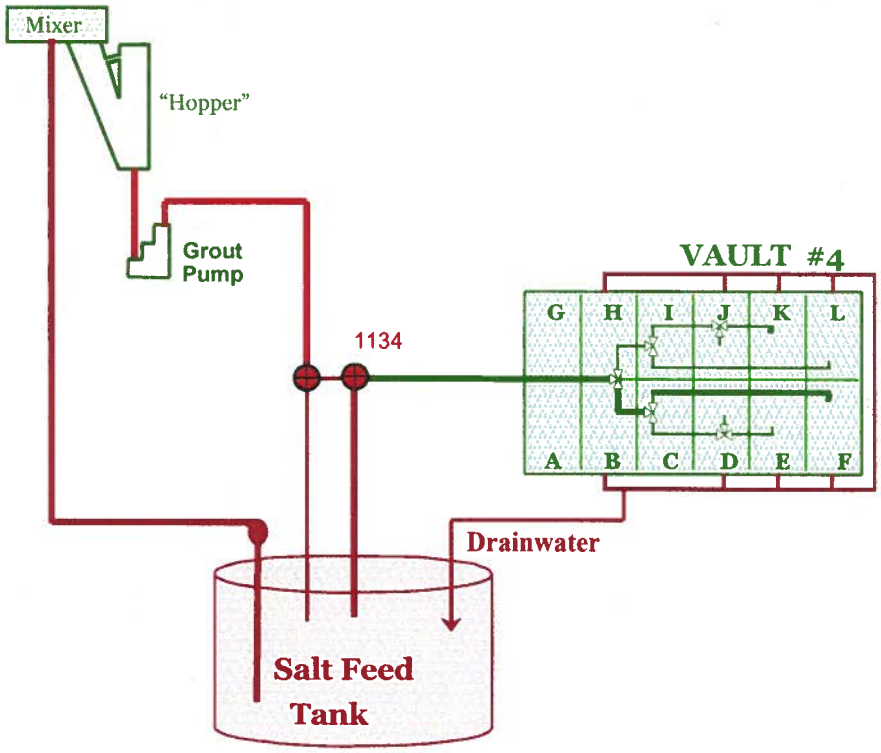
Saltstone Inadvertent Transfer
May 19, 2010

