Cam interaction
- Fiber to units broken or not established
 - ▶ Unit 12, 9
 - ▶ Units 1-7
- Limited range of operation (this water year)
- Execution is lagging funding

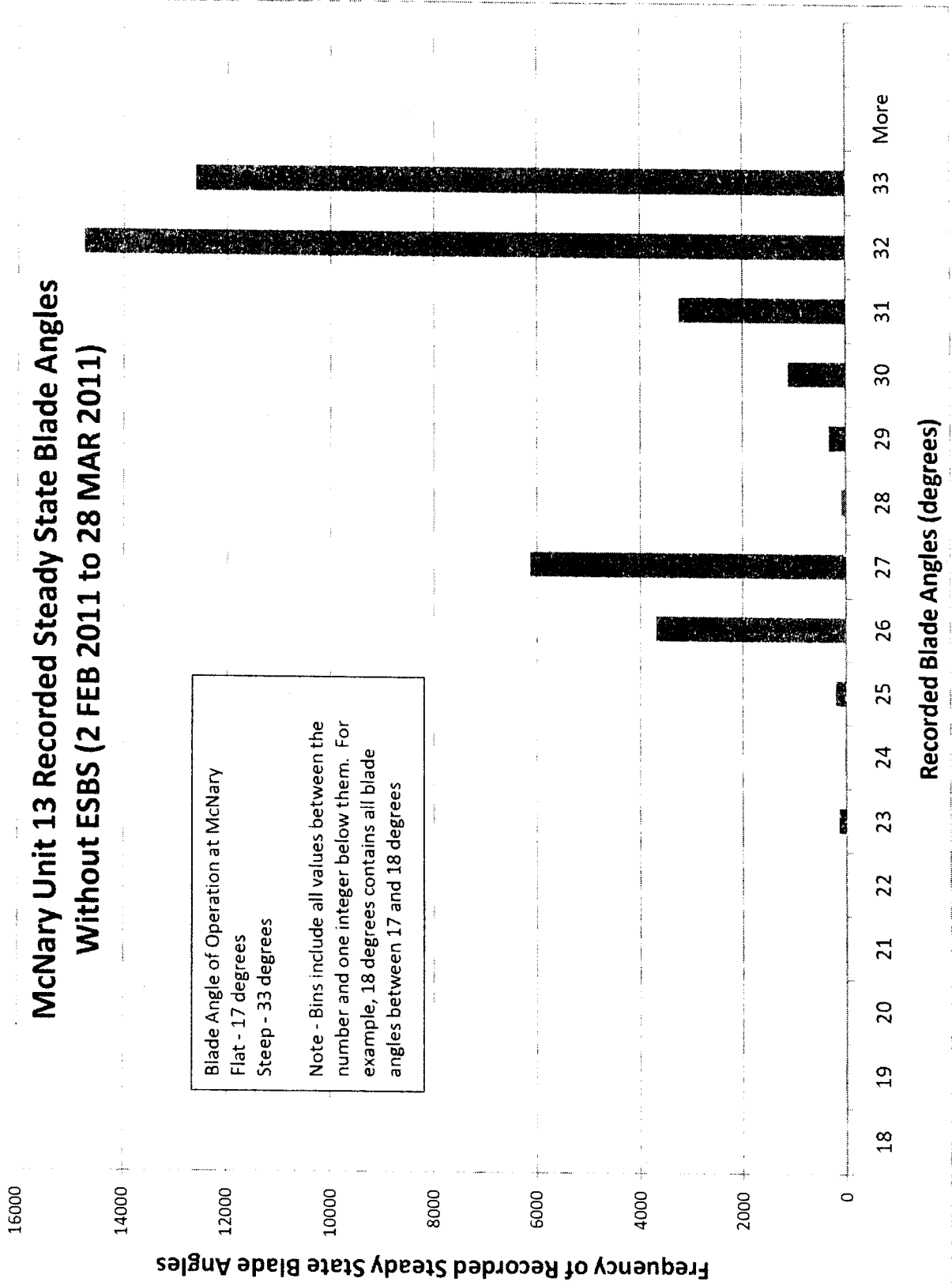


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McNary Unit 13 Recorded Steady State Blade Angles Without ESBS (2 FEB 2011 to 28 MAR 2011)

Blade Angle of Operation at McNary
 Flat - 17 degrees
 Steep - 33 degrees

Note - Bins include all values between the number and one integer below them. For example, 18 degrees contains all blade angles between 17 and 18 degrees



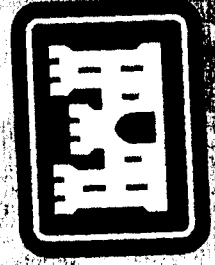
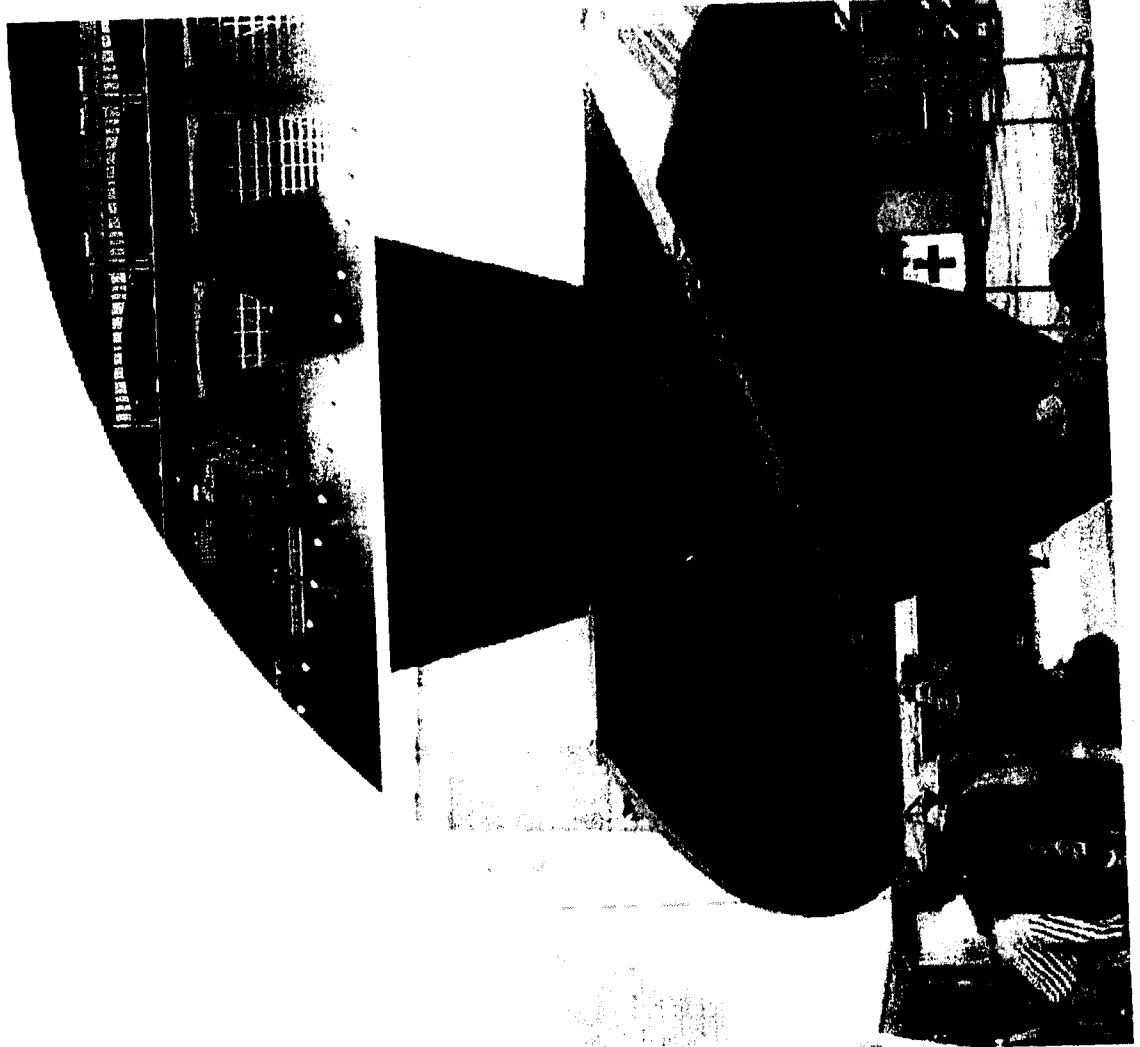
Schedule

- Updated to incorporate lessons learned from NWP GBO
 - ▶ Updated in order to anticipate longer stints per unit
 - ▶ Units that require even more time to gather the data will be revisited
- Needs input from Operations regarding outages



NWP Gate Blade Optimization

May 10, 2011



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Timeline of Work

- 9 DEC 2010 – Deployment at John Day U11-14
- 14 DEC 2010 – Deployment at The Dalles U8-9
- 6 JAN 2011 – Data Pull at John Day and The Dalles
- 18 FEB 2011 – Scripting Update (database fix)
- 28 MAR 2011 – Version Update, GBOs moved
 - ▶ John Day U5-8
 - ▶ The Dalles U14-15
- 7 APR 2011 – John Day GBO Calibration Attempt
- 18 APR 2011 – John Day GBOs Calibrated



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Software Updates

- Due to large amounts of data, the database overflowed (fixed on 18 FEB 2011)
 - ▶ Unforeseeable without longer duration bench testing (months)
- Multiple versions from programming on the fly (fixed on 28 MAR 2011)
 - ▶ Enabled better maintainability



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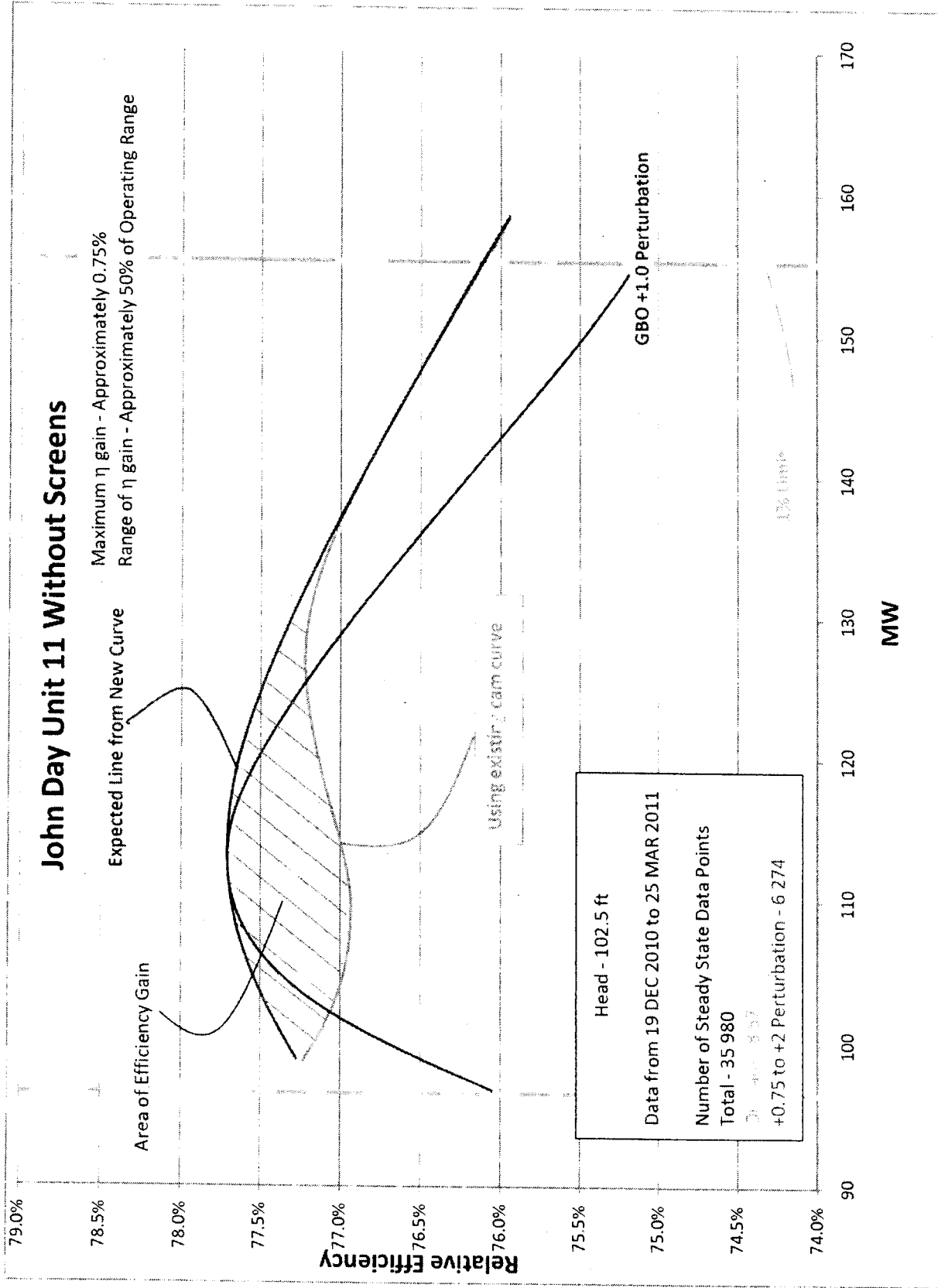
Challenges

- Ability to take a unit down at John Day for GBO Calibration
- 3D Cams out of calibration (both John Day and The Dalles)
- W-K taps not working

