

## Vogle PEmails

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**From:** Christian Araguas  
**Sent:** Monday, January 26, 2009 10:00 AM  
**To:** Vogtle PEmails  
**Subject:** FW: ACRS Slides Presented  
**Attachments:** Hydrology\_Slides\_Only.ppt

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**From:** Christian Araguas  
**Sent:** Thursday, January 15, 2009 1:05 PM  
**To:** Kincaid, Charles T; Hosung Ahn; 'Vail, Lance W'  
**Subject:** FW: ACRS Slides Presented

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**From:** Waites, Brandon Wiley [mailto:BWWAITES@southernco.com]  
**Sent:** Thursday, January 15, 2009 1:03 PM  
**To:** Christian Araguas  
**Cc:** Davis, James T.  
**Subject:** FW: ACRS Slides Presented

Christian,

I have attached the slides from the 12.3.2008 ACRS presentation. I have included the hydrology portion. Are these the references you need?

*Brandon W. Waites*  
Nuclear Development-Senior Engineer

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**From:** Christian Araguas [mailto:Christian.Araguas@nrc.gov]  
**Sent:** Thursday, January 15, 2009 9:47 AM  
**To:** Davis, James T.  
**Subject:** ACRS Slides Presented

Jim,

Any chance, you can send me a copy of your ACRS sub-committee slides (powerpoint version). The hydrology staff feel that there were some figures that they thought they could use for the hearing. Let me know your thoughts on this.

Christian Araguas  
Lead Project Manager  
AP1000 Projects Branch 1  
Division of New Reactor Licensing  
Office of New Reactors

**Hearing Identifier:** Vogtle\_Public\_EX  
**Email Number:** 139

**Mail Envelope Properties** (CB87FC66F95637428C5E0D066E756B6F9831084687)

**Subject:** FW: ACRS Slides Presented  
**Sent Date:** 1/26/2009 10:00:20 AM  
**Received Date:** 1/26/2009 10:00:24 AM  
**From:** Christian Araguas

**Created By:** Christian.Araguas@nrc.gov

**Recipients:**  
"Vogtle PEmails" <Vogtle.PEmails@nrc.gov>  
Tracking Status: None

**Post Office:** HQCLSTR01.nrc.gov

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	1440	1/26/2009 10:00:24 AM
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**Options**  
**Priority:** Standard  
**Return Notification:** No  
**Reply Requested:** No  
**Sensitivity:** Normal  
**Expiration Date:**  
**Recipients Received:**

