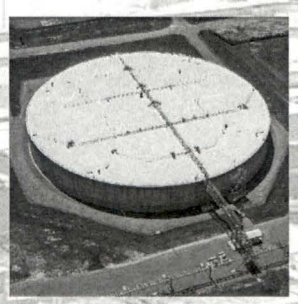
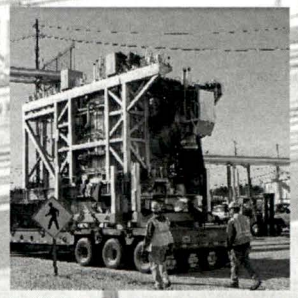
Savannah River Remediation
AECOM | BECHTEL | CH2M | BWXT

SRR-CWDA-2018-00047, Revision 1



SAVANNAH RIVER SITE
F AND H AREA TANK FARMS
NRC Onsite Observation Visit
August 13-14, 2018



Larry Romanowski
Waste Disposal Authority

Savannah River Remediation

AECOM | BECHTEL | CH2M | BWXT

We do the right thing.

August 13, 2018

Savannah River Site F and H Area Tank Farms NRC Onsite Observation Visit

Agenda: 08/13/2018

NRC H and F Area Tank Farms Onsite Observation			
Monday, August 13, 2018			
Start	End	Topic	Location
8:00	8:45	Badging/Travel	Meet 703-46
8:45	9:00	Inbrief	705-1C, Room 34 A-B
9:00	10:00	Tank Closure Status [1] • Monitoring Activities • Closure Activities • Tank Closure Cesium Removal	705-1C, Room 34 A-B
10:00	11:30	Tank Farm Tour [2] • Tank 12, 15, 16 & TCCR • FTF Ancillary Structures	H-Tank Farm / F-Tank Farm
11:30	12:30	Lunch	766-H
12:30	2:00	Technical Discussions [3, 5] • Tank 12 Waste Release Testing • Draft TRR-Tank 18 Waste Release Testing	705-1C, Room 34 A-B
2:00	3:00	Technical Discussions [4, 5] • GSA PORFLOW Model • TRR-Environmental Monitoring	705-1C, Room 34 A-B
3:00	4:00	Technical Discussions [5] • NRC Technical Review Reports • Follow-up Discussions	705-1C, Room 34 A-B
4:00	4:30	Research Activities [3, 6] • DOE-SRS • NRC-CNWRA	705-1C, Room 34 A-B
4:30	5:00	NRC/SCDHEC Internal Review & Outbrief	705-1C, Room 34 A-B
5:00	5:15	NRC Depart	703-46A

[#] - Activity number from NRC Observation Guidance (ML18192A328)

Agenda: 08/14/2018

NRC H and F Area Tank Farms Onsite Observation			
Tuesday, August 14, 2018			
Start	End	Topic	Location
8:00	8:30	Badging/Travel	Meet 703-46A
8:30	8:45	Inbrief and Follow-up	705-1C, Room 34 A-B
8:45	11:00	Tank Farm Tour [2] • GSA Streams	Various Locations
11:00	12:15	Lunch	705-1C, Room 34 A-B
12:15	12:45	Follow-up Discussions	705-1C, Room 34 A-B
12:45	1:15	NRC/SCDHEC Internal Review	705-1C, Room 34 A-B
1:15	1:45	Outbrief	705-1C, Room 34 A-B
1:45	2:00	Travel/NRC Depart	703-46A

[#] - Activity number from NRC Observation Guidance (ML18192A328)

NRC Observation Guidance

- **Activities**

1. Discuss recent DOE tank closure and related activities, including deployment of the in tank Cesium (Cs) removal system.
2. If practical, DOE to provide a tour of the tank farms to observe progress made on tank farm closure, and/or provide a tour of General Separations Area (GSA) streams.
3. Discuss recent DOE research activities and/or take tour of SRNL.
4. Discuss DOE GSA PORFLOW model update/related activities.

[*Guidance for August 13-14, 2018, Monitoring Onsite Observation Visit to the Savannah River Site, F and H Area Tank Farms*, ML18192A328.]

NRC Observation Guidance

- **Activities**

5. **Discuss recently NRC issued Technical Review Reports (TRRs) issued since the February 2016 OOV.**
   - Tank 12 and 16 Grouting TRR, ADAMS Accession No. ML16231A444
   - Tank 12 Inventory and Special Analysis TRR, ADAMS Accession No. ML17277B235
   - FTF and HTF Environmental Monitoring TRR, ADAMS Accession No. ML18051B153
   - Draft Tank 18 Real Waste Testing and Associated PA Documentation
6. **NRC to discuss recent CNWRA research activities**

[*Guidance for August 13-14, 2018, Monitoring Onsite Observation Visit to the Savannah River Site, F and H Area Tank Farms*, ML18192A328.]

Technical Discussion Topics

Technical Discussions: 08/13/2018 (am)

- (1) - Status Monitoring Activities
- (1) - Status Tank Farm Closure Activities
- (1) - Overview Tank Closure Cesium Removal

(#) - Activity number from NRC Observation Guidance [ML18192A328]

Status Update: F and H Tank Farm NDAA 3116 Activities

- **July 2015: First Joint F and H Tank Farm Onsite Observation Visit**
  - *The U.S. Nuclear Regulatory Commission July 28-29, 2015 Onsite Observation Visit Report for the Savannah River Site Combined F and H-Tank Farm Closure (Docket No. PROJ0734)* [ML15239A628]
- **September 2015: Completed Grouting of Tank 16**
- **October 2015: NRC Combined Monitoring Plan Issued**
  - *U. S. Nuclear Regulatory Commission Plan for Monitoring Disposal Actions Taken by the U. S. Department of Energy at the Savannah River Site F-Area and H-Area Tank Farm Facilities in Accordance with the National Defense Authorization Act for Fiscal Year 2005* [ML15238A761]
- **November 2015: NRC Technical Review Report - Tank 16 Inventory**
  - *Technical Review of Final Inventory Documentation for Tank 16H at the Savannah River Site* [ML15301A830]

Status Update: F and H Tank Farm NDAA 3116 Activities

- **November 2015: NRC Technical Review Report - Tank 16 Special Analysis**
  - *Technical Review of "Tank 16H Special Analysis for the Performance Assessment for the H-Tank Farm at the Savannah River Site", SRR-CWDA-2014-00106 Rev. 1, February 2015* [ML15301A710]
- **January 2016: Initiated Grouting of Tank 12**
- **February 2016: F and H Area Tank Farms Onsite Observation Visit**
  - *The U.S. Nuclear Regulatory Commission February 2-3, 2016, Onsite Observation Visit Report for the Savannah River Site Combined F and H-Tank Farm Closure (Docket No. PROJ0734)* [ML16111B194, ML16111B200]
- **April 2016: Completed Grouting of Tank 12**

Status Update: F and H Tank Farm NDAA 3116 Activities

- **May 2016: Telecon – Tank 12 and 16 Grouting**
  - *Summary of Telephone Conference Held on May 17, 2016, Between the U. S. Nuclear Regulatory Commission Staff and Department of Energy Representatives Concerning NRC Staff Questions Regarding Tanks 12H and 16 H Grouting Operations* [ML16167A238, ML16167A239]
- **June 2016: Telecon – Technical Discussion Regarding Action Items #14 & 15 from February 2016 Visit**
- **August 2016: NRC Technical Review Report – QA Documentation for CBP Toolbox**
  - *Technical Review of Quality Assurance Documentation for the Cementitious Barriers Partnership Toolbox* [ML16196A179]
- **September 2016: NRC Technical Review Report – Tank 12 and 16 Grouting**
  - *Technical Review of Grout Documentation for Tanks 12H and 16H at SRS H-Tank Farm Facility* [ML16231A444]

Status Update: F and H Tank Farm NDAA 3116 Activities

- **December 2016: NRC Technical Review Report –Dose Calculation Methodology for Liquid Waste PAs**
  - *Technical Review of "Dose Calculation Methodology for Liquid Waste Performance Assessments at the Savannah River Site", SRR-CWDA-2013-00058, Rev. 1, July 2014* [ML17277B235]
- **January 2018: NRC Technical Review Report – Tank 12 Inventory and Special Analysis**
  - *Technical Review of Final Inventory and Special Analysis Documentation for Tank 12H at Savannah River Site* [ML17277B235]
- **May 2018: NRC Technical Review Report – FTF and HTF Environmental Monitoring**
  - *Technical Review of Environmental Monitoring Reports for F-Area and H-Area Tank Farm Facilities (PROJ0734)* [ML18051B154]

Routine Document List

Table 1-1. Documents Prepared by DOE That Would Be Useful to NRC		
Topical Area	**Document**	**Approximate Availability/Frequency**
Groundwater	Eastern OU Groundwater Monitoring Report	August
	Western OU Groundwater Monitoring Report	August
	FTF Groundwater Monitoring Report	March
	HTF Groundwater Monitoring Report	March
Air Monitoring	SRS Annual Environmental Report	September
Performance Assessment Documentation	SRS Liquid Waste Facilities Performance Assessment Maintenance Annual Implementation Plan	March
	Performance Assessment Revisions	As issued
	Special Analyses	As issued
Tank Operational Reports	Annual Radioactive Waste Tank Inspection Program Report	June
Tank or Tank Farm Closure Documentation	Presentation Requesting Preliminary Approval to Cease Waste Removal and Enter Sampling and Analysis	As issued to support tank closure
	Closure Modules	As issued to support tank closure
	Final Configuration Reports	As issued to support tank closure

DOE = U.S. Department of Energy, NRC = U.S. Nuclear Regulatory Commission, OU = Operable Unit
SRS = Savannah River Site, FTF = F-Area Tank Farm, HTF = H-Area Tank Farm

2016 Summary

WSRC-RP-2000-4134 (dated: 10/2016)

ERD-EN-2005-0127 (dated: 10/2016)

SRNS-RP-2016-00179 (Annual 2015)

2015 Environmental Report
(http://www.srs.gov/general/pubs/ERsum/er15/index.html)

SRR-CWDA-2015-00152

SRR-STI-2016-00346 (Annual 2015)

SRR-CWDA-2015-00159-R1 (Tank 16)

SRR-CWDA-2016-00068-R0 (Tank 12)

Routine Document List

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DOE = U.S. Department of Energy, NRC = U.S. Nuclear Regulatory Commission, OU = Operable Unit
SRS = Savannah River Site, FTF = F-Area Tank Farm, HTF = H-Area Tank Farm

2017 Summary

WSRC-RP-2000-4134 (dated: 10/2017)

ERD-EN-2005-0127 (dated: 10/2017)

SRNS-RP-2017-00073 (Annual 2016)

2016 Environmental Report
(http://www.srs.gov/general/pubs/ERsum/er16/index.html)

SRR-CWDA-2016-00119

SRR-STI-2017-00309 (Annual 2016)

Routine Document List

2018 Summary

Table 1-1. Documents Prepared by DOE That Would Be Useful to NRC		
Topical Area	**Document**	**Approximate Availability/Frequency**
Groundwater	Eastern OU Groundwater Monitoring Report	August
	Western OU Groundwater Monitoring Report	August
	FTF Groundwater Monitoring Report	March
	HTF Groundwater Monitoring Report	March
Air Monitoring	SRS Annual Environmental Report	September
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DOE = U.S. Department of Energy, NRC = U.S. Nuclear Regulatory Commission, OU = Operable Unit
SRS = Savannah River Site, FTF = F-Area Tank Farm, HTF = H-Area Tank Farm

SRNS-RP-2018-00226 (Annual 2017)
[To be provided as Action Item from this Visit]

SRR-CWDA-2017-00096

SRR-STI-2018-00146_R1 (Annual 2017)
[To be provided as Action Item from this Visit]

Status 2/2016 H and F Area Tank Farms Visit: Action Items

- Action Items (NRC OOV Report ADAMS #ML16111B174)

1. DOE to provide NRC an electronic copy of presentation material including action items and attendance rosters. [SRR-CWDA-2016-00009, Revision 1] [NRC AI # TF-CY-16-01-001] Complete
2. DOE to provide NRC a copy of Revision 1 to *Action Item Follow-up in Support of U.S. Nuclear Regulatory Commission Onsite Observation Visit on July 28-29, 2015*, SRR-CWDA-2015-00170, when issued. [NRC AI # TF-CY-16-01-002] Complete
3. DOE to provide NRC a copy of the Tank 16 Final Configuration Report when issued. [NRC AI # TF-CY-16-01-003] Complete: SRR-CWDA-2015-00159-R1
4. DOE to provide NRC an electronic copy of *Release of Radionuclides from Tank Waste Residual Solids: Actual Waste Testing with Tank 18 Residuals*. [SRNL-MS-2016-00012] [NRC AI # TF-CY-16-01-004] Complete

Status 2/2016 H and F Area Tank Farms Visit: Action Items

- Action Items

5. DOE to provide NRC date/information for the rejected Tank 6 grout truck (ref. Action Item #5 from 7/2015 OOV). [NRC AI # TF-CY-16-01-005] Complete: SRR-CWDA-2016-00031
6. DOE to provide NRC five accepted and five rejected batch tickets from Tank 16 grouting. Batch ticket from 8/31/2015 to be included. [NRC AI # TF-CY-16-01-006] Complete: SRR-CWDA-2016-00031
7. DOE to provide NRC documentation on the Grade 120 blast furnace slag evaluation. [NRC AI # TF-CY-16-01-007] Complete: SRR-CWDA-2015-00057, SRR-CWDA-2015-00088
8. DOE to provide NRC a copy of the Tank 12 Grouting Strategy, Closure Assurance Plan, and Subcontractor Surveillance Plan. [NRC AI # TF-CY-16-01-008] Complete: LWO-LWQ-2016-00001, SRR-LWE-2014-00147, SRR-LWE-2015-00032
9. DOE to provide NRC video of auger contact with waste during annulus sampling (including a location where ventilation duct was cut). [NRC AI # TF-CY-16-01-009] Complete: SRR-CWDA-2016-00031

