MEETING NOTES
WMA S-SX Sample Interval Selection Meeting – D0654

Meeting Date: May 13, 2026

Location: Virtual Meeting via Microsoft Teams

Attendees:

Marc Levitt (H2C)
Deanna Klages (H2C)
Kristin Singleton (H2C)
Chris Cearlock (H2C)
Carly Nelson (H2C)
Richard Mahood (H2C)
Rebecca Blackwell (HFO)
Amie Green (Ecology)
Luissa Johnston (Ecology)
Noe'l Smith-Jackson (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 D0653, and to select judgmental sampling depths for direct push D0654. D0653 and D0654 are located southeast of Tank 241-SX-109.

Discussion:
Amie Green (Ecology) gave confirmation that this meeting could proceed without the project lead (Jackson Davis [Ecology]) present.

Kristin Singleton (H2C) presented the agenda (Attachment 1) 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 4 of 7 deep locations.
- Logging has been performed at 7 of 7 deep locations.

K. Singleton noted that per previous discussions, location D0647 in Table 1 of the agenda was cancelled and will not be geophysically logged. As discussed and agreed upon in the sample depth selection meeting held on January 12, 2026 (WMA S-SX Sample Interval Selection Meeting – D0646 and D0652), the sampling and analysis plan (SAP) (Appendix D of RPP-PLAN-65977) will be updated to a Revision 1 document with language identifying that the D0647/D0648 location could not be logged or sampled due to extensive subsurface infrastructure.

Sample Selection at D0654:

K. Singleton presented the geophysical logging data from D0653, which included a zone of cesium-137 contamination that saturated the detector (Attachment 2). The geophysical log also included the proposed sample depths for D0654. Logging data included moisture (blue line), gross gamma (dark red line), temperature (bright red), 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. K. Singleton noted that the CCUc was not encountered at this location so the CCUz/CCUc lithologic unit contact cannot be collected. 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 1) 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) pointed out that the reason presented in Table 2 of the agenda for sampling between 102 and 104 ft bgs is incorrect. C. Glick challenged the language, stating that 102 to 104 ft bgs does not represent the "bottom" of the Hf2, but rather the lower part of the formation. Additionally, between 102 and 104 ft bgs there was a zone of gross gamma saturation that is not captured as a reason for sampling within this interval. C. Glick requested that the language in Table 2 of the agenda be updated to revise the reason for sampling between 102 and 104 ft bgs. **ACTION:** K. Singleton will revise Table 2 of the agenda to identify the "lower Hf2" as well as the gross gamma saturation for the reasons for sampling between 102 and 104 ft bgs.
- C. Glick asked if a sample could even be collected within the zone of gross gamma saturation. Richard Mahood (H2C) said that the dose rate did not exceed the Radiological Work Permit, so yes, a sample could be collected.
- C. Glick proposed sampling between 62 and 64 ft bgs to capture the moisture peak and elevated natural potassium and thorium over the 67 to 69 ft bgs interval. Kim Schuyler (FES) said that the moisture peak between 67 and 69 ft bgs looked more interesting because the corresponding gross gamma peak did not appear to be influenced by the natural background radionuclides which may indicate contamination. C. Glick agreed to keep the 67 to 69 ft bgs interval.
- C. Glick proposed sampling between 112 to 114 ft bgs to capture the cesium-137 contamination below the gross gamma saturation for characterization as well as a backup in case a sample cannot be collected between 102 and 104 ft bgs. Mark Levitt said that this would be one of the remaining unused sampling intervals from cancelled location D0648 and informed the meeting attendees that there would be 2 remaining unused samples from D0648 to use for the last location (D0642). All concurred with the addition of this sampling interval.

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

Table 1. Sample Depths Selected for D0643/D0644

Judgmental		Stratigraphy
Recommended Sample Depth (ft bgs)	**Reason**	
3.5-6.5	Preplanned sample interval	Backfill
11.5-14.5	Preplanned sample interval	
54-56	Predetermined sample at backfill/Hf2 contact	Hf2
67-69*	Gross gamma peak	
84-86*	Cesium-137 peak	
102-104	Maximum cesium-137 peak within zone of gross gamma saturation; predetermined sample within the lower Hf2	
112-114*	Cesium-137 peak below zone of gross gamma saturation	
128-130	Predetermined sample at the Hf2/CCUz contact	CCUz
132-134*	Cesium-137 peak (investigate if this is contamination or drag down)	

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). The CCUc was not identified at this location.

