Department of Energy

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

PUBLIC AFFAIRS

June 1, 2009

In reply refer to: DK-7

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

RE: FOIA #09-036

Dear Mr. Albright:

This letter is your final response to your request for information that you made to the Bonneville Power Administration (BPA), under the Freedom of Information Act (FOIA), 5 U.S.C. 552.

You requested the following:
A copy of any HOT meeting minutes and any handouts or reference materials for meetings that have occurred since October 2008 until now. Also send a copy of the final version of "revised" HOT meeting minutes from October 3, 2008.

Response:
There have been no meetings since October 2008. BPA has provided the final version of October 2008 HOT meeting minutes in its entirety.

If you are dissatisfied with this determination, you may make an appeal within thirty (30) days of receipt of this letter to the Director of Office of Hearings and Appeals, Department of Energy, 1000 Independence Avenue SW, Washington, DC 20585. Both the envelope and the letter must be clearly marked "Freedom of Information Act Appeal." There is no charge for your request.

I appreciate the opportunity to assist you with this matter. If you have any questions about this letter, please contact Laura M. Atterbury, FOIA/Privacy Act Specialist, at 503-230-7305.

Sincerely,

/s/ Christina J. Brannon

Christina J. Brannon
Freedom of Information Act/Privacy Act Officer

Enclosure: Responsive Document

HOT MEETING
OCTOBER 2-3, 2008
BONNEVILLE PROJECT AUDITORIUM
NEAR CASCADE LOCKS, OREGON

ATTENDEES

Alvin Carlson
Bob VanderBorg
Carolyn Foote
Dan Ramirez
Ed Miska
Frank Salber
Jim Kerr
Jim Duffus
Larry Haas
Leon Sojka
Mike Colesar
Nancy Chin
Richard Nelson
Tom Murphy

CORPS CO-CHAIR

Role is to facilitate resourcing (HDC, contracting, project, etc.) and getting work done, getting the documents, coordinate, run meeting in chairs absence, and oversee the PPEI subagreement. Dan wants to be replaced. Bob, Carolyn and Larry would be interested. See decision at the end of these notes

EXISTING 3-D CAM CONTROLLERS IN NWW – CURRENT STATUS

November 07 was the first existing 3-D cam operation survey by HDC; it identified operational issues at several NWW plants (faults that required project personnel to reset to reestablish cam operation). Corrective action was taken, and additional training was offered to plant crews. Follow-on survey in the spring 08 determined things were better, but still some issues at IHR and McN. IHR cam faults were the largest problem. GMT found issue in May 2008 (known software modifications implemented at other projects had not been implemented at IHR).

HDC's last survey in August 08 showed:

- IHR issues ad been resolved.
- McN issues corrected (McN had blade angle issues caused by transducers at the oil head (about 65 faults per month). HDC redesigned transducers on U9 in the spring 2008 – this fixed the problem and the project is now buying parts and installing on all units).
- LGS operational except for U3 which is still having some faults (cause yet unknown). (The GMT reinstalled software in the fall 07; this fixed everything except for U3).
- Some spare part issues (projects not always sharing parts).

NWP projects use a different cam, and surveys have shown that they are operating correctly.

REDESIGNED NWW 3-D CAM

This projects goal is to redesign the 3-D cam hardware and software such that the cam system operates stand-alone from the GDACS system, and to insure that the software code is transportable to multiple PLCs, and can be incorporated in the future digital governors. The new system was built on an Allen Bradley SLC 5000 PLC (which required 9 months to purchase!). Software is being simplified to improve reliability. Current status: code is 90+% complete, system is being bench tested at HDC.

Project was planned to be complete in June 2008, and tested at McN by 30 September. Procurement delay caused about a 4 month schedule slip.

NEW 3-D CAM PROPAGATION PLAN

Plan was to start in October 2008 via a separate subagreement; NWW in year 1 followed by NWP last. It is probably appropriate to revisit this plan now that the 3-D cam has been delay. Topic will be revisited tomorrow in the second day of the meeting.