# SSAR 2.4 Hydrologic Engineering

Angelos Findikakis

Consultant

Bechtel

# SSAR 2.4 Hydrologic Engineering

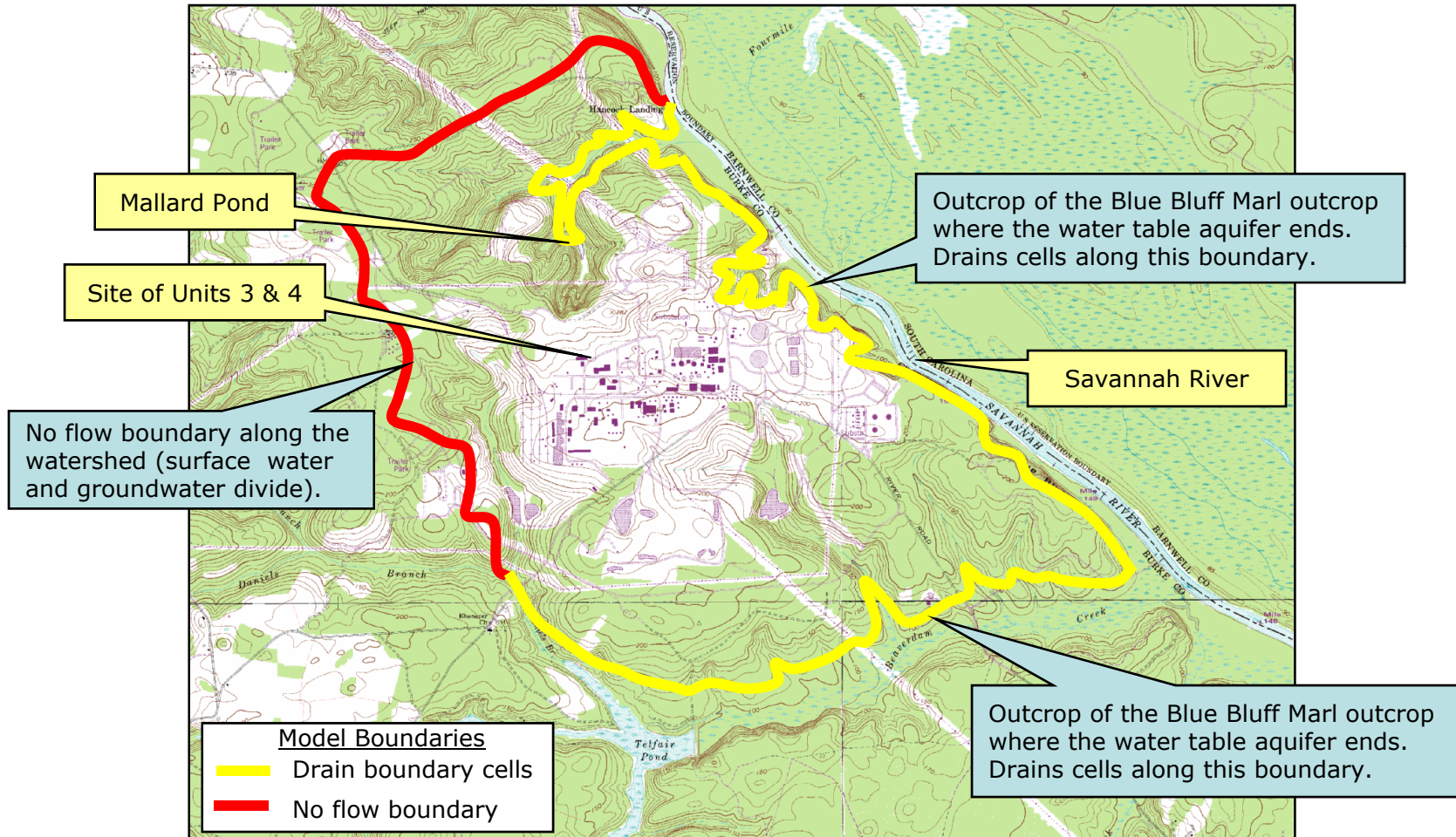
## **Open Items (4):**

- Demonstrated adequate water resources for safety related purposes (1)
- Remaining open items addressed by an expanded ground water model (3)