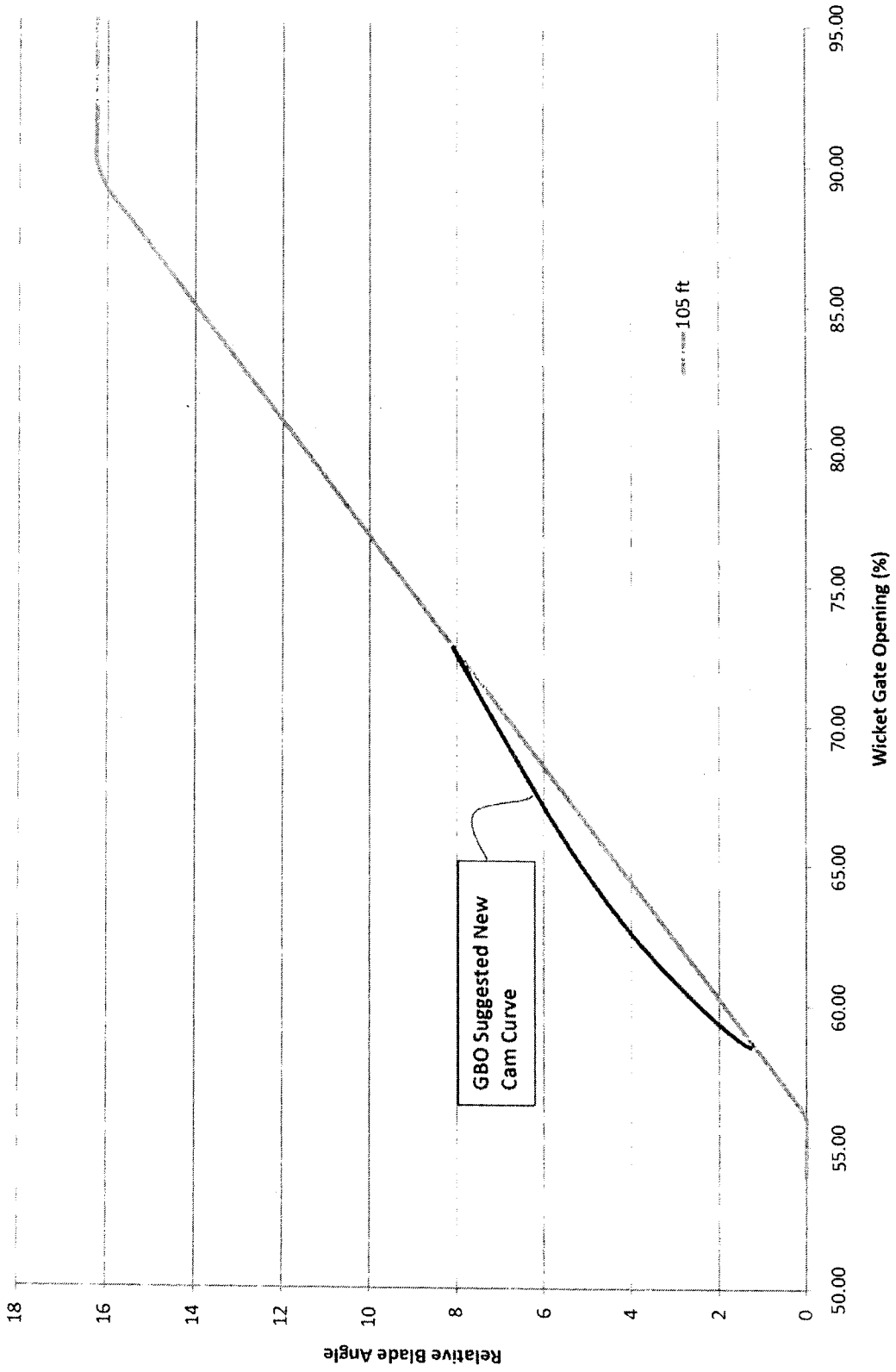


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John Day Unit 11 Without Screens



John Day Unit 11 Without Screens Suggested New Cam Table



Schedule

- Updated in order to anticipate longer stints per unit
- Units that require even more time to gather the data will be revisited

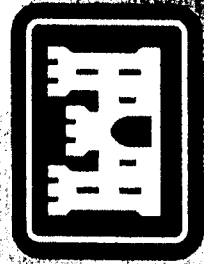
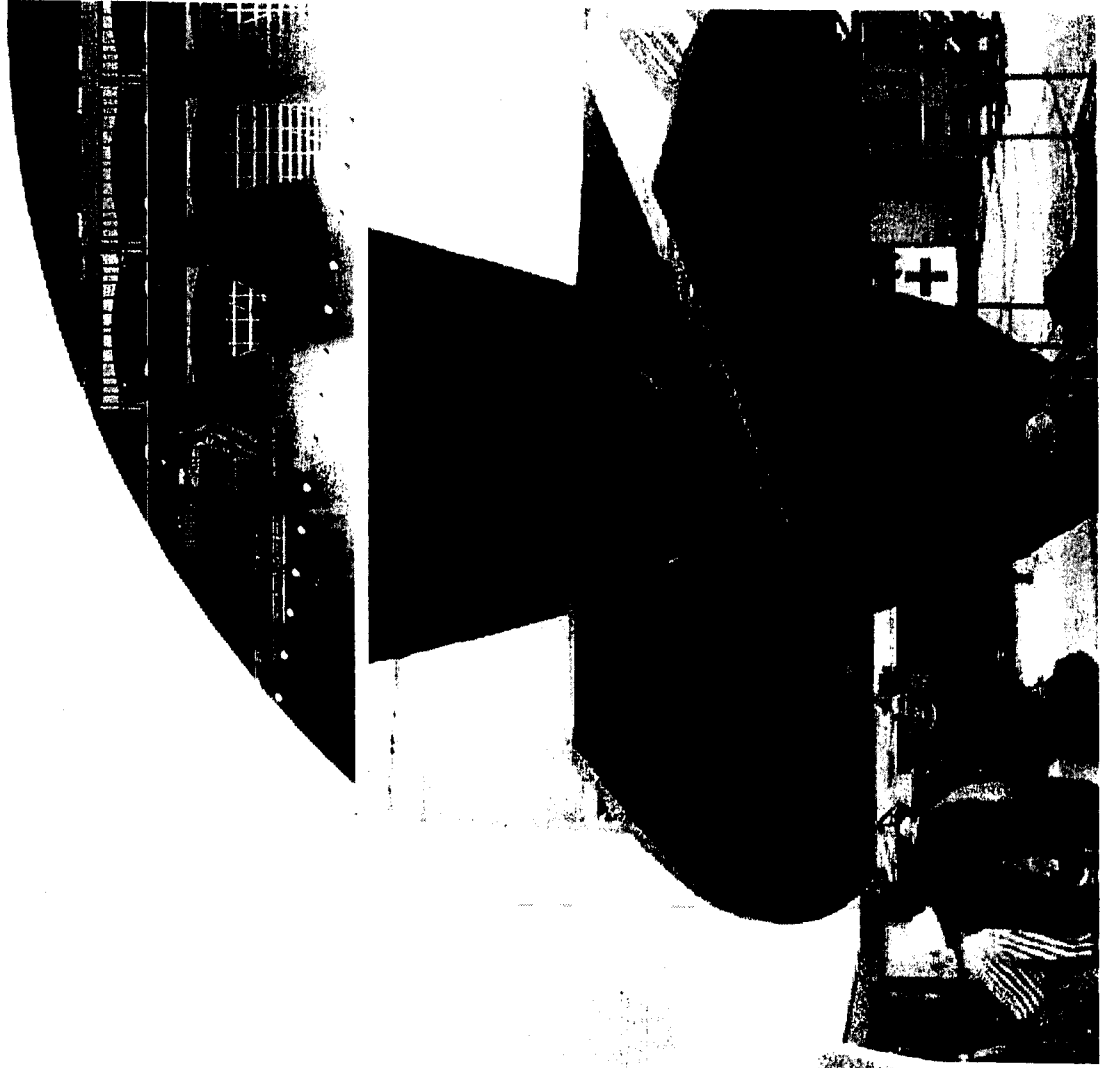


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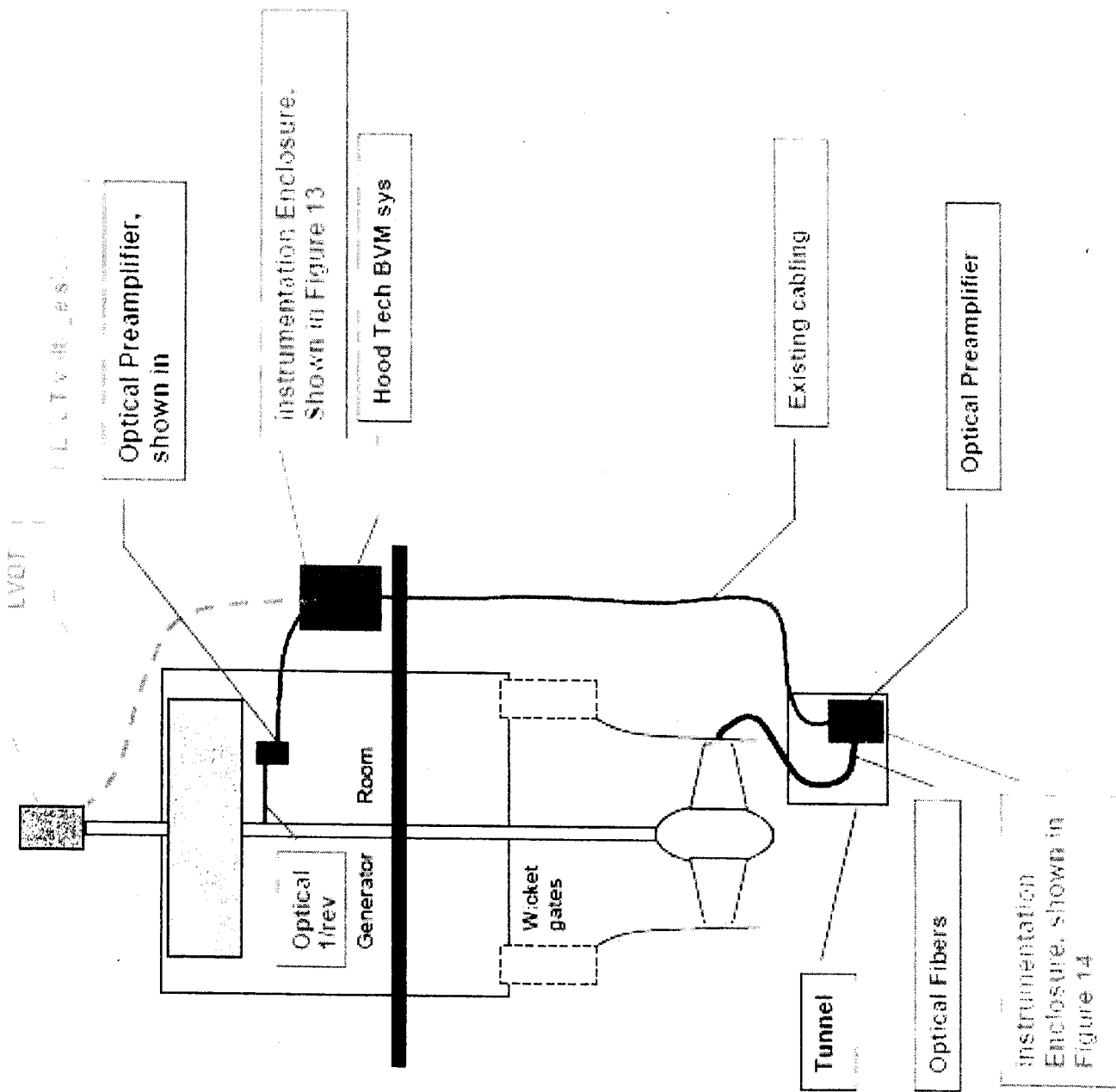
John Day Blade Angle Measurement

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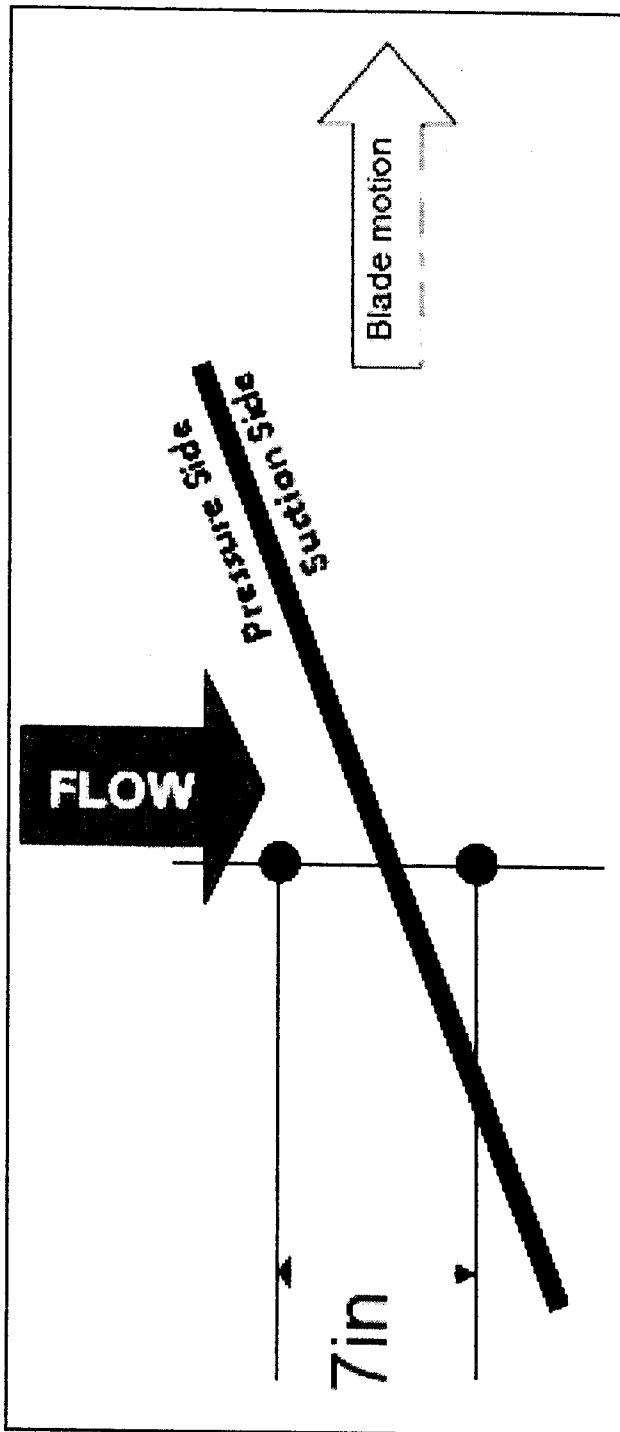


