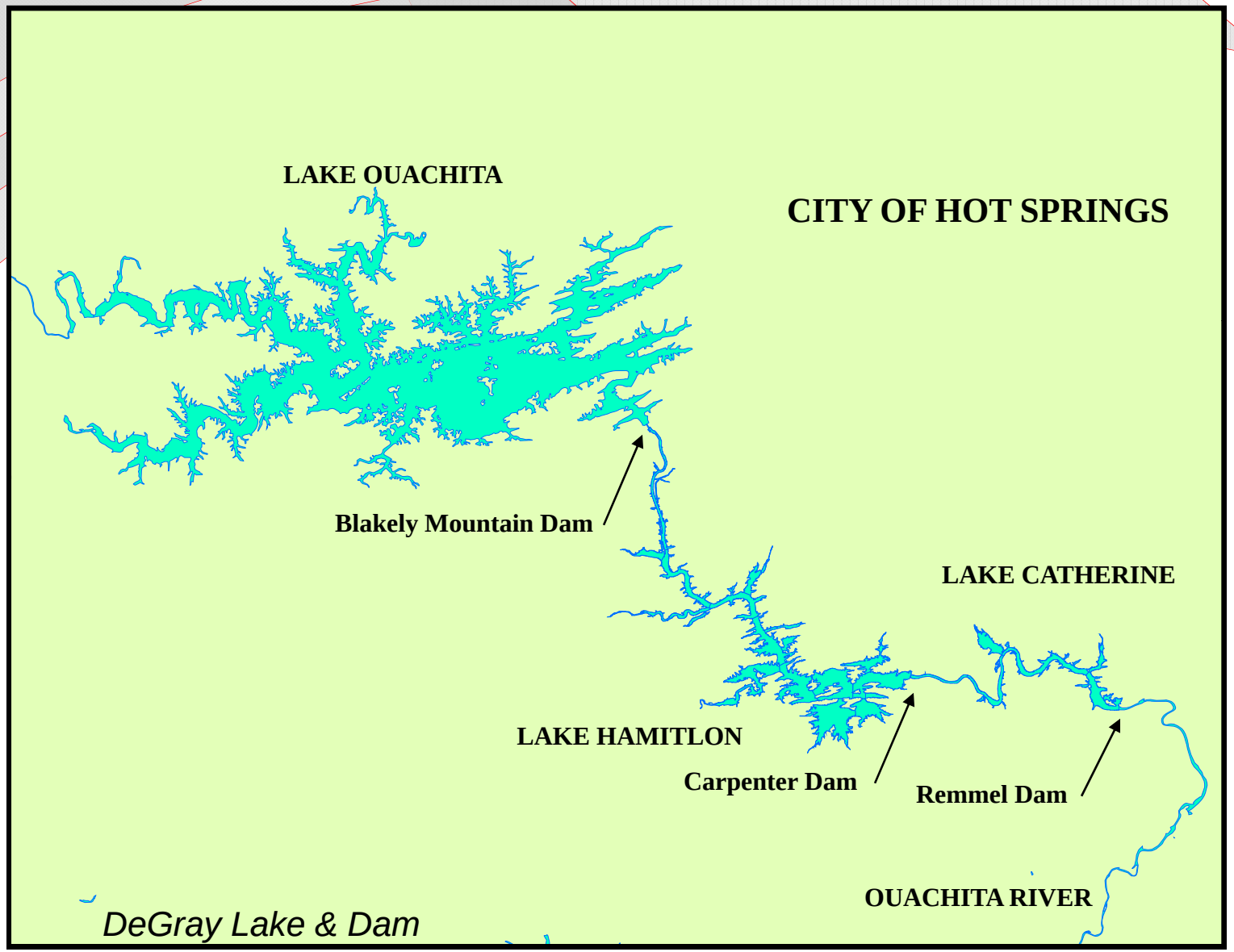
Ouachita River System



Blakely Mtn. Dam/Lake Ouachita

- Built in 1955
- forms Lake Ouachita
- Owned & Operated by ACOE
- 2 Units – 6600 CFS
- 84 MW @178 ft. Head
- AGC Capable
- Large volume of water storage
- Flood Control is a project purpose

