
Office of River Protection

S-102 Tank Spill Update Joint TWC and HSEP Meeting

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Bechtel National, Inc.



EM Environmental Management

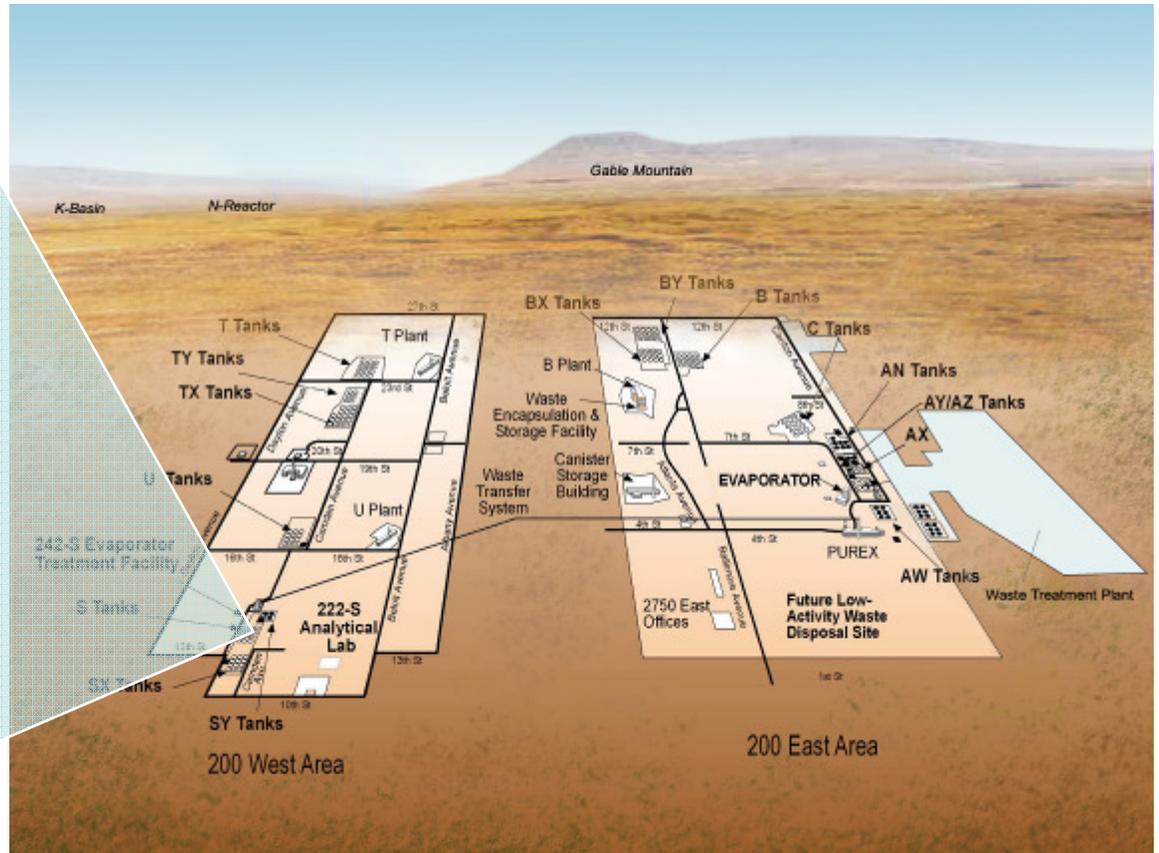
safety ❖ performance ❖ cleanup ❖ closure