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BAM



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BAM

- September 2010 testing
 - ▶ 2/2 Banner optical sensors functional
 - ▶ 1/2 PCB sensors functional (one is shorted)
 - ▶ 0/2 Honeywell pressure probes working (could be probe or wiring)
 - ▶ 2/2 Inprox sensors functional, but noisy with incorrect frequencies
- Task order
 - ▶ IDIQ with HDR to HoodTech
 - ▶ Install their equipment to use our optical sensors
 - ▶ Data gather for 30 days
 - ▶ Report on BAM versus LVDT
 - ▶ Determine if we want to do long term data gathering

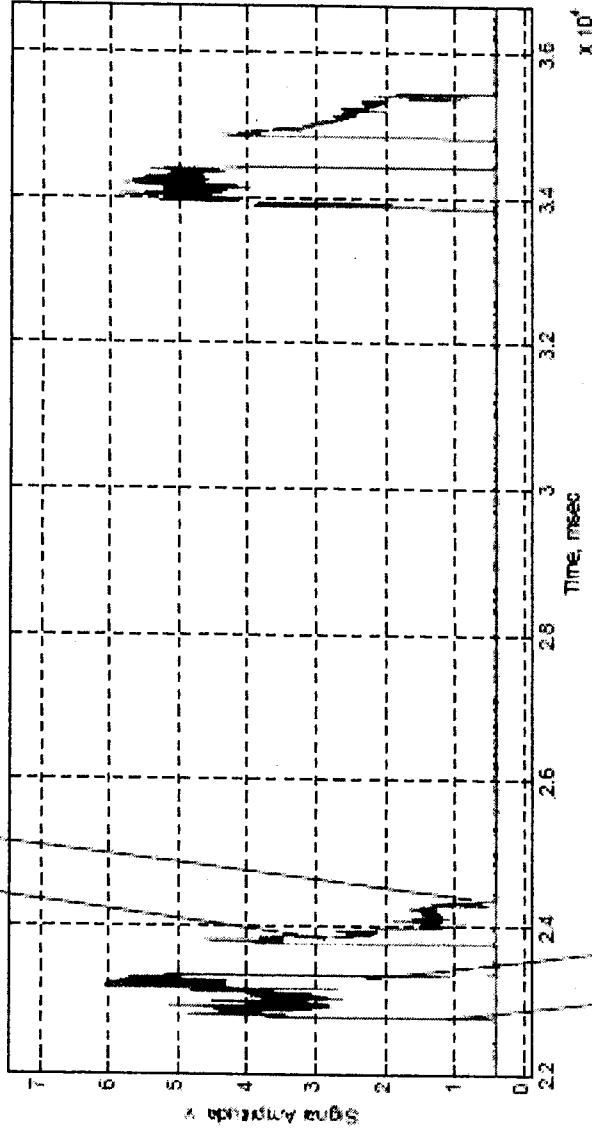


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BAM

Lower sensor observing arriving edge of blade (suction side)

Lower sensor observing departing edge of blade (pressure side).
The poor, unreliable optical edge of the pressure side makes it very difficult to assess blade angle on the pressure side.



Upper sensor observing departing edge of blade, pressure side

Upper sensor observing arriving edge of blade, suction side



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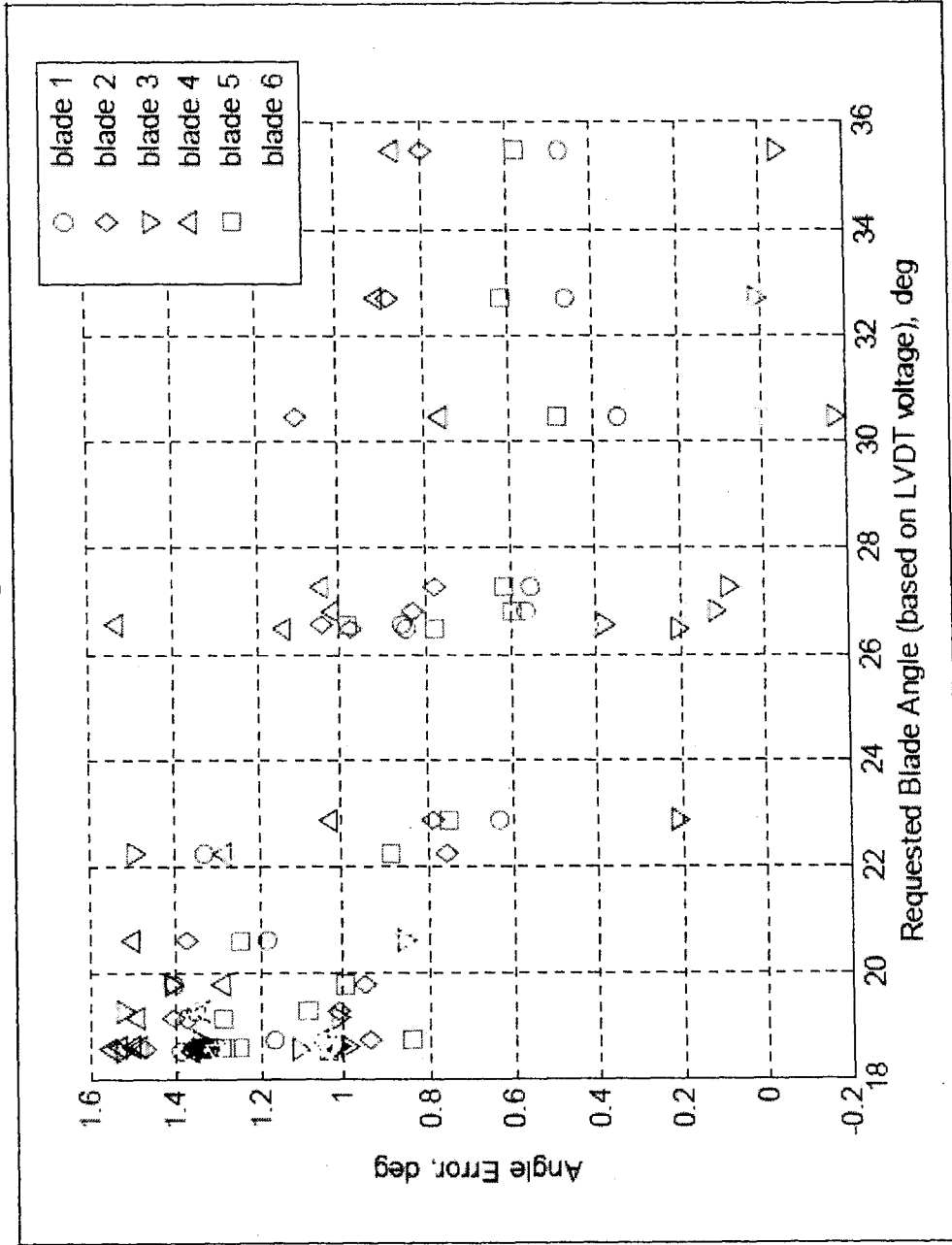
BAM

- Results
 - ▶ Max error between requested angle (from the LVDT) and measured angle (from the optical sensors) was 1.6 degrees.
 - ▶ Largest measured errors occurred when trying to move the blades by small margins.
 - ▶ At a requested angle of 26.5 degrees the blades disagreed by as much as 1.5 degrees.
 - ▶ At a requested angle of 18.5 degrees the blades disagreed by as much as 0.5 degrees.
 - ▶ The blades would dither minimally from rev to rev (0.05 degrees standard deviation) at a given blade angle request



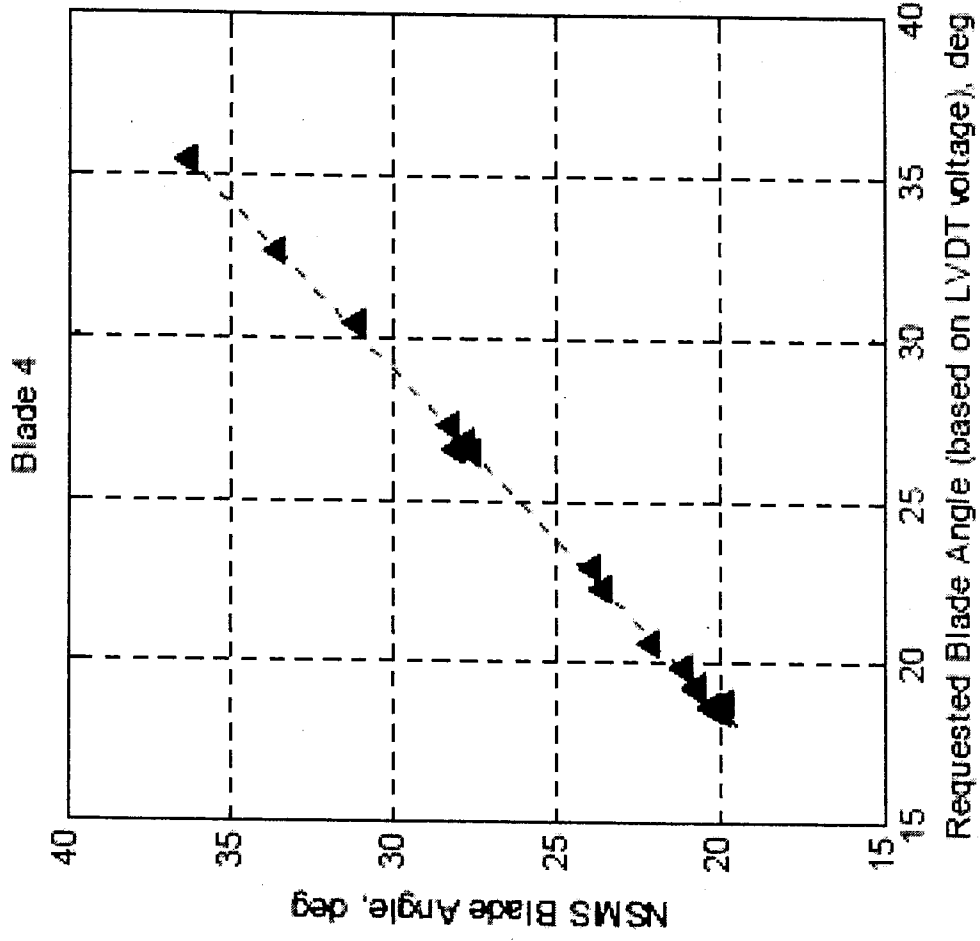
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Blade Angle Error



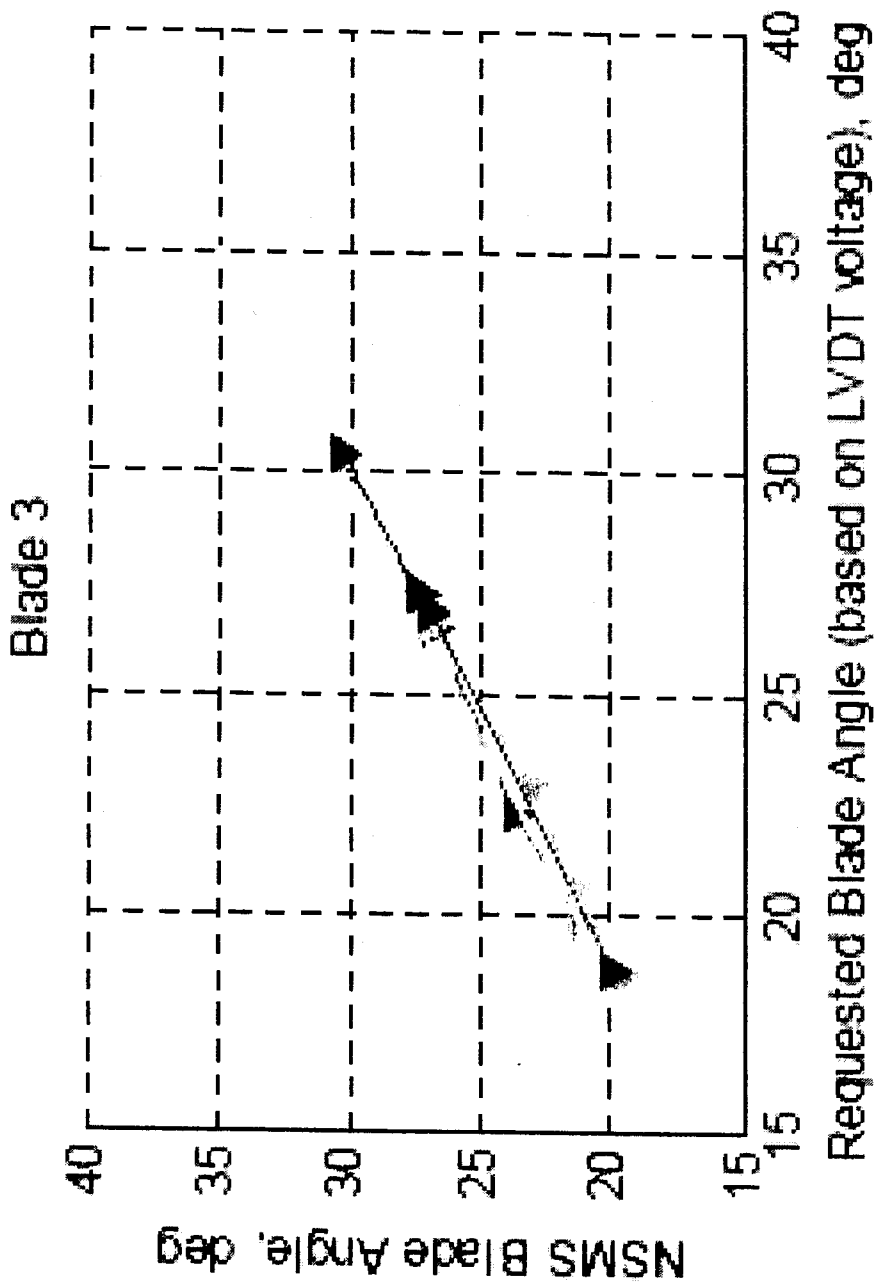
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Requested vs Measured



