



**Savannah River
Remediation**

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We do the right thing.

SRR-WTF-2013-00022 R1



EM Environmental Management

safety ♦ performance ♦ cleanup ♦ closure

Saltstone Facility Update



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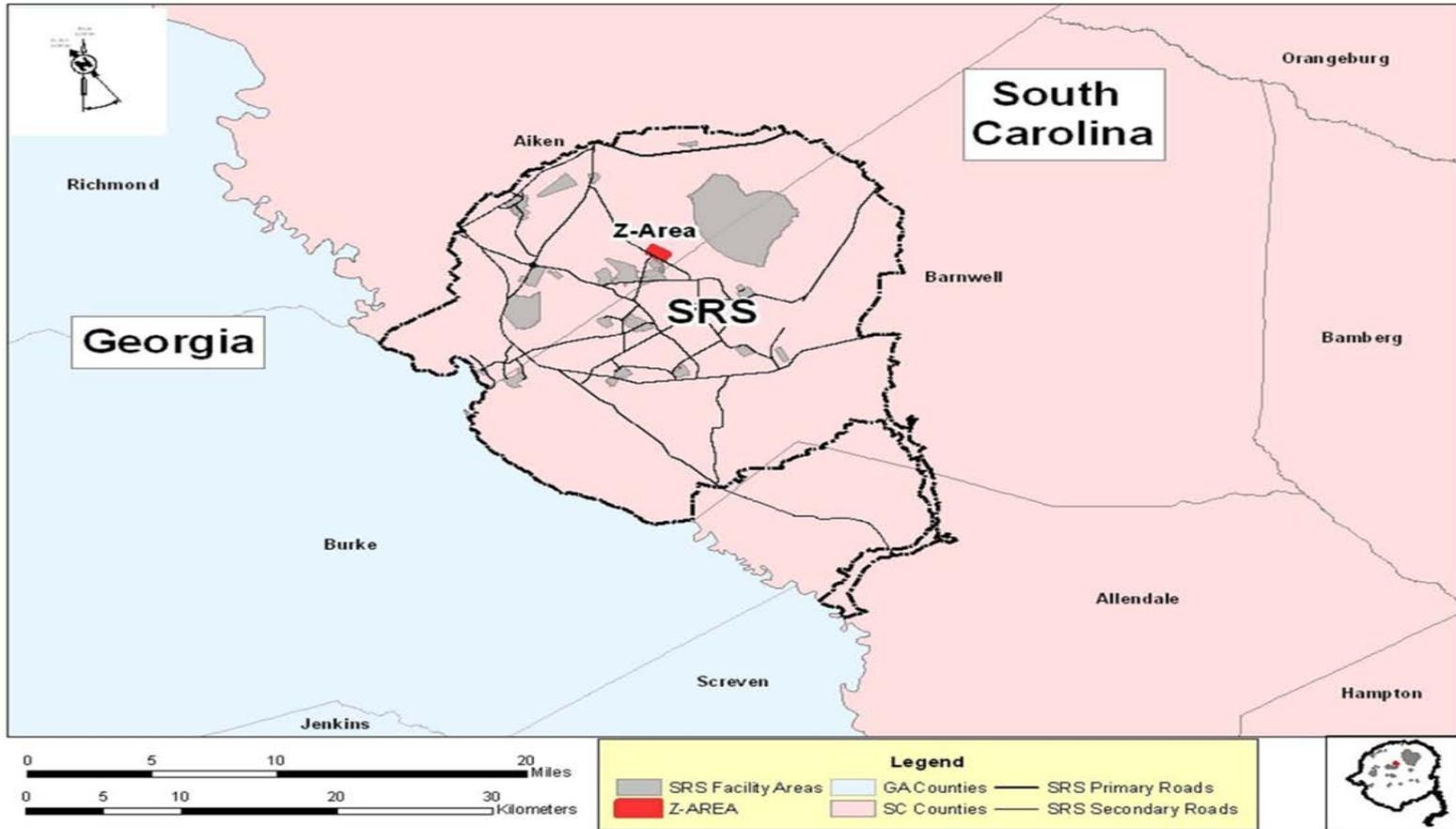
November 19, 2013

We do the right thing.

