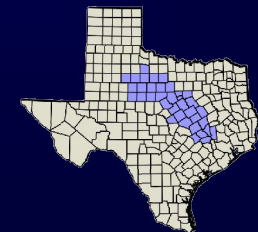


Agenda Item 6.4
Amendments Related to Somervell County
Steam Electric Water Demands

July 9, 2008

BRAZOS G
WATER PLANNING GROUP

HDR



Overview

- ✓ **History**
- ✓ **Details of Proposed Amendment**
- ✓ **Results of HDR's Evaluation**
- ✓ **Possible Action Today**

History

- ✓ **10/24/07** – RWPG Meeting
 - Somervell County requested amendment of 2006 Plan on behalf of Luminant Power
 - Luminant presented project overview
 - Brazos G RWPG directed BRA & HDR to complete analyses required to consider amendment
- ✓ **2/27/08** – HDR presented update on progress to Brazos G RWPG
- ✓ **4/29/08** – HDR presented proposed amendment materials to RWPG
- ✓ **6/04/08** – 7/05/08 – Public hearing followed by 30 days written comments – **no negative comments have been received**
- ✓ **07/09/08** – Brazos G RWPG to consider public comments and consider action on proposed amendments

Overview of Amendment

- ✓ **Two new 1700 MW nuclear generating units adjacent to existing Comanche Peak Station**
- ✓ **Cooling towers – no use of Squaw Creek Reservoir**
- ✓ **Increase Steam Electric demands in Somervell County:**
 - 23,200 acft/yr – existing 2060 demands
 - 61,617 acft/yr – additional demands
 - 84,817 acft/yr – total (**consumptive portion only**)
- ✓ **New supply from BRA System diverted from Lake Granbury:**
 - 27,447 acft/yr – existing unassigned contracts
 - 76,270 acft/yr – BRA Sys Ops supply
 - 103,717 acft/yr – total
- ✓ **42,100 acft/yr returned to Lake Granbury**

New Luminant Power Supply from BRA

- 103,717 acft/yr** – BRA supply to cooling towers from Granbury
- 61,617 acft/yr** – consumptive use in towers
- 42,100 acft/yr** – blow down water returned to Granbury

Amendment Request



Evaluation of Proposed Amendment

Basis for Evaluation:

- ✓ **Hydrology**
 - **Water available**
 - **Changes in flow**
 - **Impact to Region H supplies**
- ✓ **Environment**
 - **Species**
 - ✓ **Flow changes**
 - ✓ **Pipeline routes**
 - **Cultural resources – pipeline route**
 - **Salinity and temperature in Lake Granbury**
- ✓ **Cost**

Summary

- ✓ **Water is available – pending BRA Sys Ops Permit**
- ✓ **Environmental/cultural impacts negligible**
 - **Flow changes minimal**
 - **Salinity and temperature effects minimal – will be regulated by TCEQ and others**
 - **No species or cultural resources of concern**
- ✓ **No State funding needed**
- ✓ **Does not reduce current Region H expectations of amount of supply available from BRA system**

Possible Actions Today

- 1. Table item, or**
- 2. Act on amendment request.**

Discussion/Action

Additional Technical Information

✓ **On following slides**

Evaluation of Proposed Amendment

Basis for Evaluation:

- ✓ **Hydrology**
 - **Water available**
 - **Changes in flow**
 - **Impact to Region H supplies**
- ✓ **Environment**
 - **Species**
 - ✓ **Flow changes**
 - ✓ **Pipeline routes**
 - **Cultural resources – pipeline route**
 - **Salinity and temperature in Lake Granbury**
- ✓ **Cost**

Cost Basis (consistent with 2006 Plan)

- ✓ **2nd Quarter 2002 dollars**
- ✓ **Debt Service: 30 years @ 6 percent**
- ✓ **O&M Costs:**
 - **Pipelines – 1 percent of construction cost**
 - **Pump Stations – 2.5 percent of construction cost**
 - **Energy - \$0.06/kWh**
- ✓ **Raw Water: \$45.75 (BRA System Rate)**

Hydrology

Brazos G WAM Sys Ops Model:

- ✓ 2060 sedimentation conditions
- ✓ Estimated year 2060 return flows
- ✓ Full use of existing water rights
- ✓ Existing (2005) BRA contracts placed at actual diversion locations
- ✓ BRA System Operations
 - 65,482 acft/yr – Brazos G supply (10 WUGs)
 - 264,000 acft/yr – Remaining lower basin supply

Modifications to Brazos G WAM

- ✓ Full existing Luminant use diverted from Granbury and discharged to Squaw Creek Reservoir (48,300 acft/yr)
 - Excess allowed to spill downstream
- ✓ Replaced 10 WUGs with 4 included in 2006 Plan
- ✓ Proposed Luminant use diverted from Granbury
 - 27,447 acft/yr – existing unassigned contracts
 - 76,270 acft/yr – BRA Sys Ops
 - 103,717 acft/yr – total (reduced from original request)
- ✓ 42,100 acft/yr returned to Granbury (reduced from original request)
- ✓ Remaining BRA System supply diverted in lower basin