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Hysteresis



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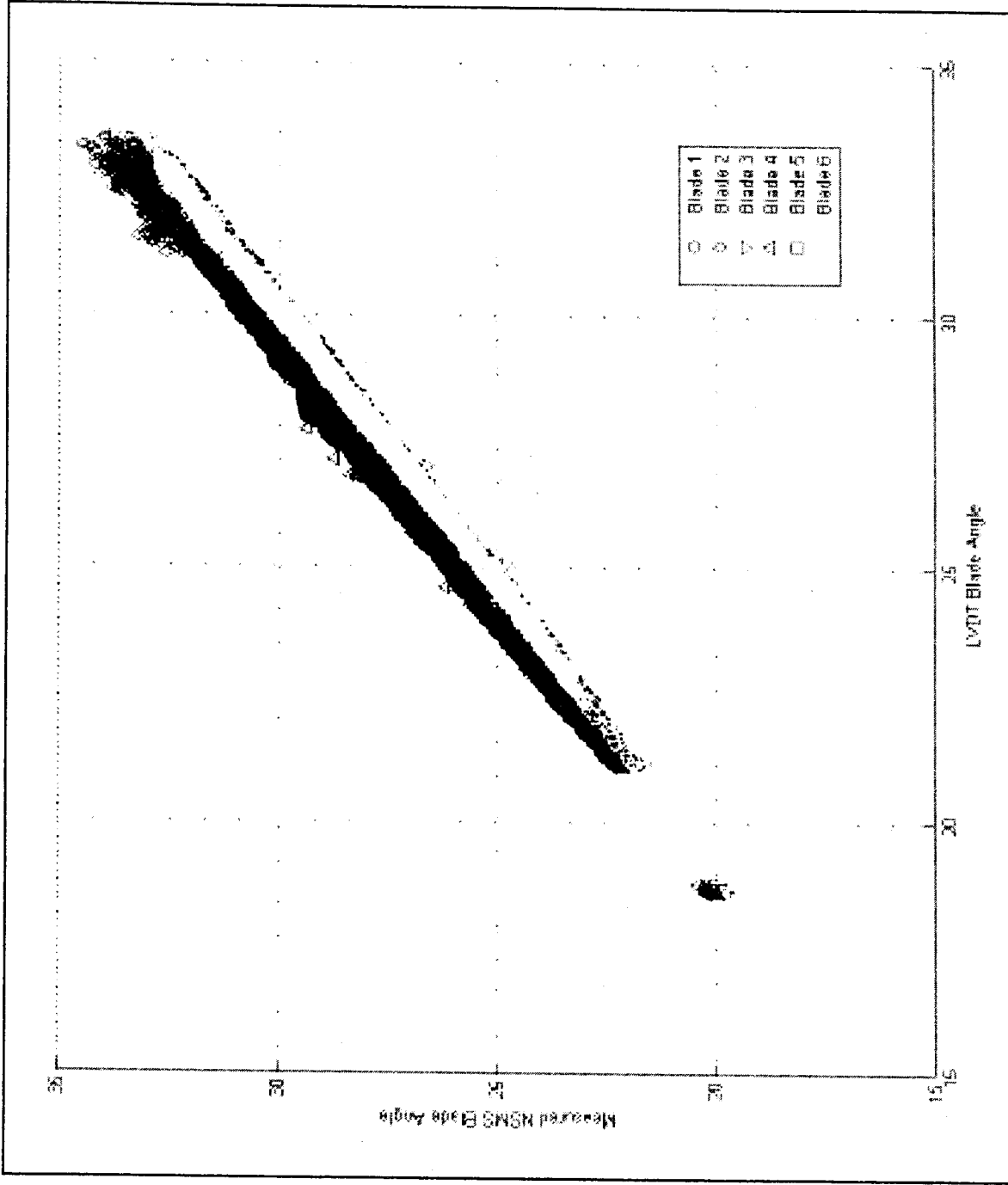
Extended Data Gathering

- 19 Jan 2011 – 31 March 2011



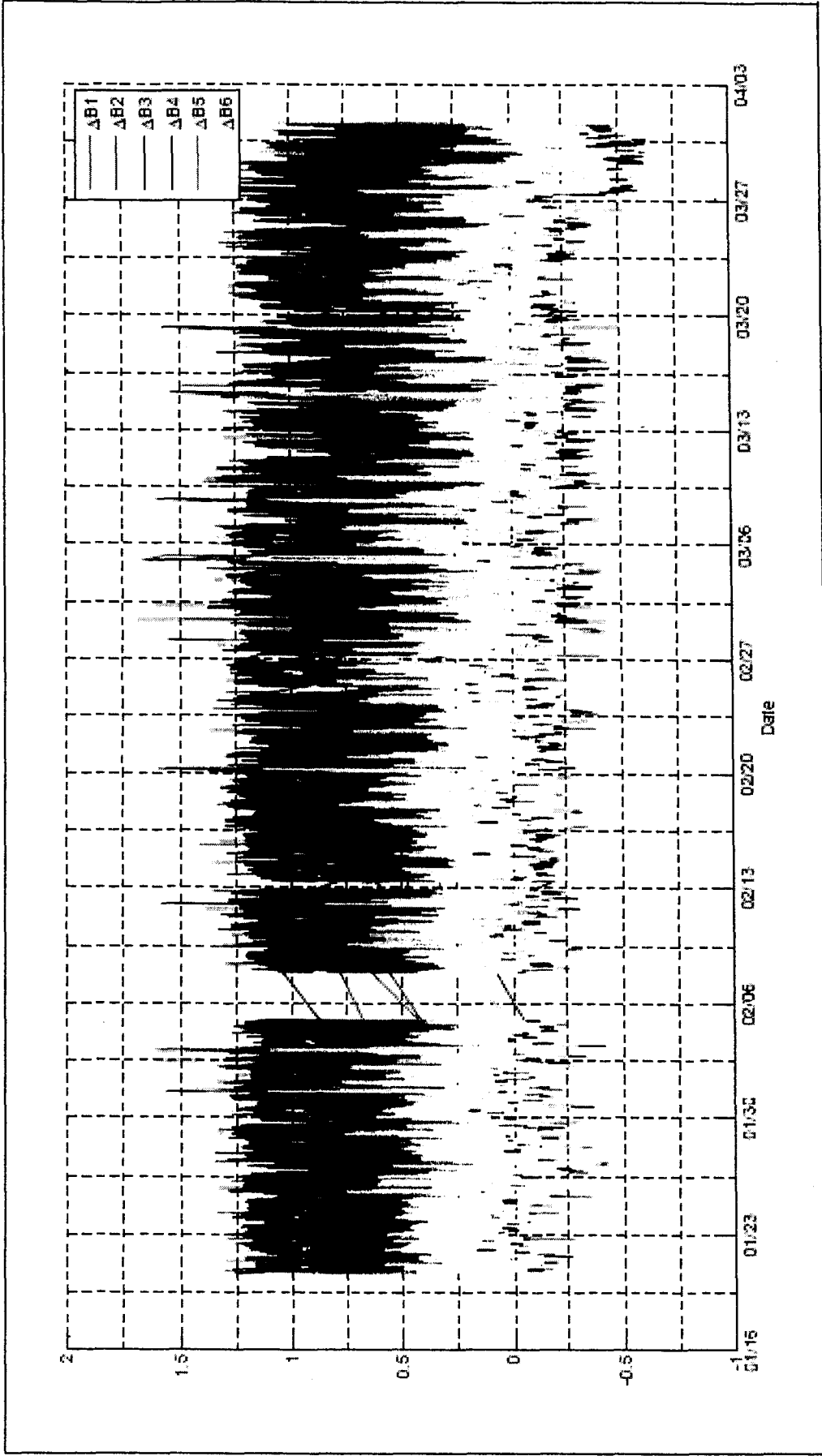
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BAM



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Extended Data Gathering Error



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BAM

- Where do we go from here?

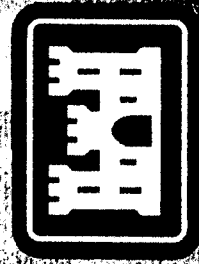
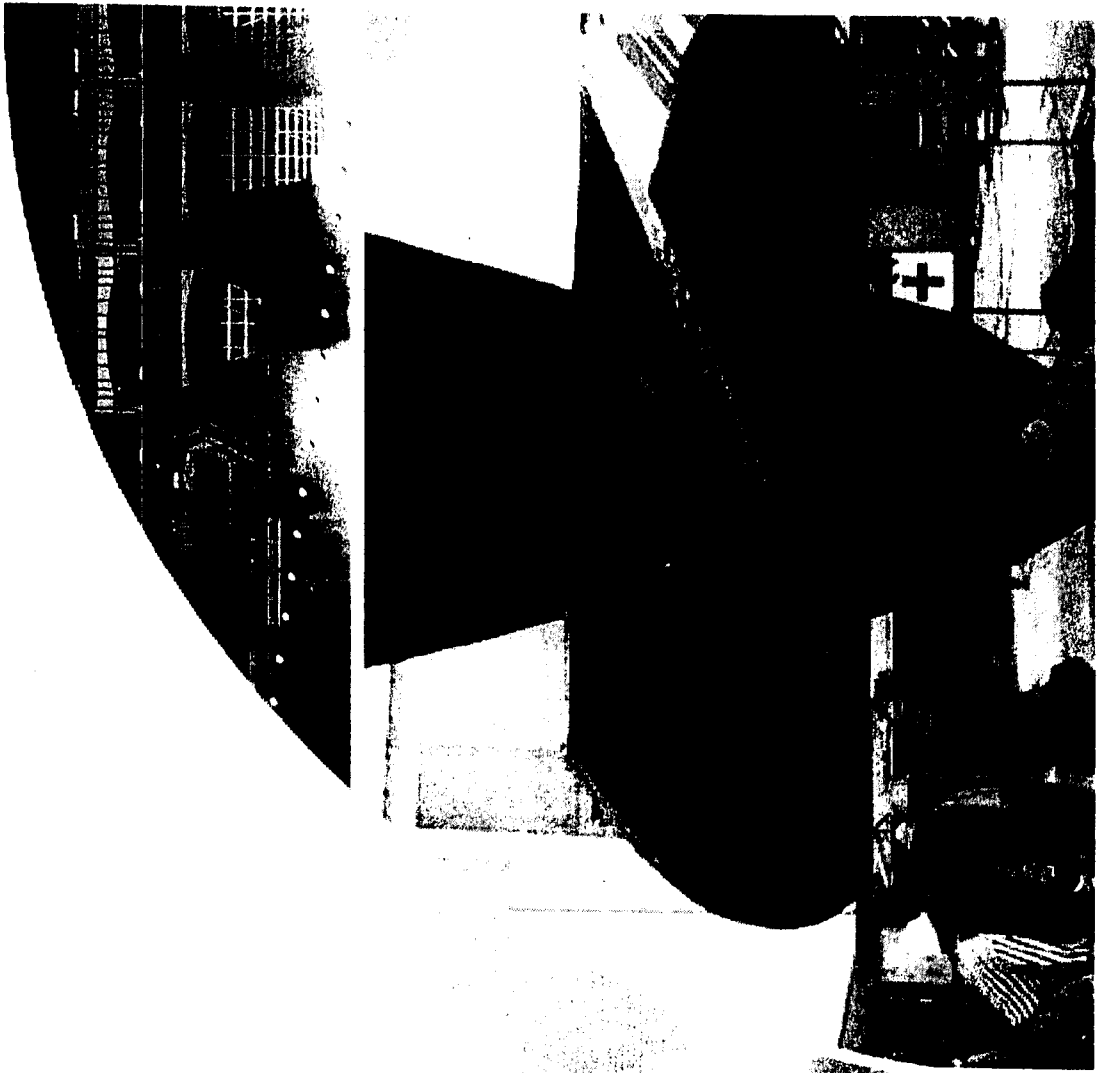


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Health Check

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May 10, 2011



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Health Check

- *FY11*
 - ▶ Determine sensors to install for comparison and analysis (e.g., linear vs. rotary sensors, MLDT vs. LVDT, HART vs. non-HART radar sensors)
 - ▶ Order sensors
 - ▶ Write test plan
 - ▶ Installation of sensors on one unit
 - ▶ Perform testing
 - ▶ Analyze results
 - ▶ Determine best sensors/methods to use and install sensors on more units



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Health Check

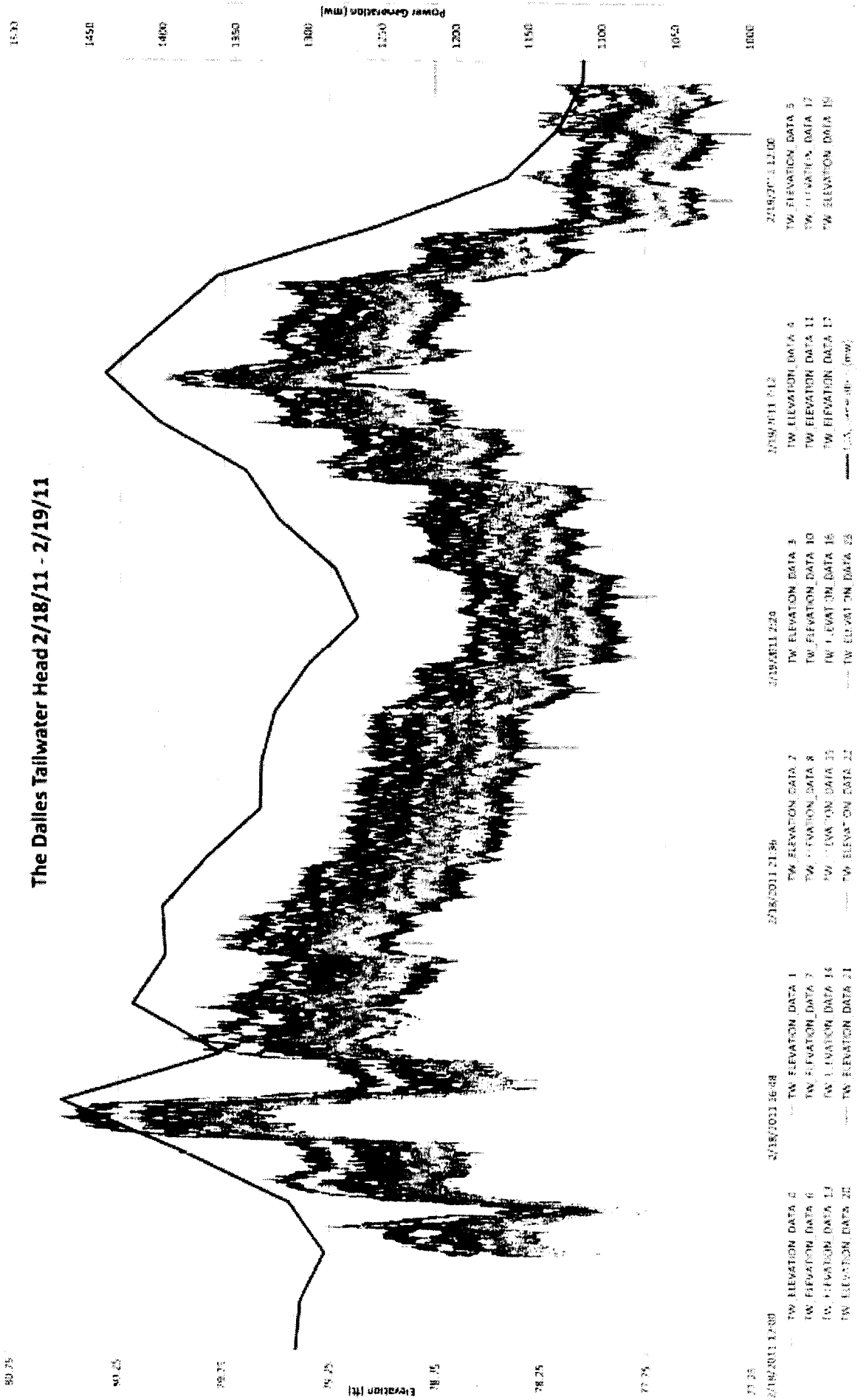
- Purchase Order Written
 - ▶ Magnetostrictive Linear Position Transducer x 2
 - ▶ Compare on Lower Columbia – LVDT vs MLPT
- Head Radar Sensors
 - ▶ Not included in purchase order
 - ▶ Reviewed data from GBO
- PLC
 - ▶ Using GBO units
 - ▶ Existing spare I/O
 - ▶ Code is ready to go