- Brief the Citizen's Advisory Board on two recent items of interest associated with the Z-Area Saltstone Facility
 - Neither issue has resulted in exceeding any regulatory or DOE Order driven compliance limits
 - Two separate issues that were identified during the same period of time (first half of 2013)
 - Issues:
 - Storm Water (surface water) -
 - Low level radioactive contamination at Storm Water Outfall Z-01
 - Groundwater (sub-surface water) -
 - Elevated sample results at Groundwater monitoring well ZBG-2
- Communicate the actions that the Savannah River Site (SRS) is taking to proactively address these issues

Saltstone Facility

We do the right thing.



Saltstone Facility Layout

We do the right thing.

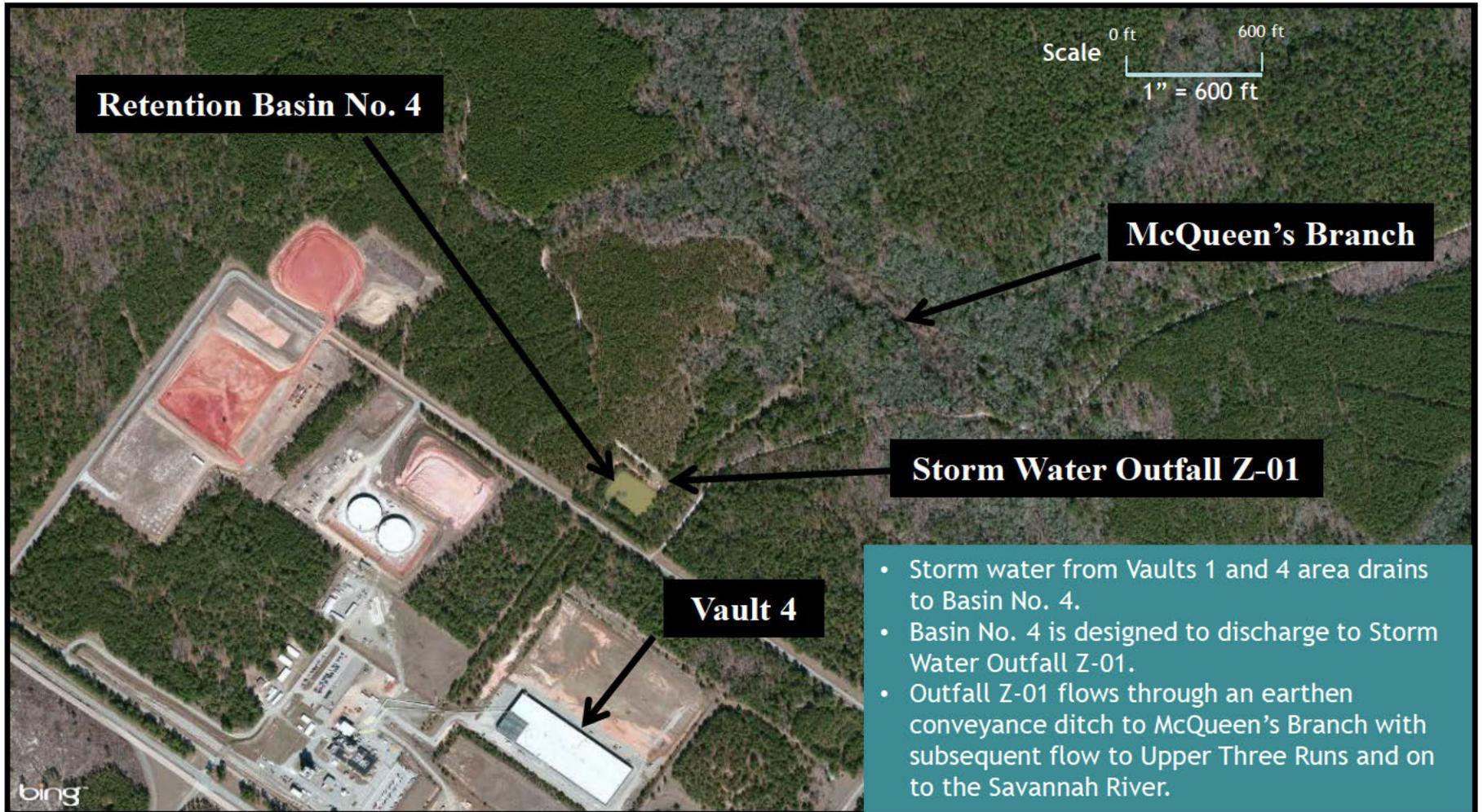


Storm Water

Low Level Radioactive Contamination At Storm Water Outfall Z-01

Z-Area Storm Water Flow

We do the right thing.



We do the right thing.