Lake Hamilton / Lake Catherine

- *6,897 acres surface*
- *198 miles shoreline*
- *70% shoreline developed*
- *3,863 docks*
- *10,270 buildings within 500 ft. of shoreline*
- *Highly Developed*

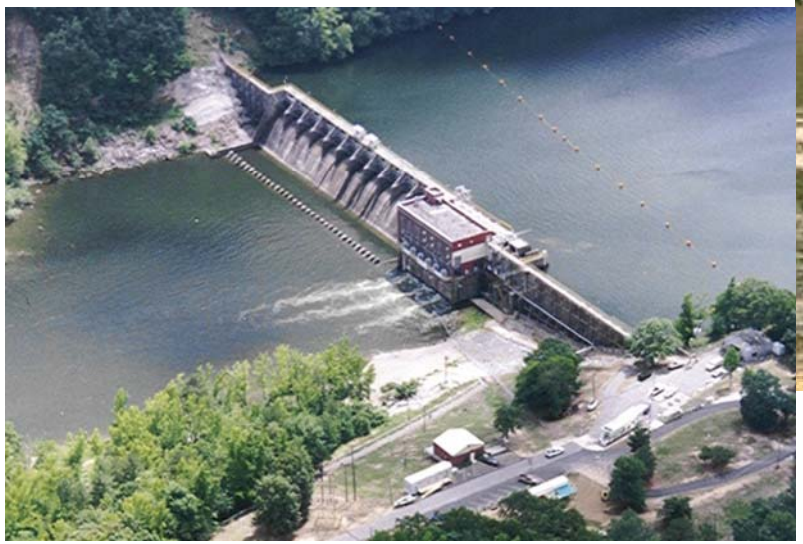
- *1,642 acres surface*
- *56 miles shoreline*
- *50% of shoreline developed*
- *399 docks*
- *1,391 buildings within 500 ft. of shoreline*
- *Highly Developed*

Carpenter Dam/Lake Hamilton

- *Built in 1932*
- *forms Lake Hamilton*
- *62 MW @ 89 ft. head*
- *2 Units - 9,600 cfs*
- *1 foot lake fluctuation*

Remmel Dam/Lake Catherine

- *Built in 1923*
- *forms Lake Catherine*
- *12MW @ 42 ft. head*
- *3 Units - 3,600 cfs*
- *2 Foot Lake Fluctuation*