Status 2/2016 H and F Area Tank Farms Visit: Action Items

- Action Items

10. DOE to provide NRC a copy of *Task Technical and Quality Assurance Plan for Determining the Radionuclide Release from Tank Waste Residual Solids*, SRNL-RP-2013-00203, Rev. 3. [NRC AI # TF-CY-16-01-010] Complete
11. NRC to provide DOE feedback on Tank 18 residual solids testing parameters: [NRC AI # TF-CY-16-01-011] Complete: E-mail Transmittal
    - Sample FTF-1 versus composite sample
    - CO_2 Scrubbing
    - Silica
12. DOE to provide FY2016 Performance Assessment Maintenance Plan to SCDHEC. [NRC AI #TF-CY-16-01-012] Complete: SRR-CWDA-2015-00152
13. DOE to provide NRC a copy of the reference for Tank 16 Special Analysis use of a 1% gradient. [NRC AI # TF-CY-16-01-013] Complete: SRNL-L3200-2015-00008

Status 2/2016 H and F Area Tank Farms Visit: Action Items

- Action Items

14. **DOE to provide NRC additional information on triplicate sample analysis process (general).** [NRC AI # TF-CY-16-01-014] Complete: SRR-CWDA-2016-00031, SRR-CWDA-2011-00050 (Follow-up technical discussions on 6/7/2016, SRR-CWDA-2016-00070 provided)
15. **DOE to provide NRC additional information relative to Tank 16 Special Analysis GoldSim model benchmarking (17,000-year peak).** [NRC AI # TF-CY-16-01-015] Complete: SRR-CWDA-2016-00031, SRR-CWDA-2014-00060 (Follow-up technical discussions on 6/7/2016)
16. **DOE to provide NRC a copy of the Unreviewed Waste Management Question covering use of clean cap grout in Tank 16.** [NRC AI # TF-CY-16-01-016] Complete: SRR-CWDA-2015-00096, SRR-CWDA-2015-00100

Status: Tank Closure Progression

SRS WASTE REMOVAL AND TANK CLOSURE STATUS

BWRE

Tank Prep

- 2 F (I) — Feed: TCCR #2 or SWPF; Tank: Closure
- 3 F (I) — Salt Feed; Tank: Closure
- 9 H (I) — Feed: TCCR #1; Tank: Closure
- 27 F (IIIA) — Salt Feed Starting with SaB 9 + TCCR #2; Tank: Hub Tank
- 44 F (IIIA) — Salt Feed Starting with SaB 11; Tank: Closure

Sludge in Progress

- 26 F (IIIA) — Feed: SIB 10,11; Tank: Hub

Salt in Progress

- 10 H (I) — Feed: TCCR #1; Tank: TCCR Hub
- 41 H (IIIA) — Salt Feed; Tank: Blend Tank

Complete

- 4 F (I) — Tank: Storage
- 7 F (I) — Tank: Hub
- 8 F (I) — Tank: Storage
- 11 H (I) — Tank: TCCR 1 Hub
- Not Declared: 13 H (II) — Tank: Hub
- Not Declared: 24 H (IV) — Tank: Storage

HEEL REMOVAL

Tank Prep

In Progress

- 15 H (II) — Feed: SIB 10, 11; Tank: Closure

LEGEND

LEGEND
- Unusable Space
- Usable Space
- Low-Level Waste
- Aluminum-Rich Leachate
- DWPF Recycle
- Evaporable Supernate
- Concentrated Supernate
- Saltcake
- Dissolved Salt Solution
- Salt Batch Prep & Feed
- Precipitate
- Sludge
- Sludge Batch Prep & Feed

Shaded background indicates Tank has identified leak sites

SaB - Salt Batch for SWPF
SIB - Sludge Batch
TCCR - Tank Closure Cesium Removal

Doc No SRR-CWDA-2018-00011
Revison - Date ..... Rev 1 - 6/28/2018
Author ..... Bre Cantrell
Contact No 803-557-6753

CLOSURE

Sample/ Analysis

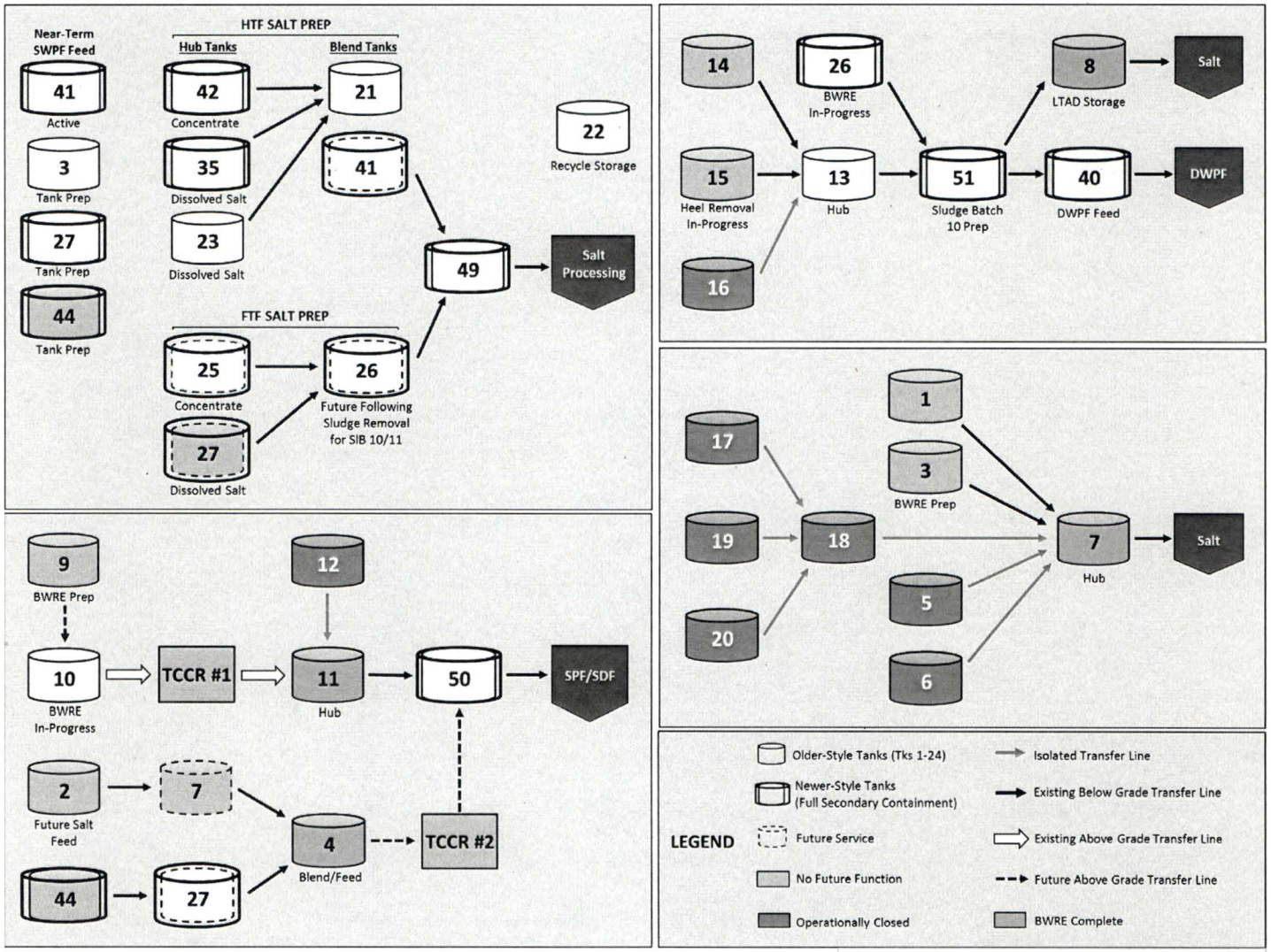
Grouting

Operationally Closed

Removed from Permit

- 20 F (IV) Operationally Closed 1997
- 17 F (IV) Operationally Closed 1997
- 18 F (IV) Operationally Closed 2012
- 19 F (IV) Operationally Closed 2012
- 5 F (I) Operationally Closed 2013
- 6 F (I) Operationally Closed 2013
- 16 H (II) Operationally Closed 2015
- 12 H (I) Operationally Closed 2016

Status: Tank Closure Progression



All figures represent the most recent planning as of 2/28/2018

Tanks 12 Grouting

January-16

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19 Lift-1[2]	20 Lift-1[2]	21	22	23
24 31	25	26	27	28	29	30

February-16

S	M	T	W	T	F	S
	1 Lift-4	2 Lift-4	3	4 Lift-4	5 Lift-4	6
7	8 Lift-2/3	9	10 Lift-5	11 Lift-5	12 Lift-6	13
14	15	16 Lift-6	17 Lift-6	18	19	20
21	22 Lift-6	23 Lift-6	24	25 Lift-6	26 Lift-6	27
28	29 Lift-6					

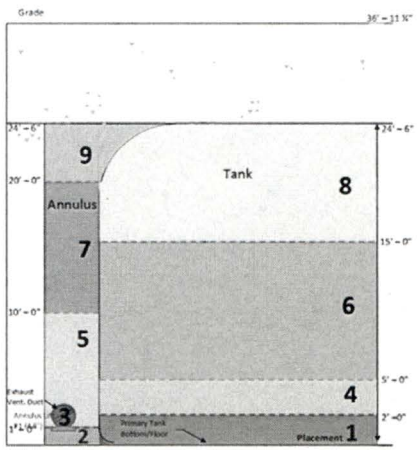
March-16

S	M	T	W	T	F	S
		1 Lift-7/9	2 Lift-8	3	4	5
6	7 Lift-8	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

April-16

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27 Finish	28	29	30

Tank 12 Grouting Calendar[1]



Grout Lifts

Approximate Values per Tank

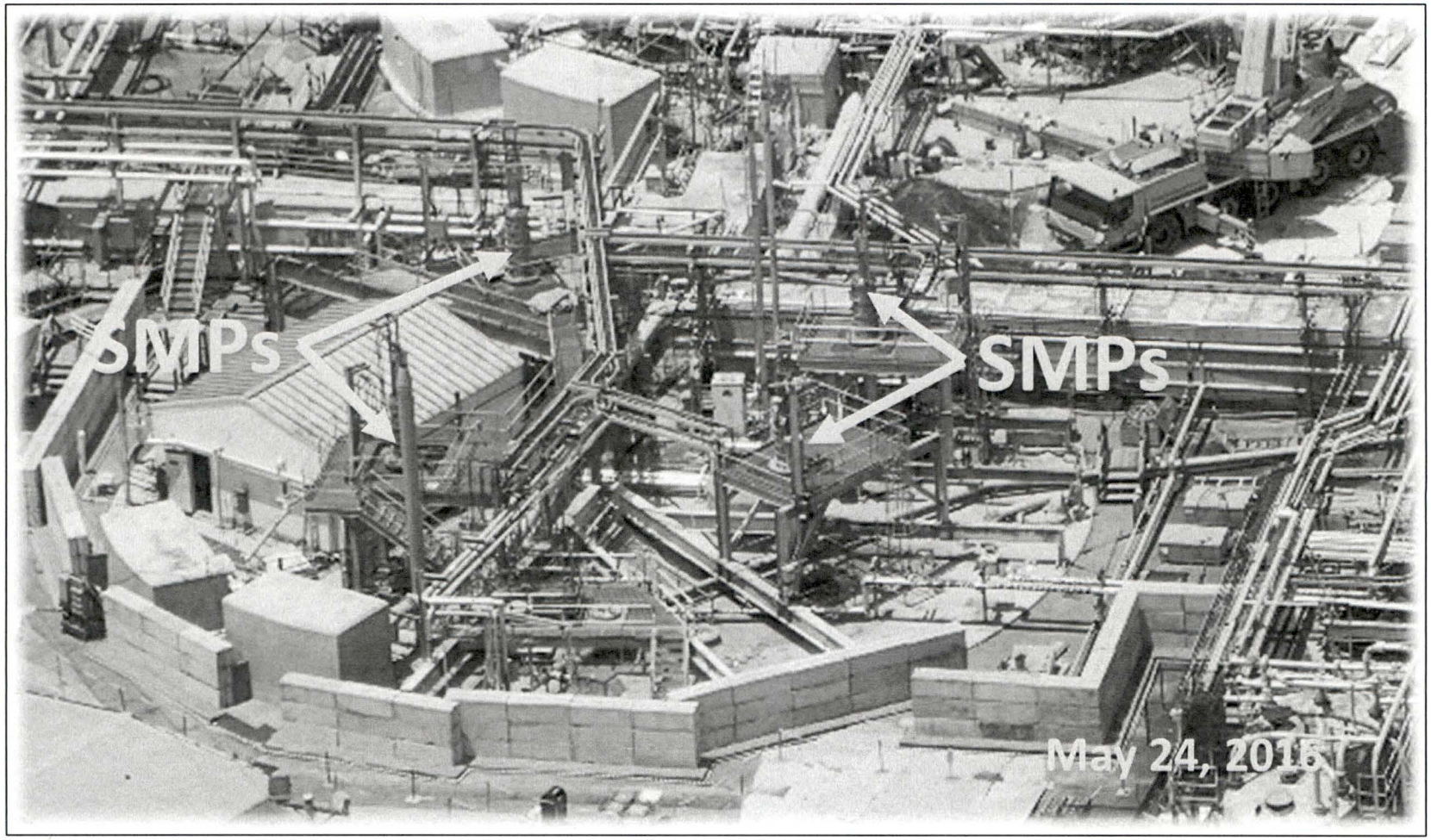
LIFT	yd³	Trucks	Gallons
1	322	40	65,000
2	23	3	4,500
3	32	4	6,500
4	483	60	97,500
5	203	25	41,000
6	1,610	201	325,000
7	225	28	45,500
8	1,530	191	309,000
9	101	13	20,500
Total:	4,529	565	914,500

[1] Video is available for all dates noted in red.

[2] The 20 grout trucks delivered on 1/19/2016 and the first seven grout trucks delivered on 1/20/2016 contained grout utilizing Grade 100 blast furnace slag (BFS). All remaining grout trucks used to fill Tank 12 utilized Grade 120 BFS.

