MEETING NOTES
WMA S-SX Sample Interval Selection Meeting – D0642

Meeting Date: June 2, 2026

Location: Virtual Meeting via Microsoft Teams

Attendees:

Marc Levitt (H2C)
Deanna Klages (H2C)
Kristin Singleton (H2C)
Chris Cearlock (H2C)
Rebecca Blackwell (HFO)
Jackson Davis (Ecology)
Amie Green (Ecology)
Luissa Johnston (Ecology)
Cathrene Glick (Ecology)
Kim Schuyler (Freestone)
Ashley Roy (Freestone)

Background:
This meeting was part of the continuing effort to ensure communication between representatives of the Washington State Department of Ecology (Ecology), the U.S. Department of Energy, Hanford Field Office (HFO), and Hanford Tank Waste Operations & Closure (H2C) regarding the field work associated with RPP-PLAN-65977, *Phase 2 RCRA Facility Investigation/ Corrective Measures Study Work Plan for Waste Management Area S-SX*, Appendix D, *Sampling and Analysis Plan.*

Purpose of Meeting:
This meeting was called to provide field status information, review geophysical logging data results from direct push D0641, and to select judgmental sampling depths for direct push D0642. D0641 is located southwest of Tank 241-SX-111.

Discussion:
Kristin Singleton (H2C) presented the updated map of the planned and actual field locations at SX Farm (Attachment 1) and agenda (Attachment 2) then gave a field status update:

<u>SX Farm (Exposure Area 2):</u>

- Sampling has been performed at 9 of 9 shallow locations.
- Sampling has been performed at 5 of 7 deep locations.
- Logging has been performed at 7 of 7 deep locations.

Sample Selection at D0642:

K. Singleton presented the geophysical logging data from D0641 (Attachment 3). The geophysical log also included the proposed sample depths for D0642. Logging data included moisture (blue line), gross gamma (dark red line), cesium-137, and natural background radionuclides potassium, uranium, and thorium. The preplanned shallow sample depths are 4-6 ft and 12-14 ft per the SAP (RPP-PLAN-65977, Appendix D). Shallow sample intervals were increased by 1 ft, resulting in a sample depth interval of 3 ft. Over-driving the sampling tool helps to recover more sample material in the backfill. Per RPP-PLAN-65977, Appendix D, four deep samples per deep location were planned to be collected at lithologic changes and within targeted lithologic units: 1) backfill/Hf2 contact, 2) bottom of Hf2, 3) Hf2/CCUz contact, and 4) CCUz/CCUc. Up to two additional samples will be collected based on geophysical logging results.

The recommended sample intervals and rationale (identified in Table 2 of Attachment 2) were provided.

K. Singleton opened the discussion with the meeting attendees on whether any changes to the proposed sampling intervals are needed.

- Cathrene Glick (Ecology) asked what the rationale was for the 106 to 108 ft bgs sampling interval. Kim Schuyler (Freestone) said that it captures a moisture peak without a corresponding gamma peak as well as within the lower Hf2. C. Glick proposed adding an additional sampling interval from 82 to 84 ft bgs to capture a significant lithologic change as well as see if there is a correlation or disassociation with a similar sampling interval at D0644. K. Schuyler asked if C. Glick was proposing this sampling interval based purely on lithology or to capture potential contamination. C. Glick was unsure if contamination would be captured but the corresponding natural potassium, uranium, and thorium indicate that the lithology is fine-grained. All meeting attendees agreed with the addition of 82 to 84 ft bgs sampling interval.

K. Singleton asked if the meeting attendees agreed on all the proposed sample depths. All concurred.

Table 1. Sample Depths Selected for D0641/D0642

Judgmental		Stratigraphy
Recommended Sample Depth (ft bgs)	**Reason**	
1-3*	High cesium-137 peak	Backfill
3.5-6.5	Preplanned sample interval	
11.5-14.5	Preplanned sample interval	
54-56	Predetermined sample at backfill/Hf2 contact	Hf2
82-84*	Lithologic correlation with D0644	
106-108	Predetermined sample within the lower Hf2	
124-126	Predetermined sample at the Hf2/CCUz contact	CCUz
155-157	Predetermined sample at the CCUz/CCUc contact	CCUc

Note: The SAP outlines four predetermined samples per sampling location that will be collected at lithologic changes and within targeted lithologic units (backfill/Hf2 contact, bottom of Hf2, Hf2/CCUz contact, and the CCUz/CCUc contact).

Backfill = 0-55; Hf2 = 55-124; CCUz=124-155; CCUc=155-total depth
*Additional sampling interval based on geophysical logging results

bgs = below ground surface
CCUc = Cold Creek unit caliche
CCUz = Cold Creek unit silt
Hf2 = Hanford formation unit 2

U Farm Sample Location Discussion:

Chris Cearlock (H2C) summarized what was discussed in the previous meeting on 5/13/2026 (*WMA S-SX Sample Interval Selection Meeting – D0654*): Two locations, D0665/D0666 and D0663/D0664, had to be moved due to subsurface infrastructure interferences, relocating them to within approximately 25 ft of each other. C. Cearlock previously asked Ecology if it was worth pushing 2 locations that are near each other, or if one should be retained over the other. During the 5/15/2026 meeting, attendees agreed that additional discussion was needed.