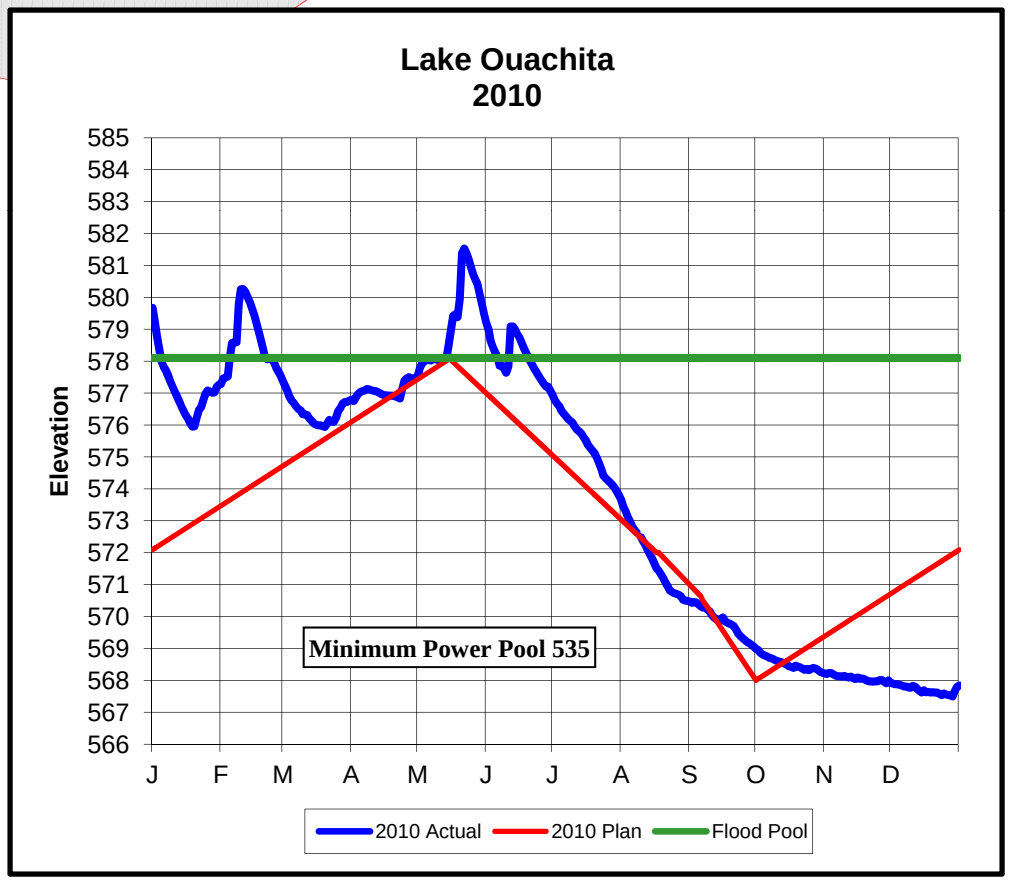


Blakely, Carpenter, Remmel

Max Gen	*Flow*	*MW*
Blakely	*6600*	*84*
Carpenter	*9600*	*62*
Remmel	*3600*	*12*

Annual Strategic Plan

- *Top of Power Pool is 578.10 ft. MSL*
- *Try to fill up for Summer Run*
- *Target 572 before school starts*
- *Target 570 Labor Day*
- *Target 568 Oct 1*
- *Refill depends on rain*



Weekly Hydro Analysis

- *Ted Smethers prepares analysis for EMO*
  - *Standard set of schedules*
  - *How many days on each schedule before we meet the target lake elevation*
- *EMO chooses appropriate schedule and issues orders via e-mail*
- *Entergy Hydro & Corps implement*
  - *Lake Catherine Operators adjust as needed*

Weekly Hydro Analysis

Hydro Analysis	Peak MW	Total MWHr	Blakely MWHrs		Days to Target
Schedule 1 - 10 Hour Max Run, With Spill	158.0	1,916.0	1,204	8 7	25.8
Schedule 2 - 8 Hour Run, With Spill	158.0	1,503.2	946	6 8	32.9
Schedule 3 - 3 Hour Max Run	158.0	667.1	404	0	77.0
Schedule 3W - Weekend 4 Hour Max Run	154.0	844.5	492	0	63.2
Schedule 4 - 8 Hour Balanced Lake Run	87.0	694.8	400	0	77.7
Schedule 4A - 8 Hr Run One Unit	76.0	536.0	320	0	97.2
Schedule 5 - 10 Hour Run	87.0	870.2	500	0	62.2
Schedule 6 - 14 Hour Run	87.0	1,209.3	700	0	44.4
Schedule 6a - 14 Hour Run	87.0	1,221.0	700	0	44.4
Schedule 7 - Steady State - 24 Hour Run	87.0	2,088.0	1,200	0	25.9

Daily Operating Considerations

Hydro Operations Priorities

1. Safety – Public & Personnel
2. FERC & NERC Compliance
3. Equipment Protection
4. Lake Level Management
5. Generation Production

Lake Levels & Generation

- *Schedules are designed for no inflow*
  - *Due to tributary inflow adjustments may be needed to keep lakes within limits*
- *Schedules are designed to start with lakes at normal levels*
  - *If lakes are not at the right level to begin the schedule, adjustments may be needed*

Lake Levels & Generation

- *Adjustments*
  - *Change unit generation amount – up or down*
  - *Change duration of generation – longer or shorter*
  - *Open or close a spillway gate*
- *Which adjustment depends on conditions*
  - *If system load demands or electricity prices are high – Spill water, if necessary*
  - *If system load demand or electricity prices are low – back off generation*