S-102 Event Site Overview



S-Farm

S-102



200 Area Tank Farms



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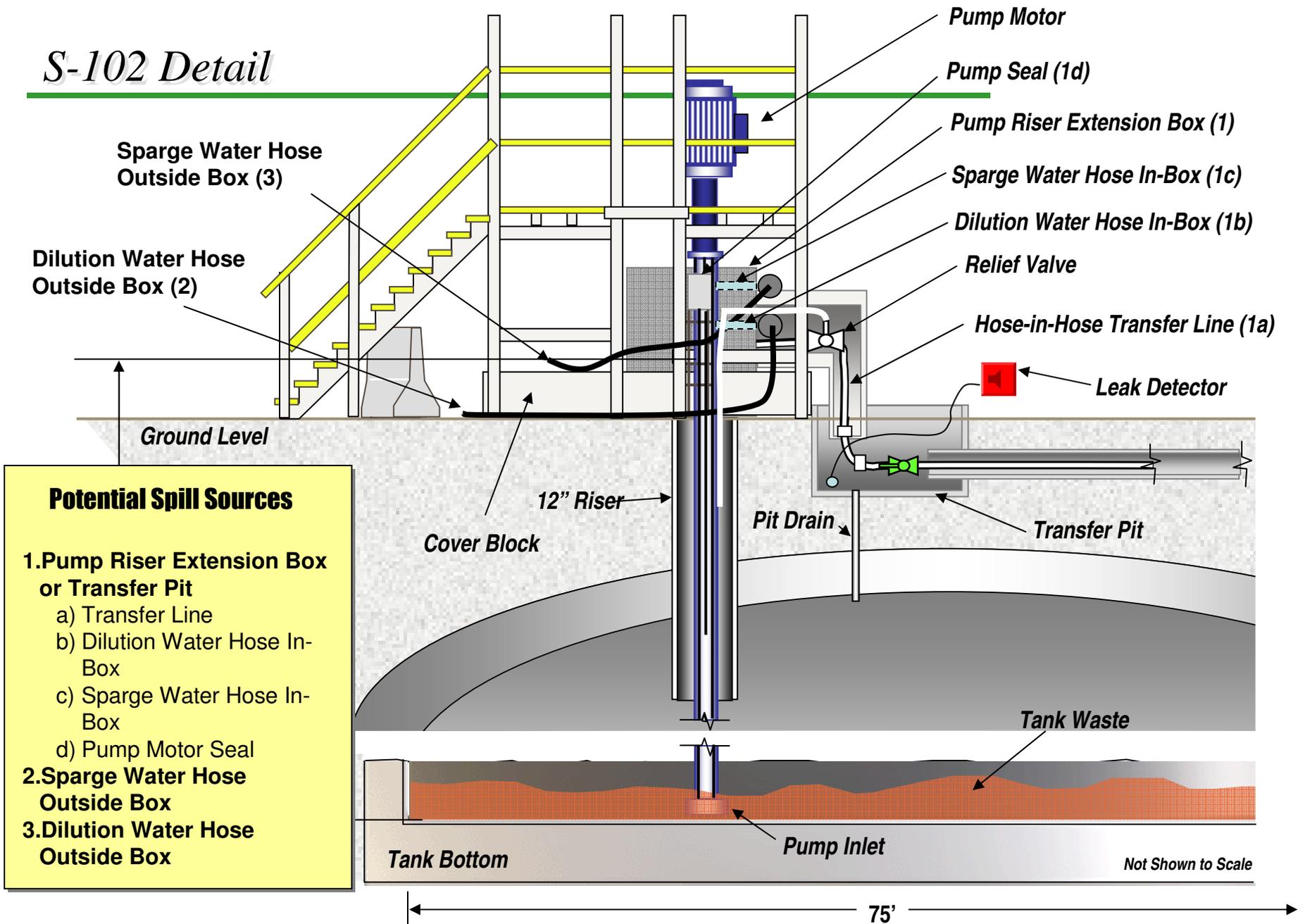
Spill Area



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S-102 Detail



Summary – Dilution Hose Confirmed Source

- Spill occurred between 2:05 and 2:20 AM while pump was operated in reverse direction
 - Personnel, including HPT, out of field during this time. Would have noticed splash before that time
 - Abnormal readings after that time
 - Pressure in transfer system measured at static head from SY-102 until 20 seconds into last reverse pump run, when it went to zero (air bubble coming down from SY-102 anti-siphon)
- Drained and removed dilution hose
 - Dose rate on drainage from dilution hose confirmed dilution hose as source of leak



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Immediate Actions

- Spill area stabilized (Soil Segment and Safeguard)
- Spill area surrounded by locked fence
 - Postings for: high radiation, high contamination, respiratory protection required for entry
- Spill area monitored for potential spread of contamination
 - Surveys at high radiation/high contamination area boundary
 - Monthly samples inside the fenced area including contamination and dose rate surveys
- Industrial Hygiene monitoring



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Recovery Action Plans

- Maintain control of contamination within HRA/HA
- Reduction of the source term
- Remove above ground equipment
 - Dilution hose drained and packaged in waste box
- Excavate/remove contaminated soil
- Remove miscellaneous equipment and decontaminate permanent equipment
- Backfill with clean soil
- Perform final condition assessment
- Schedule for cleanup completion end of 2007



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Direct Cause, Root Cause and Judgment of Needs

- The direct cause was leakage of waste from the retrieval pump system in S-102, due to the failure of a utility hose in the dilution line as a result of overpressure
- The root cause was the pump system did not have mechanism to prevent backflow and the subsequent over pressurization of the hose, although required
- Judgment of needs include:
 - improving engineering, design and testing of waste retrieval equipment, and revision of procedures and processes for review of engineering designs
 - an engineering analysis of whether the retrieval pump can continue to be safely operated in tank S-102
 - better analysis of high-probability/low-consequence accident scenarios in the tank farms, improving procedures for responding to abnormal events in the tank farms, and correcting inconsistencies in the implementation of take cover protective actions
 - establishing and implementing better protocols for industrial hygiene monitoring, strengthening communications between emergency responders and the on-site medical provider, and improving medical monitoring for individuals with health symptoms and/or complaints following an accident
 - better defining and implementing a process for identifying potential leaks or spills and strengthening radiological conduct of operations in the tank farms
 - improving oversight of waste retrieval activities to ensure stringent nuclear safety and other requirements are met



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Corrective Action Plan

- Conduct extent of condition reviews
- Investigate causes of spill event (DOE Type A Accident Investigation and contractor investigations)
- Develop Corrective Action Plan
- Cleanup spill site
- Improve DOE oversight of contractor radiological control practices, engineering and operations



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