During the 6/2/2026 meeting, C. Cearlock shared the results of a 2022 interim measures geophysical logging location (D0155) located east of Tank 241-U-101, and the associated sampling location (D0156) which collected samples from 21 to 23 ft bgs, 44 to 46 ft bgs, 51 to 53 ft bgs, and 68 to 70 ft bgs (Attachment 4). C. Glick expressed surprise that sampling did not go past 70 ft bgs. K. Schuyler said that they weren't expecting to see contamination down into the CCUc based on the release history.

C. Glick said that before Ecology can agree to moving or potentially removing any sampling locations a figure needed to be sent over summarizing all of the location changes. Rebecca Blackwell (HFO) suggested that once a figure of the location changes has been sent to Ecology and reviewed, the final decisions from Ecology can be documented in the PMM meeting notes on 6/11/2026.
Amie Green (Ecology) and Jackson Davis (Ecology) agreed on that path forward.

C. Glick asked when WMA U field work was planned to begin. M. Levitt said that the schedule is still tentative, but fieldwork is planned to begin in August. C. Glick expressed that being aware of the accelerated timeline helped put the urgency of this decision into perspective but felt that taking the time to review the location changes was well worth the extra time.

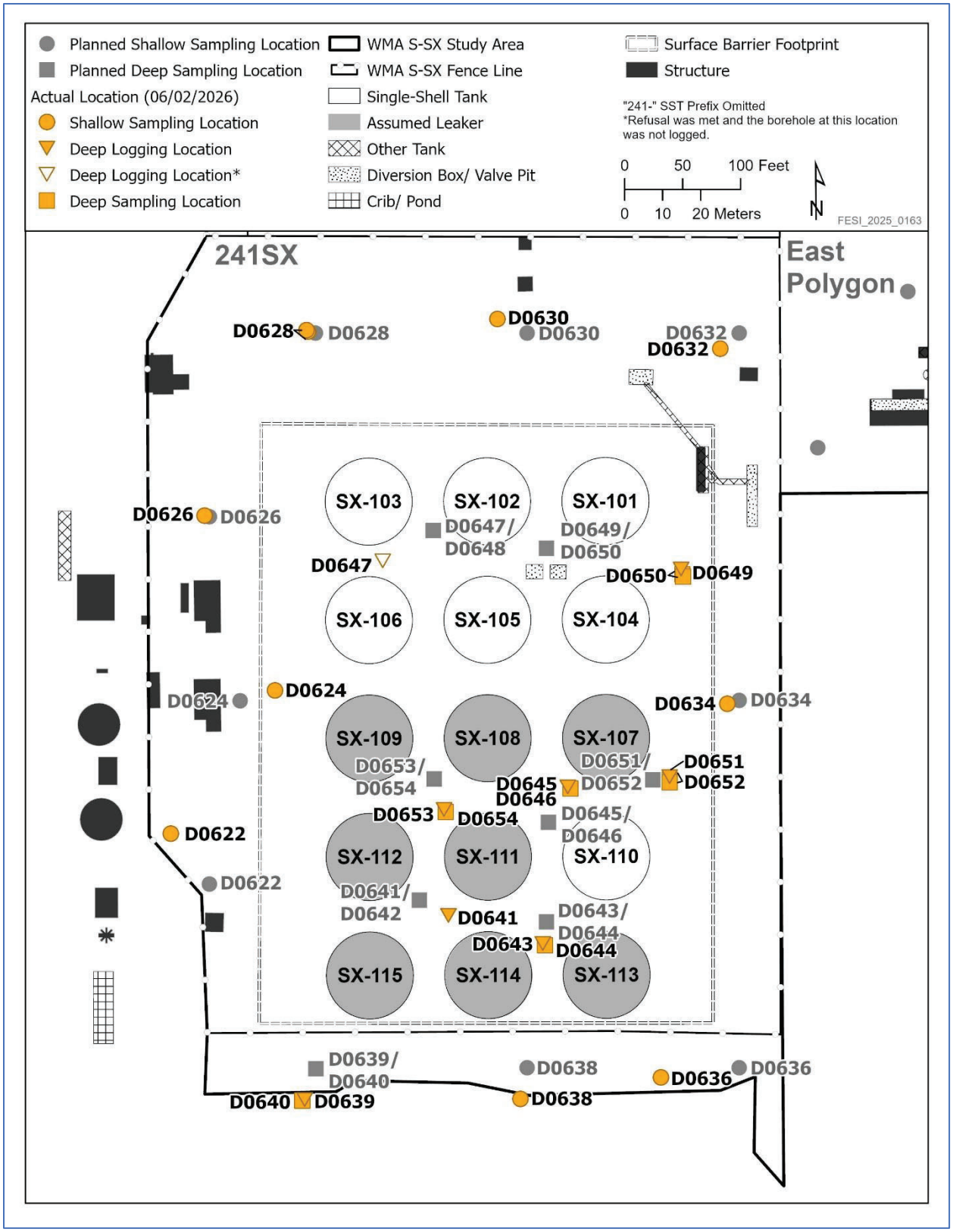
Status of the action items assigned in previous meetings is discussed in Attachment 5.