SCHEMATIC

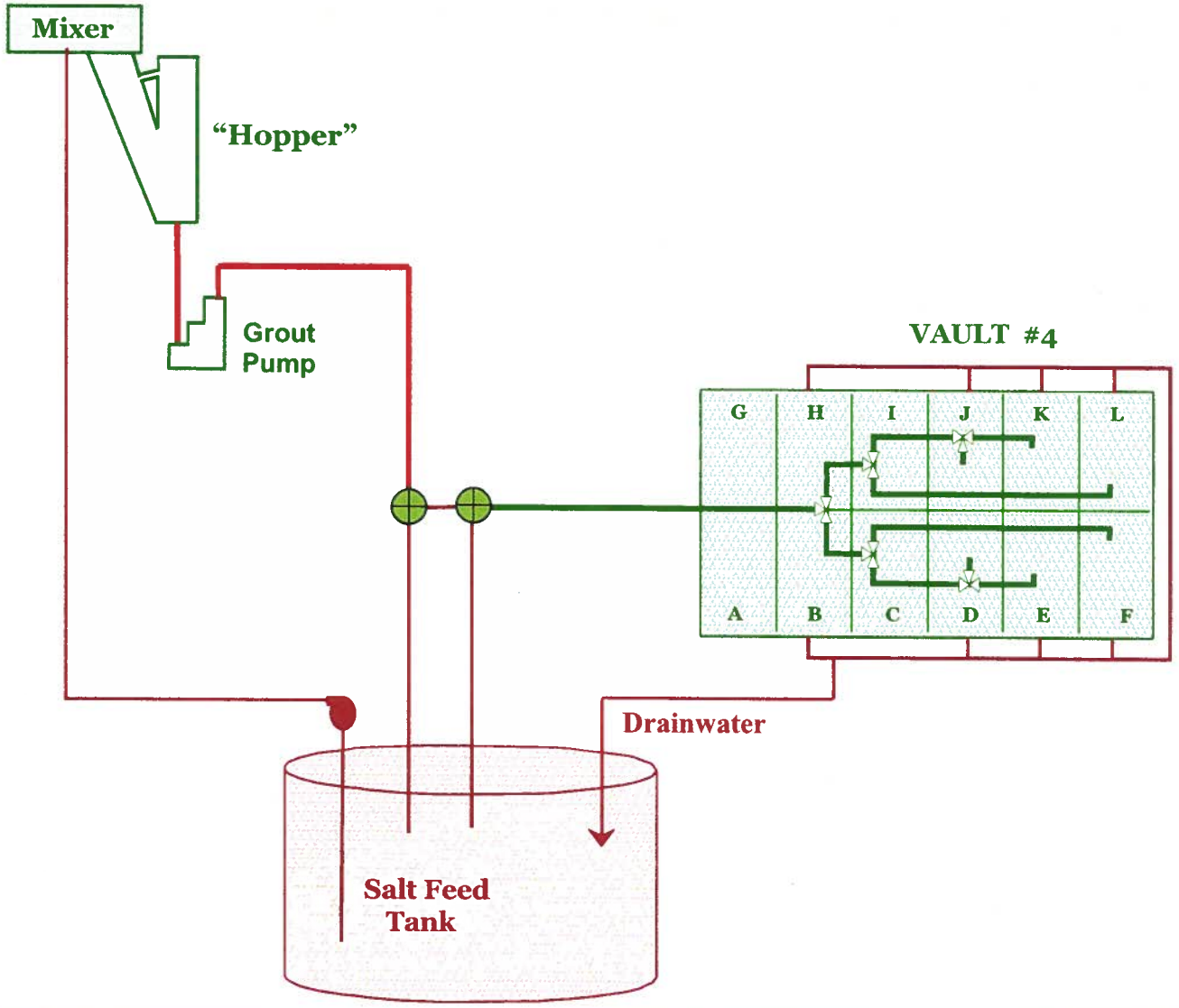


Summary

- During performance of a Special Procedure to test Salt Feed Tank pump and agitator, about 1900 gallons of liquid was inadvertently transferred from the Salt Feed Tank to Vault #4 Cell F.
- The Bleed Water level increased in Vault #4 Cell F due to the material. The Drainwater Return System was utilized to return the liquid to the Salt Feed Tank.
- Event was the result of the operator's failure to position valve 1134 per the procedure coupled with a single point failure situation.
- Samples pulled (from hopper) and analyzed for pH, chromium, and mercury levels. Concentrations consistent with past samples (RCRA non-hazardous and LDR compliant)
- SC DHEC notified of the event, path forward and sample results.
- A Fact Finding has been conducted with Corrective Actions developed to prevent recurrence.

SRR-CES-2010-00047

Saltstone Flow Diagram



Inadvertent Transfer of Salt Solution To Vault 4 Cell "F" 05/19/10

Facility: Saltstone – Z Area

Fact Finding Director: Sean Heath

Date and Time Discovered: 05/19/10 @ 1127

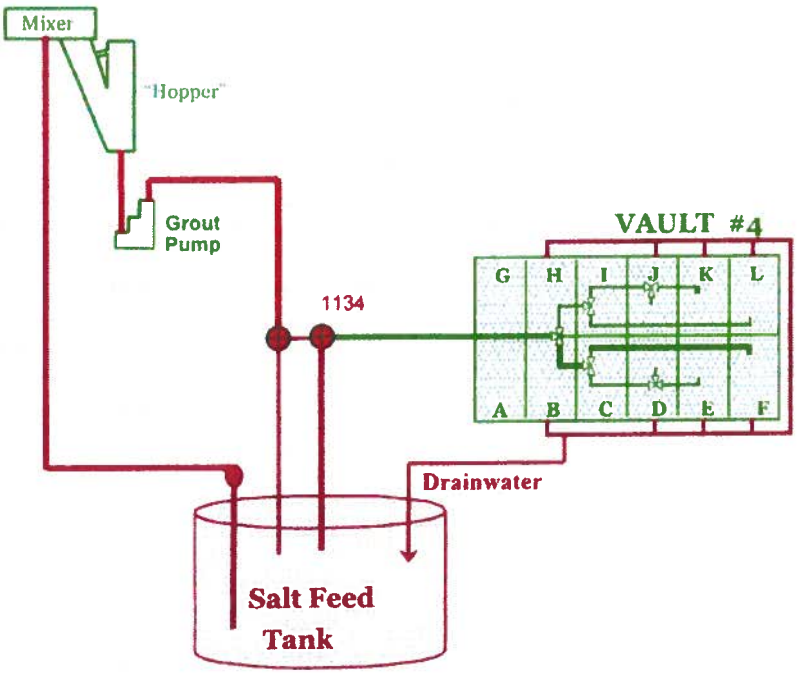
Title of Event: Inadvertent Transfer of Salt Solution to Cell "F"

STAR Issue#: 2010-CTS-6436

Description of Event: On Wednesday, May 19, 2010, during the performance of Special Procedure SP-2010-Z-063, "Testing Salt Feed Tank Agitator VFD" a full process system recirculation was in progress to support the facility testing. During process recirculastion, solution is transferred from the Salt Feed Tank (SFT) through the mixer, hopper and grout pump and is returned back to the SFT through a 4-way valve (HCV-1134). This 4-way valve can be aligned to the SFT (for recirculation) or to Vault 4 (normal grout operations). The procedure in use had a step to align HCV-1134 to the SFT position.