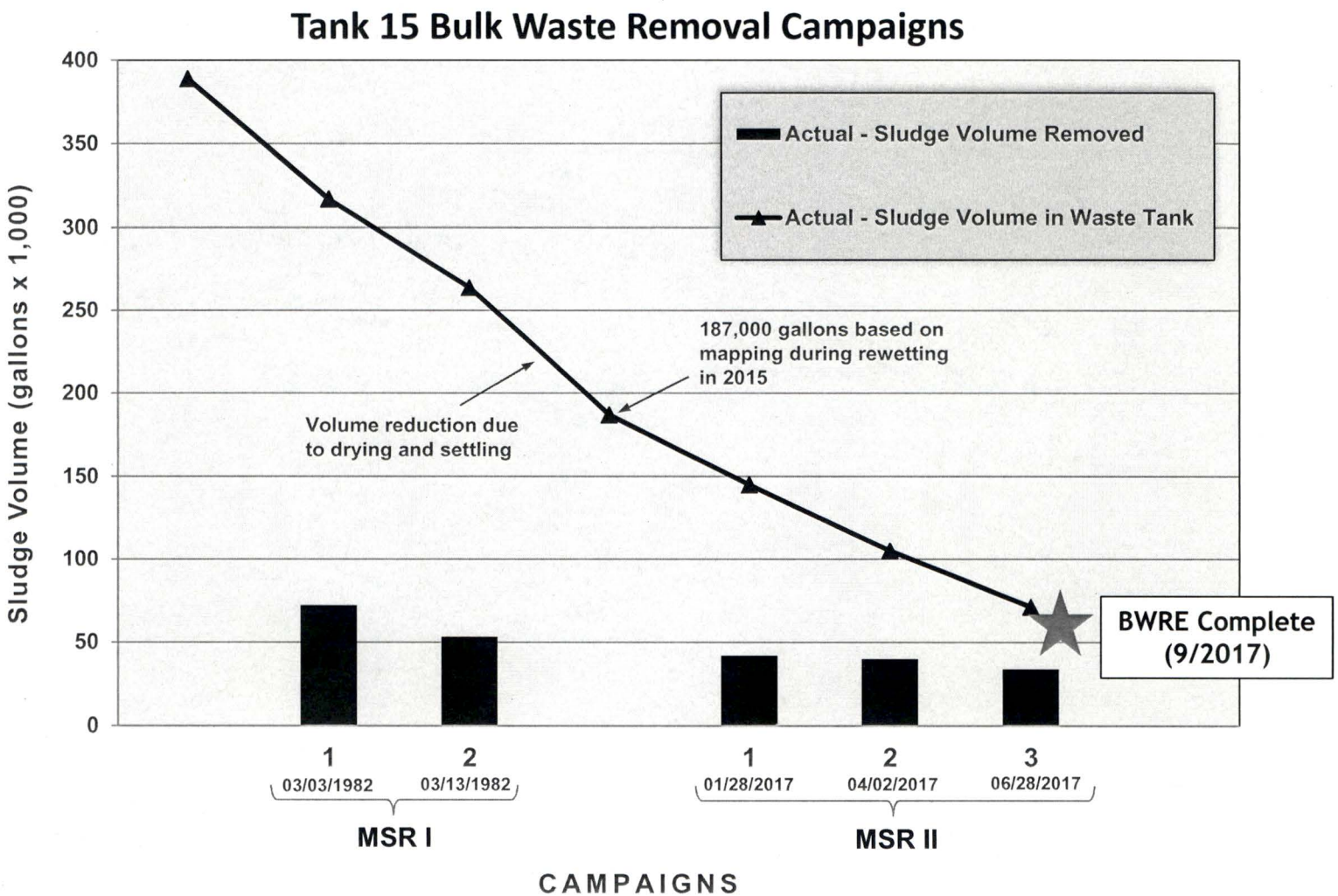
- Days Tank 12 primary tank received grout
- Days Tank 12 annulus received grout
- Days Tank 12 riser(s)/spray chamber(s) received grout
- Days Tank 12 failed cooling coils received grout
- Days Tank 12 intact cooling coils received grout
- Days Tank 12 in tank equipment received grout

Tank 15



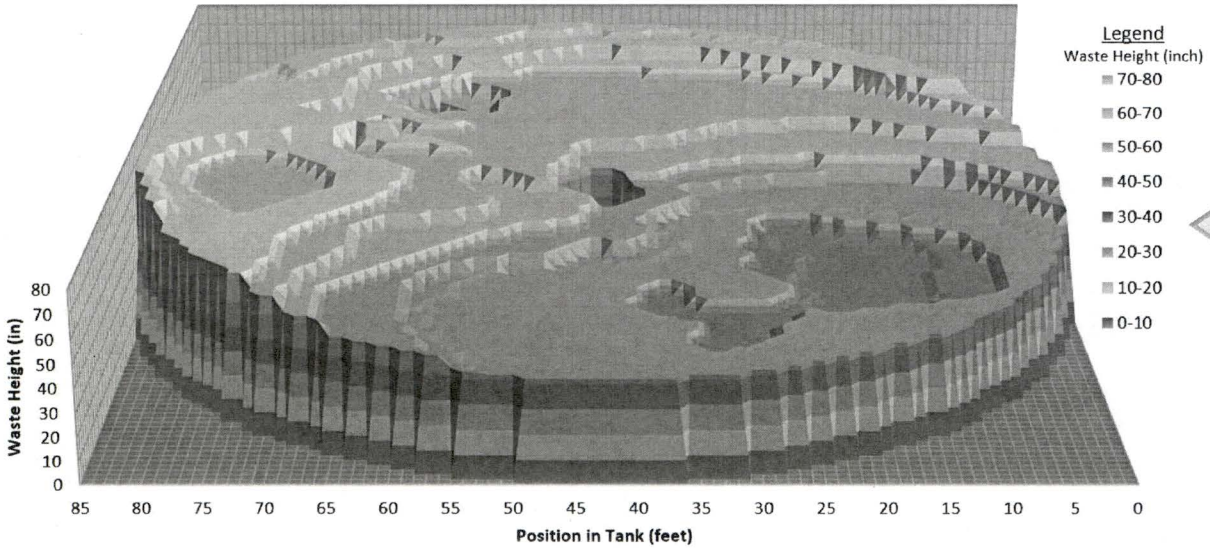
SMP: Submersible Mixer Pump

Tank 15 Sludge Removal Results



Note: Estimates of sludge volume removed for MSR II campaigns assume volume below liquid level are solids

Tank 15

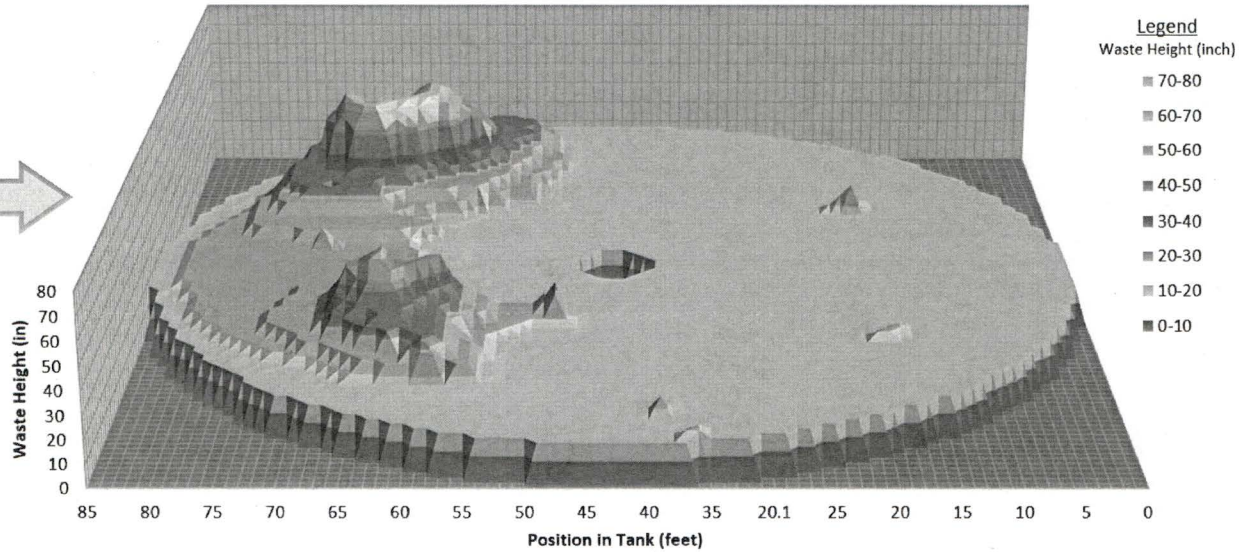


Before MSR II

(No free liquid; prior to rewetting of the sludge)

After MSR II

(Liquid Level = ~17 inches)



Tank 15 Heel Removal Path Forward

Step 1 - Mound Dispersion

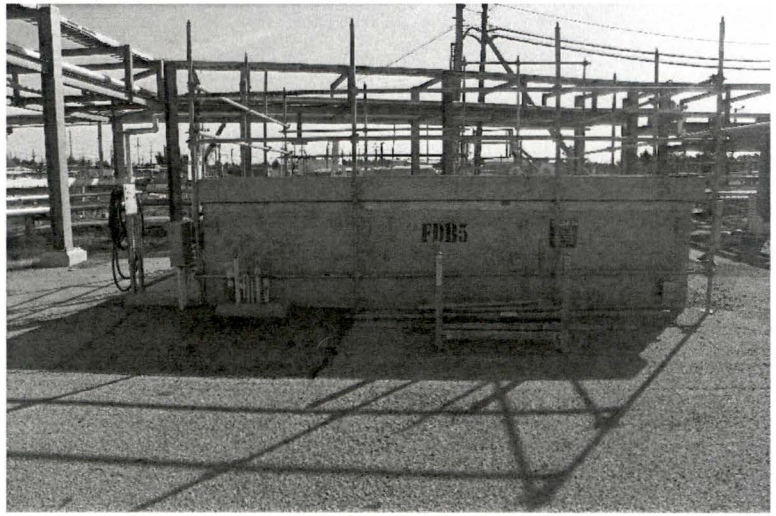
- 3 SMPs running at higher RPMs resulting in increased discharge velocities and longer Estimated Cleaning Radii (ECR) for each pump
- Operation of 3 SMPs in index and oscillatory modes for extended duration to attack resilient mound under Riser 2 to break up solids
- Operational Sequence
  - Lower Riser 8 SMP to 38" (complete)
  - Extended Indexing Runs focused at Riser 2 mound (complete)
  - Perform sludge soundings under Riser 1 to gauge effectiveness (complete)
    - Level under Riser 1 reduced from ~61" down to ~33"
  - Repeat as long as effective (on-hold)
  - Replace Riser 2 SMP and install at a lower level (on-hold)

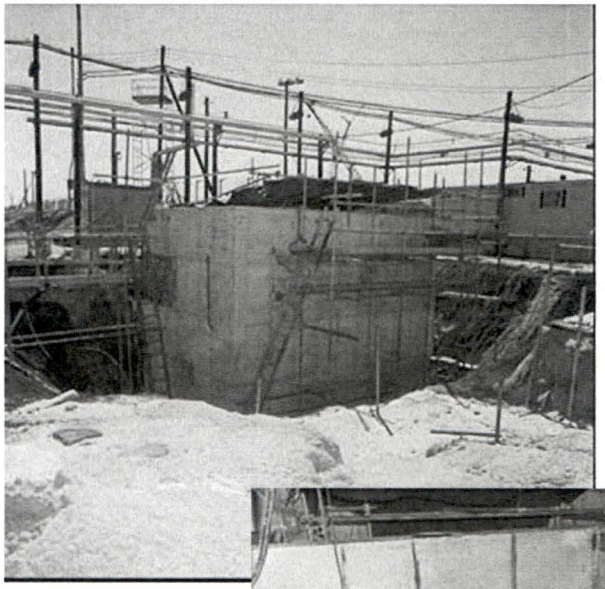
Step 2 - Support Sludge Batch 11 Preparation

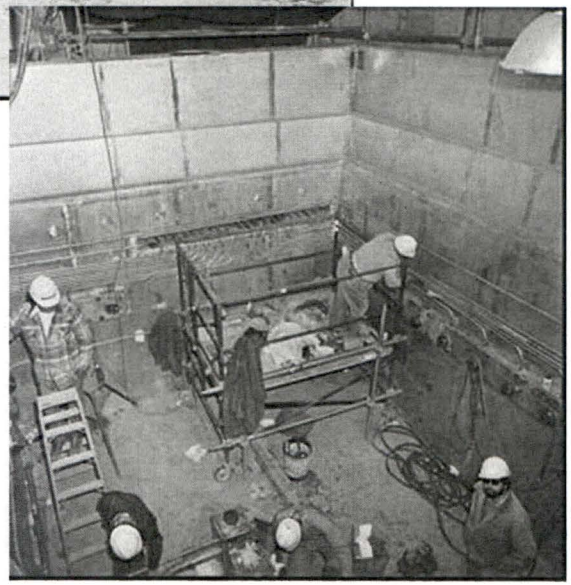
- Complete Tank 51 Sludge Batch 10 preparation and transfer to Tank 40
  - Estimated to be 3QFY2020 based on current schedules
- Tank 15 Heel waste slurried and transferred to Tank 13 (Hub tank)
- Tank 13 waste slurried and transferred to Tank 51 for Sludge Batch 11 prep