REBECCA BLACKWELL Digitally signed by REBECCA BLACKWELL Date: 2026.07.16 12:45:48 -07'00'		
DOE Project Manager (print)	DOE Project Manager (signature)	Date
Annie Green Digitally signed by amgr461@ecy.wa.gov Date: 2026.07.16 12:58:19 -07'00'		
Ecology Project Manager (print)	Ecology Project Manager (signature)	Date

Attachment 1

Map of Planned and Actual Field Locations within the 241-SX Tank Farm

(2 pages including cover sheet)


Planned Shallow Sampling Location
Planned Deep Sampling Location
Actual Location (06/02/2026)
Shallow Sampling Location
Deep Logging Location
Deep Logging Location*
Deep Sampling Location
WMA S-SX Study Area
WMA S-SX Fence Line
Single-Shell Tank
Assumed Leaker
Other Tank
Diversion Box/ Valve Pit
Crib/ Pond
Surface Barrier Footprint
Structure
"241-" SST Prefix Omitted
*Refusal was met and the borehole at this location was not logged.
0 50 100 Feet
0 10 20 Meters
N
FESI_2025_0163
241SX
East Polygon
SX-103
SX-102
SX-101
SX-106
SX-105
SX-104
SX-109
SX-108
SX-107
SX-112
SX-111
SX-110
SX-115
SX-114
SX-113
D0628
D0630
D0632
D0626
D0647/ D0648
D0649/ D0650
D0647
D0650
D0649
D0624
D0634
D0653/ D0654
D0651/ D0652
D0645
D0646
D0651
D0652
D0653
D0654
D0645/ D0646
D0622
D0641/ D0642
D0641
D0643/ D0644
D0643
D0644
D0639/ D0640
D0638
D0636
D0640
D0639
D0638

Attachment 2

Agenda

(4 pages including cover sheet)

WMA S-SX Sample Depth Meeting
[D0641/D0642]
[6/2/2026]

Purpose of this Meeting:

- Field status summary
- Select judgmental sampling depths for D0642
- U-Farm sample location discussion

Background Information:

This characterization is being performed to collect samples for the WMA S-SX study area according to RPP-PLAN-65977, *Phase 2 RCRA Facility Investigation/ Corrective Measures Study Work Plan for Waste Management Area S-SX*, Appendix D, *Sampling and Analysis Plan.* RPP-PLAN-65977 identifies 39 sampling locations.

- **S-Farm (Exposure Area 1) – 15 sample locations**
  - At every sample location, one surface sample and two additional shallow samples will be collected. Three shallow samples will be collected at every sample location.
  - Five of the 15 locations, four deep samples will be collected down to a depth of ~150 ft bgs or refusal, with up to two additional samples based on geophysical logging.
- **SX-Farm (Exposure Area 2) – 17 sample locations**
  - Ten surface samples will be collected from the 10 locations outside of the interim surface barrier. Two shallow samples will be collected at every location.
  - Eight of the 17 locations, four deep samples will be collected down to a depth of ~150 ft bgs or refusal, with up to two additional samples based on geophysical logging.
- **East Polygon (Exposure Area 3) – 7 sample location**
  - At every sample location, one surface sample and two additional shallow samples will be collected. Three shallow samples will be collected at every sample location.
  - One of the 7 locations, four deep samples will be collected down to a depth of ~150 ft bgs or refusal, with up to two additional samples based on geophysical logging.

WMA S-SX Sample Depth Meeting
[D0641/D0642]
[6/2/2026]

Field Status Summary:

Sampling:

SX Farm (Exposure Area 2):

Shallow: 9 of 9 sampling locations completed:

- D0622
- D0624
- D0626
- D0628
- D0630
- D0632
- D0634
- D0636
- D0638

Deep: 5 of 7 deep sampling locations completed.

- D0640
- D0644
- D0650
- D0652
- D0646

Logging:

Table 1: Direct Push Logging Holes Information

Location	Proposed Depth*	Actual Depth*	Logged	Decommissioned
SX-Farm (Exposure Area 2)				
D0639	~150	158	Complete	Complete
D0641	~150	160	Complete	--
D0643	~150	155	Complete	Complete
D0645	~150	159	Complete	--
D0647	~150	N/A	N/A	N/A
D0649	~150	160	Complete	Complete
D0651	~150	159.5	Complete	Complete
D0653	~150	158.5	Complete	--

-- = to be determined

*Information is in feet below ground surface (ft bgs).

General Notes:

Surface samples will not be collected from location under the interim surface barrier, and the preplanned shallow sample depths are 0-1 ft, 4-6 ft, and 12-14 ft per the SAP. Shallow sample intervals were increased by 1 ft, and discussed in prior sample depth meetings.

Four deep samples per location will be collected at lithologic changes and within targeted lithologic units: 1) (backfill/Hf2 contact, 2) bottom of Hf2, 3) Hf2/CCUz contact, 4) CCUz/CCUc). Up to two additional samples will be collected based on geophysical logging results.

The SAP (Appendix D of RPP-PLAN-65977) will be updated with language identifying that the D0647/D0648 location could not be logged or sampled due to extensive subsurface infrastructure.

WMA S-SX Sample Depth Meeting
[D0641/D0642]
[6/2/2026]

SELECTION OF SAMPLING DEPTHS FOR D0642

Information Evaluated to Help Determine Possible Sample Depths at D0642:

- Geophysical logging data from D0641. Data includes gross gamma, moisture, spectral gamma, temperature and cesium-137 concentrations.

Reason for Deep Sampling:

- Determine if contamination in vadose zone soil is present in the WMA S-SX study area.
- Investigate Tank 241-SX-112 Valve Leak, UPR-200-W-146 (Tank 241-SX-115 Waste Loss Event), UPR-200-W-144 (Tank 241-SX-112 Waste Loss Event), and Tank 241-SX-114 Waste Loss.