- Vault 1 and 4 Saltstone Disposal Unit design has contributed to infrequent soil and storm water radioactive contamination events over the operating life of these vaults.
- Over the years, storm water has carried some of this contamination to Z-Area Retention Basin No. 4.
- Although designed to discharge if level reaches the spillway pipe level, there have been no known discharges of Basin No. 4 until recently.
- Record rainfalls in February 2013 led to the first known discharge of Basin No. 4 (as designed) and resulted in low level radioactive contamination in the earthen conveyance ditch beyond Storm Water Outfall Z-01.
- While no regulatory or DOE Order driven compliance limits have been exceeded, action is necessary to proactively manage the situation.

We do the right thing.



Rain water carried contamination from Vaults 1 and 4 area to the Storm Water drain line

- Drain line flows to Basin No. 4



Basin No. 4 only discharges if level reaches the height of spillway

- Feb 2013 first observed basin discharge



Spillway from Basin No. 4 flows to Storm Water Outfall Z-01

- Low level contamination deposited



Storm Water Outfall Z-01 flows to McQueen's Branch

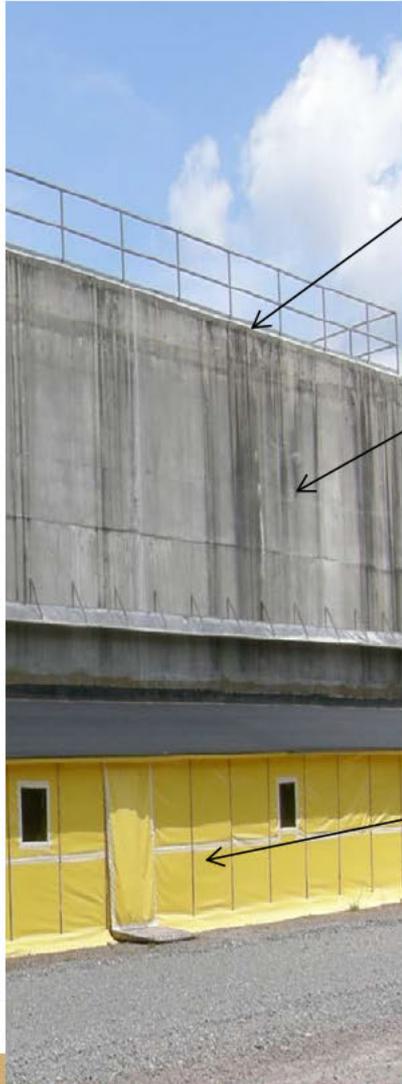
- Sedimentation breaks installed to minimize contamination spread

We do the right thing.

- ✓ Vaults 1 and 4 are no longer in use. The last disposal operations at Vault 4 occurred in early 2012.
- ✓ Existing Vault 4 contamination control measures remain a facility priority.
- ✓ Commenced project to prevent Vault 4 roof rain water in-leakage.
 - ❖ Clean capping and installation of elastomeric roof coatings
 - ❖ 50% of vault roof is already coated
- ✓ New Salt Disposal Unit design incorporates Vault 1 and 4 lessons learned and are tested for water tightness prior to use.
- ✓ Commenced project to increase storm water basin capacity.
- ✓ Corrective measures in place to control spread of contamination and remove contaminated soil from the Z-01 outfall.
- ✓ Radioactive effluent monitoring at Z-01 Outfall and McQueen's Branch continues with no increases detected.

Vault 4 Contamination Control

We do the right thing.



- Prevent Rainwater Intrusion into Vault (Roof Coatings, Sealants)
- Control Rainwater Flow Path
 - Gutters on roof and weather enclosures
 - Grading to route rainwater to retention basin
- Fix Wall Contamination
- Manage Drainwater Levels Inside Vault
 - Drainwater return system
 - Manage cell water level below hut level to prevent release of contamination to environment
- Containment
 - Weather Enclosures up to 8'
 - Troughs to collect leakage
 - Isolate from rainwater
 - Installed Megamix coating on walls
 - Installed Xypex coating on walls