While monitoring the process, the control room operator identified that the SFT level was unexpectedly decreasing. Operations personnel successfully secured the process to stop recirculation. It was determined that HCV-1134 was in the incorrect position (aligned to Vault 4). Approximately 1,900 gallons of low-level liquid waste from the SFT was inadvertently transferred to Vault 4 Cell F due to the valve misalignment. The Drain water level increased in Vault #4 Cell F due to the material. The Drainwater Return System is being utilized to return the material to the Salt Feed Tank. No material was released to the environment. The event has been reported under ORPS criteria 4B(5).

SCHEMATIC



CHRONOLOGY OF EVENT

DATE/TIME	
Wed, 5/19/10	
0915	Initiated Special Procedure SP-2010-Z-063, *"Testing Salt feed Tank Agitator VFD"*
1110	Initiated a 2 hour full system recirculation period in accordance with SP-2010-Z-063
1127	Control Room Operator observed an unexpected decrease in Salt Feed Tank level and notified Shift Operations Manager
1128	Control Room Operator secured Mixing and Transfer System grout pump and mixer
1140	Initiated the required notifications
1206	Completed ORPS classification under Reporting Criteria 4B-5, Significance Category 3
1338	Completed ORPS/SIRIM data form and verified electronic receipt with SRSOC

IMMEDIATE ACTIONS

- System recirculation was stopped, stopping the inadvertent transfer to Vault 4 Cell F
- Verified by camera the receipt of solution at Vault 4, Cell "F"
- Verified Drain water levels
  - Pre-event level – 11 inches
  - Post event level – 55 inches
- Operations and RCO performed Cell F exterior wall inspection.
  - No abnormalities identified.
- Initiated pumping of drain water back to the Salt Feed from Cell "F"
- RCO performed dose rate checks of grout line and Cell "F" outside walls and roof –
  - No changes in rates were identified

IMPACTS TO FACILITY

- The Mixing and Transfer System was shutdown with liquid in the hopper and in the associated process piping.
- Normal Saltstone process operations have been suspended pending resolution of any related permit and procedural issues.

ERROR PRECURSORS

- New Technique Not Used Before – While recirculation is performed frequently in Saltstone, the use of a special procedure to perform testing was new.
- Mindset – Treated as routine activity.
- Distractions – The operator was looking forward to setting and testing the agitator, which caused less focus on the recirculation portion of the procedure.

FLAWED DEFENSES

- Self-Checking – Was not utilized.
- Peer-Checking – The step to ensure HCV-1134 position did not require an independent verification.
- Procedure Use Practices – This step was signed without performing.

LATENT ORGANIZATION WEAKNESS

- Procedure Development

ROOT CAUSE

- This event was the result of the operator's failure to position valve 1134 per the procedure coupled with a single point failure situation.

CONTRIBUTING CAUSE

- Single point layer of defense

CORRECTIVE ACTIONS	RESPONSIBLE PERSON DUE DATE
Evaluate RTQ development to submit to Dean Campbell	Sonnenberg 5/20/10
Evaluate samples from Salt Feed Tank for pH, Chromium, and Mercury	Liner 5/21/10
Develop Lessons Learned for LWO distribution	Heath 5/21/10
Revise procedure to incorporate additional layers of control, provide expectations for SFT level monitoring and notification when both valves are aligned to SFT for recirculation.	Fife 5/26/10
Perform an Extent of Condition review to identify other procedures that have the potential for a single layer of defense.	Heath 5/25/10
Perform an independent follow-up review on findings from the Extent of Condition review.	Norris 5/25/10
Provide notifications to SCDHEC, EPA, CAB, NPE as required	Liner 5/20/10
Documented briefing with Operations personnel for procedural utilization requirements. Follow-up targeted Management Field Observation to assess this knowledge.	Mathison 6/7/10

*** ***(NOTE: Subsequent corrective actions may follow pending further evaluation of the event)*** ***