Table 2: Sample Depth Recommendations for D0641/D0642

Judgmental		Stratigraphy
Recommended Sample Depth (ft bgs)	Reason	
1-3*	High cesium peak	Backfill
3.5-6.5	Preplanned sample interval	
11.5-14.5	Preplanned sample interval	
54-56	Predetermined sample at backfill- Hf2 contact	Hf2
106-108	Predetermined lower Hf2	
124-126	Predetermined sample at the Hf2-CCUz contact	CCUz
155-157	Predetermined sample at the CCUz-CCUc contact	CCUc

Note: The SAP outlines four predetermined samples per sampling location that will be collected at lithologic changes and within targeted lithologic units (backfill/Hf2 contact, bottom of Hf2, Hf2/CCUz contact, and the CCUz/CCUc contact).

* Additional sampling interval based on geophysical logging results

Backfill = 0-55; Hf2 = 55-124; CCUz = 124-155 CCUc = 155- total depth

bgs = below ground surface
Hf2 = Hanford formation unit 2
CCUz = Cold Creek Unit silt
CCUc – Cold Creek Unit caliche

Attachment 3

Draft Geophysical Log for 241-SX Farm Location D0641

(3 pages including cover sheet)

ITDC-PRES-26-2505 Rev. 0

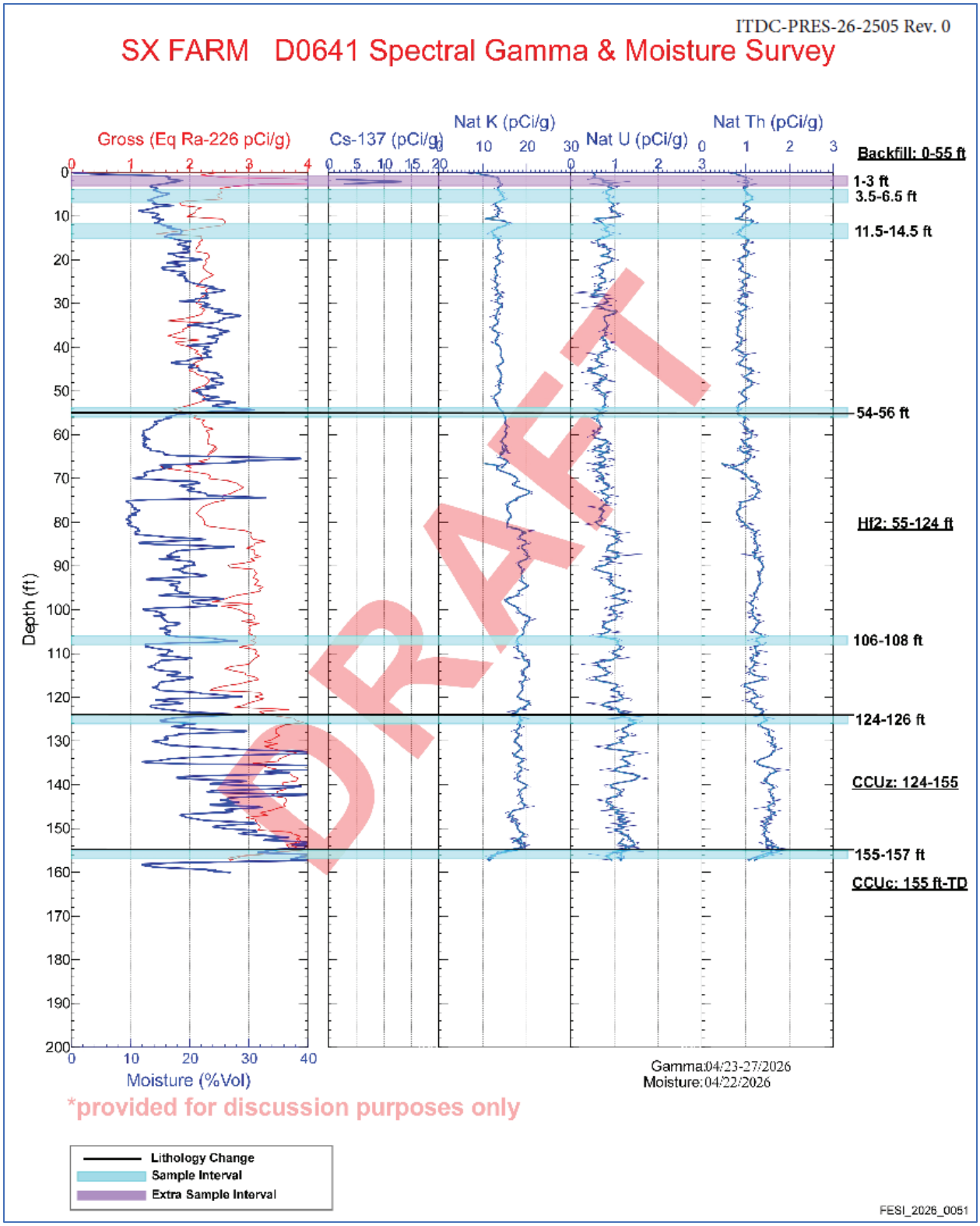
Draft Spectral Gamma and Moisture Survey

WMA S-SX D0641

The attached draft geophysical logging data is associated with WMA S-SX direct push sampling and RPP-PLAN-65977, *Phase 2 RCRA Facility Investigation/ Corrective Measures Study Work Plan for Waste Management Area S-SX*.

The draft spectral gamma and moisture survey data for D0641 is for discussion purposes only. The final geophysical logging data can be found in the associated completion report following this direct push sampling effort.