TYPE 1 OPTIMIZATION

Goal: To use the GBO to determine individual unit-specific optimum gate-blade relationship.

The major initiative is referred to as gate/blade optimization (GBO). To date, a prototype GBO has been built for NWW projects (only) and tested (in FY07) at McN U9. Data gathered during the test at McN uncovered problems in the blade angle transducer at McN (see Existing 3-D Cam Controllers in NWW – Current Status, above). Additionally, a new multiple unit at a time GBO controller was built in FY08 and bench tested at HDC (but not installed), and four Winter-Kennedy flushing devices (one of which is required for each unit) have been procured, but not yet built and installed.

Current schedule: Procurement was advertised twice and received no bids. Again, procurement issues have caused a slip in schedule (about 6 months). As a result, HDC has purchased the equipment and plans to fabricate the 4 Winter-Kennedy flushing devices.

CURRENT REVISED PLAN
For the short term (FY09):

- abandon last years LabView based multiple unit controller and take a less automated "brute-force" approach for the key benefit project, McN,;
- finish building 4 Winter-Kennedy flushing devices at HDC and install at McN
- Use the existing single unit at a time system to collect data at McN, 4 units at a time.
- Complete work on the data reduction analysis system that will turn the data collected into optimized individual unit gate-blade curves.
- Reschedule remaining FCRPS projects for FY10 or later.

This would produce unit specific GBO data for all McN units by 30 Sep. 2009; the same date as the original schedule, albeit with less automated, and postpone implementation of the more fully automated approach.

Concern: "Fish agency" approval of modifications to the Fish Protection Plan. The authorization process for each new unit GBO and 1% data is an unknown and potential delay. Carolyn will take the lead in defining this process and the optimum milestones.

DYNAMIC BLADE ANGLE MEASUREMENT PROOF OF CONCEPT PROJECT

Goal: Demonstrate the effectiveness and potential benefit of a dynamic real time Kaplan unit blade angle measurement system.

The data was collected earlier in FY08 (April/May). Analysis of the data to date shows that the system does not produce usable data. The data from the best sensors (optical) shows that same blade and blade to blade angle varies too much (several degrees). However, it still may be possible to improve the instrumentation. The general plan is to continue work in FY09 to improve the instrumentation, but no specific details and resource requirements have been identified to date. FY09 work could include more field tests. Note, final benefits of the unit dynamic blade angle program can not be determined until the system works and can be compared to existing blade angle sensors.

TYPE 2 OPTIMIZATION – STATUS

Currently installed on all GDACS projects, but only operating at CHJ, BO, TDA, and JDA. T2 is pushing the CPU time limits at several projects where CPU availability has been reduced by additional required security patches.

A current contract underway to accommodate tailwater changes and report additional information to BPA, and to improve the T2 efficiency to lower the CPU requirements. Also, the HMI operator screen interface is currently being improved by the GMT and is scheduled to be complete by 1 January 2009.

REMINDER OF T2 TERMINOLOGY

- Economic dispatch – dividing the generation among the units currently on line
- Unit commitment – recommends a more efficient mix of units; start/stop specific units to optimize efficiency

ABSOLUTE FLOW MEASUREMENT – CHJ

Goal: Compare scintillation flow data to the code approved Time of flight instrumentation (Accusonics) installed at CHJ.

The schedule is on track for a test at CHJ by the end of October that will prove or disprove the accuracy of scintillation. If successful, it is likely that scintillation will be installed as a lower cost option.

DAY TWO – OCTOBER 3, 2008

Alvin Carlson
Carolyn Foote
Charlie Allen
Dan Ramirez
Ed Miska
Frank Salber
Jim Kerr
Jim Duffus
John Johannis
Larry Haas
Leon Sojka
Mike Colesar
Nancy Chin
Richard Nelson
Tom Murphy
Wayne Todd

FUTURE HOT ACTIVITY DISCUSSION

Goals:

- To discuss current (not new) HOT initiatives and coordinate their implementation.
- To explore the interconnection of the current initiatives and what still needs to get them done.
- To identify loose ends
- To insure the HOT is in agreement with and have a common understanding of current goals.