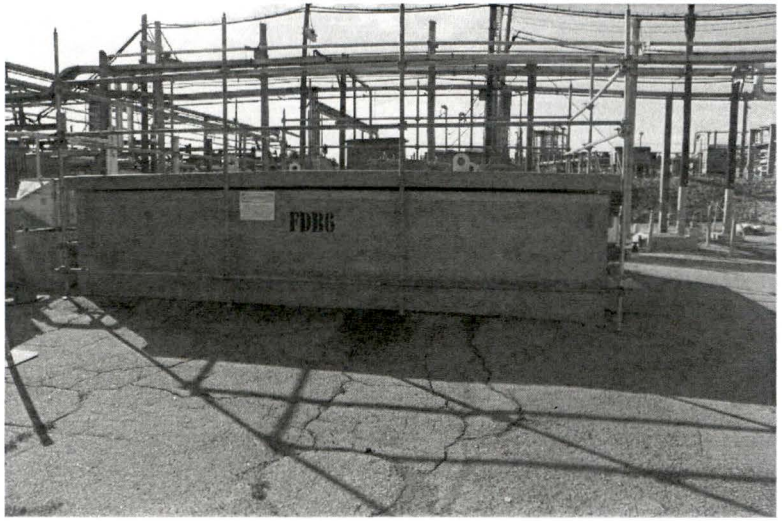
F-Area Tank Farm Ancillary Structures

Diversion Boxes: FDB-5 and FDB-6

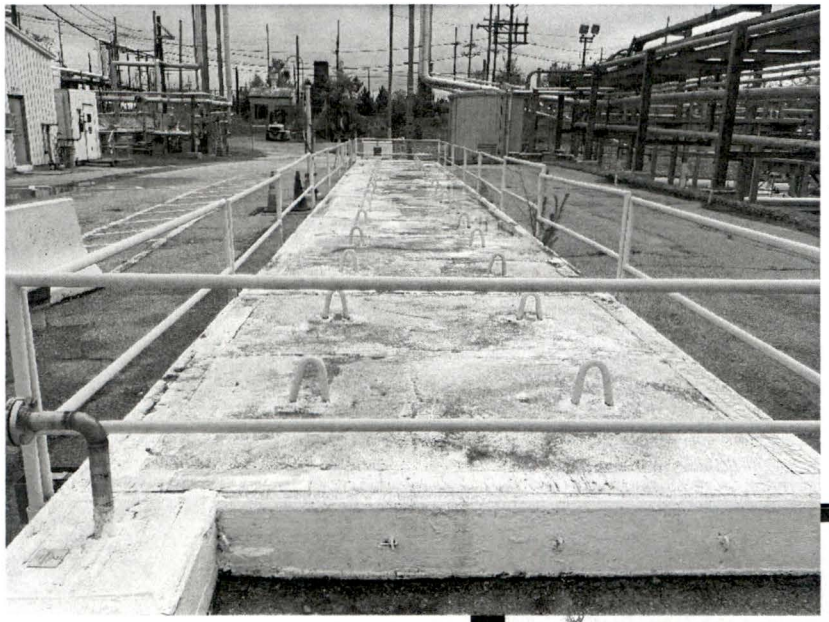




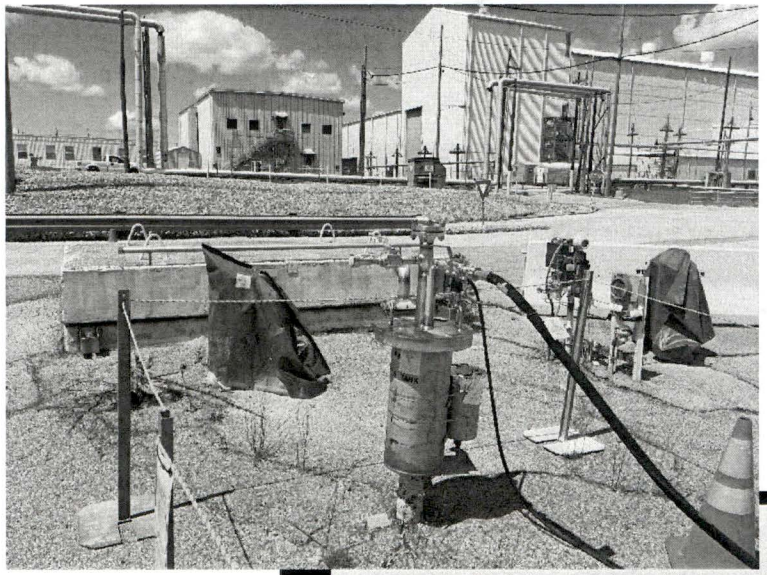


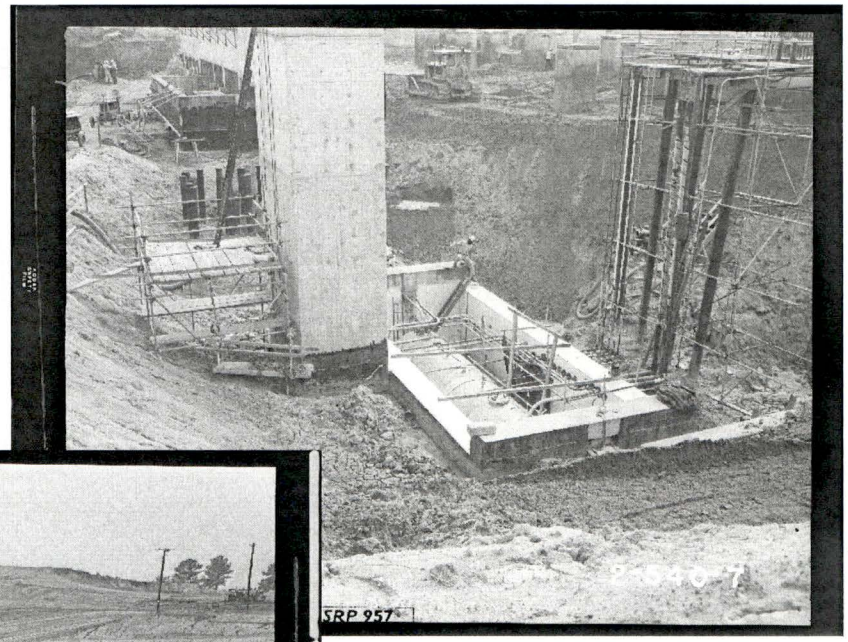


Diversion Boxes: FDB-1



F- Area Catch Tank





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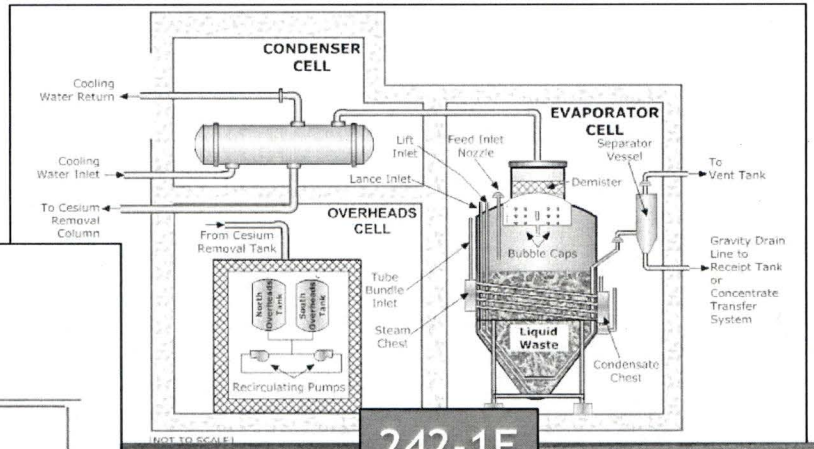
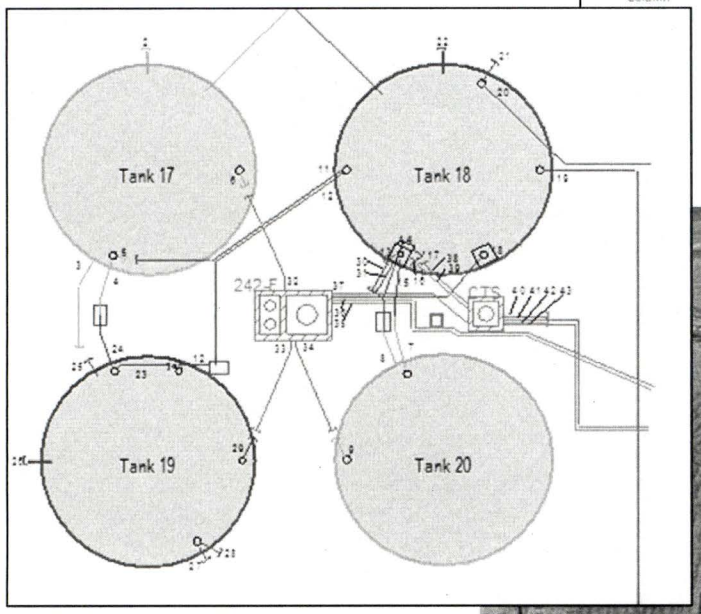
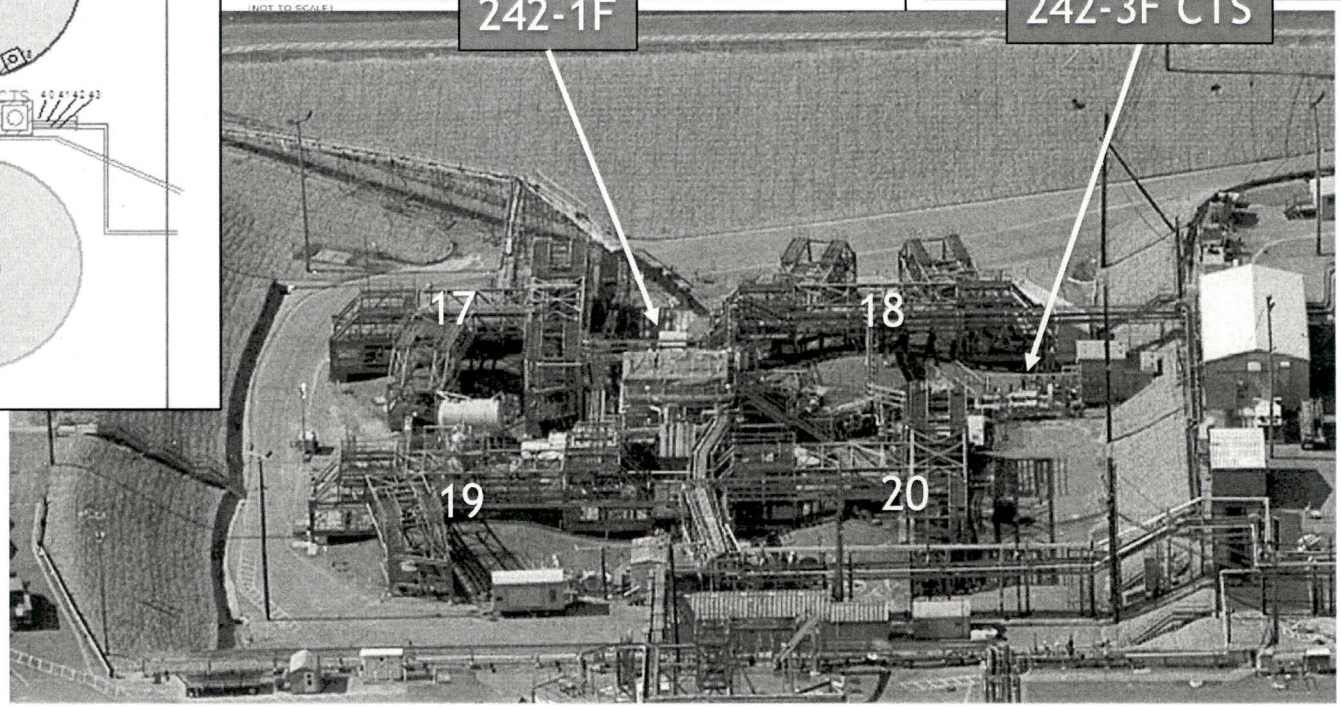
242-1F Evaporator System & 242-3F Concentrate Transfer System







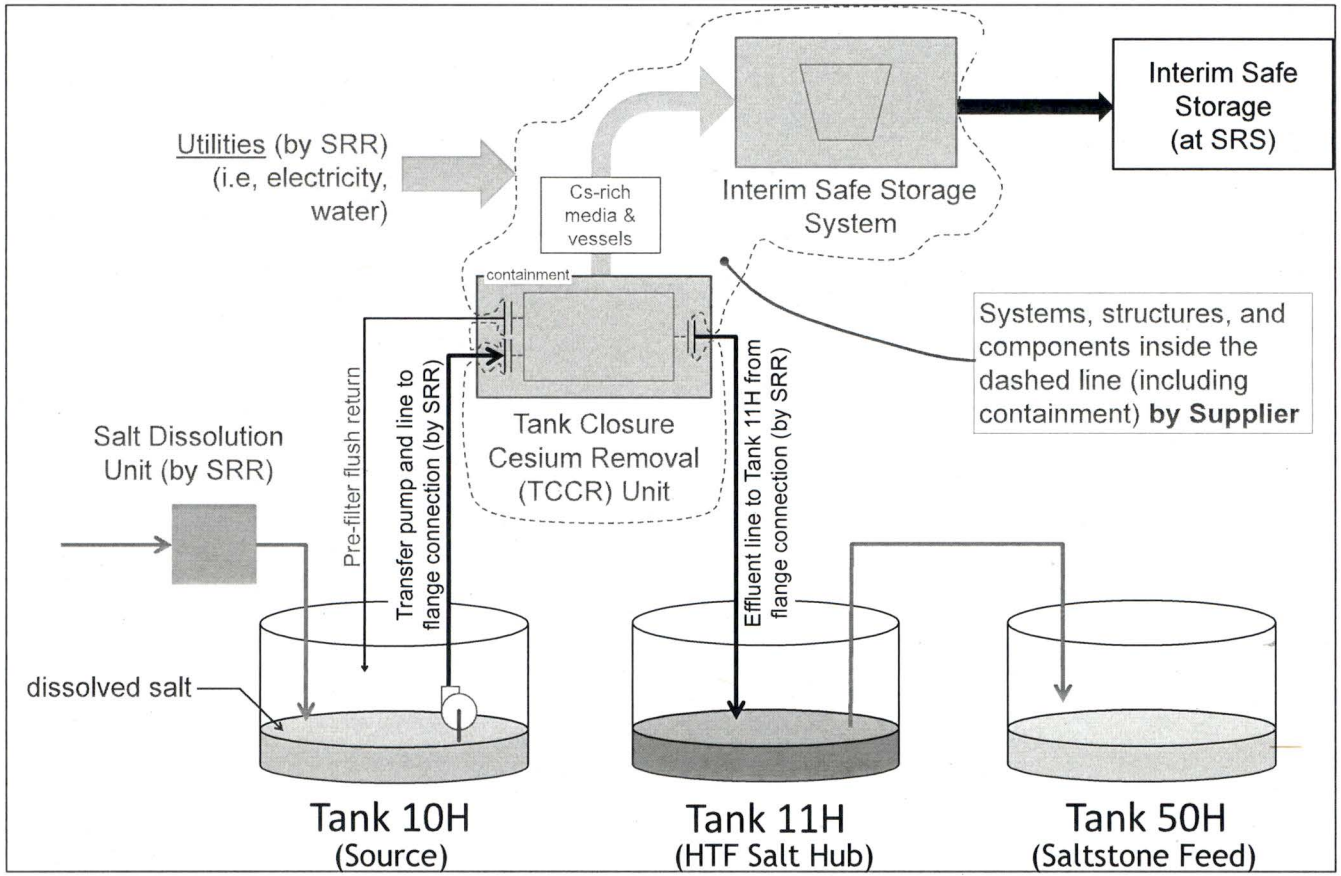
Tank Closure Cesium Removal

- **Tank Closure Cesium Removal (TCCR) was identified as a potential new and innovative salt waste treatment technology in April 2015. TCCR technology was selected because:**
  - Commercial application of the technology in cesium removal, and successes, indicated the process may be mature enough to be applied as a demonstration on SRS high level waste tank salt waste
  - It was a modular at-tank treatment process that would operate virtually independent from other Liquid Waste System processes
  - The salt waste removed would be treated and readied for disposition at the Saltstone Disposal Facility
  - If successful, it would provide opportunity to supplement the cleanup capability of existing salt processing facilities