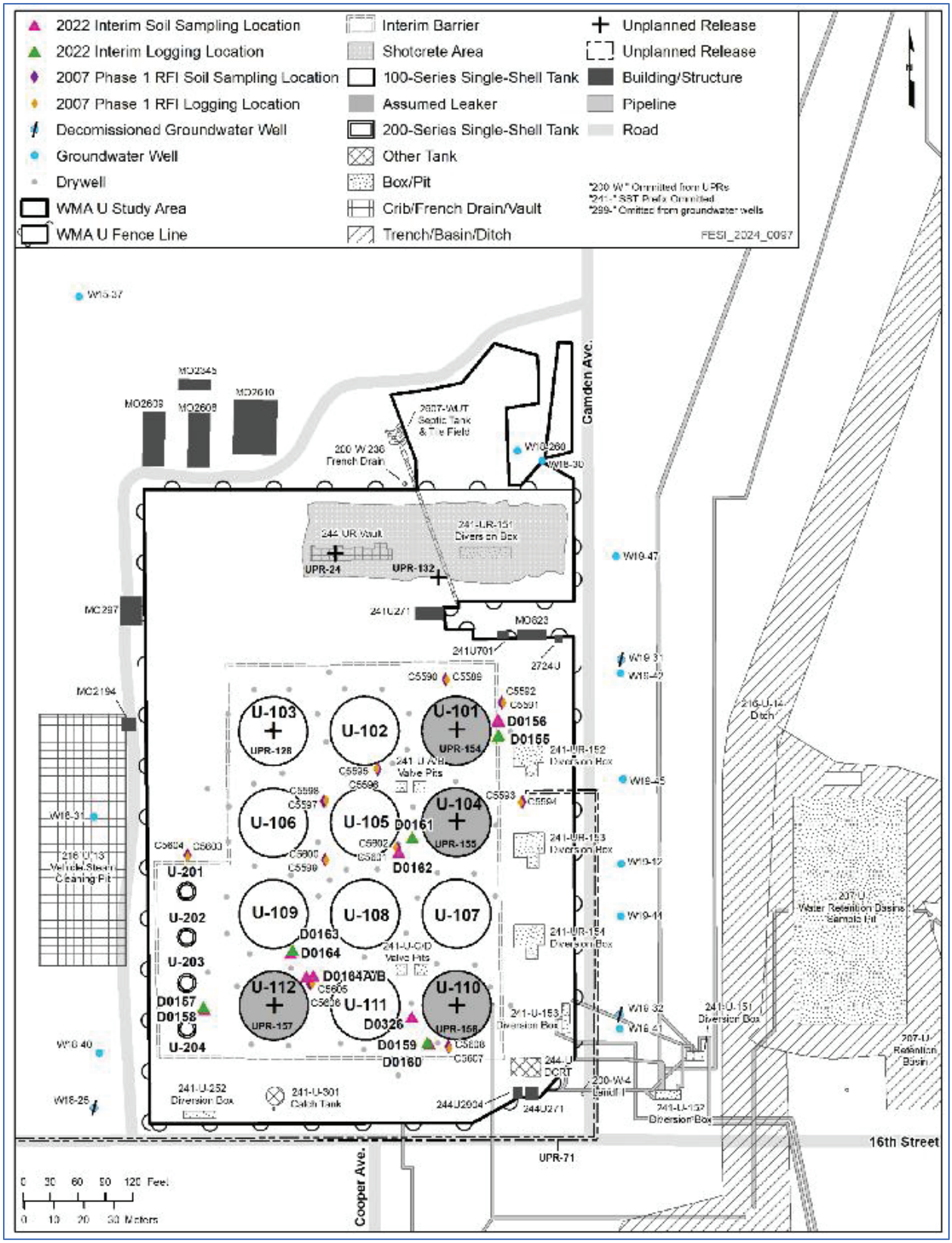
DRAFT


ITDC-PRES-26-2505 Rev. 0
SX FARM D0641 Spectral Gamma & Moisture Survey
Gross (Eq Ra-226 pCi/g)
Cs-137 (pCi/g)
Nat K (pCi/g)
Nat U (pCi/g)
Nat Th (pCi/g)
Depth (ft)
Moisture (%Vol)
Backfill: 0-55 ft
1-3 ft
3.5-6.5 ft
11.5-14.5 ft
54-56 ft
Hf2: 55-124 ft
106-108 ft
124-126 ft
CCUz: 124-155
155-157 ft
CCUc: 155 ft-TD
Gamma:04/23-27/2026
Moisture:04/22/2026
DRAFT
*provided for discussion purposes only
Lithology Change
Sample Interval
Extra Sample Interval
FESI_2026_0051