Brazos G/Region H Supplies

Assignment of Uncontracted BRA Supplies between Brazos G and Region H

	<u>Brazos G</u>	<u>Region H</u>	<u>Total</u>
Uncontracted BRA Supply from Existing Sources	31,955	29,000	60,955
Allens Creek Reservoir Supply	0	99,650	99,650
BRA System Operations Supply	<u>63,510</u>	<u>120,000</u>	<u>183,510</u>
Total Additional Supply from BRA	95,465	248,650	344,115

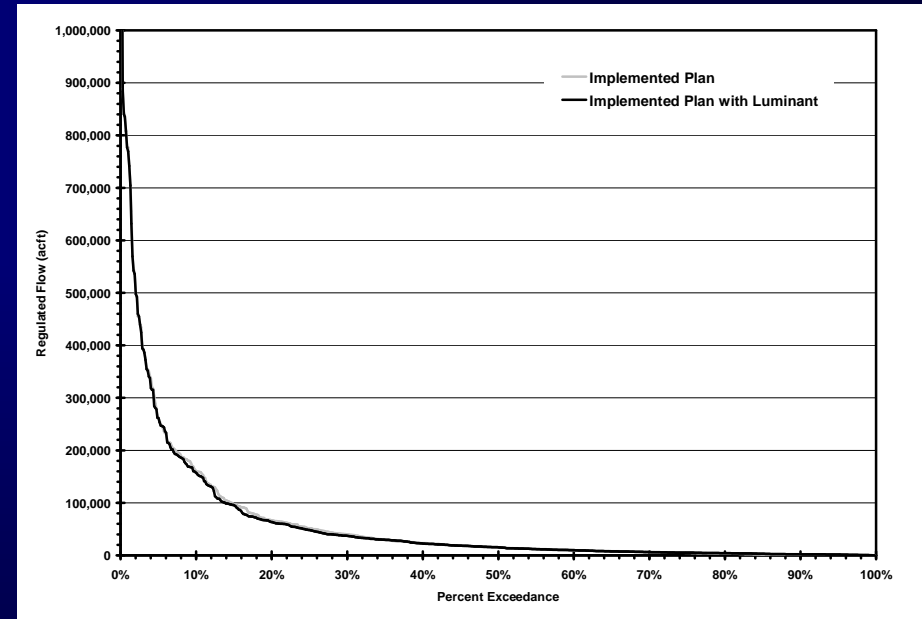
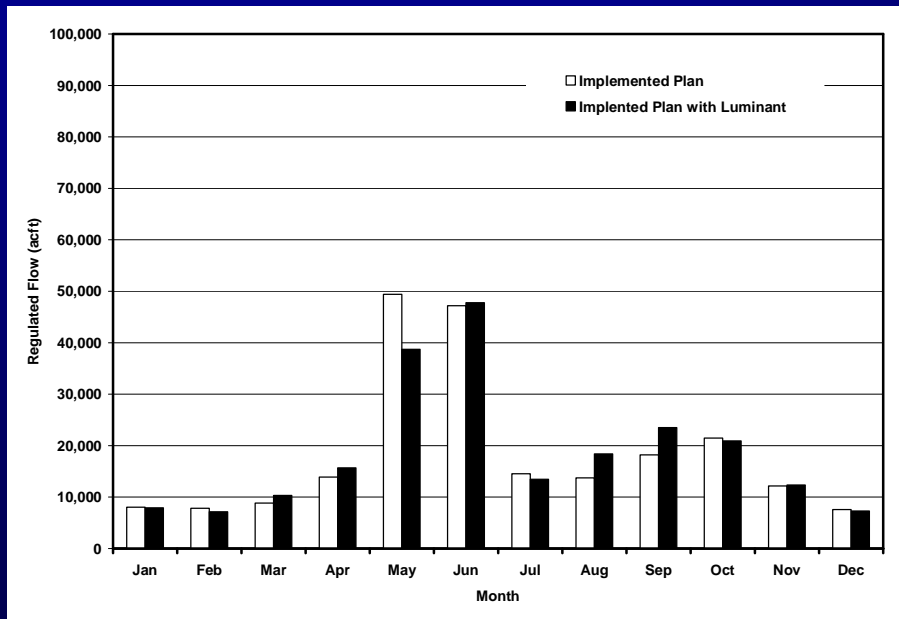
Note: All values are in acre-feet per year.