- To make sure each current initiative is appropriately coordinated with each other, and they will get done.
- To answer the question, what will it look like and how will we operate when all of the current tasks are finished?

Two Major Goals:

1. Make the machines (turbine generators) more efficient
2. Operate turbine generators and the plants more efficiently

FLOW MEASUREMENT

Goal: Accurate flow input to determine turbine operating curves for optimum operation. End result is individual turbine tables defining the

Francis runners: Currently we have installed PTC-18 "code-approved" absolute flow instruments (Accusonics time of flight) on CHJ U11 and U15, and DWR Units 1-3. We have found it is cost prohibitive to install on all units CHJ units (about $5M). We are currently investigating lower cost scintillation that can be moved from unit to unit. At DWR we will begin using the Accusonics data to determine individual turbine curves soon (next month). This will make DWR the first project where we will implement T2 with individual turbine tables.

Kaplan runners: We have found that WK pressure taps provide adequate relative flow information to accurately determine optimum Gate-Blade relationship and to establish the 1 percent operating limits. However, improved absolute flow (method yet to be determined) is necessary to be able to determine the absolute efficiency of each unit necessary for a T2 (plant level) optimization.

INDIVIDUAL UNIT HEAD MEASUREMENT

We have improved the accuracy of head signals by installing radar type sensors at all projects (except for McN which had an adequate number of existing float wells). Radar systems are working well.

GATE POSTION MEASUREMENT

Currently we are measuring gate angle using two methods. On the LSN and at McN we have installed rotary transducers on 3 gates at each unit. On the Lower River (NPP plants) we are still using a single servo stroke transducer to determine gate angle. Dan thinks that it would be appropriate to perform a study (servo stroke vs. individual blade rotary transducer accuracy) at McN to determine if servo stroke is adequate before adding

rotary transducers on the lower river (i.e., implementing GBO on the lower river). Benefits would be lower first cost and maintenance cost.

IMPROVED BLADE POSTION MEASUREMENT

A dynamic blade angle measurement proof-of-concept was installed on U16. The goal is to determine if there is benefit to a direct blade angle measurement. This project may determine that there is a more accurate method of blade angle measurement, but it is not on the critical path to any other initiative. Additional testing and improved instrumentation is required to continue the proof on concept test. This work has not yet been scoped and funded but may be planned for FY09.

GATE BLADE CONTROLLER (Alias, 3-D CAM)

NWW Projects: the goal is to remove the current 3-D cam from the GDACS and redesign the 3-D cam hardware and software such that the cam system operates stand-alone from the GDACS system, and to insure that the software code is transportable to multiple PLC platforms, and can be easily incorporated in the future digital governors. The new system (now referred to as a Gate Blade Controller, GBC) is prototyped on an Allen Bradley SLC 5000 PLC. Compared to the current NWW 3-D cam, the software is being significantly simplified to improve reliability. Current status: code is 90+% complete, system is being bench tested at HDC. Work scope, schedule and funding needs to be revisited.

Lower River:

No plan to change the current 3-D cam controllers between now and the installation of new digital governors. An option to replace the existing NWP 3-D cams at BO, TDA, and JDA with GBCs, in the interim period of time between now and when the digital governors are installed was discussed. One possible driver for this is that the current older NWP 3-D cams are failing and do not provide the signal interface required for a GBO. However, the projects (BO, TDA and JDA represented at the meeting) were not aware of operational problems with existing 3-D cams.

GATE BLADE OPTIMIZERS

The NWW GBO is operational and useful until such a time that the NWW GBC is moved from GDACS to the new stand-alone design. Option 2 is to build a new (different from the NWW GBO approach) lower river GBO designed to interface with the current (and old) NWP 3-D cam. This would allow, with the addition of WK flushing devices, data to be collected for individual operating curves. The blade perturbation function, a critical part of the GBO, would have to work differently than at NWW projects. Dan thinks a single unit GBO prototype could be installed at BO before the end of FY09.