Project Timeline

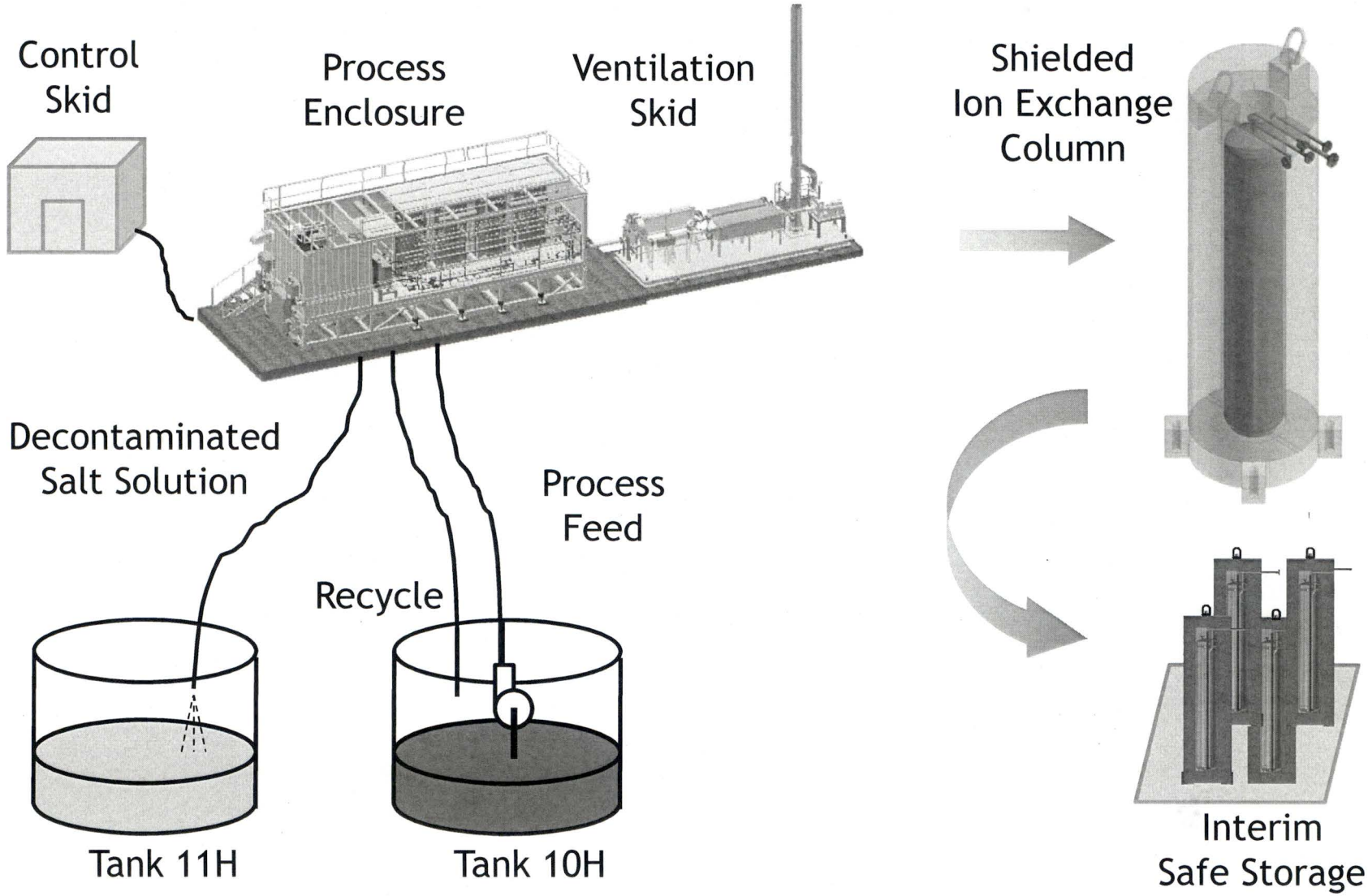
- 04/2015 - FFA Dispute Resolution Agreement - DOE agreed to issue a request for Expressions of Interest for commercial sources to treat salt waste
- 06/2015 - Expression of Interest issued
- 01/2016 - Final proposals received for evaluation
- 07/2016 - Westinghouse Electric Company (WEC) subcontract awarded
- 11/2016 - 50% design review at SRS
- 08/2017 - Design completed
- 09/2017 - Fabrication completed
- 10/2017 - Facility Acceptance Testing initiated
- 04/2018 - TCCR equipment delivered

Conceptual Process Diagram

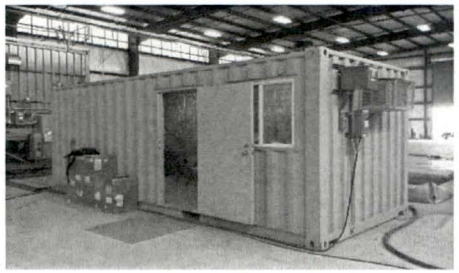


TCCR Concept

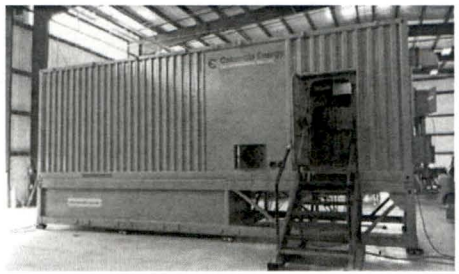
TCCR Process Overview



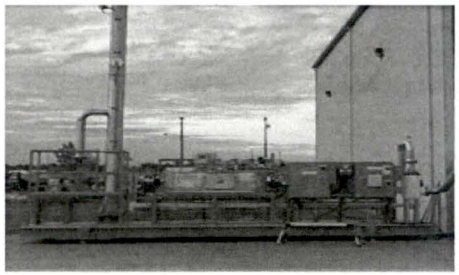
TCCR Site Plan in HTF



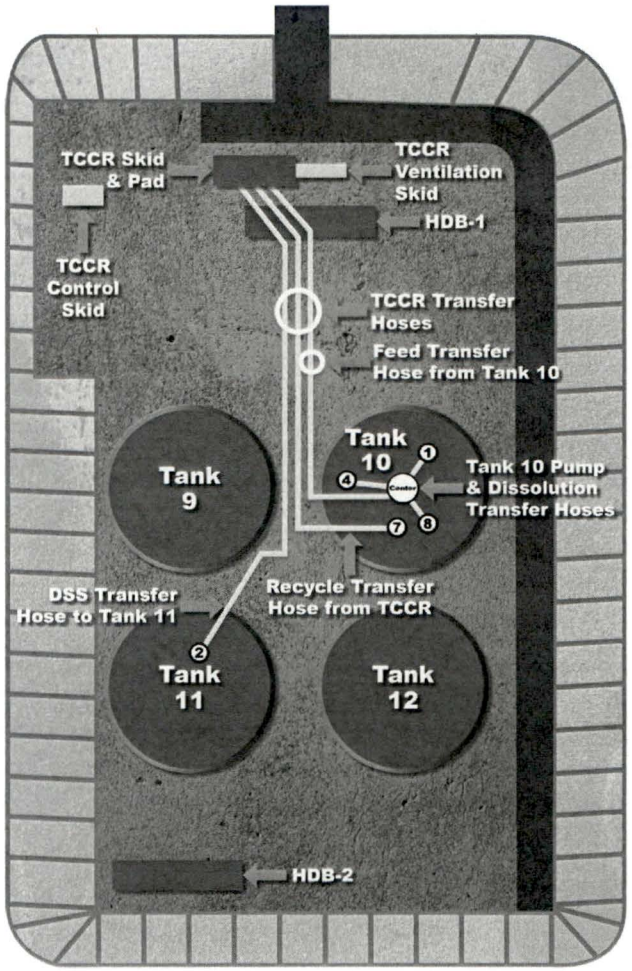
Control Skid



Process Enclosure

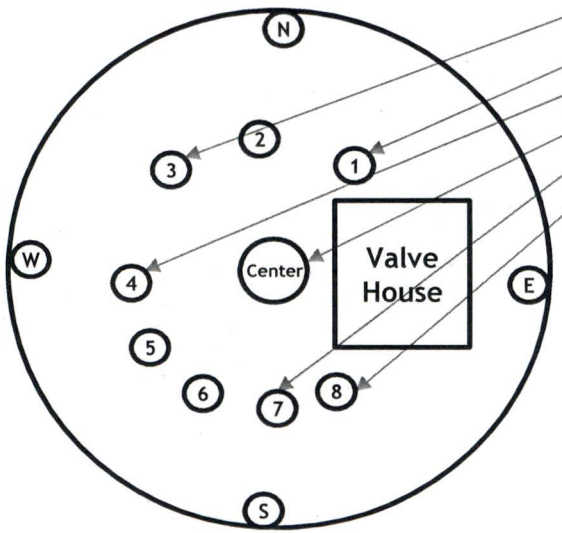


Ventilation Skid



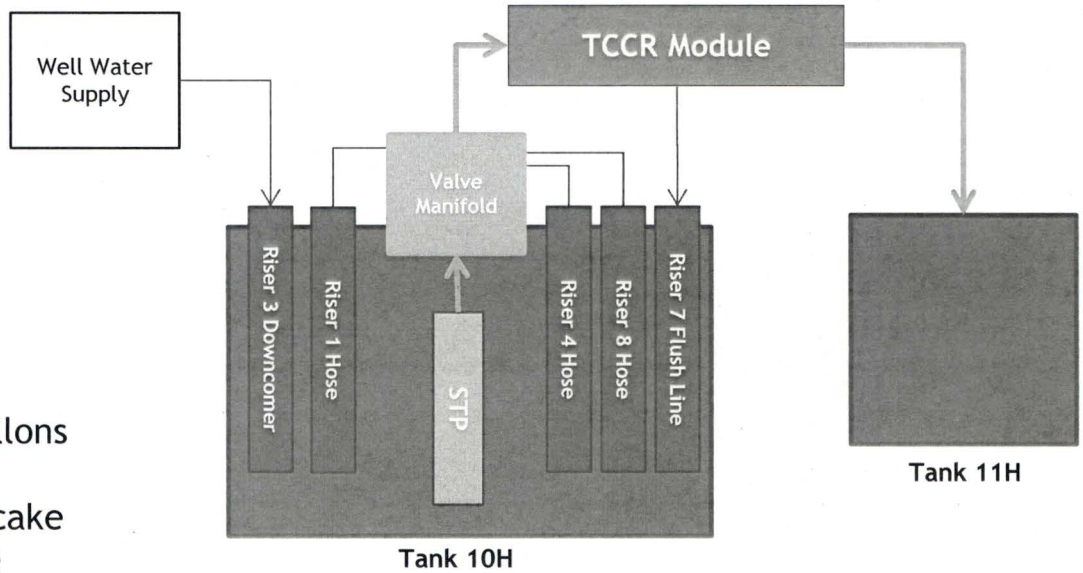
Tank 10H Equipment Overview

Tank 10H Riser Layout



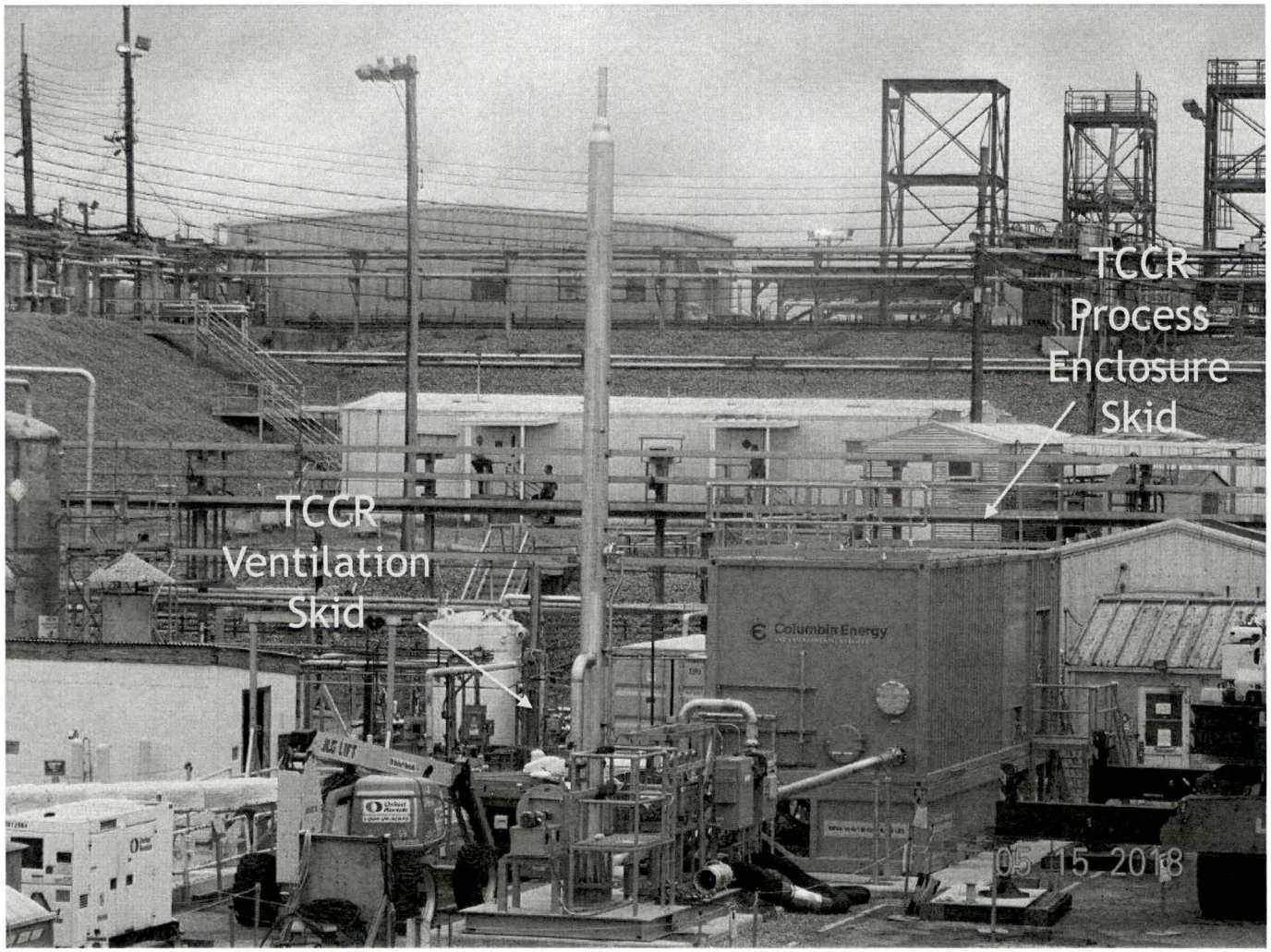
Riser 3: Well Water Downcomer
Riser 1 : Recirculation Hose in Spray Chamber
Riser 4 : Recirculation Hose in Spray Chamber
Center Riser : Valve Manifold and Submersible Transfer Pump (STP)
Riser 7: TCCR Flush Line
Riser 8 : Recirculation Hose in Spray Chamber

