

Memorandum for Record: SRBC Study Project Delivery Team

SUBJECT: Savannah River Basin Comprehensive Study; PDT Meetings Summary;

1. On 15 January 2004 the following In-House PDT met to perform an In-Progress-Review (IPR).

Bill Lynch	PM-CM	
Larry Oliff	PD-E	
Stan Simpson	EN-HA	
Jason Ward	EN-HA	
Joe Hoke	EN-HA	
Susan Kaynor	OP-SR	
Leroy Crosby	PD-PF	
Virgil Hobbs	OP-H	(by conference phone)
Sandy Campbell	OP-H	“
George Bramlette	OP-H	“
Gary Mauldin	SAD	”

2. On 11 February 2004 the internal and external PDT met in Savannah District to review the first set of proposed runs that we want to model.  
See attached attendees list.

3. I've set up three distinct mailing lists, as follows: the internal Corps PDT, the External PDT, and the Stakeholders Group. The internal and external PDT's will do the work and we can facilitate future and routine meetings/workshops to inform the Stakeholders group and get their input.

4. **Operational Scenarios:** As a team, we developed the first cut set of scenarios to be addressed in the modeling phase, as follows:

A. Drought Plan Operations: A group of first cut alternatives were developed to access the impacts of different triggers and their timing:

A1. During drought recovery use the same triggers of 3600 and 4500 cfs and increase flows when return elevations hit one ft above the elevation triggers.

A2. Increase the number of drought triggers for drought management and return from drought to provide a more gradual transition to 3600cfs.

A3. Lower the minimum drought-trigger 3 JST releases to 3300 cfs and 3000 cfs with a rule to maintain 3600 cfs at the lock and dam. Similar to EA proposed during recent drought.

A4. Raise minimum level 3 JST releases to 3800 cfs to determine or illustrate pool elevation differences.

A5. Maximize RBR pumping during drought within current environmental operational limits.

1. Two pump units June thru Sept.
2. Four pump units year round.

(Full pumping with four units for six hours returns over 13,000 acre-feet back into RBR, providing a 6 inch rise, and a 2 inch decrease to JST.

B. Storage Changes: A group of first cut alternatives were developed to access the impacts of changes in storage:

B1. Raise some or all pools one foot, decreasing the flood storage allocation and increasing the conservation pool storage; providing for additional water supply and ecosystem flood releases.

B2. Leave the Hartwell conservation pool at 660 year round and only perform a winter drawdown on JST. providing for different release alternatives and to determine amount of system flood control that is adequate

B3. Increase physical storage on all three lakes by raising the flood storage and increasing the conservation by tainter gate extensions raising the pools one to two feet. Providing for additional water supply and ecosystem flood releases.

B4. Run some scenarios with imbalanced pools for different drought release and pulses such as varying drawdown rates based on the impact to available shoreline facilities

B5. Raise the bottom of the Hartwell conservation pool up from 625 to 642 to match the 18 foot conservation storage at JST.

C. Flow Changes: A group of first cut alternatives were developed to access the impacts of changes in flow release:

C1. Run all TNC recommendations and it was noted that the two springtime pulses of 16,000 cfs will volumetrically equal two feet off both Hartwell and JST Lakes. May need to add inflow caveats to allow/disallow pulse releases

C2. Model downstream flows of 16,000 cfs for the spring with and without and fall TNC releases. The TNC proposed fall pulse in October will be 20,000 cfs at the Augusta Shoals. We'll also model TNC pulses in 5000 cfs increments up to 50,000cfs.

C3. Compare releases at 30,000 (or 15,000). A stakeholder/farmer suggested this at our Dec meeting in Evans and shared that a shed, tractors and tree farms have been flooded by past high releases. This Alternative would evaluate effects of flood pulses.

C4. Add the NSBL&D fish channel flows as a minimum baseline line condition to be met. It is designed for 600 cfs minimum flow. This facility will be built in

the future, pending receipt of funding to complete design and construction. Modeling severe drought conditions can provide data when the 600 cfs minimum will not be met.

D. Operational Rules: A group of first cut alternatives were developed to access the impacts of changes Project operations:

D1. Run the current base condition that reflects current drought management practices and the current agreement with Duke Power on releases from Keowee into Lake Hartwell.

D2. Put winter draw-downs in date sync with each other (Possibly establish draw down limits to 0.5'/week and a modeling rule may be set to say that). Current draw-downs are Oct-Dec and preferably not during peak recreational activity. Possibly shift drawdown window to later in the season or increase duration of drawdown period. This provides for continuity and public perceptions.