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Health Check

The Dalles Tailwater Head 2/18/11 - 2/19/11



Health Check

- Linear vs Rotary
 - ▶ Take the MLPT to NWW
 - ▶ Cheaper to install
 - ▶ Use the GBO again

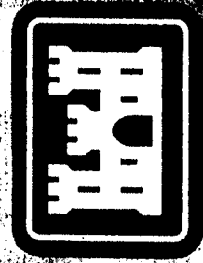
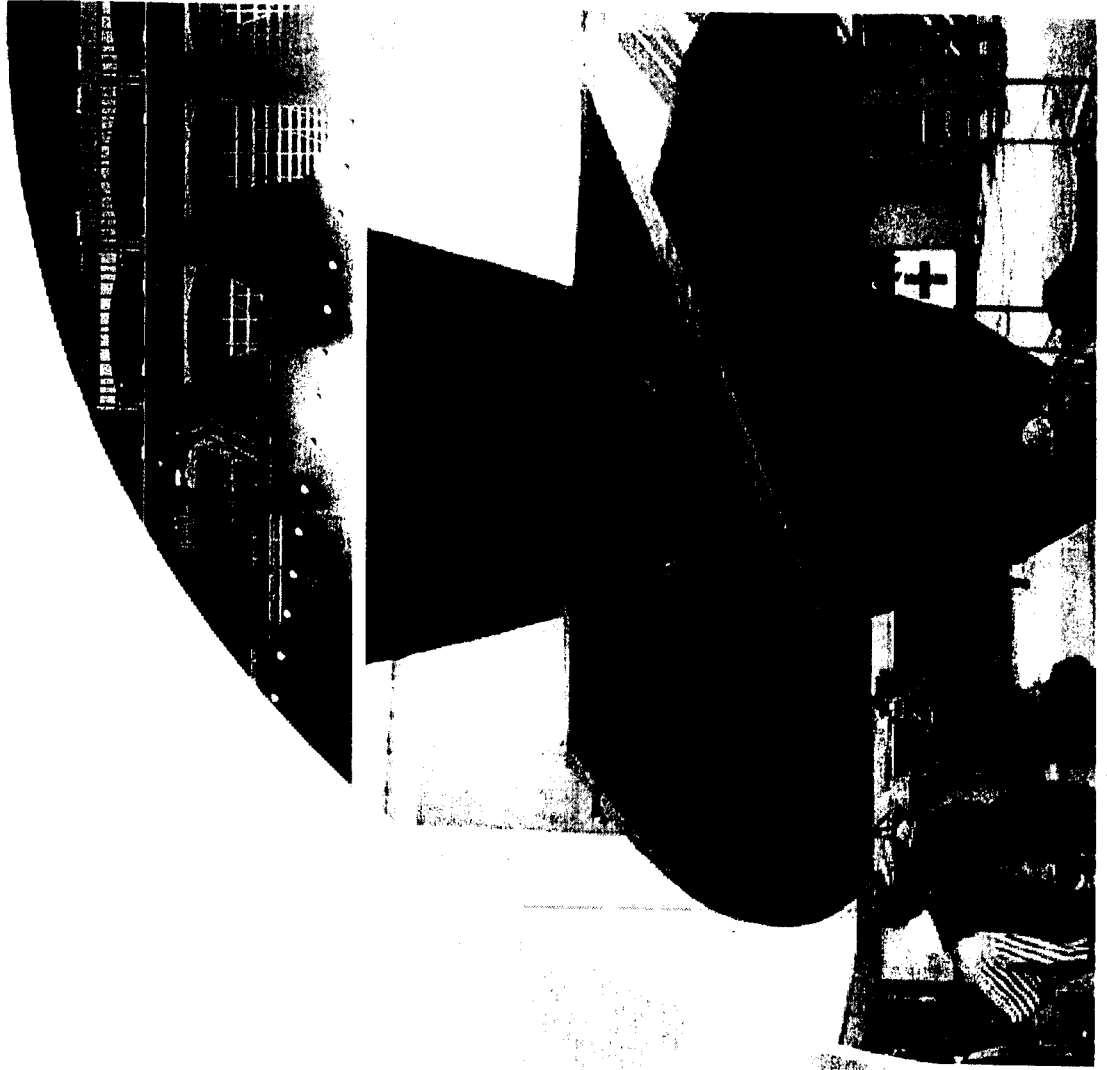


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Chief Joseph Individual Flow Tables

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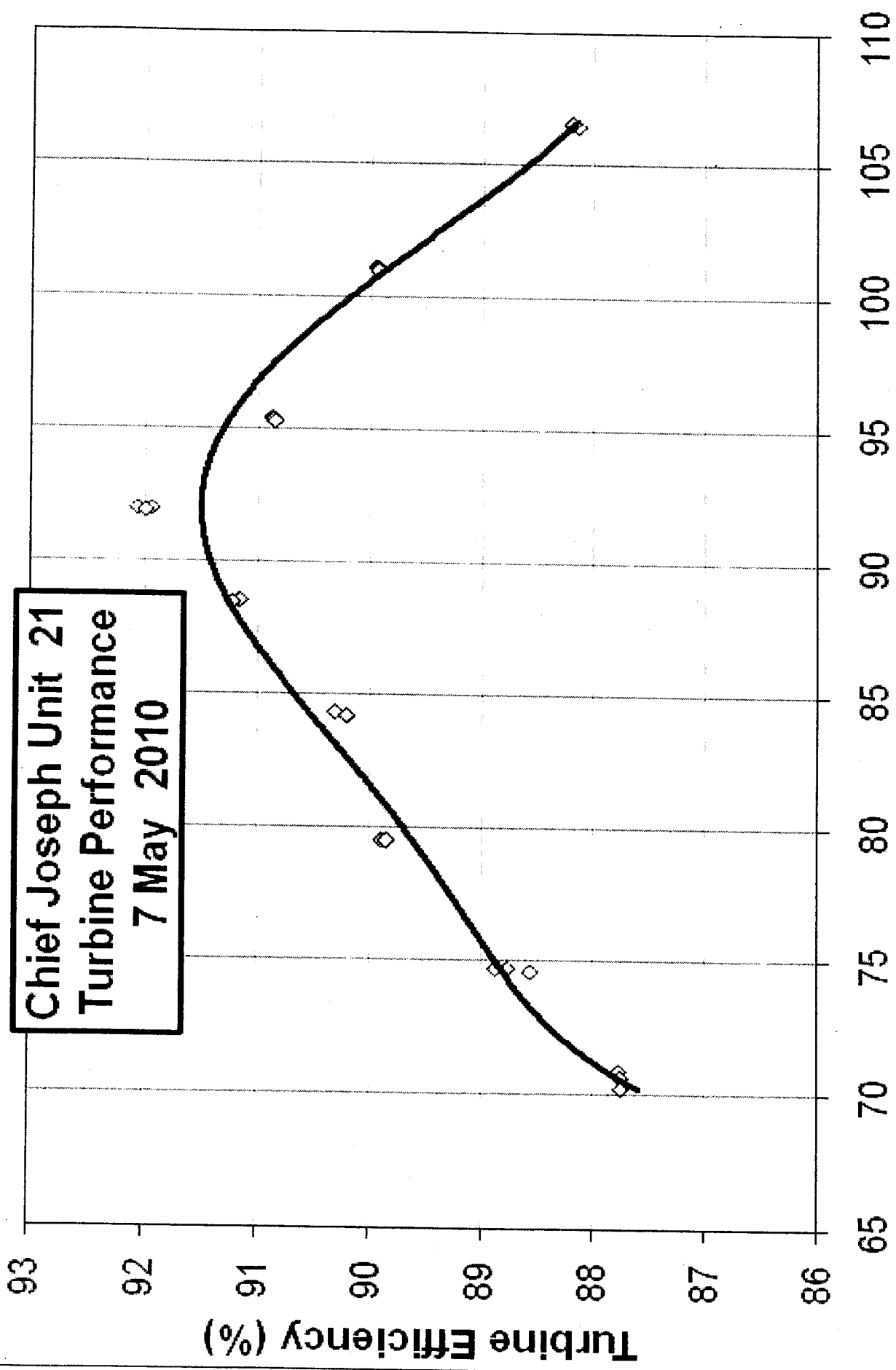


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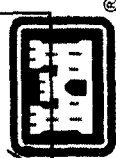
**Chief Joseph Unit 21
Turbine Performance
7 May 2010**



Generator Output (MW)
Results adjusted to 170 feet net head

Summary of Results

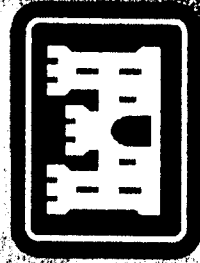
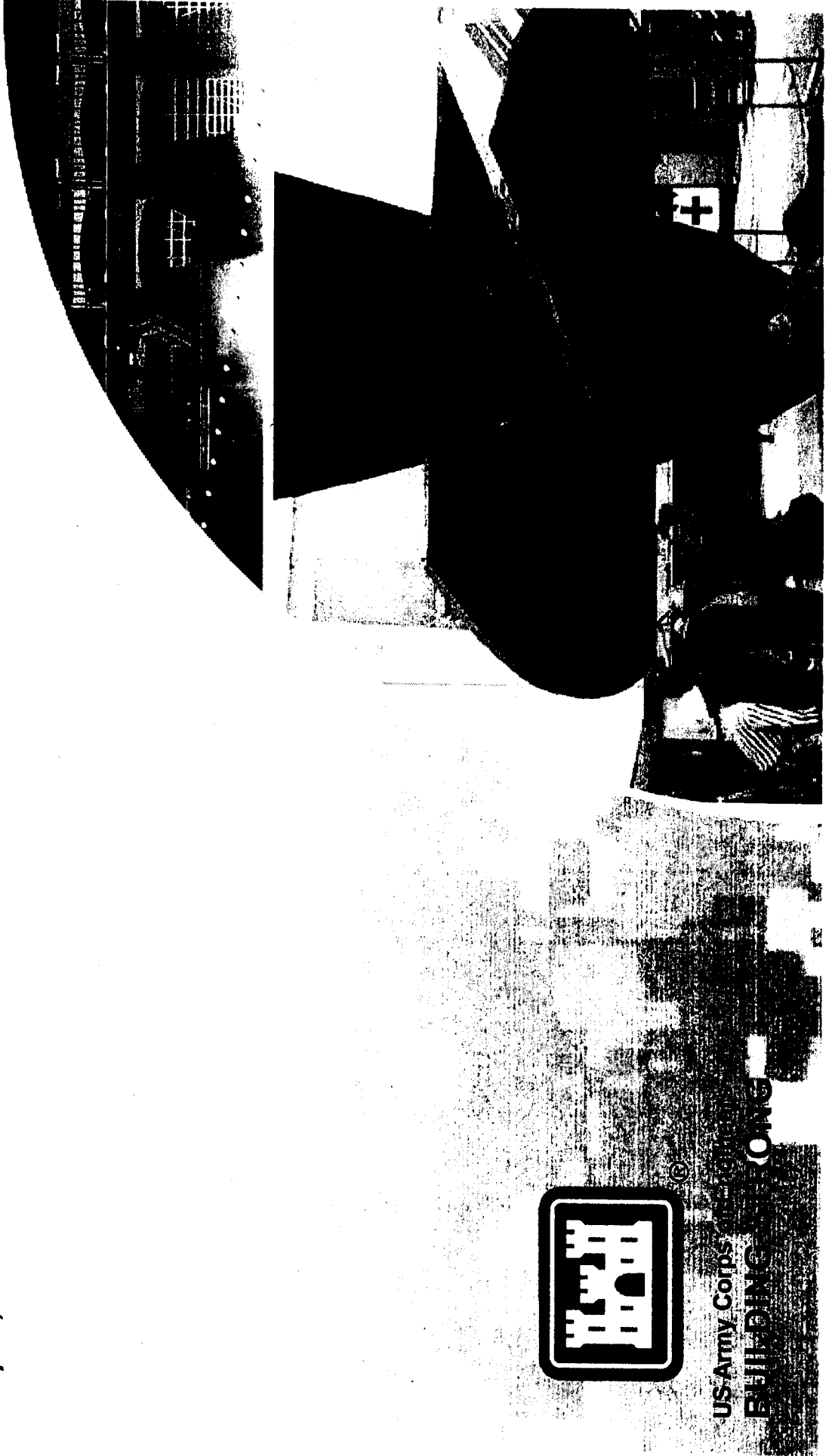
Unit	Date of Test	Generator Output @ Peak (MW)	Approximate Drop in Efficiency @ 70 MW	Approximate Drop in Efficiency @ 105 MW
17	5 May	90.7	4.8%	3.9%
18	5 May	91.3	5.0%	4.0%
19	6 May	93.1	4.8%	3.1%
20	6 May	90.5	4.0%	3.2%
21	7 May	92.0	4.4%	3.4%
22	18 May	89.3	3.4%	3.4%
23	18 May	91.1	4.1%	3.4%
24	19 May	90.6	4.5%	3.5%
25	19 May	92.8	4.4%	3.0%
26	20 May	92.4	4.6%	3.5%
27	20 May	89.2	4.0%	3.7%