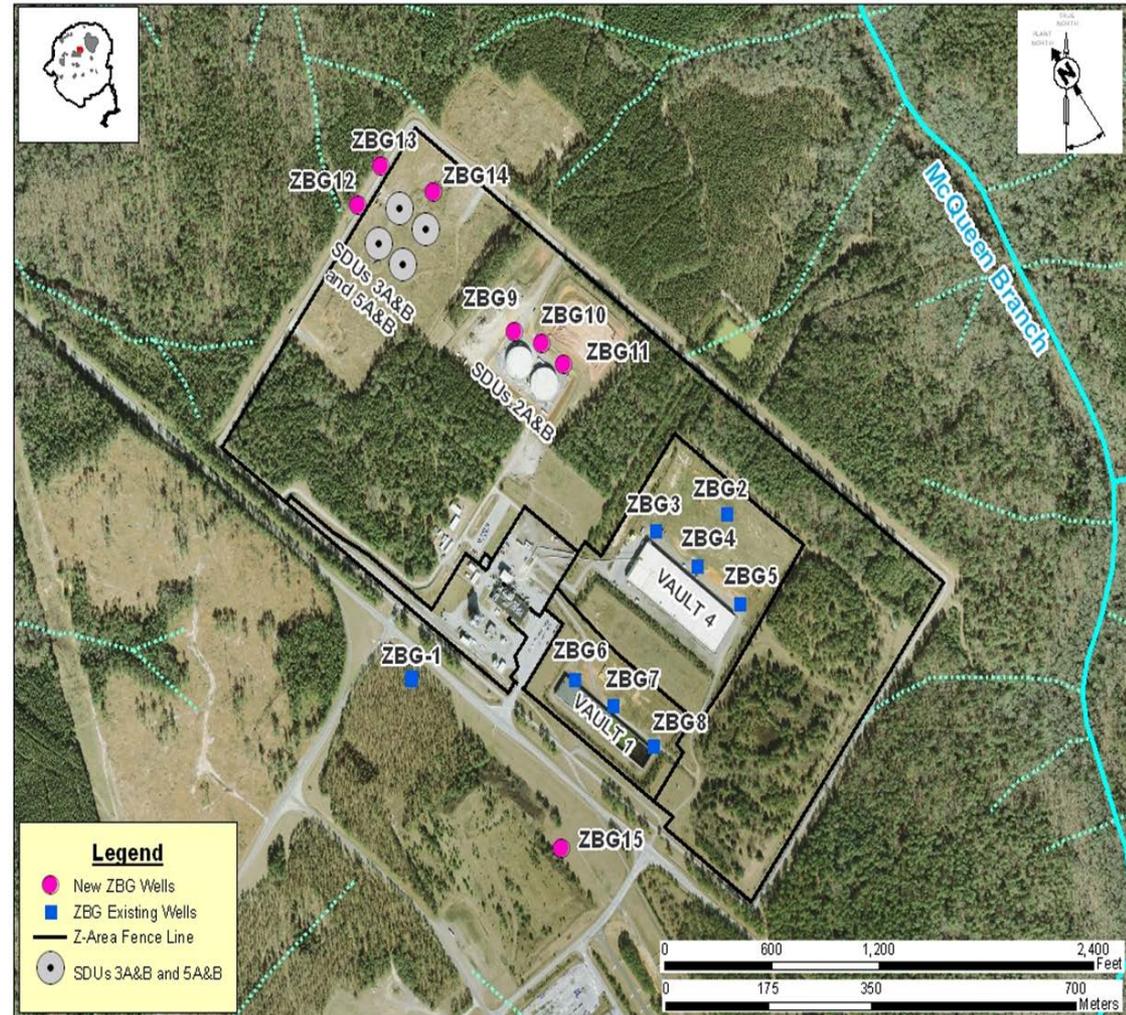


Groundwater

Elevated Sample Results At Groundwater Monitoring Well ZBG-2

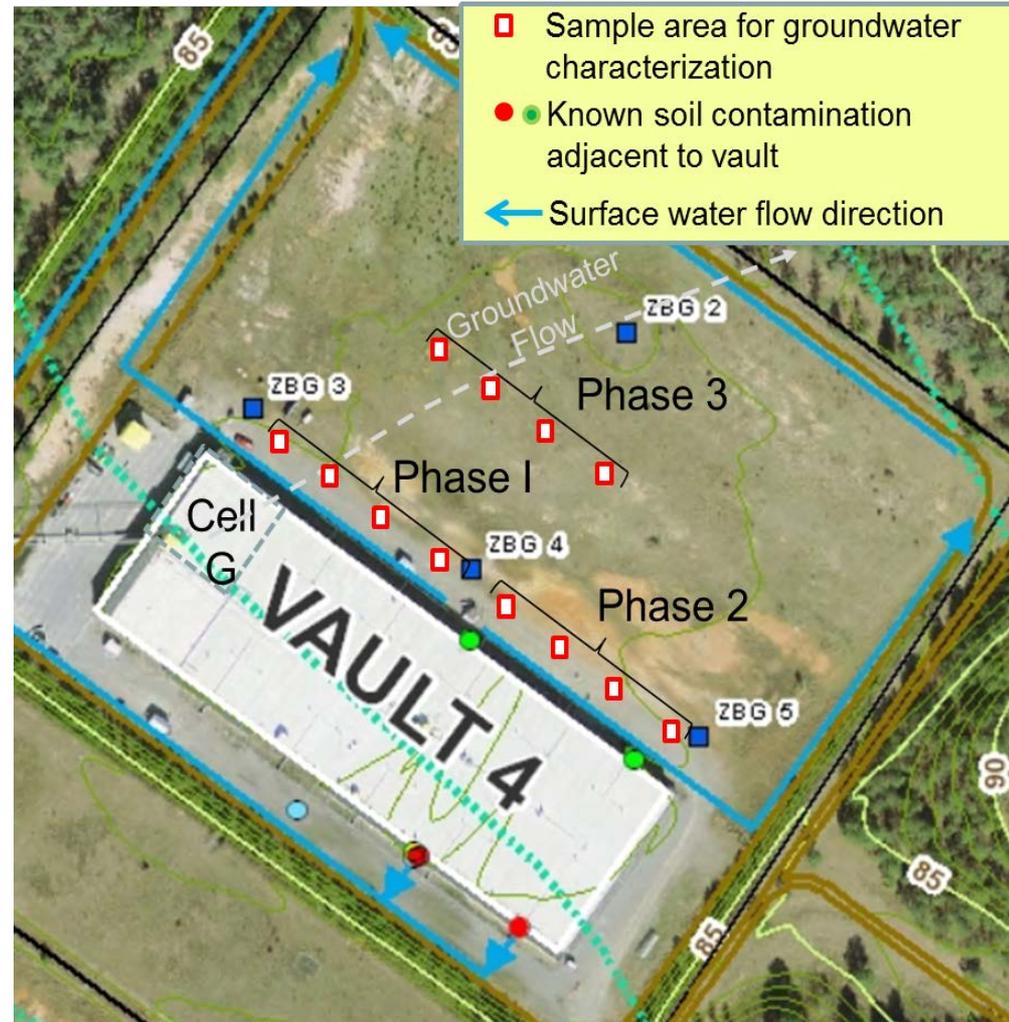
We do the right thing.

- Groundwater sample results have not exceeded any groundwater protection standards
- 2013 first quarter samples identified increasing levels of some analytes at well ZBG-2
- No elevated results identified at wells ZBG-3, 4, or 5
- Groundwater modeling indicates initial surface source contamination would have occurred 15 – 20 years ago



We do the right thing.

- ✓ Characterization Plan has been developed to determine the extent of groundwater contamination around Vault 4.
 - ❖ 3 phases of characterization
 - ❖ Samples analyzed for chemicals of interest
 - ❖ Timeframe: 6-9 months for each phase
 - ❖ Phase I to mobilize in the first quarter of Fiscal Year 14



We do the right thing.

Future Actions:

- Continue implementation of Vault 4 Stabilization Project
- Continue excavation of contaminated soil at Z-01 Outfall
- Initiate expansion of Z-Area Sedimentation Basin No. 4
- Continue monitoring of Sedimentation Basin No. 4, Outfall Z-01 and McQueen's Branch
- Implement Vault 4 Groundwater Characterization plan
- Develop and implement Z-Area Basin No. 4 Groundwater Assessment Plan
 - ❖ Requested by South Carolina Department of Health and Environmental Control (SCDHEC)

We do the right thing.

DOE	Department of Energy
FY	Fiscal Year (October 1st - September 30th)
SCDHEC	South Carolina Department of Health and Environmental Control
SDU	Saltstone Disposal Unit
SRR	Savannah River Remediation, LLC
SRS	Savannah River Site

We do the right thing.

- Backup Slide

Vault 4 Stabilization

We do the right thing.

- Stabilize Vault 4 over next 4 years to eliminate rain infiltration in order to mitigate worker and environmental risks
- DOE has committed to SCDHEC to improve the Vault 4 condition by reducing the potential for rainwater in-leakage into Vault 4 south six cells. Specifically, they will:
 - Develop a low water grout recipe for use in pouring clean cap grout into the Vault 4 south six cells to reduce worker dose rates on the roof and allow for workers to safely apply roof coating.
 - Apply roof coatings.
 - Decontaminate and remove weather enclosures on the exterior of Vault 4.