T2 – PLANT OPTIMIZATION

NRTO – currently being used by BPA dispatchers to determine optimum project load points and to calculate T2 benefits. For the most part CoE operators no longer refer to NRTO where GDACS T2 has been implemented.

FUTURE ADDITIONAL DATA EXCHANGE BETWEEN GDACS BASED T2 AND NRTO

ICCP modifications to GDACS provided for the capability of exchanging more data between NRTO and T2. The thought was that T2 would be able to more accurately calculate project level (T2) optimum set points and that this information would be sent back to NRTO (closed loop control). Now, however, there is an option to adapt the method NRTO uses to calculate optimum project set point to that used by GDACS. This could lead to having NRTO calculate project set points (it does so now), make and forward unit commitment recommendations to each project (it does not do this now), and incorporate load forecasts (T2 does this now, but it is not robust). Tom says that the NRTO contractors now say that they can use "dynamic programming" techniques to calculate these quantities. After much discussion of the potential benefits, the action item was that Tom would invest about $8k for the contractor to demonstrate NRTO ability to calculate this data.

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 of GBO 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.

CO-CHAIR

HOT accepted the resignation of Dan Ramirez and appointed Larry Haas as co-chair.

New Action items:

1. HDC and Murphy will revisit the Vattenfall cost study adaptation costs.

2. Tom Murphy will send BPA R&D Roadmap to team members.

3. Carolyn will meet with fish folks and take the lead in defining the process to get FPP approval for revised unit turbine operating curves, including optimum milestones.

4. Miska to provide HDC with a copy of a health check document he prepared some years ago,

5. HDC to conduct a brainstorming session to examine the specific proposals, and recommend which, if any, should be implemented.

6. Tom to invest about $8k for the NRTO contractor to demonstrate ability to calculate project level set-point, and unit commitment data..