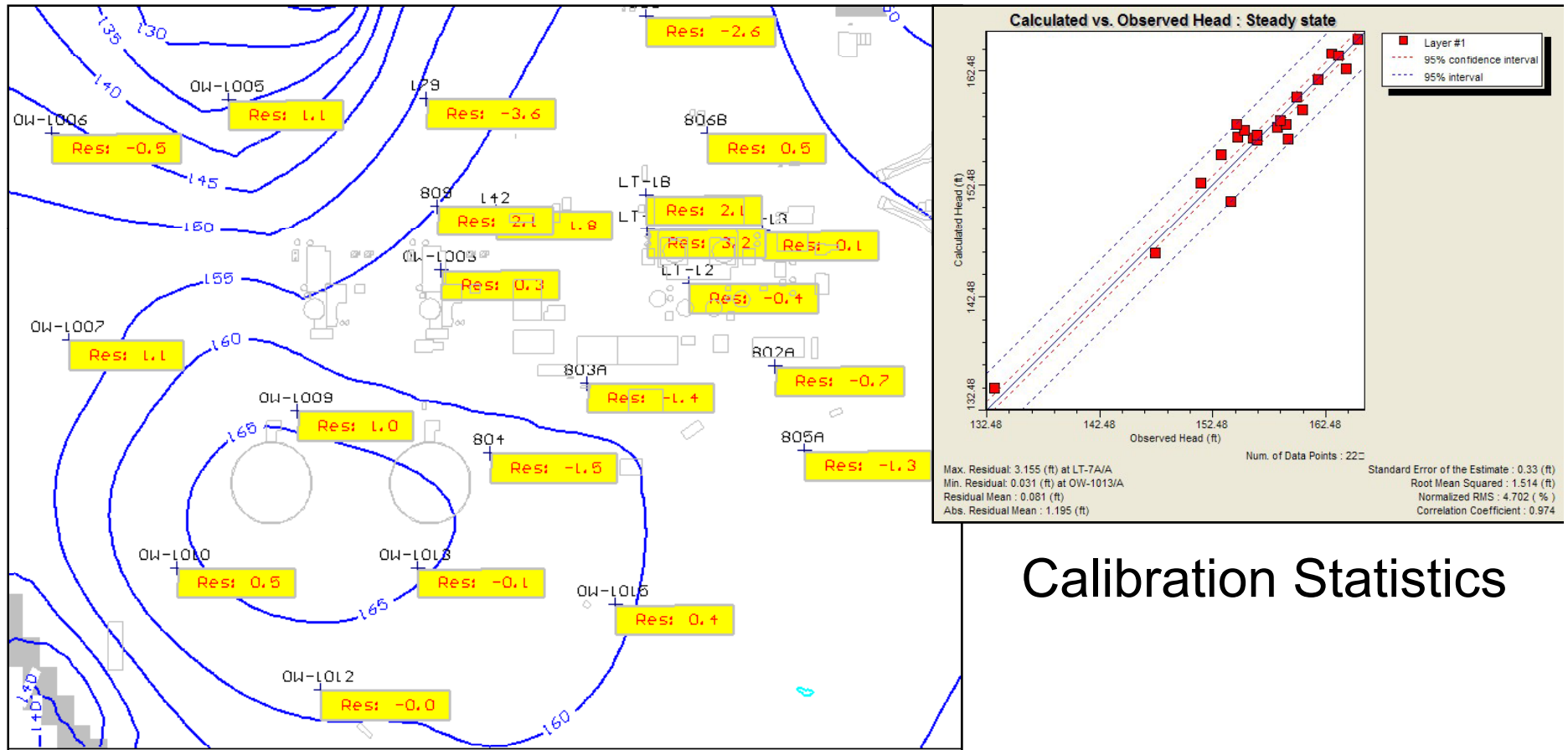
# The Groundwater Model

- Single-layer model of the water table aquifer
- Based on site-specific data
- Developed using Visual MODFLOW
- Calibrated using measured water levels
- Alternative plausible conceptual models
- Model for future conditions accounted for
  - Changes in materials (backfill)
  - Changes in recharge (site grading, buildings, etc)
- Predictions of future groundwater flow & pathways

# Groundwater Model Domain



# Model Calibration

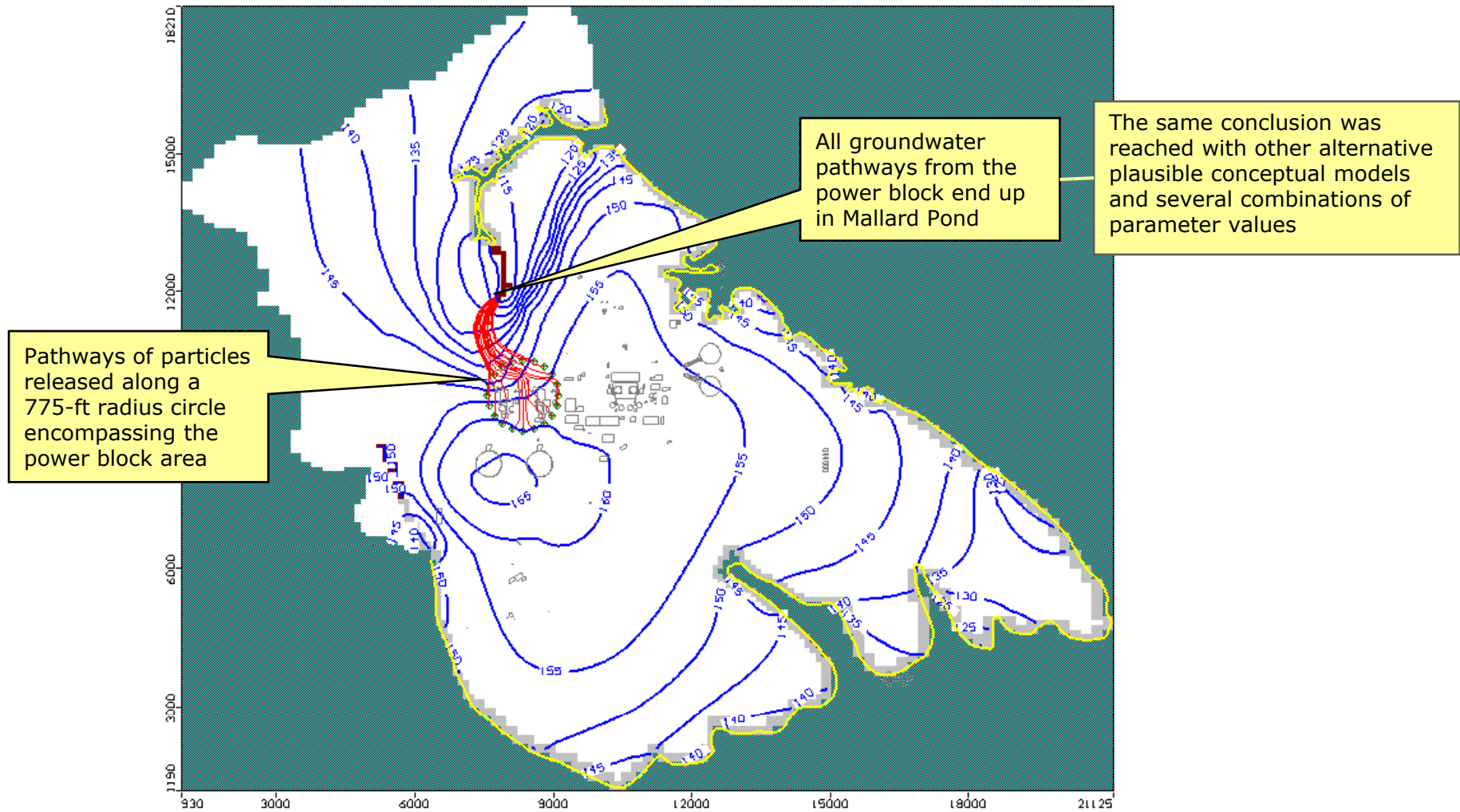


Calibrated Head Residuals

## Calibration Statistics



# Simulation of Post-construction Groundwater Conditions



# Extreme Assumptions Are Needed to Produce Pathways to the South

