Fort Calhoun Nuclear Station

& the Summer Flood of 2011

SAME Industry Day

May 2012 - John Brandeau
How we did it

• Teams focused on each area of interest
  – Switchyard
  – Protected Area
  – Security Building
  – Administration and Training Buildings
  – Old warehouse
  – Logistics
  – Yard resources

• Lots of radios

• Military style command and control
Earthen Berm

• Protected switchyard
  – Off site power to keep fuel cool
  – Power distribution to customers
  – Approx. 40,000 cubic yards Loess clay from adjacent hillside
  – HDR, Lueder Construction and McArdle Grading

• Five days start to finish
Aqua Dams®

• Found on the internet
• Delivered in two days from northern CA
• Water filled tubes with sleeve
• Individual sections 100-400 feet long
• Total of approx. 6000 feet installed
Overhead view of Aqua Dam (indicated by arrows) installed in the FCS Protected Area during the 2011 flood. Photo taken 6/15/2011.
Aerial view of the FCS Training Center taken 6/15/2011 looking north showing flood barriers around the building.
Photo taken 6/24/2011 showing the Aqua Dam at the southeast corner of the FCS Admin Building.
Photo taken 6/15/2011 of FCS looking south showing the Aqua Dam around the old warehouse (right side of photo)
Photo taken 7/16/2011 on the northwest corner of the old warehouse looking south showing Aqua Dams in place.
Photo taken 7/16/2011 at the north end of the old warehouse looking east showing Aqua Dams in place.
Hesco Barriers

• Advantages
  – Simple and quick to set up, no specific skills
  – Don’t move once in place

• Disadvantages
  – Need lots of sand
  – Don’t set up well in water
  – Can be difficult to get sand into Protected Area
Sand bags

• Small sandbags filled on site by hand
  – 300-350K
• Large sandbags filled on site with loaders
  – Several hundred
• Filled by company personnel and supplemental labor from Day Zimmerman – NPS and Kiewit.
During the flood

• 10 days to set up the barricades
  – Tetanus shots for all

• 70 days to maintain the barriers
  – Found new leaks almost every day

• 24/7 pump teams to fuel and operate the pumps
  – Dialed in the pumps
  – 100 gals fuel/day hand carried into the Protected Area
  – Approx. 15 diesel light plants
  – Temporary diesel generators
During the flood ...

- ¾ mile of scaffold walkways
- Boats delivered supplies to the warehouse
- All trash and water hand carried over barriers
- Temporary Verizon truck/tower
- Constructed temporary gravel lots for 750 vehicles
  - Constant shuttle service to plant
OPPD Overall
as of August 29, 2011

- 350+ pumps
- 300,000 linear feet of berms & barriers
- 11,000+ tons of sand
- 1 million+ sandbags (40 to 3000 lbs.)
OPPD Overall
as of August 29, 2011

- 1.3 million+ square feet of plastic sheeting
- 4000 feet of HESCO
- 971 tetanus shots to employees
Cleanup

• Many months – still in progress
• Lots of mud, silt, debris, water damage
• Damaged landscaping
• Empty and remove
  – Sandbags
  – Hesco barriers
  – Aqua Dams
• Restore access to plant
Questions