7. Look at accelerating Digital Governors

8. Dan R./ Leon S. works with projects on design

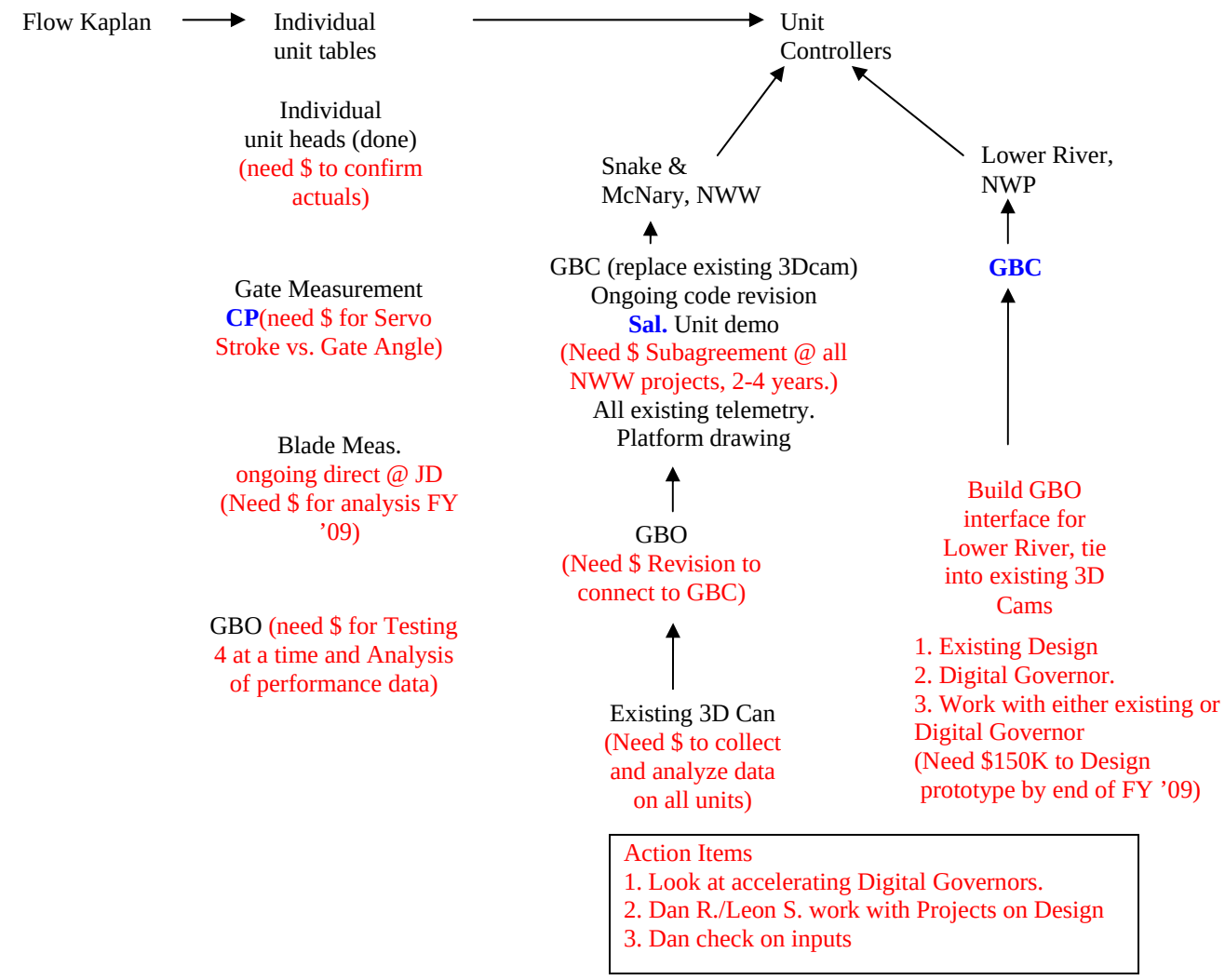
9. Dan R. to check on inputs

NEXT MEETING – To be determined later.

White Board Pictures Follow:

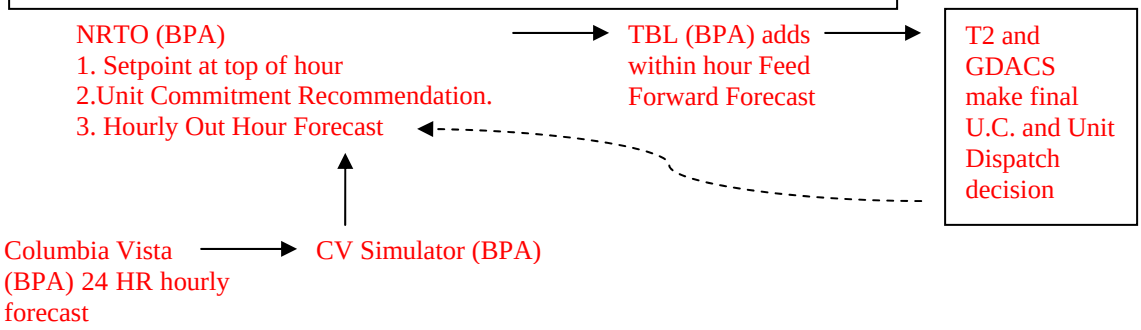
WHITEBOARD NOTES

Kaplan T1 plan



Action Items
1. Look at accelerating Digital Governors.
2. Dan R./Leon S. work with Projects on Design
3. Dan check on inputs