Process Diagram

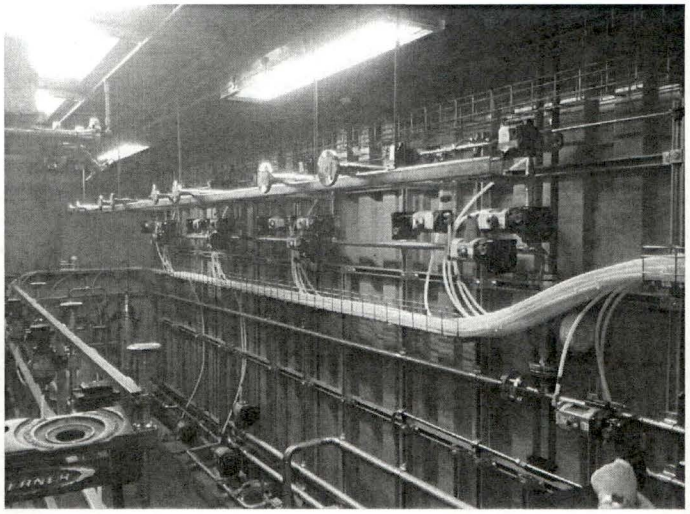


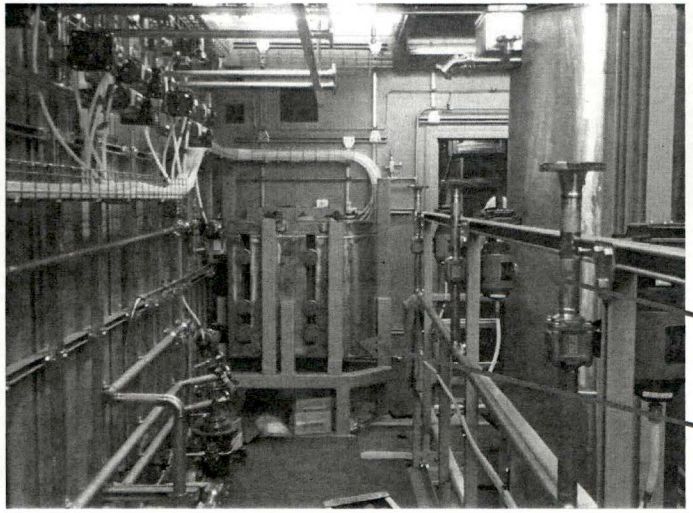
Tank 10H
Nominal Working Capacity: 750,000 gallons
Current Salt Level: ~72 inches
Current Contents: ~191,000 gallons saltcake
~3,000 gallons sludge

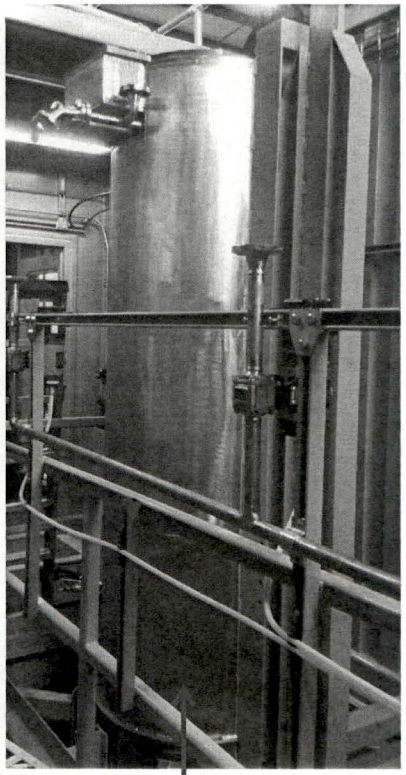
TCCR Equipment Skids



TCCR Process Enclosure Skid



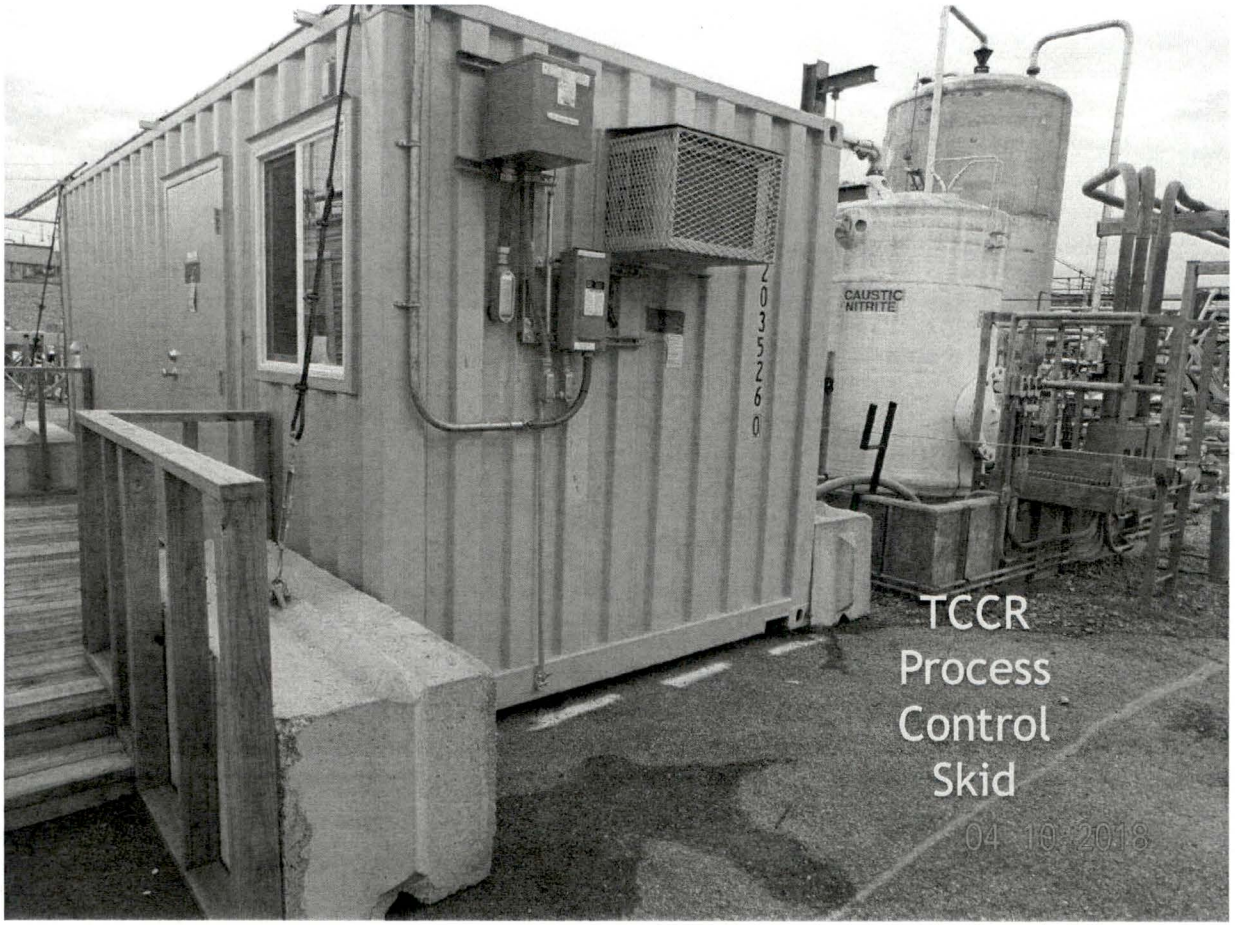




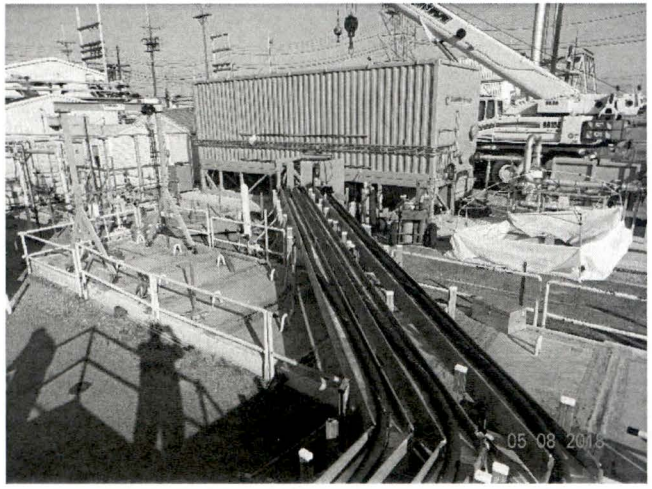
IXC Installed in Process Enclosure

Pre-filter Installed In Process Enclosure

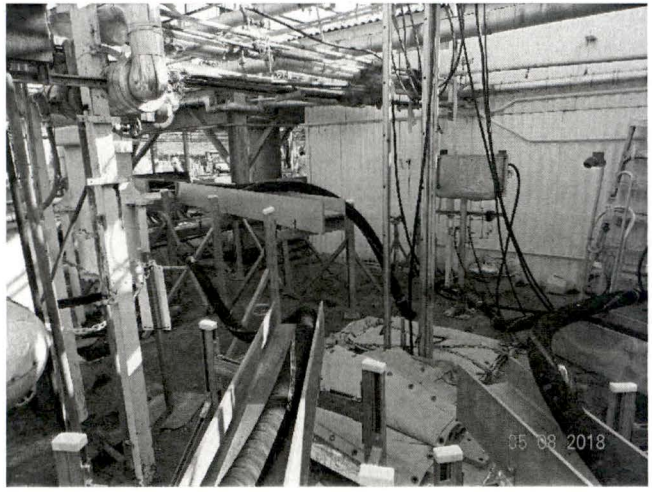
TCCR Equipment Skids



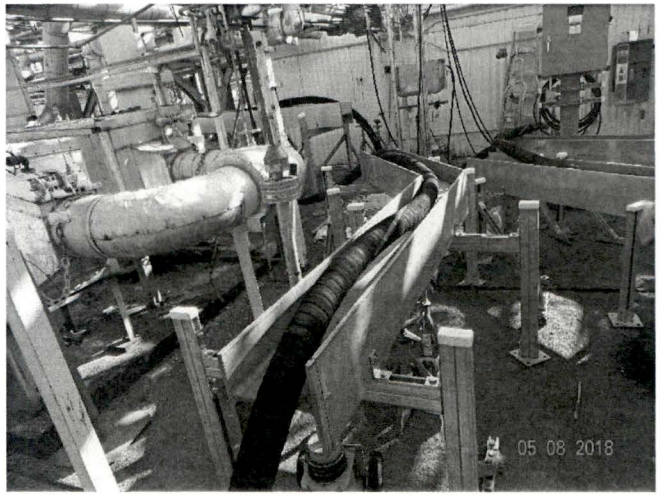
TCCR Transfer Hose Installation



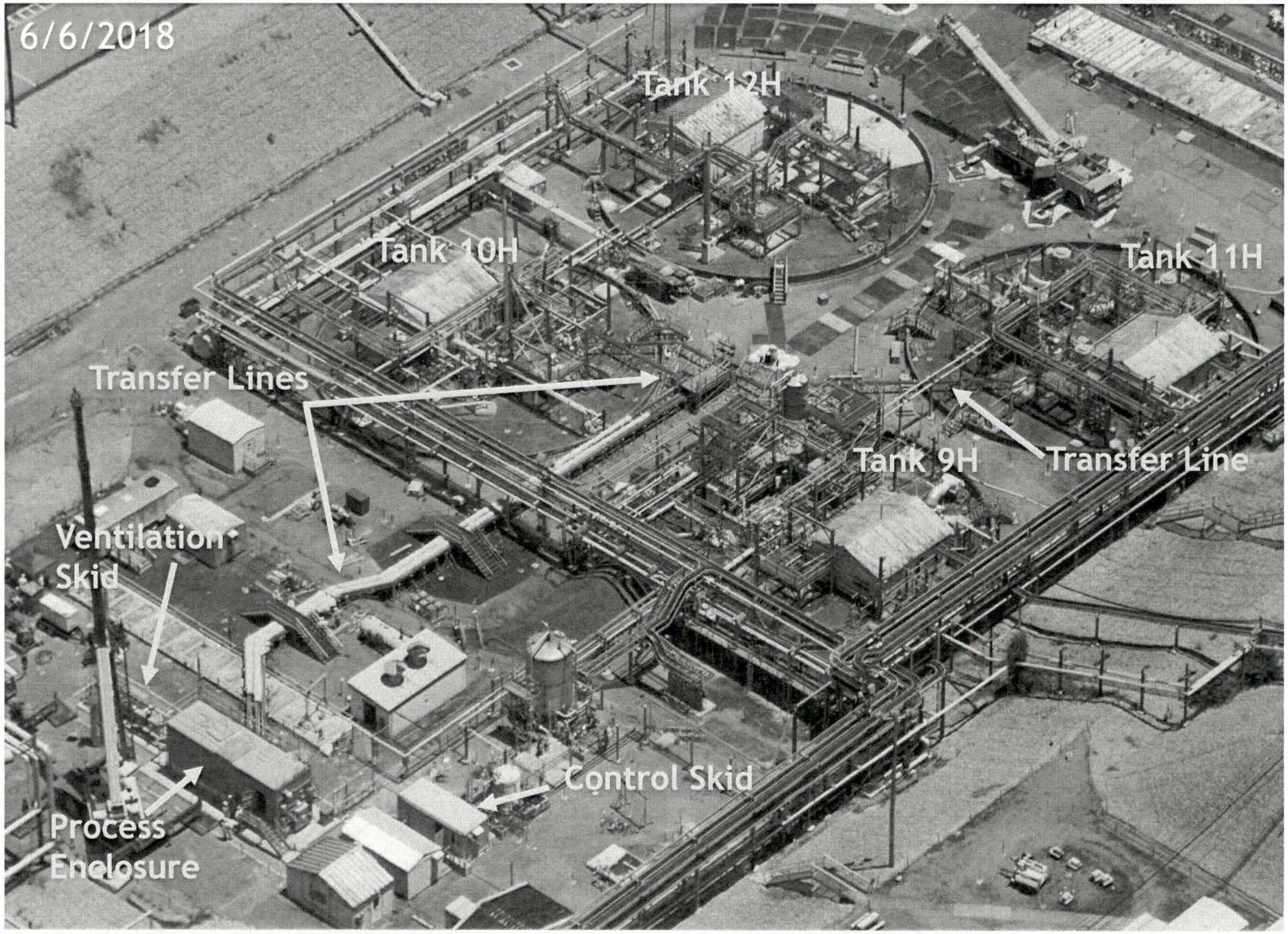
Transfer Lines from TCCR to Tanks 10H and 11H