Attachment 4

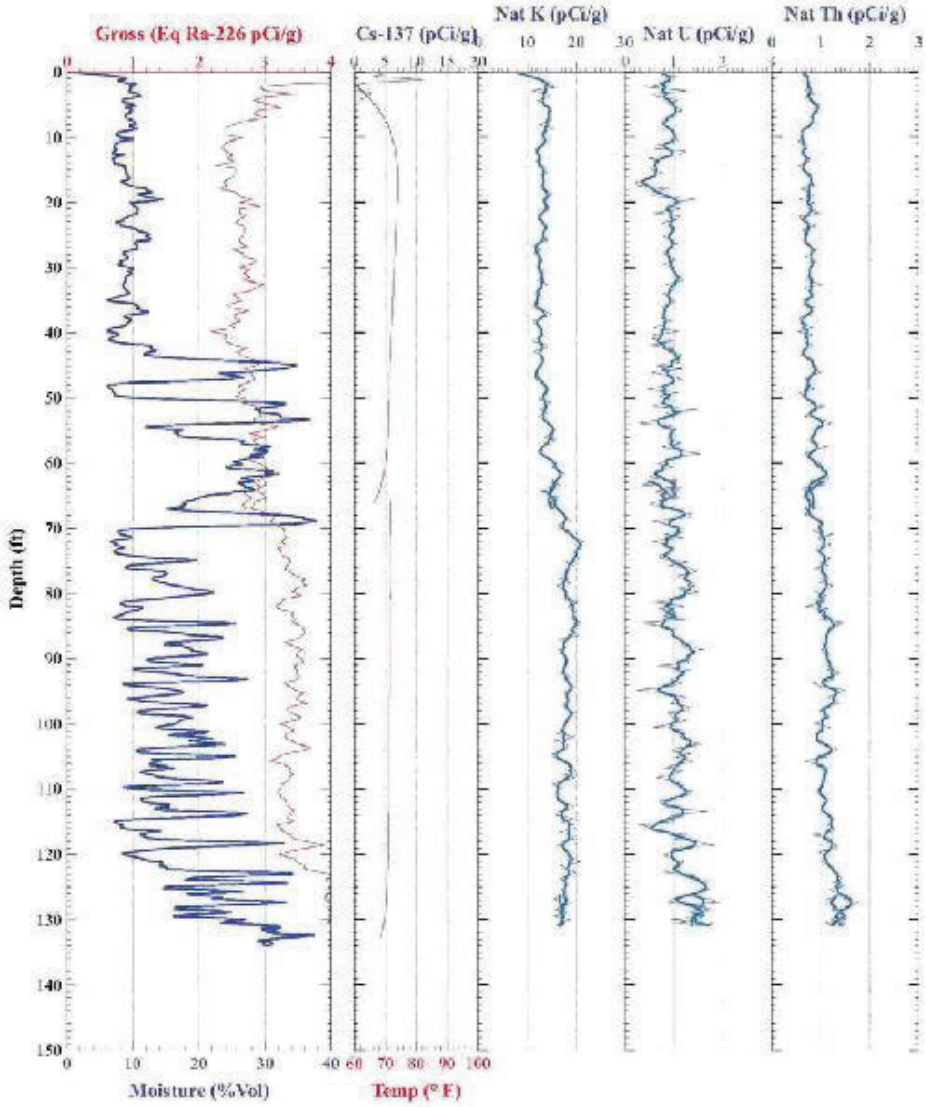
WMA U Sampling Locations

(4 pages including cover sheet)


2022 Interim Soil Sampling Location
2022 Interim Logging Location
2007 Phase 1 RFI Soil Sampling Location
2007 Phase 1 RFI Logging Location
Decomissioned Groundwater Well
Groundwater Well
Drywell
WMA U Study Area
WMA U Fence Line
Interim Barrier
Shotcrete Area
100-Series Single-Shell Tank
Assumed Leaker
200-Series Single-Shell Tank
Other Tank
Box/Pit
Crib/French Drain/Vault
Trench/Basin/Ditch
Unplanned Release
Unplanned Release
Building/Structure
Pipeline
Road
FESI_2024_0097
Camden Ave.
16th Street
Cooper Ave.
U-101
U-102
U-103
U-104
U-105
U-106
U-107
U-108
U-109
U-110
U-111
U-112
U-201
U-202
U-203
U-204
UPR-24
UPR-132
UPR-128
UPR-154
UPR-155
UPR-157
UPR-158
UPR-71
D0156
D0155
D0161
D0162
D0163
D0164
D0164A/B
D0167
D0158
D0326
D0159
D0160
241-UR-151 Diversion Box
241-UR-152 Diversion Box
241-UR-153 Diversion Box
241-UR-154 Diversion Box
241-U-151 Diversion Box
241-U-152 Diversion Box
241-U-252 Diversion Box
241-U-301 Catch Tank
241-U-C/D Valve Pits
241-U-A/B Valve Pits
216-U-13 Vehicle Steam Cleaning Pit
216-U-14 Ditch
207-U Retention Basin
207-U Water Retention Basins Sample Port
244-UR Vault
244-U DCRT
200-W-4 Drain
2607-WUT Septic Tank & Tile Field
200 W 236 French Drain
0 30 60 90 120 Feet
0 10 20 30 Meters

RPP-RPT-63943, Rev. 0

U-FARM D0155* Spectral Gamma & Moisture Survey



* The first push met refusal at approximately 68 ft bgs and was not logged.

F-22

Table 4-5. 2022 Vadose Zone Soil Sample Investigation for Waste Management Area U. (3 sheets)