Possible Pool Adjustments

Set breaks in full Pool at the same places for Hartwell, RBR and Thurmond

Jan 01	April 01	Oct 1	Dec 1
Hartwell			
660	660	660	660
659	660	660	659
658	660	660	658
657	660	660	657
658	662	662	658
658	661	661	658
RBR			
476	476	476	476
475	476	476	475
475	477	477	475
JST			
327	330	330	327

Adjust Drawdown Period

Oct 1	Dec30
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D3. Decrease the Hartwell winter drawdown up from 656 to 658. to retain more water for recreational needs in the coming year.

D4. Decrease the winter draws on both Hartwell and JST by specific increments. Put winter draw-downs in sync with each .

D5. Continue to hold a flat pool within current guidelines for spring fish spawn for most, if not all, normal operational scenarios to be modeled. We'll need some input from our resource team members and the other agencies about

environmental priorities that can be plugged into the model. See Division Fish Spawn Reg.

E. Other Alternatives: A group of first cut alternatives were developed to access the impacts of other changes in the system:

E1. Use of levees at various locations to offset flood damages form ecosystem pulses or decrease flood storage at the projects.

6. Specific Hydrologic Scenarios to test in model to include real-time needs.

a. Compare Duke Contracts on Base Condition. 1962 vs Temp

b. Drought Plan Adjustments

c. Fix Refill to transition to higher flow before complete refill

d. Adjust Level 3 elevations from    646    and    316  
   648            318  
   649            320

e. Set Refill Transition Switch to occur a foot or 2 above the trigger.  
In other words, turn flows on at 1 level and turn reduction off at another level.

f. Set the 3600 cfs target at Lock and Dam with 3000 cfs minimum from  
Thurmond and same for Augusta Shoals to mimic EA.

g. Consider 3800 cfs minimum instead of 3600 cfs. What would be the  
differences.

h. RBR Pump Operations:

Pump Limitations Lift when Below Level 2  
2 units June-September  
4 units June-September  
Pump at 1/2 capacity  
Pump to 473 instead of 475

i. Compare runs with System Power Requirements and without to determine  
impacts on system power

j. Set Channel Capacity at Augusta to 30000 and 15000

k. With and without Springtime pulses.

l. Add another Storage Reservoir on Broad River Arm.

m. Set in pool withdraws to use up all 50,000 acre ft/year and compare to present  
demands

- n. Adjust all M&I water demands to 2050 and compare to present demands
- o. Set priority for fish spawn higher than power.

7. Duke Power Keowee re-licensing is scheduled for 2016; they will start the review process years ahead of the re-licensing date.

8. Public Affairs will be asked to set up a web page for our project in the Savannah District site to make information available to the stakeholders.  
Land use and inundated areas need to be considered in the economics of our study.

9. Milestone Schedule: The PDT on 11 February developed the following target milestone schedule for work through FY 05.

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|--|--------------|
| a. Develop and Evaluate Water Allocation Operational Scenarios.                  | Jan-Jun 2004 |
| b. Develop Draft Drought Management Plan Recommendations                         | Sept. 2004   |
| c. Initiate any required NEPA actions on Drought Plan changes.                   | Oct/Nov 2004 |
| d. Complete Draft Phase I Recommendations and Draft Decision Document.           | Dec. 04      |
| e. Finalize Phase I Recommendations and Decision document.                       | Mar. 05      |
| f. Amend cost share Agreements with SC and GA.                                   | May 05       |
| g. Complete NEPA on Drought Management Plan changes.                             | May 05       |
| h. Execute Phase II Studies and RES SIM modeling                                 | May 05       |
| i. Complete Interim Drought Management Plan Revisions and Formalize the Document | Sept. 05     |

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US Army Corps Engineers  
Savannah District

**Savannah River  
Basin  
Comprehensive  
Study and Drought  
Management Plan**  
PDT Meeting - 11 Feb 2004

Bill Lynch	COE Project Manager
Jamie Sykes	COE Biologist
Keith Crowe	COE Thurmond Project
Jacqueline Frazer	COE H&H
Jeanne Hodge	USACE PA-O
Herb Nadler	SEPA
Douglas Spencer	SEPA
Jeff Morris	USACE SAS Economist
Ken Legg	SEPA
Stan Simpson	USACE SAS H&H
Jason Ward	USACE SAS H&H
Larry Olliff	USACE SAS Biologist
JoAnna Phillips	USACE CD-ROM
Mary Davis	TNC
Ron Michaels	GA DNR
Ed Eudaly	USFWS
Ed Bettross	GA DNR
Matt Thomas	GA DNR - Fisheries Management
Gary Mauldin	COE - SAD
Leroy Crosby	COE- SAS Planner
Mary Ray	Zapata Engineering
Susan Kaynor	COE OP-SR
Joe Hoke	COE SAS EN-HA

**Phone Participants**

Bud Badr	SC PNR
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Nolton Johnson  
Joan Klipsch  
Marty Crisp  
Ken Dial  
Virgil Hobbs  
Dan Barcellos

GA DNR  
HEC  
SEPA Consultant  
OP-T  
OP-H  
HEC