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Chief Joseph Absolute Flow

May 10, 2011

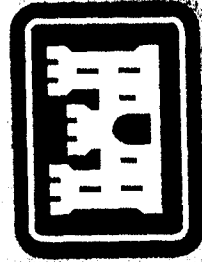
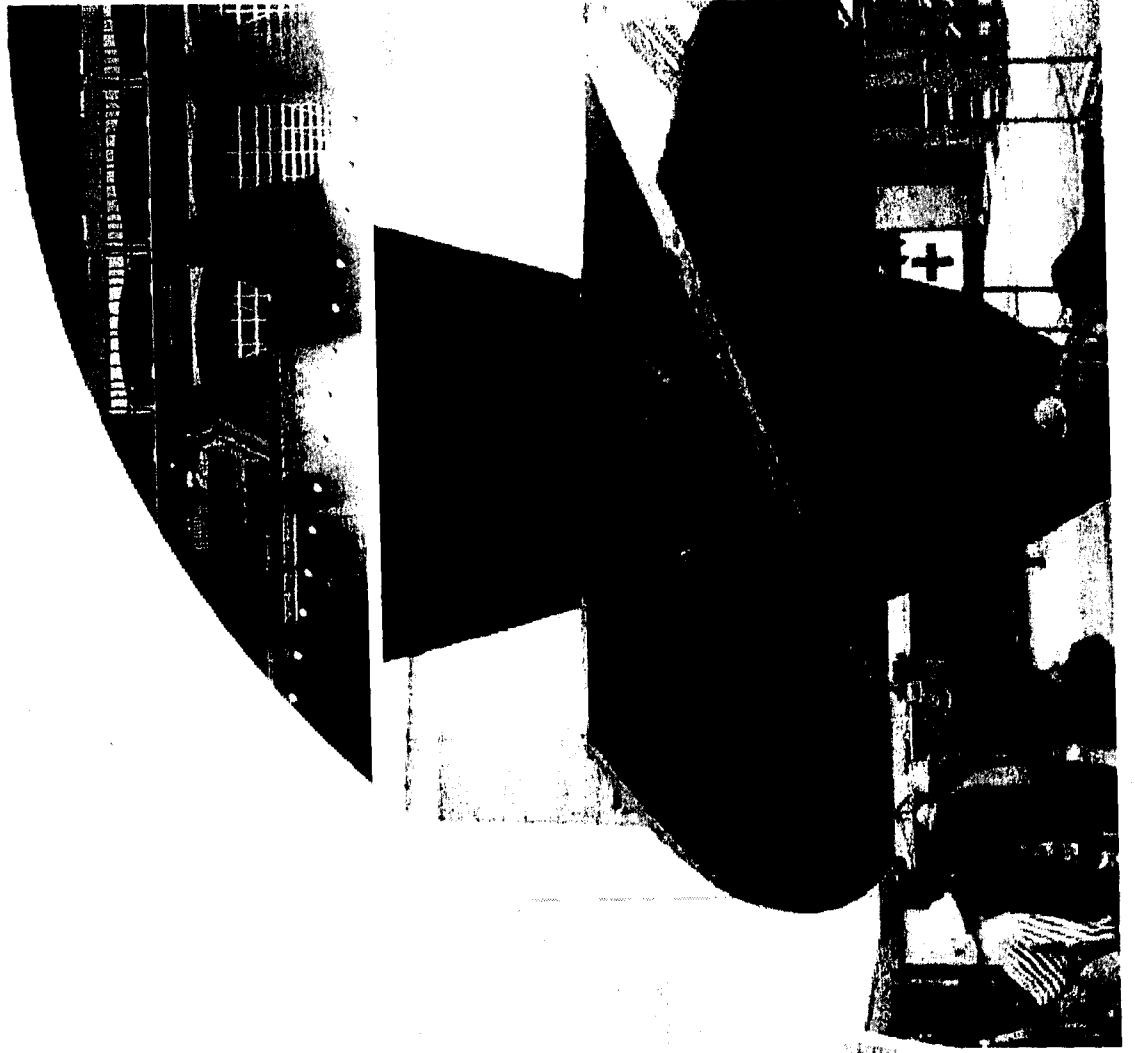


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3D CAM Operational Surveys

PPEI

May 10, 2011



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3D CAM

- Spring surveys in progress
- No widespread issues
- Lower Granite

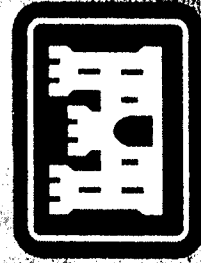
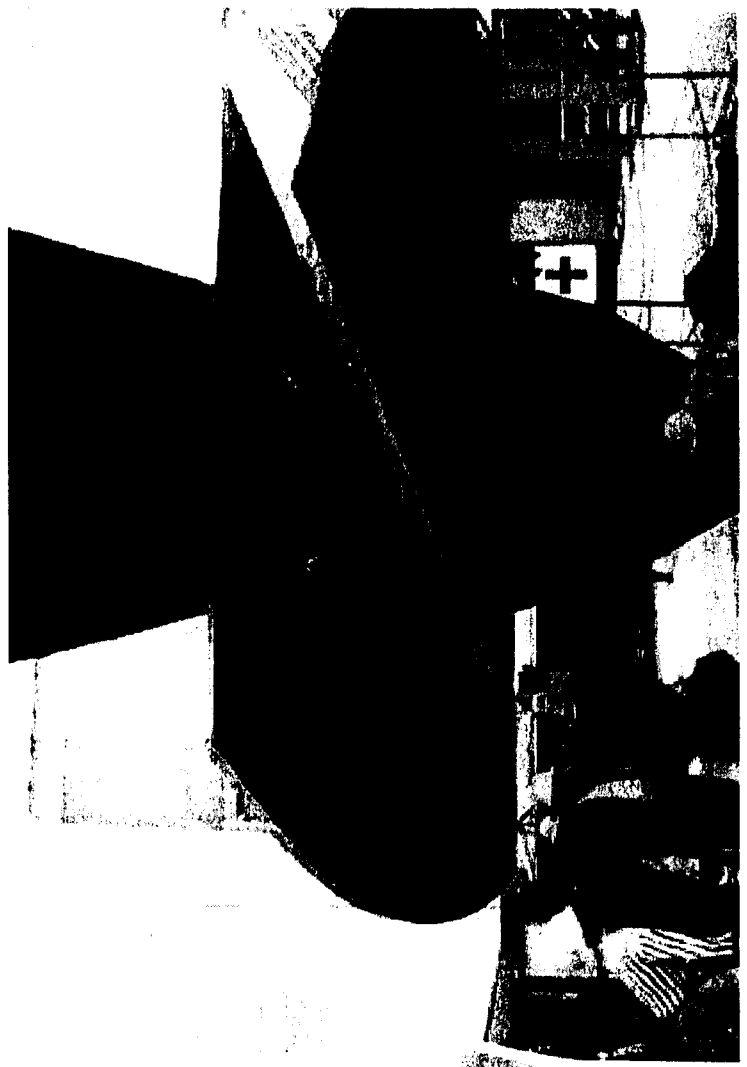
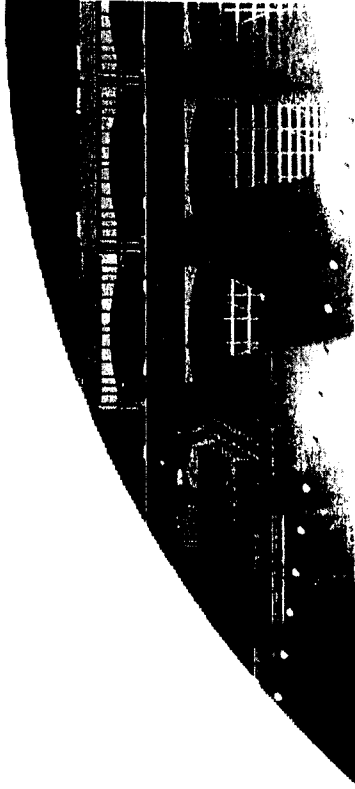


BUILDING STRONG®

Flow Meter Data to GDACS

PPEI

May 10, 2011

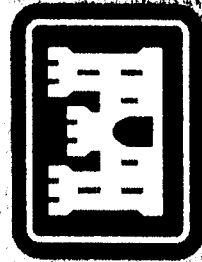
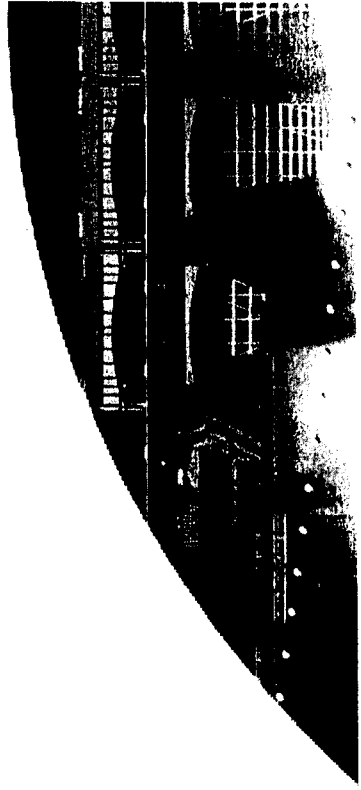


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Lower Granite Flow Meter Clean-Up

PPEI

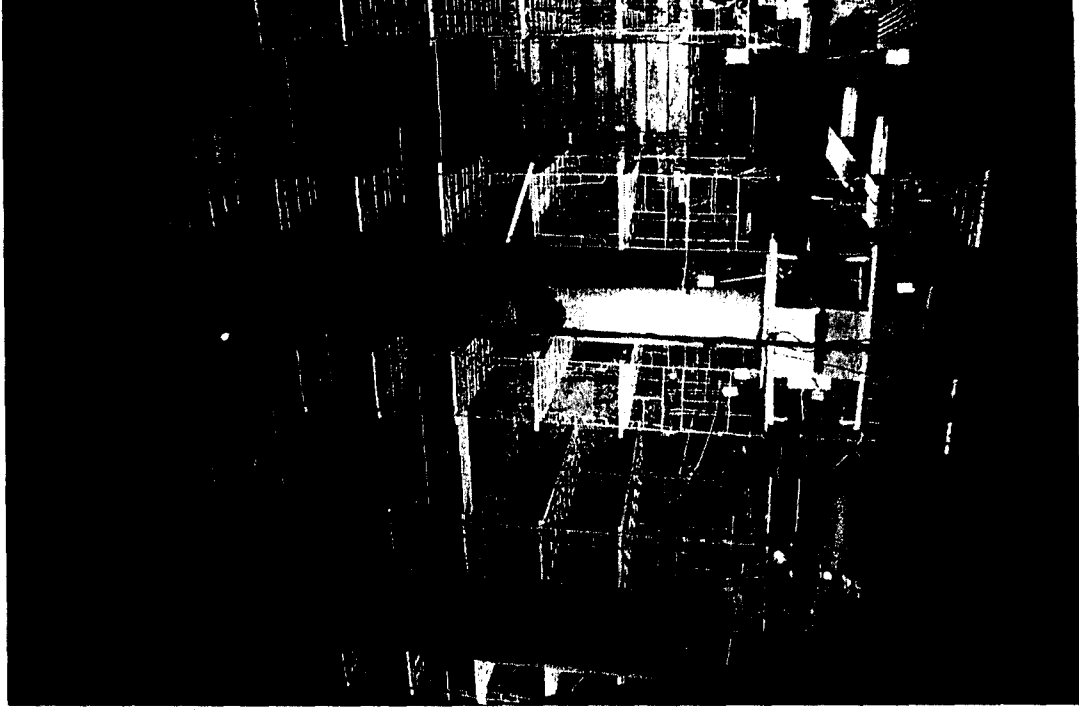
May 10, 2011



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Background

- 1995 Install
 - ▶ Bay A (18 paths)
 - ▶ Bay B (8 paths)
 - ▶ Bay C (8 paths)
- 2003 Install
 - ▶ Bay A (18 paths) (18 v paths)
 - ▶ Bay B (18 paths) (18 v paths)
 - ▶ Bay C (18 paths) (18 v paths)
- Problems with leaks



Unwatered Inspection (8 NOV 2011)

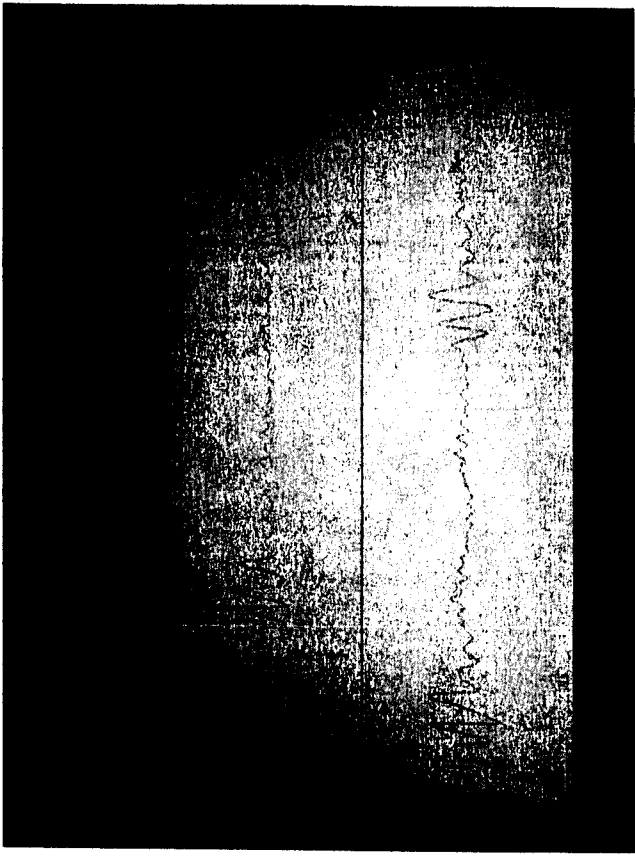
- Visual inspection of transducers
- Semi-functional inspection of flow meters
 - ▶ Turned on
 - ▶ Signal?