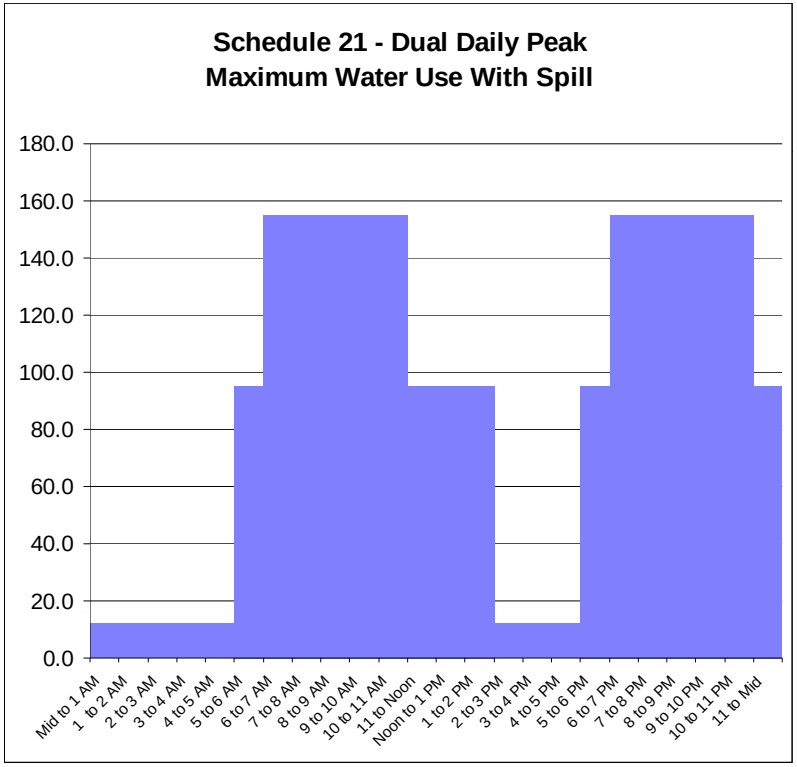
Generation Schedule

Schedule 21 - Dual Daily Peak - Maximur

1/4/2007

Peak in Bold						Total
Time	Gate Open	LC Elev	Rem	Carp	Blakely	MW
Ref Elevation		301.00				
Mid to 1 AM		300.81	**12**	0	0	12.0
1 to 2 AM		300.62	**12**	0	0	12.0
2 to 3 AM		300.43	**12**	0	0	12.0
3 to 4 AM		300.24	**12**	0	0	12.0
4 to 5 AM		300.05	**12**	0	0	12.0
5 to 6 AM		299.86	**12**	0	**83**	95.0
6 to 7 AM		299.68	**12**	**60**	**83**	**155.0**
7 to 8 AM		299.96	**12**	**60**	**83**	**155.0**
8 to 9 AM		300.24	**12**	**60**	**83**	**155.0**
9 to 10 AM		300.52	**12**	**60**	**83**	**155.0**
10 to 11 AM		300.80	**12**	**60**	**83**	**155.0**
11 to Noon		301.08	**12**	0	**83**	95.0
Noon to 1 PM		300.90	**12**	0	**83**	95.0
1 to 2 PM		300.71	**12**	0	**83**	95.0
2 to 3 PM		300.52	**12**	0	0	12.0
3 to 4 PM		300.33	**12**	0	0	12.0
4 to 5 PM		300.14	**12**	0	0	12.0
5 to 6 PM		299.95	**12**	0	**83**	95.0
6 to 7 PM		299.76	**12**	**60**	**83**	**155.0**
7 to 8 PM		300.04	**12**	**60**	**83**	**155.0**
8 to 9 PM	**4**	300.23	**12**	**60**	**83**	**155.0**
9 to 10 PM	**4**	300.42	**12**	**60**	**83**	**155.0**
10 to 11 PM		300.70	**12**	**60**	**83**	**155.0**
11 to Mid		300.98	**12**	0	**83**	95.0
Totals	**8**		**288**	**600**	**1328**	**2216**