Results – Brazos G/Region H Supplies

Diversions/Returns	Original Brazos G WAM Analysis	Brazos G & Region H Assignment	Luminant Strategy Evaluation
Brazos G WUG Strategies	65,482	95,465	31,106
New Luminant Diversion	–	–	76,270
Luminant Return	–	–	(42,100)
Total Brazos G Supply	65,482	95,465	65,276
Lower Basin Supply (Region H)	264,000	248,650	258,750

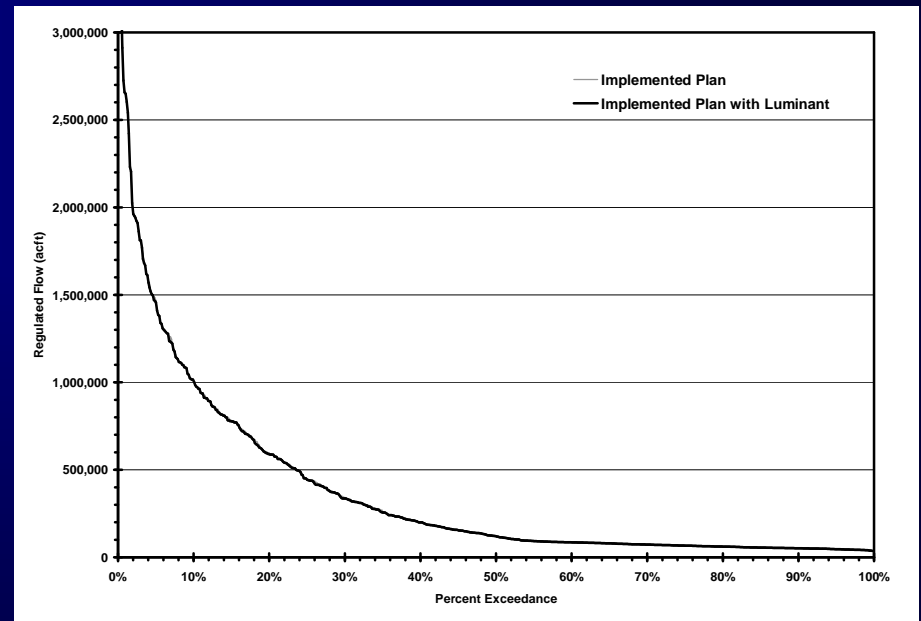
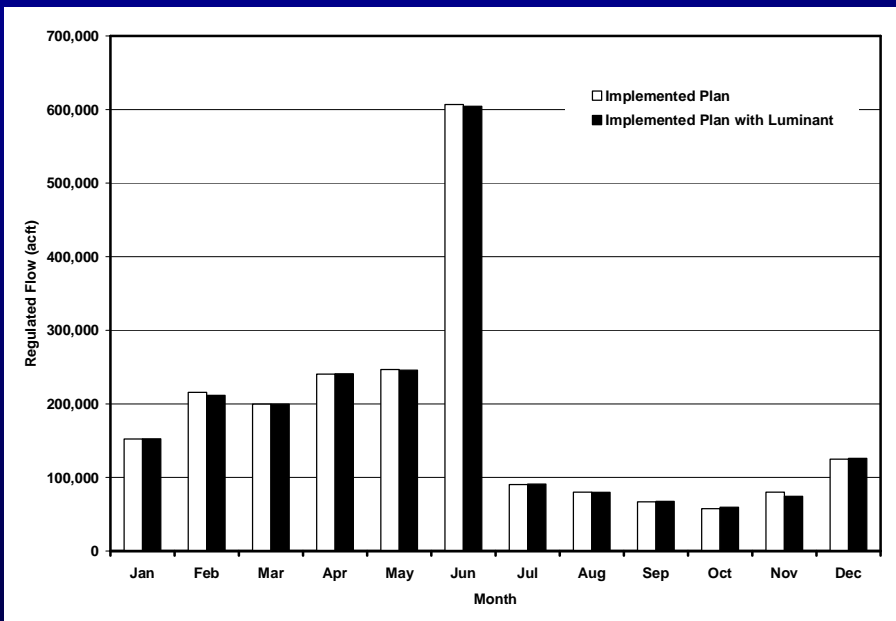
Results – Flow Changes

✓ Modest changes in monthly flows at Glen Rose Gage



Results – Flow Changes

✓ Monthly flows largely unchanged at Richmond Gage



Results – Temperature and Salinity

- ✓ **Salinity increases in Lake Granbury will be minimized through TCEQ-issued TPDES discharge permit, which will require treatment (desalination) of blowdown discharges.**
- ✓ **No significant temperature increases will result, per initial evaluation provided by Luminant. TCEQ TPDES discharge permit will further evaluate and regulate.**

Results – Costs

✓ **Estimated cost (makeup and blowdown facilities):**

\$103.9 million Total Cost

\$15.98 million/year Annual Cost

\$198/acre-foot Based on 103,717 acft/yr supply and BRA system rate used for 2006 Plan