ID Number	Collection Date	Depth (ft bgs)	Sample Number (Composite Parts)	Composite Sample Number	Sample Analyses
D0156	4/20/2022	Surface	B42YY0, B42YY1, B43026, B43027	B43024, B43025	% solids, % water, bulk density, conductivity, particle size, pH, ammonium, anions, cyanide, total organic carbon, hexavalent chromium, mercury, metals, semivolatile organics, pesticides, PCBs, radionuclides
	4/25/2022	21-23	B43012, B43015[a], B43033, B43040	B43047	
	4/26/2022	44-46	B42YY6, B42YY7, B42YY8, B42YY9[a], B43036, B43029	B43043	
	4/26/2022	51-53	B43000, B43001, B43002, B43003[a], B43030, B43037	B43044	
	4/27/2022	68-70	B43004, B43005, B43006, B43007[a], B43031, B43038	B43045	
D0158	1/19/2022	Surface	B43049, B43049	B43078	% solids, % water, bulk density, conductivity, particle size, pH, ammonium, anions, cyanide, total organic carbon, hexavalent chromium, mercury, metals, semivolatile organics, pesticides, PCBs, radionuclides
	1/10/2022	26-28	B43050, B43051, B43053, B43080, B43087[b]	B43094	
	1/12/2022	52-54	B43054, B43055, B43056, B43057[a], B43081, B43088	B43095	
	1/17/2022	79-81	B43058, B43059, B43060, B43061[a], B43082, B43089	B43096	
	1/19/2022	120-122	B43062, B43063, B43064, B43065[a], B43083, B43090	B43097	
	1/24/2022	128-130	B43066, B43067, B43068, B43069[a], B43084, B43091	B43098	
D0160	6/7/2022	Surface	B430B1, B430B3	B430B2	% solids, % water, bulk density, conductivity, particle size, pH, ammonium, anions, cyanide, total organic carbon, hexavalent chromium, mercury, metals, semivolatile organics, pesticides, PCBs, radionuclides
	6/12/2022	53-55	B430D7, B430D8, B430D9, B430F0[a], B430B4, B430C8	B430C8	
	6/12/2022	55-57	B430F1, B430F2, B430F3, B430F4[a], B430B5, B430C2	B430C9	
	6/14/2022	81-83	B430F5, B430F6, B430F7 B430F8[a], B430B6, B430C3	B430D0	
	6/15/2022	103-105	B430F9, B430H0, B430H1, B430H2[a], B430B7, B430C4	B430D1	
	6/16/2022	111-113	B430H3, B430H4, B430H5, B430H6[a], B430B8, B430C5	B430D2	
	6/20/2022	123-125	B430H7, B430H8, B430H9, B430J0[a], B430B9, B430C6	B430D3	

Attachment 5

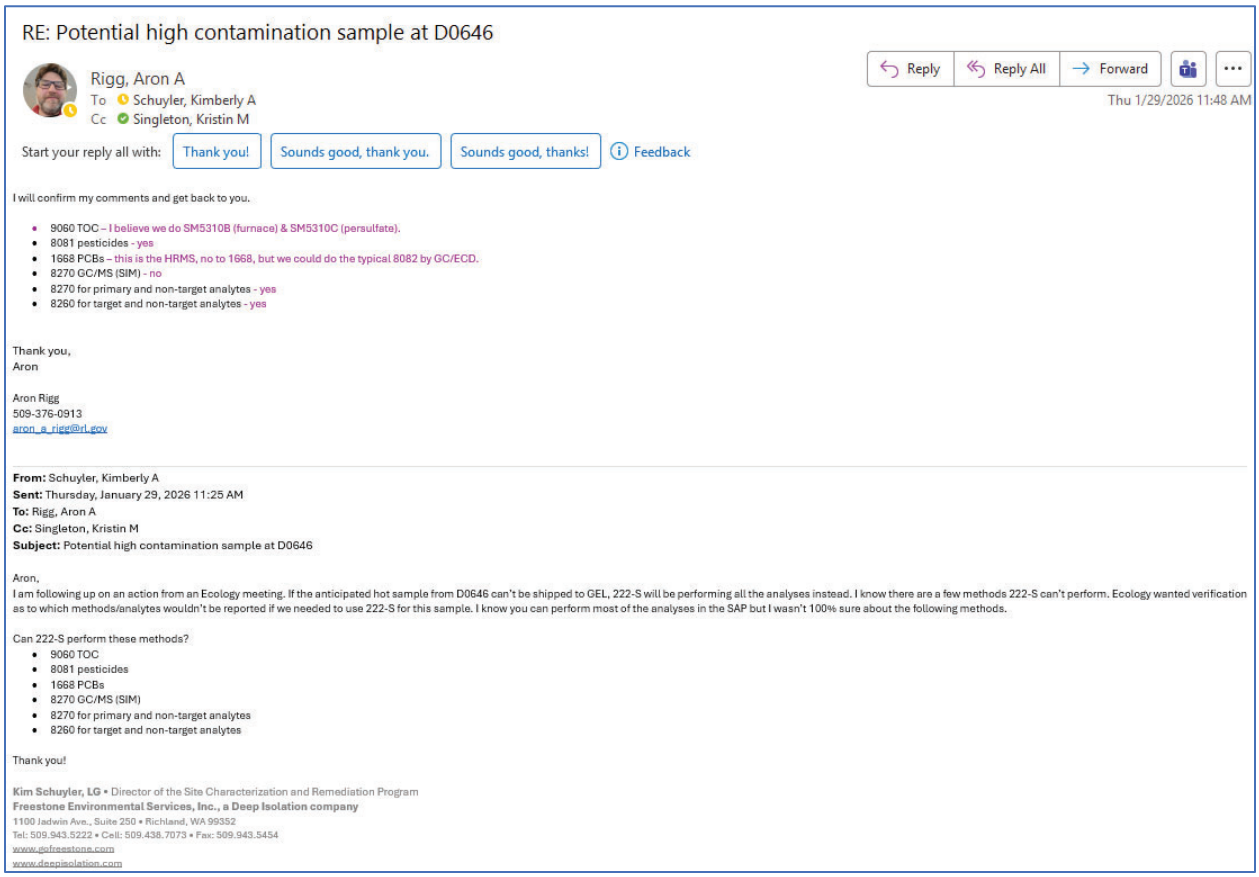
Status of Action Items

(2 pages including cover sheet)

Status of Action Items

1/12/2026:

- Kristin Singleton to follow up with the 222-S Laboratory and report back with their capability to perform organic analyses.