BUILDING STRONG®

Watered Up Inspection (22 FEB 2011)

- Flow meters powered up
- Signals checked
 - ▶ dB gain
 - ▶ Signal to Noise Ratio
- Results showed success
 - ▶ All tested paths
 - ▶ 3 paths did not have terminals



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Status

- HDC provided design for plugging holes
- HDC provided rough design for project to complete electrical work
 - ▶ Lower Granite requested supply spec and drawings, HDC in process of completing
- Lower Granite slated for plugging holes in 6 weeks
- Lower Granite has no timeline on electrical work



Work to be Completed

- HDC is to provide supply spec and drawings to Lower Granite
- Lower Granite is to complete work
- HDC is to get a contractor on board to commission the flow meters



Wrap Up

- Subagreement
- Other items



BUILDING STRONG®

POWER PLANT EFFICIENCY IMPROVEMENTS

See below for approved forecast amounts per last agreement between the USACE and BPA. Actual expenditures for FY10 and FY11 are estimated at \$690,400 and \$944,500.

Hydro Optimization Team (H.O.T.) (Expense)

Project/Work Item	Actuals FY00-09	Allocation	
		FY10	FY11
Walla Walla District			
McNary			
PM	21	15	15
Team Meetings	4		
HDC-HOT support	293	10	10
Total Walla Walla	318	25	25
Seattle District			
Chief Joseph			
PM	10	5	5
Team Meetings	51	5	5
HDC-HOT support	94	15	15
Total Chief Joseph	155	25	25
Albeni Falls	2		
Total Seattle	157	25	25
Portland District			
Bonneville			
PM	43	10	10
Team Meetings	48	5	5
HDC-HOT support	158	15	15
Total Bonneville	248	30	30
The Dalles	37		
John Day	71		
Total Portland	356	30	30
Total Hydro Optimization Team	813	80	80

Detail Operational Surveys

Operational Surveys (Expense)

Project/Work Item	Actuals FY00-09	Allocation	
		FY10	FY11
McNary			
PM	12	5	5
E&D	82	20	20
S&A	0		
EDC	0		
Project Coord	5	5	5
Contracting (Adv & Award)	0		
Contracts	0		
McNary Total	99	30	30
Ice Harbor			
PM	7		
E&D	142	13	13
S&A	0		
EDC	0		
Project Coord	5	5	5
Contracting (Adv & Award)	0		
Contracts	0		
Ice Harbor Total	154	18	18
Lower Monumental			
PM	1		
E&D	33	14	14
S&A	0		
EDC	0		
Project Coord	5	5	5
Contracting (Adv & Award)	0		
Contracts	0		
Lower Monumental Total	38	19	19
Little Goose			
PM	3		
E&D	38	13	13
S&A	0		
EDC	0		
Project Coord	5	5	5
Contracting (Adv & Award)	0		
Contracts	0		
Little Goose Total	46	18	18
Lower Granite			
PM	0		
E&D	35	15	15
S&A	0		
EDC	0		
Project Coord	3	5	5
Contracting (Adv & Award)	0		
Contracts	0		
Lower Granite Total	38	20	20
Total Operational Surveys - Walla Walla	375	105	105

Detail Operational Surveys (Continued)

Project/Work Item	Actuals FY00-09	Allocation	
		FY10	FY11
The Dalles			
PM	10		
E&D	67	16	16
S&A	0		
EDC	0		
Project Coord	21	5	5
Contracting (Adv & Award)	0		
Contracts	0		
The Dalles Total	98	21	21
Bonneville (BN2)			
PM	9		
E&D	33	10	10
S&A	0		
EDC	0		
Project Coord	0	4	4
Contracting (Adv & Award)	0		
Contracts	0		
Bonneville B2 Total	42	14	14
Bonneville (BN1)			
PM	2		
E&D	52	10	10
S&A	0		
EDC	0		
Project Coord	8	4	4
Contracting (Adv & Award)	0		
Contracts	0		
Bonneville B1 Total	62	14	14
John Day			
PM	10		
E&D	85	14	14
S&A	0		
EDC	0		
Project Coord	13	5	5
Contracting (Adv & Award)	0		
Contracts	0		
John Day Total	108	19	19
Total Operational Surveys - Portland	310	68	68
TOTAL OPERATIONAL SURVEYS	685	173	173

Detail Gate/Blade Optimizer

Gate/Blade Optimizer (T1) DEVELOPMENT AND PROGRAMMING (Capital)

Project/Work Item	Actuals FY00-09	Allocation	
		FY10	FY11
McNary			
PM	122	10	5
E&D	1,303	140	100
S&A	0		
EDC	0		
Project Coord	7	10	5
Contracting	0		
Contracts	0		
FY Totals	1,431	160	110
Ice Harbor			
PM	0		
E&D	0		
S&A	0		
EDC	0		
Project Coord	0		
Contracting	0		
Contracts	0		
FY Totals	0	0	0
Lower Monumental			
PM	0		
E&D	0		
S&A	0		
EDC	0		
Project Coord	0		
Contracting	0		
Contracts	0		
FY Totals	0	0	0
Little Goose			
PM			
E&D			
S&A			
EDC			
Project Coord			
Contracting (Adv & Award)			
Contracts (programming)			
FY Totals	0	0	0
Dworshak	2		
FY Totals	2	0	0
Lower Granite			
PM	2		
E&D	0		
S&A	0		
EDC	0		
Project Coord	0		
Contracting (Adv & Award)	0		
Contracts (programming)	0		
FY Totals	2	0	0
Total T1 - Walla Walla	1,435	160	110

Detail Gate/Blade Optimizer (Continued)

Project/Work Item	Actuals FY00-09	Allocation	
		FY10	FY11
Bonneville			
PM	10	15	10
E&D	47	50	120
S&A	0		
EDC	0		
Project Coord	4	10	10
Contracting (Adv & Award)	0		
Contracts (programming)	0	150	
FY Totals	61	225	140
The Dalles			
PM	0	15	10
E&D	0	50	120
S&A	0		
EDC	0		
Project Coord	1	5	10
Contracting (Adv & Award)	0	15	2
Contracts (programming)	0	200	10
FY Totals	1	285	152
John Day			
PM	0	15	10
E&D	0	50	120
S&A	0		
EDC	0		
Project Coord	3	5	10
Contracting	0		
Contracts	0	150	
FY Totals	3	220	140
Total T1 - Portland	64	730	432
Project/Work Item	Actuals FY00-09	Allocation FY10	FY11
T1 - Seattle	0	0	0
TOTAL Gate/Blade Optimizer (T1) Development	1,499	890	542

Absolute Flow for Kaplan Turbines (Expense)

Project/Work Item	Actuals FY00-09	Allocation	
		FY10	FY11
TOTAL ABSOLUTE FLOW - PORTLAND	201	0	0

Absolute Flow for Francis Turbines (Capital)

Project/Work Item	Actuals FY00-09	Allocation	
		FY10	FY11
Ch Joe			
PM	8	10	10
E&D	155	70	80
S&A	0		
EDC	0		
Project Coord	0	10	20
Contracting (Adv & Award)	13	5	5
Contracts	196	75	
FY Totals	372	170	115
TOTAL ABSOLUTE FLOW - SEATTLE	372	170	115

Install and Test Acoustic Flow Sensors (Capital)			
Project/Work Item	Costs	Cost	Cost
	FY00-09	FY10	FY11
Dworshak			
PM	20	2	
E&D	79		
S&A	5		
EDC	2		
Project Coord	17		
Contracting (Adv & Award)	3		
Contracts	466		
	592	2	0
Lower Granite			
PM	19	5	5
E&D	84	30	45
S&A	0		
EDC	0		
Project Coord	66	5	5
Contracting (Adv & Award)	0		
Contracts	571		45
	740	40	100
TAL ACOUSTIC FLOW SENSORS - WALLA WA	1,332	42	100

Project/Work Item	Costs	Cost	Cost
	FY00-09	FY10	FY11
Ch Joe			
PM	8	10	
E&D	0	30	
S&A	0		
EDC	0		
Project Coord	0	15	
Contracting (Adv & Award)	0		
Contracts	0		
	8	55	0
TOTAL ACOUSTIC FLOW SENSORS - SEATTLE	8	55	0
TOTAL ACOUSTIC FLOW SENSORS	1,340	97	100

Detail

Kaplan and Francis Unit Health Check (Capital)

Project/Work Item	Actuals FY00-09	Allocation	
		FY10	FY11
McNary			
PM	8	8	
E&D	87	20	
S&A	0		
EDC	0		
Project Coord	0	5	
Contracting	0		
Contracts	0		
FY Totals	95	33	0
TOTAL Kaplan Health Check- Walla Walla	95	33	0
TOTAL Francis Health Check - Seattle	8	0	0
TOTAL Kaplan and Francis Unit HEALTH CHECK	103	33	0



Hydro-Optimization Team Meeting Corps

Thursday, November 17, 2011
10:00 am – 3:30 pm

Conference Phone:
503-230-3344 passcode: 3723

**@ Room 346
McNary Dam**

CO-CHAIRS: Larry Haas (Corps); George Brown (BPA)

Agenda

10:00 am – 3:30 pm

- Introductions, review agenda, actions, adopt last minutes, review revised charter
- McNary GBO - Dan Patla
- The Dalles and John Day GBO – Dan Patla
- GBO Schedule
- Health Check - Waylon Bowers
- Chief Joseph Accusonic Flow Meters and
- Scintillation Frame Testing (Absolute Flow) – Scott Bennett, Dan Ramirez, Dan Patla
- 3D CAM Operation Surveys - Dan Ramirez
- 9Chief Joseph Flow Meter Data to GDACS – Scott Bennett
- Lower Granite Accusonic Flow Meter "Clean up" - Dan Patla
- Other Items
- SUBAGREEMENT
- PPEI Status

Larry Haas

Wrap Up

- Review actions items today
- Set next meeting date
- Add new topics for next meeting
- Other???



Hydro Optimization Team Consensus Decision Levels

1. I can say an unqualified "yes" to the proposed decision. I am satisfied that the decision is an expression of the wisdom of the group.
2. I find the proposed decision perfectly acceptable.
3. I can live with the proposed decision, although I am not especially enthusiastic about it.
4. I do not fully agree with the proposed decision and need to register my view about it. However, I do not choose to block the decision. I am willing to trust the wisdom of the group.
5. I do not agree with the decision and feel the need to stand in the way of acceptance.
6. I feel we have no clear sense of unity in the Team. We need to do more work before consensus can be reached.



HOT Team Actions List
11/17/11

SUBJECT AREA	STATUS	ACTION	RESPONSIBILITY	DATE INITIATED	DUE DATE	STATUS/COMMENTS
Operations	New	Follow-up on breaker options - decreases in efficiency gains for REC credits and how they apply	Brown	11/17/11	05/16/12	Coordinate with Tom Murphy on program status and Invite Deb Malin to give presentation at next HOT meeting?
Administrative	New	Follow up on contact person at McNary to be involved with HOT activities and committee	Patla	11/17/11	05/16/12	There is a NWW POC for the HOT team - why do you need a separate person at MCN? In addition, MCN has a tremendous amount of work for the next several years (e.g. FY18) and is struggling with doing this authorized workload plus their regular workload and additional work, such as HOT projects, may not be doable at this time - particularly if they require any kind of unit outage.
Operations	New	Follow up on fixing software and unit testing of software issue for McNary GBO	Patla and Bowers	11/17/11	05/16/12	put single unit on system and reevaluation path forward
Administrative	New	Follow up on coding issues and feasibility of modifying American Governor contract for Gate Blade Optimization Project	KNAAK	11/17/11	05/16/12	Each KO has their own way to approaching a modification like this. I talked with our KO Chief and she told me that if it was a programming change then it might be within scope of the supply contract under the programming CLIN (so long as it did not change the commissioning) which would require an in-scope mod. However, if the GBO did anything to alter the form, fit or function of the equipment (like add some type of widget) then she would consider it an out-of scope modification which would be challenging to get through since it wasn't what the contractor originally bid on.
Operations	New	Suspend Unit #19 at John Day - and fix units #5, #6, and #11	Patla and Bowers	11/17/11	05/16/12	Pursue funding and modify existing or develop new contract Need data collection
Financial	New	Follow-up on Lower Granite Flow Meter Clean Up contract and timing of funding	KNAAK	11/17/11	05/16/12	Project forces are funded and have been asked to repair the leaking system this FY.

HOT Team Actions List
11/17/11

4/25/2012

SUBJECT AREA	STATUS	ACTION	RESPONSIBILITY	DATE INITIATED	DUE DATE	STATUS/COMMENTS

DRAFT SUMMARY

HOT MEETING MCNARY DAM NOVEMBER 17, 2011

Attendee List

Sydney Foster – NWW
Tiffany Jenks – BPA
Waylon Bowers – HDC
Dan Patla – HDC
Carolyn Foote – NWW
Ed Miska – NWD
Francis Halpin – Bpa
Larry Haas – HDC
Tiffany Newton – BPA
D. Scott Bennett – CWS
George Brown - BPA

INTRODUCTION SUMMARY

Larry Haas (Corps – co-chair) and George Brown (BPA) led introductions and reviewed the agenda.

The draft summary was reviewed from last meeting and not approved yet due to follow up needed.

The actions list was revised at the meeting.

The HOT Team discussed the status of PPEI Amendment #19 and explained some differences between Types 1 - 4 of Hydro Optimization models.