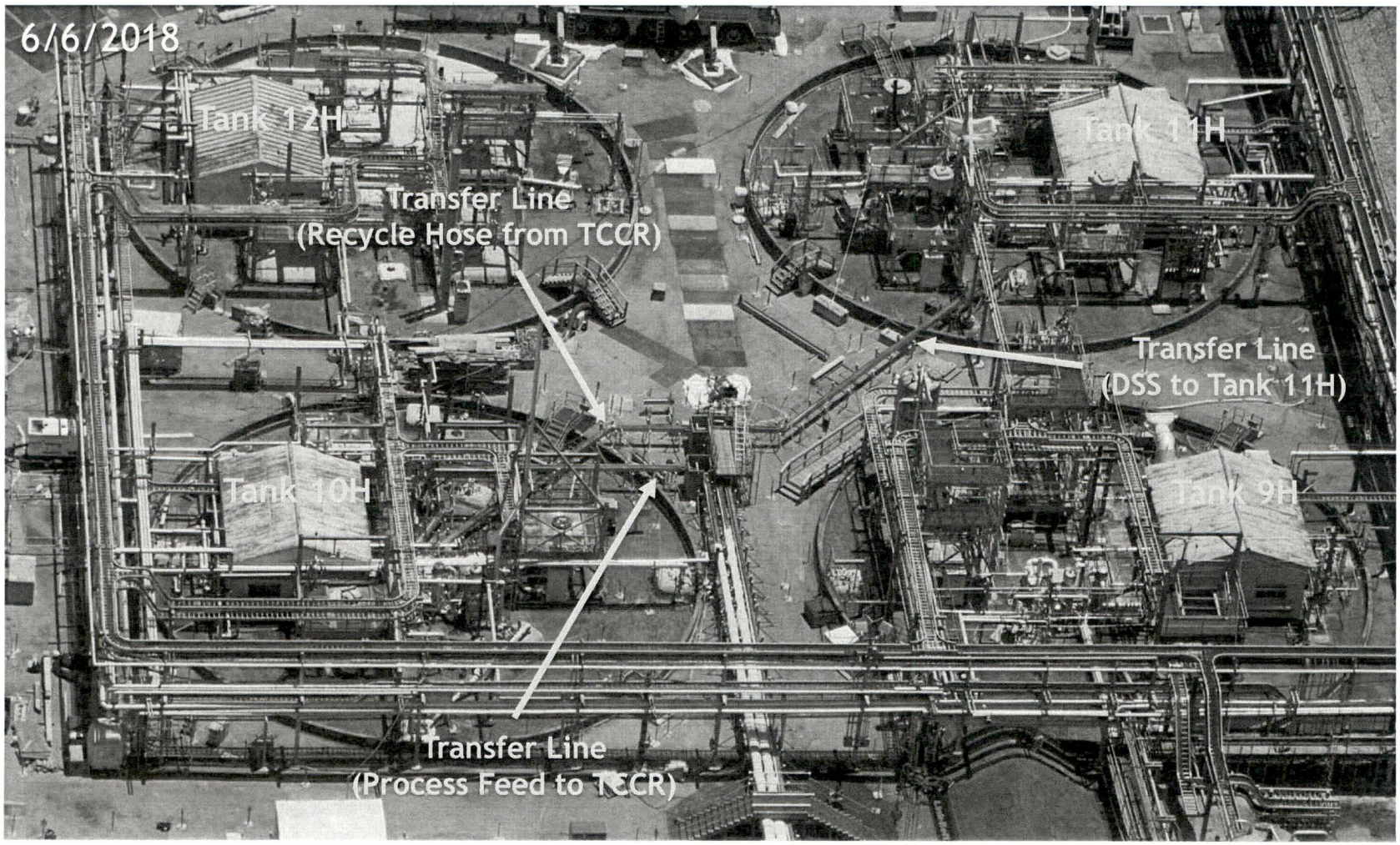
Transfer Lines from TCCR on Tank 10H



TCCR Process Area View



TCCR Process Area View



TCCR Summary

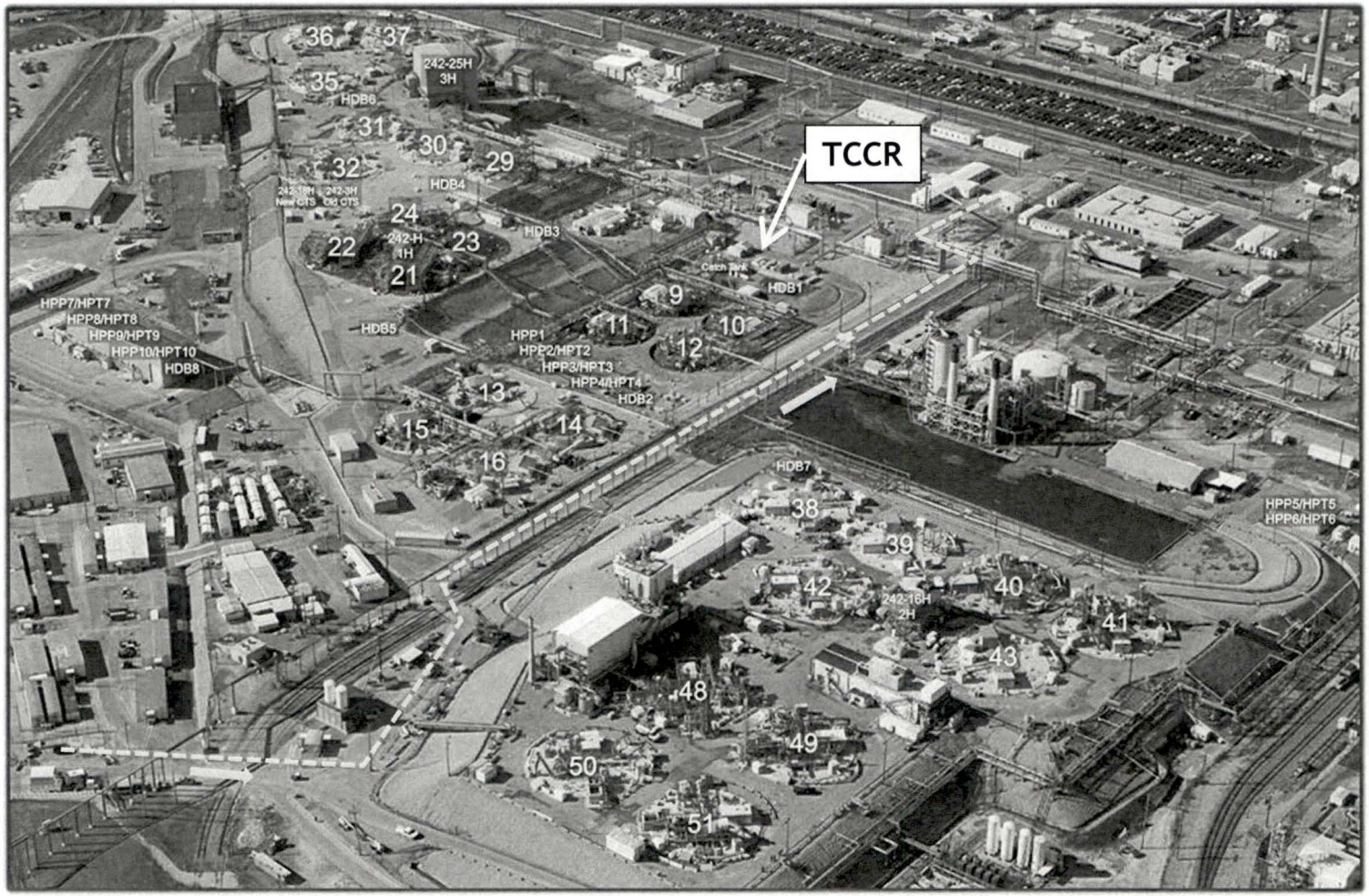
- Installation of TCCR equipment complete pending final tie-ins
- TCCR equipment testing in-progress
- Installation of Tank 10H dissolution equipment complete
- Anticipated restart of BWRE activities (i.e., water addition to Tank 10H) is December 2018 based on current execution schedule
- Anticipated start of TCCR operations is late January 2019 based on current execution schedule
- Anticipated completion of Tank 10H BWRE is November 2019 based on current execution schedule

Tank Farm Field Observation

Tank Farm Field Observations

- HTF
  - Tank 12, 15, & 16
  - TCCR
- FTF
  - Ancillary Structures
- Lunch

H-Area Tank Farm



F-Area Tank Farm

Technical Discussion Topics

Technical Discussions: 08/13/2018 (pm)

- **(3) - Discuss recent DOE research activities and/or take a tour of SRNL**
  - As discussed during pre-visit phone call, SRNL tour will not be included during this visit
- **(4) - Discuss DOE GSA PORFLOW model update/related activities**
- **(5) - Discuss recently NRC issued Technical Review Reports (TRRs) issued since the February 2016 OOV**
  - Tank 12 and 16 Grouting TRR, ADAMS Accession No. ML16231A444
  - Tank 12 Inventory and Special Analysis TRR, ADAMS Accession No. ML17277B235
  - FTF and HTF Environmental Monitoring TRR, ADAMS Accession No. ML18051B153
  - Draft Tank 18 Real Waste Testing and Associated PA Documentation
- **(6) - NRC to discuss recent CNWRA research activities**

(#) - Activity number from NRC Observation Guidance [ML18192A328]

Status: Tank Waste Residual Solids Testing

Date	Activity	Document Title	SRS Document Number / NRC Accession Number
May 2013	NRC Issued Technical Review Report	*Technical Review: Waste Release and Solubility Related Documents Prepared by United States Department of Energy to Support Final Basis for Section 3116 Determination for The F-Area Tank Farm Facility at Savannah River Site. Project No. PROJ0734.*	ML12272A082
June 2013	DOE Issues Experimental Plan	*Task Technical and Quality Assurance Plan for Determining the Radionuclide Release from Tank Waste Residual Solids.*	SRNL-RP-2013-00203, Rev. 0 (ML13253A221)
November 2013	NRC Staff Provides Comments	*November 2013 NRC Staff Comments on SRNL-RP-2013-00203, Rev. 0.*	ML15153A385 / ML15153A393
March 2014	DOE Provides Status Update during FTF Onsite Observation Visit	*Radionuclide Release from Tank Waste Residuals Solids.*	SRNL-STI-2014-00117 (ML14101A111) Visit Report-(ML14106A573)
April 2014	DOE Updates Experimental Plan	*Task Technical and Quality Assurance Plan for Determining the Radionuclide Release from Tank Waste Residual Solids.*	SRNL-RP-2013-00203, Rev. 1 (ML14148A068)
September 2014	DOE Issues FY2014 Testing Summary Report	*Determining the Release of Radionuclides from Tank Waste Residual Solids.*	SRNL-STI-2014-00456 (ML15147A543)
February 2015	DOE Updates Experimental Plan	*Task Technical and Quality Assurance Plan for Determining the Radionuclide Release from Tank Waste Residual Solids.*	SRNL-RP-2013-00203, Rev. 2 (Provided for 7/2015 OOV)
7/28/2015	Status Update During July 2015 HTF & FTF OOV	*Release of Radionuclides from Tank Waste Residual Solids.*	SRNL-MS-2015-00116 (ML15260A859) Visit Report- (ML15239A612)
September 2015	DOE Issues FY2015 Testing Summary Report	*Determining the Release of Radionuclides from Tank Waste Residual Solids. FY2015 Report*	SRNL-STI-2015-00446 (ML15324A143)
October 2015	DOE Updates Experimental Plan	*Task Technical and Quality Assurance Plan for Determining the Radionuclide Release from Tank Waste Residual Solids.*	SRNL-RP-2013-00203, Rev. 3 (ML16057A424)
January 2016	NRC Staff Provides Comments	*NRC Staff Comments on SRNL-STI-2014-00446*	ML16015A078

Status: Tank Waste Residual Solids Testing

2/2016
NRC OOV

Date	Activity	Document Title	SRS Document Number / NRC Accession Number
February 2016	Status Update During February 2016 HTF & FTF OOV	*Release of Radionuclides from Tank Waste Residual Solids: Actual Waste Testing with Tank 18 Residuals*	SRNL-MS-2016-00012 (ML16057A420) Visit Report-(ML16114B174)
February 2016	NRC Staff Provides Comments	*NRC provided DOE feedback on Tank 18 residual solids testing parameters (Sample FTF-1 vs. composite sample, Co2 Scrubbing, Silica)*	E-mail Transmittal
July 2016	DOE Issues Report	*Peak Dose Sensitivity to Changes in Chemistry-Dependent Solubility Limits for Plutonium, Technetium and Uranium*	SRR-CWDA-2016-00084 (ML17236A408)
August 2016	DOE Issues FY2016 Testing Summary Report	*Determining the Release of Radionuclides from Tank 18F Waste Residual Solids. FY2016 Report*	SRNL-STI-2016-00432 (ML17059D500)
August 2016	DOE Issues Report	*Evaluation of Waste Release Testing Results Against the Tank Farm Performance Assessment Waste Release Model*	SRR-CWDA-2016-00086 (ML17065A323)
8/13/2018	Status Update During August 2018 HTF & FTF OOV	*SRS Tank 12H Residual Radionuclide Release Testing Status*	SRNL-MS-2018-00142 (To be provided as follow-up Action Item)

