Hydraulic Characteristics of Downstream Channels
Tillery Dam to Blewett Reservoir
Preliminary Survey

Three flow scenarios examined:

Scenario 1 – October 16, 2000 – 7,000 cfs – Units 2 and 4 economy load, 38 MW
Scenario 2 – October 17, 2000 – 2,800 cfs – Unit 2 economy load, 15 MW
Scenario 3 – October 18, 2000 – 1,500 cfs – Unit 2 minimum load, 7.5 MW
SECTION 1 TRANSECT 1A
SECTION 1 TRANSECT 1B

LEFT BANK IRON PIN = 0+00
LOOKING DOWNSTREAM

ELEVATION FROM NGSS MONUMENT

200 cfs ELEV: 203.59
1000 cfs ELEV: 204.88
2000 cfs ELEV: 204.88
5000 cfs ELEV: 204.88

RIGHT BANK

BASE FLOW ELEV: 201.87
Tillery Dam to Blewett Falls
Section 1 Transect 1B
Tillery Dam to Blewett Falls
Section 1 Transect 1B

Graph showing the relationship between discharge (cfs) and wetted perimeter (ft) for Section 1 Transect 1B.
Tillery Dam to Blewett Falls
Section 2 Transect 2A

Discharge (cfs)

Wetted Perimeter (ft)
SECTION 2 TRANSECT 2B
Tillery Dam to Blewett Falls

Section 2 Transect 2B

Discharge (cfs)

Stage (ft)

www.progress-energy.com/hydro
Tillery Dam to Blewett Falls

Section 3 Transect 3A

Discharge (cfs) vs Stage (ft) for Section 3 Transect 3A.
Blewett Falls Dam
Downstream Channel Characteristics

* Four USGS Stream Flow Gages

* Discharge Records From Blewett Plant
January 1999

Discharge, cfs

USGS 02129000 Pee Dee River Near Rockingham, NC
USGS 02130561 Pee Dee River Near Bennettsville, SC
USGS 02131000 Pee Dee River at Pee Dee, SC
Blewett Falls Development Total Flow
July 1999

Discharge, cfs

Blewett Falls Development Total Flow
USGS 02130561 Pee Dee River Near Bennettsville, SC
USGS 02131000 Pee Dee River at Pee Dee, SC
Blewett Falls Development Total Flow

www.progress-energy.com/hydro
October 1999

Discharge, cfs

- USGS 02129000 Pee Dee River Near Rockingham, NC
- USGS 02130561 Pee Dee River Near Bennettsville, SC
- USGS 02131000 Pee Dee River at Pee Dee, SC
- Blewett Falls Development Total Flow
Yadkin-Pee Dee River Discharge Flows

Drainage Areas, (square miles):
Blewett Falls Development = 6,839
Rockingham Gage = 6,863
Bennettsville Gage = 7,600
Pee Dee Gage = 8,830

Discharge, cfs

- 8,000 cfs
- 7350 cfs
- 6200 cfs
- 5,650 cfs
- 500 cfs
- 206 cfs
- 1500 cfs
- 3300 cfs

www.progress-energy.com/hydro
Yadkin-Pee Dee River Discharge Flows

Discharge, cfs

- Blewett Falls Development Total Flow
- USGS 02129000 Pee Dee River Near Rockingham, NC
- USGS 02130561 Pee Dee River Near Bennettsville, SC
- USGS 02131000 Pee Dee River at Pee Dee, SC

Drainage Areas (square miles):
- Blewett Falls Development = 6,839
- Rockingham Gage = 6,863
- Bennettsville Gage = 7,600
- Pee Dee Gage = 8,830

www.progress-energy.com/hydro
Yadkin-Pee Dee River Discharge/Stage

Drainage Areas (square miles):
Blewett Falls Development = 6,839
Rockingham Gage = 6,863
Bennettsville Gage = 7,600
Pee Dee Gage = 8,830
HWY 701 Gage = undetermined by USGS

Discharge, cfs
Relative Gage Height (ft.)