Highlights:

Type #1 – NRTO model.

Type# 2 – submitted by the Corps and won an award. Reclamation adopted
Type #2 – standard model used with GDACS (software program) for the Near
Real Time Optimization (NRTO) project.

Type #3 – used for monitoring hydro optimization with the Columbia Vista model

Type #4 – used for regional basin optimization

REVIEW OF CHARTER

The HOT Team reviewed the Charter and discussed roles and responsibilities.

No changes were made to the current HOT charter.

GBO TESTING

McNary: security firewall issues resolved. Due to high water throughout summer, units operated full out. Minimal opportunities to optimize, minimal GBO data collected.

John Day: blade operating mechanism failures Units 5,6 & 11. Units will have blades blocked, no optimization effort will be performed on these units.

The Dalles: data collection underway. Digital governor design underway. First digital governor installation on Unit 19 Spring 2012. Good opportunity to develop new interface w GBO. GBO data collection will be coordinated w digital governor installation schedule.

Heath Check

Discussed comparison data of magnito linear transducers vs. regular transducers.

Reviewed resolution vs. small discrepancies (not a big difference) for digital governors – redundant transducer gates, blades, power signals.

Comparitive testing suggested.

Chief Joseph Accusonic Flow Meters

Discussed scintillation frame performance testing (2011) results. The report was distributed from.

Results and analysis revealed recommendation for no further testing at this time.

3D Cam Operations Survey

Discussed the 3D Cam surveys were conducted - no major problems found. Lower Granite had minor issues.

Recommendation: The HOT team will approve current funding and request

The HOT team approved additional funding for FY12 and FY13.

The fall 3D Cam Surveys are in progress.

Flow Data to GDACS

Discussed GDACS flow data is making good progress.

The original problem with accusonic equipment which was replaced with new equipment has since been corrected.

Need more controllers from outside to plug into RTU cabinets.

Lower Granite Flow Meter Clean Up

Dan Patla presented background information about testing of Lower Granit Unit #4.

Highlights:

- Intake got Kaplan unit – testing caused a problem
- Worked on clean up of wires, broken equipment for the past couple of years
- Working on getting rid of the transducer
- Staff has changed over twice on project
- Working to move forward on project – not resolved yet.

Recommendation: Need more support from HDC on project (in house). Contractor needed for conduit. Need accusonics and flow meter contractor?

Monitoring Power and Temperatures at Store

Start monitoring this type of data and make the project into a pilot test case by using temperatures for pumps.

Discussed wireless connected transducers that could be used to monitor governors, etc and the cost of new technology - testing applied to pumps, sump motors, oil pressure pumps, etc.

Subagreement PPEI Status

Bob vanderBorg reported working with Carolyn Foote on PPEI amendment #20 which will be discussed at a future Capital Workgroup meeting.

Next Meeting

March 1, 2012 at Portland BPA Headquarters. The date changed to May 16, 2012 at BPA.

See below for approved forecast amounts per last agreement between the USACE and BPA. Actual expenditures for FY10 and FY11 are estimated at \$690,400 and \$944,500. FY 12 is currently forecasted at \$592,000.

Hydro Optimization Team (H.O.T.) (Expense)

Project/Work Item	Actuals FY00-09	Allocation		
		FY10	FY11	FY12
Walla Walla District				
McNary				
PM	21	15	15	15
Team Meetings	4			
HDC-HOT support	293	10	10	10
Total Walla Walla	318	25	25	25
Seattle District				
Chief Joseph				
PM	10	5	5	5
Team Meetings	51	5	5	5
HDC-HOT support	94	15	15	15
Total Chief Joseph	155	25	25	25
Albeni Falls	2			
Total Seattle	157	25	25	25
Portland District				
Bonneville				
PM	43	10	10	10
Team Meetings	48	5	5	5
HDC-HOT support	158	15	15	15
Total Bonneville	248	30	30	30
The Dalles	37			
John Day	71			
Total Portland	356	30	30	30
Total Hydro Optimization Team	813	80	80	80

Operational Surveys (Expense)

Project/Work Item	Actuals FY00-09	Allocation		
		FY10	FY11	FY12
McNary				
PM	12	5	5	
E&D	82	20	20	
S&A	0			
EDC	0			
Project Coord	5	5	5	
Contracting (Adv & Award)	0			
Contracts	0			
McNary Total	99	30	30	0
Ice Harbor				
PM	7			
E&D	142	13	13	
S&A	0			
EDC	0			
Project Coord	5	5	5	
Contracting (Adv & Award)	0			
Contracts	0			
Ice Harbor Total	154	18	18	0
Lower Monumental				
PM	1			
E&D	33	14	14	
S&A	0			
EDC	0			
Project Coord	5	5	5	
Contracting (Adv & Award)	0			
Contracts	0			
Lower Monumental Total	38	19	19	0
Little Goose				
PM	3			
E&D	38	13	13	
S&A	0			
EDC	0			
Project Coord	5	5	5	
Contracting (Adv & Award)	0			
Contracts	0			
Little Goose Total	46	18	18	
Lower Granite				
PM	0			
E&D	35	15	15	
S&A	0			
EDC	0			
Project Coord	3	5	5	
Contracting (Adv & Award)	0			
Contracts	0			
Lower Granite Total	38	20	20	
Total Operational Surveys - Walla Walla	375	105	105	0

Project/Work Item	Actuals FY00-09	Allocation		
		FY10	FY11	FY12
The Dalles				
PM	10			
E&D	67	16	16	
S&A	0			
EDC	0			
Project Coord	21	5	5	
Contracting (Adv & Award)	0			
Contracts	0			
The Dalles Total	98	21	21	0
Bonneville (BN2)				
PM	9			
E&D	33	10	10	
S&A	0			
EDC	0			
Project Coord	0	4	4	
Contracting (Adv & Award)	0			
Contracts	0			
Bonneville B2 Total	42	14	14	0
Bonneville (BN1)				
PM	2			
E&D	52	10	10	
S&A	0			
EDC	0			
Project Coord	8	4	4	
Contracting (Adv & Award)	0			
Contracts	0			
Bonneville B1 Total	62	14	14	0
John Day				
PM	10			
E&D	85	14	14	
S&A	0			
EDC	0			
Project Coord	13	5	5	
Contracting (Adv & Award)	0			
Contracts	0			
John Day Total	108	19	19	0
Total Operational Surveys - Portland	310	68	68	0
TOTAL OPERATIONAL SURVEYS	685	173	173	0

Gate/Blade Optimizer (T1) DEVELOPMENT AND PROGRAMMING (Capital)

Project/Work Item	Actuals FY00-09	Allocation		
		FY10	FY11	FY12
McNary				
PM	122	10	5	
E&D	1,303	140	100	
S&A	0			
EDC	0			
Project Coord	7	10	5	
Contracting	0			
Contracts	0			
FY Totals	1,431	160	110	0
Ice Harbor				
PM	0			5
E&D	0			50
S&A	0			
EDC	0			
Project Coord	0			5
Contracting	0			
Contracts	0			
FY Totals	0	0	0	60
Lower Monumental				
PM	0			5
E&D	0			50
S&A	0			
EDC	0			
Project Coord	0			5
Contracting	0			
Contracts	0			
FY Totals	0	0	0	60
Little Goose				
PM				5
E&D				50
S&A				
EDC				
Project Coord				5
Contracting (Adv & Award)				
Contracts (programming)				
FY Totals	0	0	0	60
Dworshak	2			
FY Totals	2	0	0	0
Lower Granite				
PM	2			5
E&D	0			50
S&A	0			
EDC	0			
Project Coord	0			5
Contracting (Adv & Award)	0			
Contracts (programming)	0			
FY Totals	2	0	0	60
Total T1 - Walla Walla	1,435	160	110	240

Project/Work Item	Actuals FY00-09	Allocation		
		FY10	FY11	FY12
Bonneville				
PM	10	15	10	10
E&D	47	50	120	50
S&A	0			
EDC	0			
Project Coord	4	10	10	10
Contracting (Adv & Award)	0			
Contracts (programming)	0	150		
FY Totals	61	225	140	70
The Dalles				
PM	0	15	10	10
E&D	0	50	120	50
S&A	0			
EDC	0			
Project Coord	1	5	10	10
Contracting (Adv & Award)	0	15	2	2
Contracts (programming)	0	200	10	5
FY Totals	1	285	152	77
John Day				
PM	0	15	10	10
E&D	0	50	120	50
S&A	0			
EDC	0			
Project Coord	3	5	10	10
Contracting	0			
Contracts	0	150		
FY Totals	3	220	140	70
Total T1 - Portland	64	730	432	217
Project/Work Item				
	Actuals	Allocation		
	FY00-09	FY10	FY11	FY12
T1 - Seattle	0	0	0	0
TOTAL Gate/Blade Optimizer (T1) Development & Programm	1,499	890	542	457

Blade Measurement Sensors (Capital)

Project/Work Item	Actuals FY00-09	Allocation		
		FY10	FY11	FY12
TOTAL BLADE MEASUREMENT SENSORS - WALLA WALL	22	0	0	0
John Day				
PM	16	5		
E&D (P&S PROG)	269	20		
S&A	4			
EDC	0			
Project Coord	24			
Contracting (Adv & Award)	10	5		
Contracts	109	50		
FY Totals	432	80	0	0
TOTAL BLADE MEASUREMENT SENSORS - PORTLAND	432	80	0	0
TOTAL BLADE MEASUREMENT SENSORS	454	80	0	0

T2 (Static) Software Development and Programming (Capital)

Project/Work Item	Actuals FY00-09	Allocation		
		FY10	FY11	FY12
The Dalles	495			
Bonneville				
PM	28			
E&D	391			
S&A	0			
EDC	0			
Project Coord	0			
Contracting	0			
Contracts	512			
FY Totals	930	0	0	0
T2 - PORTLAND	1,425	0	0	0
Dworshak				
PM	8	8		
E&D	113	20		
S&A	0			
EDC	0			
Project Coord	0	5		
Contracting	0			
Contracts	0			
FY Totals	121	33	0	0
T2 - WALLA WALLA	121	33	0	0
Ch. Joe				
PM	14			
E&D	44			
S&A	0			
EDC	0			
Project Coord	0			
Contracting (Adv & Award)	0			
Contracts (programming)	0			
FY Totals	58	0	0	0
T2 - Seattle	58	0	0	0
TOTAL T2 (Static) Software Development and Programming	1,605	33	0	0

Absolute Flow for Kaplan Turbines (Expense)

Project/Work Item	Actuals FY00-09	Allocation		
		FY10	FY11	FY12
TOTAL ABSOLUTE FLOW - PORTLAND	201	0	0	0

Absolute Flow for Francis Turbines (Capital)

Project/Work Item	Actuals FY00-09	Allocation		
		FY10	FY11	FY12
Ch Joe				
PM	8	10	10	
E&D	155	70	80	
S&A	0			
EDC	0			
Project Coord	0	10	20	
Contracting (Adv & Award)	13	5	5	
Contracts	196	75		
FY Totals	372	170	115	0
TOTAL ABSOLUTE FLOW - SEATTLE	372	170	115	0

Flow Table Update for T2 Programming - Static (Capital)

Project/Work Item	Actuals FY00-09	Allocation		
		FY10	FY11	FY12
TOTAL Flow Table Update for T2 - WALLA WALLA	2	0	0	0
Ch Joe				
PM	29	10		
E&D	10	135		
S&A	0			
EDC	0			
Project Coord	0	30		
Contracting	0			
Contracts	0			
FY Totals	39	175	0	0
Albeni Falls	21			
Libby	13			
TOTAL Flow Table Update for T2 - SEATTLE	72	175	0	0
TOTAL FLOW TABLE UPDATE FOR T2 - PORTLAND	44	0	0	0
TOTAL FLOW TABLE UPDATE FOR T2	118	175	0	0

Install and Test Acoustic Flow Sensors (Capital)

Project/Work Item	Costs FY00-09	Cost FY10	Cost FY11	Cost FY12
Dworshak				
PM	20	2		
E&D	79			
S&A	5			
EDC	2			
Project Coord	17			
Contracting (Adv & Award)	3			
Contracts	466			
	592	2	0	0
Lower Granite				
PM	19	5	5	5
E&D	84	30	45	45
S&A	0			
EDC	0			
Project Coord	66	5	5	5
Contracting (Adv & Award)	0			
Contracts	571		45	0
	740	40	100	55
TOTAL ACOUSTIC FLOW SENSORS - WALLA WALLA	1,332	42	100	55

Project/Work Item	Costs FY00-09	Cost FY10	Cost FY11	Cost FY12
Ch Joe				
PM	8	10		
E&D	0	30		
S&A	0			
EDC	0			
Project Coord	0	15		
Contracting (Adv & Award)	0			
Contracts	0			
	8	55	0	0
TOTAL ACOUSTIC FLOW SENSORS - SEATTLE	8	55	0	0
TOTAL ACOUSTIC FLOW SENSORS	1,340	97	100	55

Kaplan and Francis Unit Health Check (Capital)

Project/Work Item	Actuals FY00-09	Allocation		
		FY10	FY11	FY12
McNary				
PM	8	8		
E&D	87	20		
S&A	0			
EDC	0			
Project Coord	0	5		
Contracting	0			
Contracts	0			
FY Totals	95	33	0	0
TOTAL Kaplan Health Check- Walla Walla	95	33	0	0
TOTAL Francis Health Check - Seattle	8	0	0	0
TOTAL Kaplan and Francis Unit HEALTH CHECK	103	33	0	0

Winter Kennedy Tap Upgrades for Gate/Blade Optimizer (T1) (Capital)

Project/Work Item	Actuals FY00-09	Allocation		
		FY10	FY11	FY12
McNary				
PM	8			
E&D	145	25		
S&A	0			
EDC	0			
Project Coord	6			
Contracting	0			
Contracts	0			
FY Totals	159	25		
TOTAL WINTER-KENNEDY TAPS - WALLA WALLA	159	25	0	0
TOTAL WINTER-KENNEDY TAPS - PORTLAND	0	0	0	0
TOTAL WINTER-KENNEDY TAPS - SEATTLE	0	0	0	0
TOTAL WINTER-KENNEDY TAPS	159	25	0	0