GSA PORFLOW Model

- **GSA PORFLOW Model Documentation**
  - *General Separations Area (GSA) Groundwater Flow Model Update: Program and Execution Plan,* SRNL-STI-2016-00261 [ML18107A108]
  - *Groundwater Flow Simulation of the Savannah River Site General Separations Area,* SRNL-STI-2017-00008 [ML18081A304]
  - *Impacts of Updated GSA Groundwater Flow Model on the FTF, HTF and SDF PAs,* SRNL-STI-2017-00445 [ML1808A308]
  - *Evaluation of Impacts to FTF and HTF PA Doses Due to the Update of the GSA Database,* SRR-CWDA-2017-00068 [ML18081A322]
  - *UWMQE to Evaluate Impacts to FTF PA Doses Due to the Update of the GSA Model,* SRR-UWMQE-2017-00005 [ML18081A327]
  - *UWMQE to Evaluate Impacts to HTF PA Doses Due to the Update of the GSA Model,* SRR-UWMQE-2017-00006 [ML18081A658]
- **Status of Ongoing Work**
- **NRC TRR - FTF and HTF Environmental Monitoring**
  - *Technical Review of Environmental Monitoring Reports for F-Area and H-Area Tank Farm Facilities (PROJ0734)* [ML18051B154]

NRC Technical Review Reports

- **September 2016: NRC Technical Review Report – Tank 12 and 16 Grouting**
  - *Technical Review of Grout Documentation for Tanks 12H and 16H at SRS H-Tank Farm Facility* [ML16231A444]

- **January 2018: NRC Technical Review Report – Tank 12 Inventory and Special Analysis**
  - *Technical Review of Final Inventory and Special Analysis Documentation for Tank 12H at Savannah River Site* [ML17277B235]

Status: Other DOE Research/Analyses

- **FY2018 Performance Assessment Maintenance Plan**
  - *Savannah River Site Liquid Waste Facilities Performance Assessment Maintenance Program - FY2018 Implementation Plan*, SRR-CWDA-2017-00096 [ML18067A594]
- **Lysimeter Testing**
  - Fiscal Year (FY) 2017 experimental work provided in *Determination of Constituent Concentrations in Field Lysimeter Effluents, SRRA021685-000008* [ML18067A486]
  - *Analysis of Plutonium Soil Concentrations in Field Lysimeter Effluents, SRRA021685-000009* [ML18067A509]
- **Revised Geochemical Data Package**
  - *Geochemical Data Package for Performance Assessment Calculations Related to the Savannah River Site*, SRNL-STI-2009-00473_Revision 1 [ML???]

Status: NRC Research/Analyses

- (6) - NRC to discuss recent CNWRA research activities

Observation Visit Daily Outbrief: 08/13/2018

NRC Daily Outbrief

- NRC Staff Outbrief
- Action Items captured

Savannah River Remediation

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We do the right thing.

August 14, 2018

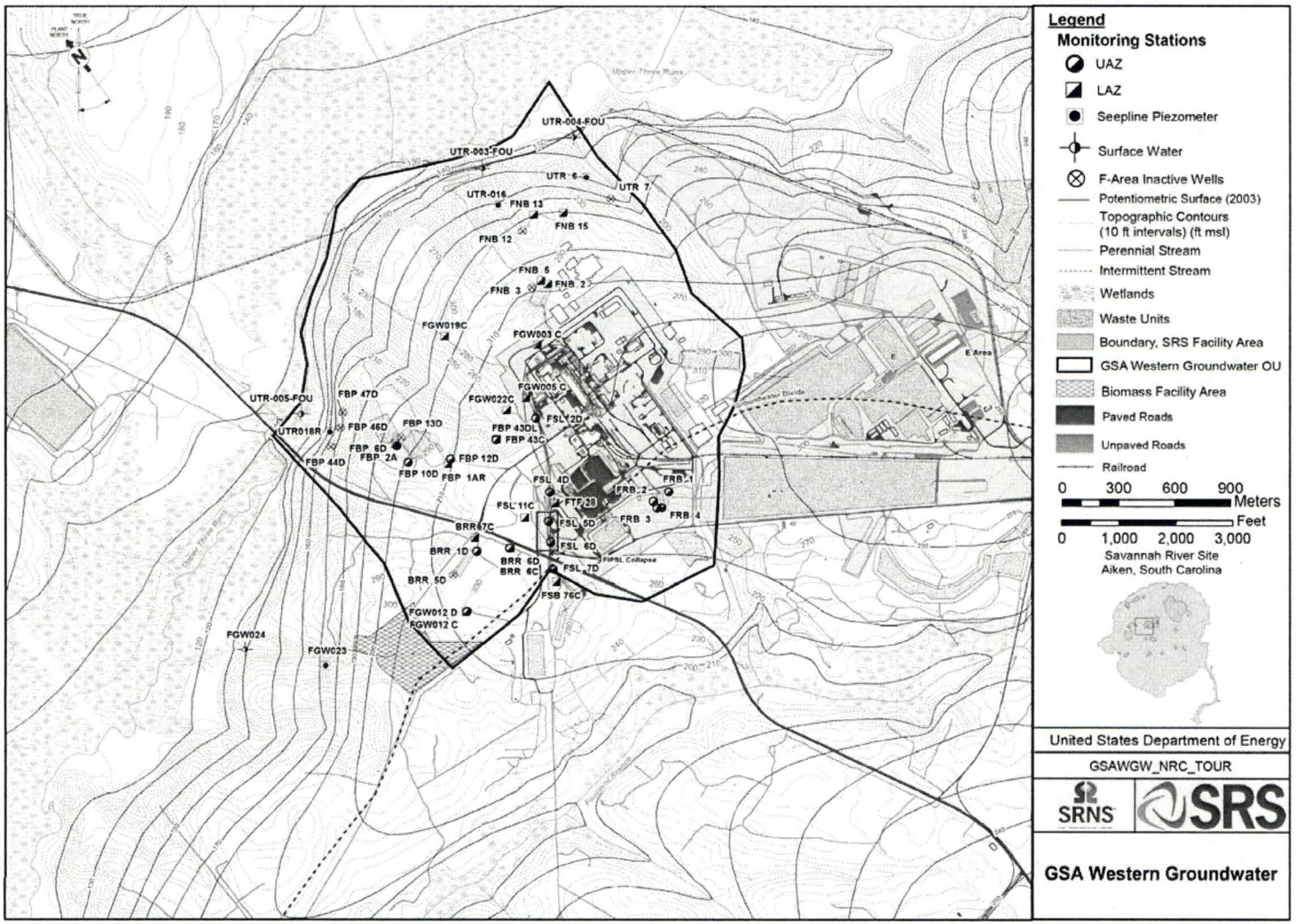
Savannah River Site F and H Area Tank Farms NRC Onsite Observation Visit

Agenda: 08/14/2018

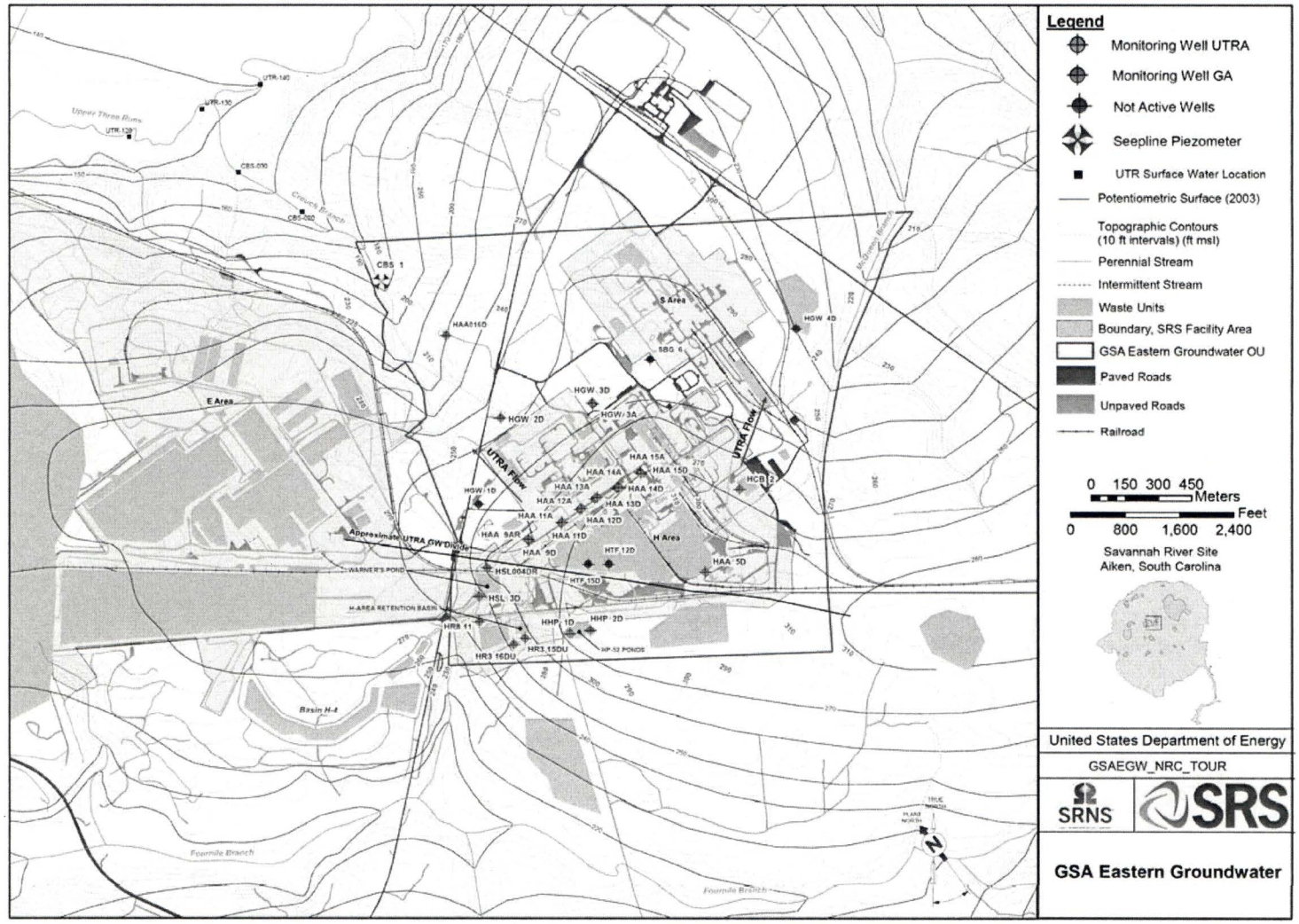
NRC H and F Area Tank Farms Onsite Observation			
Tuesday, August 14, 2018			
Start	**End**	**Topic**	**Location**
8:00	8:30	Badging/Travel	Meet 703-46A
8:30	8:45	Inbrief and Follow-up	705-1C, Room 34 A-B
8:45	11:00	Tank Farm Tour [2] • GSA Streams	Various Locations
11:00	12:15	Lunch	705-1C, Room 34 A-B
12:15	12:45	Follow-up Discussions	705-1C, Room 34 A-B
12:45	1:15	NRC/SCDHEC Internal Review	705-1C, Room 34 A-B
1:15	1:45	Outbrief	705-1C, Room 34 A-B
1:45	2:00	Travel/NRC Depart	703-46A

[#] - Activity number from NRC Observation Guidance (ML18192A328)

GSA Streams Field Observation



GSA Streams Field Observation



Observation Visit Final Outbrief: 08/14/2018

NRC Observation Visit Outbrief

- NRC Staff Outbrief
- Action Items Captured
- Closing Statements

Observation Visit Final Outbrief: Action Items

- Action Items

1. DOE to provide NRC an electronic copy of the general presentation material including action items and attendance rosters. [SRR-CWDA-2018-00047, Revision 1]
2. DOE to provide NRC an electronic copy of briefing *SRS Tank 12H Residual Radionuclide Release Testing Status*, SRNL-MS-2018-00142.
3. DOE to provide NRC an electronic copy of *2017 Annual Groundwater Monitoring Report for the F- and H- Area Radioactive Liquid Waste Tank Farms*, SRNS-RP-2018-00226.
4. DOE to provide NRC an electronic copy of *Annual Radioactive Waste Tank Inspection Program Report-2017*, SRR-STI-2018-00146_Revision 1

Observation Visit Final Outbrief: Action Items

- Action Items

5. DOE to provide NRC a copy of *Tank 12 Final Configuration Report for H-Tank Farm at the Savannah River Site*, SRR-CWDA-2016-00068
6. DOE to provide NRC a listing of documents with information on borehole flowmeter data.
7. DOE to provide available documents from listing of follow-up questions/references from TRR on Tank 12/16 Grouting.
8. DOE/NRC to hold telecon on follow-up from TRR on Tank 12/16 Grouting.

Attendance Sheets

NRC F-Tank Farm and H-Tank Farm Monitoring Visit
Savannah River Site, Aiken, South Carolina
August 13, 2018

Name	Affiliation	Phone
Larry Romanowski	SRR	
Kent Rosenberger	SRR	
Steve Thomas	SRR	
Leigh Beatty	SCDHEC	
Pat Suggs	DOE-SR	
Barry Mullinax	SCDHEC	
Dan Ferguson	DOE-SR	
Chris McKenney	NRC	
Robert Lee Gladney	NRC	
George Alexander	NRC	
Cynthia Barr	NRC	
Tim Coffield	SRR	
Mark Layton	SRR	
Cynthia Dinwiddy	CHWRA	
Jeff Thibault	SRNS	
Kevin Boerstler	SRNS	
Bill King	SRNL	
Greg Flach	SRNL	

NRC F-Tank Farm and H-Tank Farm Monitoring Visit
Savannah River Site, Aiken, South Carolina
August 14, 2018

Name	Affiliation	Phone
Larry Romanowski	SRR	
Dan Ferguson	DOE-SR	
Kent Rosenberger	SRR	
Steve Thomas	SRR	
Chris McKenney	NRC	
Robert Gladney	NRC	
George Alexander	NRC	
Cynthia Barr	NRC	
Barry Mullinax	SCDHEC	
Leigh Beatty	SCDHEC	
Tim Coffield	SRR	
Jeff Thibault	SRNS	
Kevin Boerstler	SRNS	
Mark Layton	SRR	

Notes

Notes