Blewett Falls Development Total Flow
USGS 02129000 Pee Dee River Near Rockingham, NC (STAGE)
USGS 02130561 Pee Dee River Near Bennettsville, SC (STAGE)
USGS 02131000 Pee Dee River at Pee Dee, SC (STAGE)
02135200 USGS Pee Dee River at HWY 701 Near Bucksport, SC (STAGE)

Pee Dee River Near Rockingham data missing for this time period.
Yadkin-Pee Dee River Discharge Flows

Drainage Areas (square miles):
Blewett Falls Development = 6,839
Rockingham Gage = 6,863
Bennettsville Gage = 7,600
Pee Dee Gage = 8,830

- Pink line: Blewett Falls Development Total Flow
- Green line: USGS 02129000 Pee Dee River Near Rockingham, NC
- Cyan line: USGS 02130561 Pee Dee River Near Bennettsville, SC
- Blue line: USGS 02131000 Pee Dee River at Pee Dee, SC

Discharge, cfs:
- 10,000 cfs
- 7,725 cfs
- 9,000 cfs
- 7,150 cfs
- 830 cfs
- 400 cfs
- 206 cfs
- 1,900 cfs
- 7,150 cfs
- 9,000 cfs
- 10,000 cfs
- 7,725 cfs
**Drainage Areas, (square miles):**
Blewett Falls Development = 6,839  
Rockingham Gage = 6,863  
Bennettsville Gage = 7,600  
Pee Dee Gage = 8,830  
HWY 701 Gage = undetermined by USGS

**Discharge, cfs**

**Relative Gage Height (ft.)**

Pee Dee River Near Rockingham data missing for this time period.
Yadkin-Pee Dee River Discharge Flows

Drainage Areas, (square miles):
Blewett Falls Development = 6,839
Rockingham Gage = 6,863
Bennettsville Gage = 7,600
Pee Dee Gage = 8,830

Discharge, cfs

www.progress-energy.com/hydro
Yadkin-Pee Dee River Discharge/Stage

Drainage Areas, (square miles):
Blewett Falls Development = 6,839
Rockingham Gage = 6,863
Bennettsville Gage = 7,600
Pee Dee Gage = 8,830
HWY 701 Gage = undetermined by USGS

Pee Dee River Near Rockingham data missing for this time period.
Yadkin-Pee Dee River Discharge Flows

Drainage Areas, (square miles):
- Blewett Falls Development = 6,839
- Rockingham Gage = 6,863
- Bennettsville Gage = 7,600
- Pee Dee Gage = 8,830

Discharge, cfs

- Blewett Falls Development Total Flow
- USGS 02129000 Pee Dee River Near Rockingham, NC
- USGS 02130561 Pee Dee River Near Bennettsville, SC
- USGS 02131000 Pee Dee River at Pee Dee, SC

0 5,000 10,000 15,000 20,000 25,000

Fri 12:00 AM 5/17/02
Sat 12:00 AM 5/18/02
Sun 12:00 AM 5/19/02
Mon 12:00 AM 5/20/02
Tue 12:00 AM 5/21/02
Wed 12:00 AM 5/22/02
Thu 12:00 AM 5/23/02
Fri 12:00 AM 5/24/02
Sat 12:00 AM 5/25/02
Sun 12:00 AM 5/26/02
Mon 12:00 AM 5/27/02
Tue 12:00 AM 5/28/02
Wed 12:00 AM 5/29/02
Thu 12:00 AM 5/30/02
Fri 12:00 AM 5/31/02

7300 cfs
5060 cfs
3450 cfs
Below Blewett Falls
Transect 2B

Discharge (cfs)

Wetted Perimeter (ft)

0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 6500 7000

0 200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600

Transect 2B
Below Blewett Falls

Transect 3A

Discharge (cfs)

Wetted Perimeter (ft)

Transect 3A