POSSIBLE FUTURE ADDITIONAL DATA EXCHANGE BETWEEN GDACS BASED T2 AND NRTO

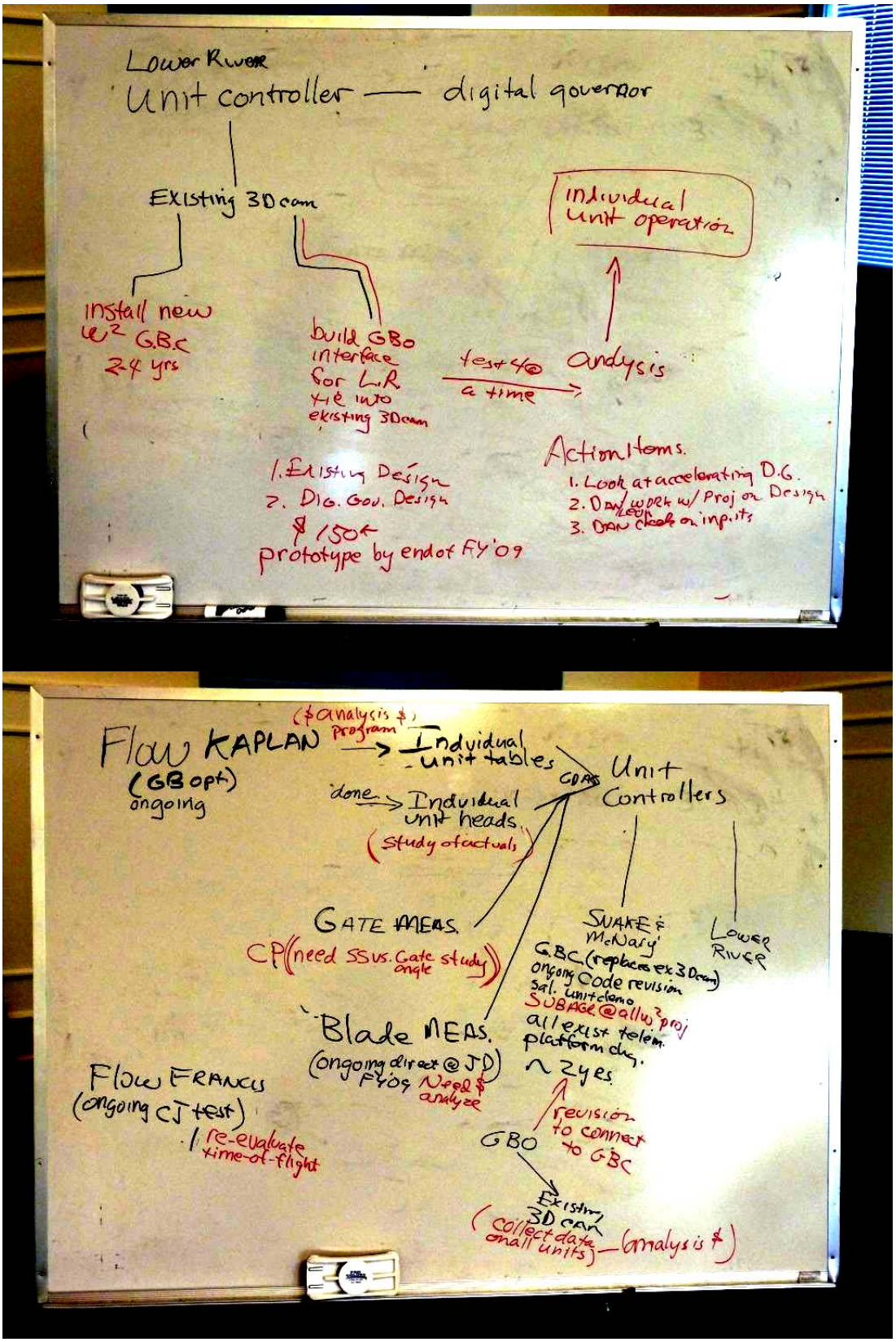


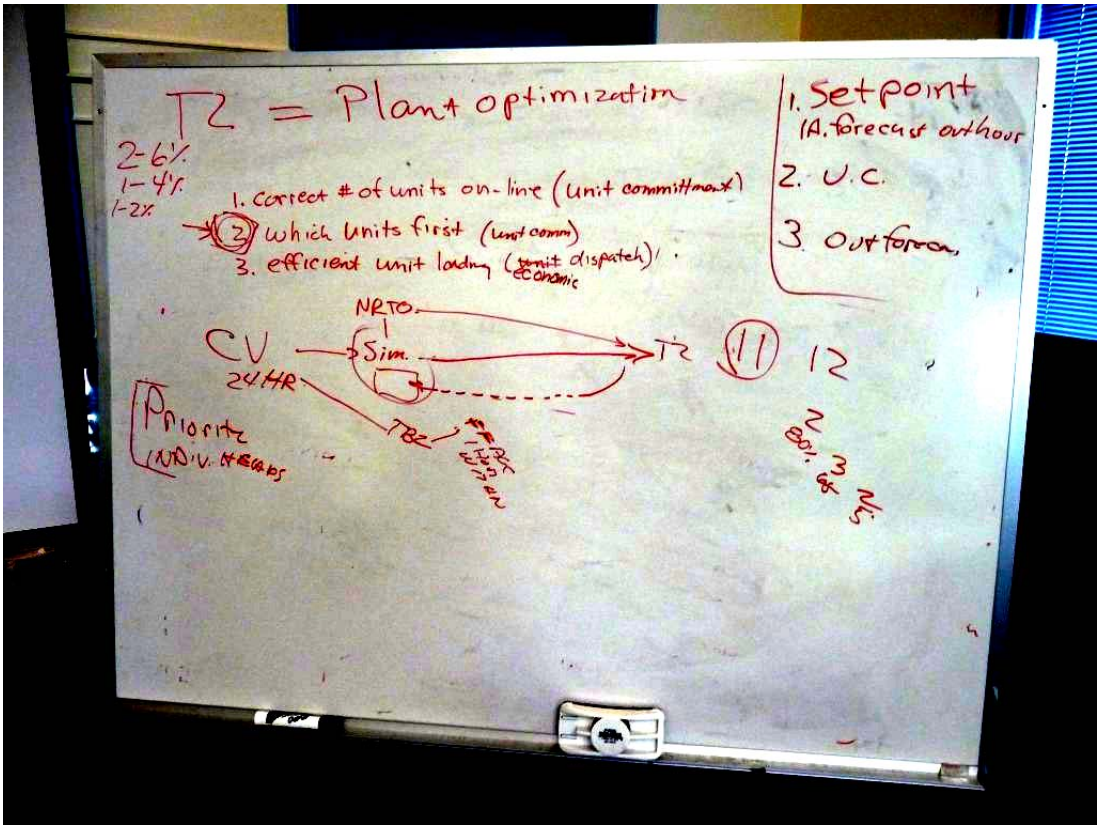
Definitions
1. Correct # of units on-line (unit commitment)
2. Which units first (unit commitment)
3. Efficient unit loading (economic dispatch)

Absolute Flow T2 Information

Flow Frances
(ongoing CJ test)

(Re-evaluate time-of-flight already funded)


Lower River
Unit controller — digital governor
Existing 3D cam
Individual Unit operation
Install new w² G.B.C 2-4 yrs
build GBo interface for L.R tie into existing 3D cam
test 4@ a time
analysis
Action Items.
1. Look at accelerating D.G.
2. Dan/Leon work w/ Proj on Design
3. Dan check on inputs
1. Existing Design
2. Dig. Gov. Design
$150← prototype by end of FY'09
Flow KAPLAN
(GB opt)
ongoing
($ analysis $)
Program
Individual unit tables
done
Individual unit heads
(study of actuals)
GBC
Unit Controllers
GATE MEAS.
CP (need SSVs. Gate study angle)
Blade MEAS.
(ongoing direct @ JD FY09 Need $ analyze)
Flow FRANCIS
(ongoing CJ test)
re-evaluate time-of-flight
SNAKE & McNary
G.B.C (replaces ex 3D cam)
ongoing Code revision
sal. unit demo
SUBAGE @ all w² proj
all exist telem. platform chg.
~ 2 yes
LOWER RIVER
revision to connect to GBC
GBO
Existing 3D cam
(collect data on all units)
(analysis $)


T2 = Plant optimization
2-6%
1-4%
1-2%
1. correct # of units on-line (unit commitment)
2. which units first (unit comm)
3. efficient unit loading (unit dispatch) economic
1. Setpoint
1A. forecast out hour
2. U.C.
3. out forecast
NRTO
CV
24 HR
Sim.
T2
11
12
Priority
TBE