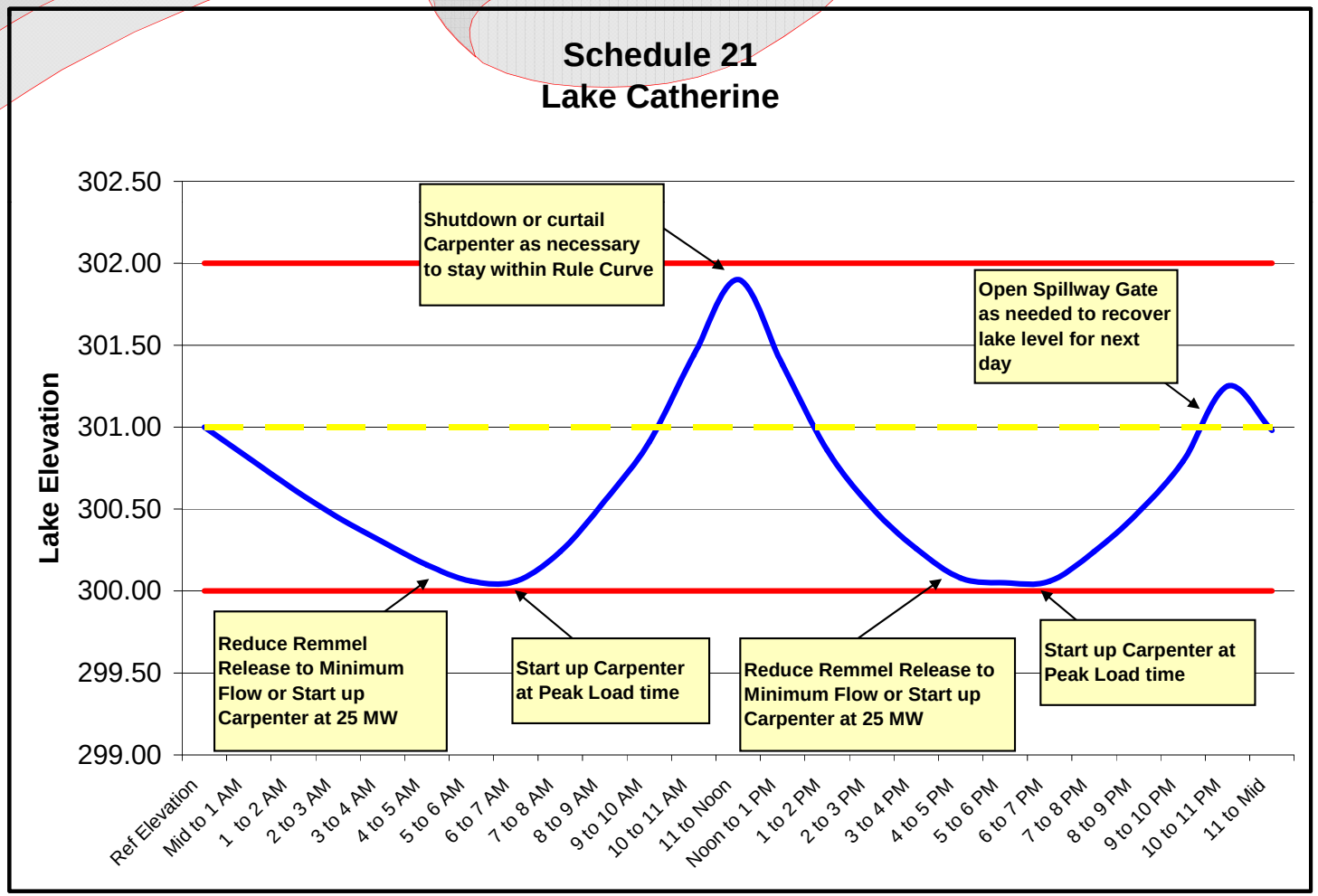
Ouachita Analysis'!A1



Note:

Open and close spillway gates at Remmel as needed to keep lakes with
Reduce generation at Remmel during the off-peak hours as needed to l
Lake Catherine +/- 12 inches and Lake Hamilton +/- 6 inches

What it does to the lake



Lake Levels & Generation

- *Water Storage*
  - *Summer assumption is that we will not get any more rain until the fall or winter*
  - *Question is: Do we use it now or save it for later?*
- *Lake Elevation reduction is a balance of needs*
  - *By contract we can pull Ouachita down to bottom of power pool*
  - *Damage to local economy from past practice prevents large drawdown*

Blakely RMR

- *Blakely Units are taken off-line when not generating*
- *Transmission declares RMR when Arkansas load exceeds 5200 MW*
  - *One Blakely unit needed to condense (motor) or generate*
  - *When load exceeds 5675 MW both units needed*

FERC License Requirements

- *Continuous Minimum Flow*
  - *Varies monthly from 200 to 400 CFS*
- *Lake level fluctuations*
  - *12 inches on Hamilton*
  - *24 inches on Catherine except in Spring when it is only 6 inches*
- *Public Notification of Release Plans*
- *Special Releases*