RE: Potential high contamination sample at D0646

Rigg, Aron A
To Schuyler, Kimberly A
Cc Singleton, Kristin M

Reply | Reply All | Forward
Thu 1/29/2026 11:48 AM

Start your reply all with: Thank you! | Sounds good, thank you. | Sounds good, thanks! | Feedback

I will confirm my comments and get back to you.

- 9060 TOC – I believe we do SM5310B (furnace) & SM5310C (persulfate).
- 8081 pesticides - yes
- 1668 PCBs – this is the HRMS, no to 1668, but we could do the typical 8082 by GC/ECD.
- 8270 GC/MS (SIM) - no
- 8270 for primary and non-target analytes - yes
- 8260 for target and non-target analytes - yes

Thank you,
Aron

Aron Rigg
509-376-0913
aron_a_rigg@rl.gov

From: Schuyler, Kimberly A
Sent: Thursday, January 29, 2026 11:25 AM
To: Rigg, Aron A
Cc: Singleton, Kristin M
Subject: Potential high contamination sample at D0646

Aron,
I am following up on an action from an Ecology meeting. If the anticipated hot sample from D0646 can't be shipped to GEL, 222-S will be performing all the analyses instead. I know there are a few methods 222-S can't perform. Ecology wanted verification as to which methods/analytes wouldn't be reported if we needed to use 222-S for this sample. I know you can perform most of the analyses in the SAP but I wasn't 100% sure about the following methods.

Can 222-S perform these methods?

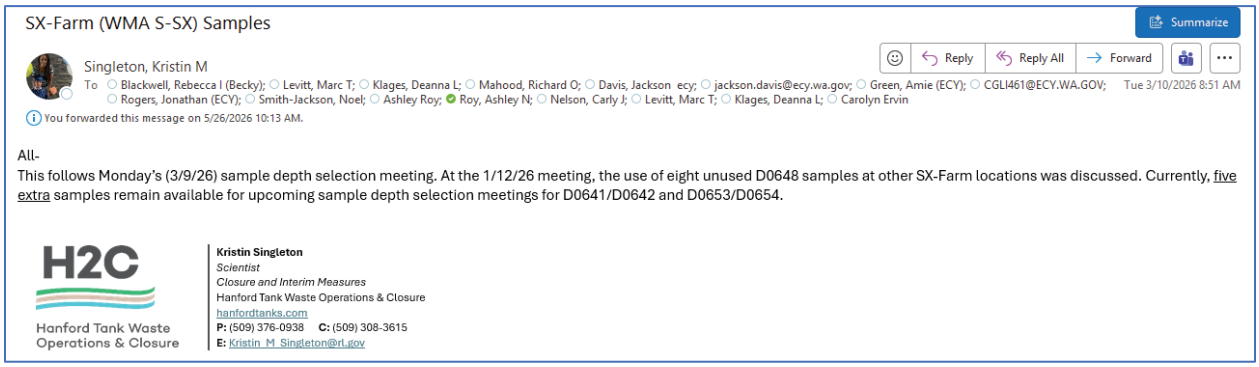
- 9060 TOC
- 8081 pesticides
- 1668 PCBs
- 8270 GC/MS (SIM)
- 8270 for primary and non-target analytes
- 8260 for target and non-target analytes

Thank you!

Kim Schuyler, LG • Director of the Site Characterization and Remediation Program
Freestone Environmental Services, Inc., a Deep Isolation company
1100 Jadwin Ave., Suite 250 • Richland, WA 99352
Tel: 509.943.5222 • Cell: 509.438.7073 • Fax: 509.943.5454
www.gofreestone.com
www.deepisolation.com

3/9/2026:

- Kristin Singleton to follow up with Ecology with an email including a tally of the remaining number of D0647 recycled samples. **Complete (email sent 3/10/2026 stating that 5 of 8 extra samples remain available for use at D0642 and D0654).**



SX-Farm (WMA S-SX) Samples

Summarize

Singleton, Kristin M
To Blackwell, Rebecca I (Becky); Levitt, Marc T; Klages, Deanna L; Mahood, Richard O; Davis, Jackson ecy; jackson.davis@ecy.wa.gov; Green, Amie (ECY); CGLI461@ECY.WA.GOV; Rogers, Jonathan (ECY); Smith-Jackson, Noel; Ashley Roy; Roy, Ashley N; Nelson, Carly J; Levitt, Marc T; Klages, Deanna L; Carolyn Ervin

Reply | Reply All | Forward
Tue 3/10/2026 8:51 AM

You forwarded this message on 5/26/2026 10:13 AM.

All-
This follows Monday's (3/9/26) sample depth selection meeting. At the 1/12/26 meeting, the use of eight unused D0648 samples at other SX-Farm locations was discussed. Currently, five extra samples remain available for upcoming sample depth selection meetings for D0641/D0642 and D0653/D0654.

H2C
Hanford Tank Waste Operations & Closure

Kristin Singleton
Scientist
Closure and Interim Measures
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P: (509) 376-0938 **C:** (509) 308-3615
E: Kristin_M_Singleton@rl.gov

- In approximately 2 weeks, a meeting will be scheduled with Ecology to discuss keeping or removing temperature from future geophysical logs. **Complete (meeting held on 3/26/2026 with the resolution that temperature will be removed from all future geophysical logs).**