Backfill = 0-54; Hf2 = 54-128; CCUz=128 -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) presented Figure D4-1 (Attachment 3) from RPP-PLAN-66053, *Phase 2 RCRA Facility Investigation/Corrective Measures Study Work Plan for Waste Management Area U*, which identified sampling locations agreed upon during the WMA U RFI/CMS Data Quality Objectives process. In addition, the ground penetrating radar (GPR) results for the area near locations D0665/D0666 and D0663/D0664 were presented. C. Cearlock explained that field characterization for WMA U is planned to begin next fiscal year and the process for clearing locations is underway. 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 asked Ecology if it was worth pushing 2 locations that are near each other, or if one should be retained over the other.

C. Glick agreed that it would be redundant to push 2 borings close to one another and asked if D0665/D0666 could be moved to the southeast of Tank 241-U-101. C. Cearlock pointed out that there is a lot of subsurface infrastructure in that area too. Mark Levitt (H2C) proposed changing D0674 (located east of Tank 241-U-101) from a shallow location to a deep location to cover the propose of sampling at D0665/D0666 (leak from Tank 241-T-101). Noe'l Smith-Jackson (Ecology) asked how soon a decision needed to be made. C. Cearlock said the sooner the better. M. Levitt proposed that K. Singleton could meet with the engineering group to go over other possible cleared locations around Tank 241-U-101. N. Smith-Jackson agreed and requested that a write-up with all the possible alternate locations for D0665/D0666 to be sent to Ecology, along with the GPR results for review with Jackson Davis (Ecology).

ACTION: K. Singleton to meet with the engineering group to compile a list of alternate locations for D0665/D0666 southeast or east of Tank 241-U-101 and send options for a path forward to Ecology to review by next week.

N. Smith-Jackson asked how a deviation from the planned sampling location would be recorded. C. Cearlock said that it would be documented in the meeting notes and incorporated into revision 1 of the SAP (Appendix D of RPP-PLAN-66053). N. Smith-Jackson concurred with the path forward.

REBECCA BLACKWELL	Digitally signed by REBECCA BLACKWELL Date: 2026.07.16 12:46:22 -07'00'	
DOE Project Manager (print)	DOE Project Manager (signature)	Date
Amie Green	Digitally signed by amgr461@ecy.wa.gov Date: 2026.07.16 12:59:09 -07'00'	
Ecology Project Manager (print)	Ecology Project Manager (signature)	Date

Attachment 1

Agenda

(4 pages including cover sheet)

WMA S-SX Sample Depth Meeting
[D0653/D0654]
[5/13/2026]

Purpose of this Meeting:

- Field status summary
- Select judgmental sampling depths for D0654
- 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
[D0653/D0654]
[5/13/2026]

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: 4 of 7 deep sampling locations completed.

- D0640
- D0644
- D0650
- D0652

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
[D0653/D0654]
[5/13/2026]

SELECTION OF SAMPLING DEPTHS FOR D0654

Information Evaluated to Help Determine Possible Sample Depths at D0654:

- Geophysical logging data from D0653. 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 UPR-200-W-141 (Tank 241-SX-108 Waste Loss Event) and UPR-200-W-142 (Tank 241-SX-109 Waste Loss Event) and supplement existing information from B2828.

Table 2: Sample Depth Recommendations for D0653/D0654

Judgmental		Stratigraphy
Recommended Sample Depth (ft bgs)	Reason	
3.5-6.5	Preplanned sample interval	Backfill
11.5-14.5	Preplanned sample interval	
54-56	Predetermined sample at backfill- Hf2 contact	Hf2
67-69*	Gamma peak	
84-86*	Contamination and physical properties	
102-104	Predetermined ~~bottom of~~ lower Hf2	
128-130	Predetermined sample at the Hf2-CCUz contact	CCUz
132-134*	Investigate contamination or drag down	

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). The CCUc is not identified on this log.

* Additional sampling interval based on geophysical logging results

Backfill = 0-54; H2 = 54-128; CCUz = 128- total depth

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

Attachment 2

Draft Geophysical Log for 241-SX Farm Location D0653

(3 pages including cover sheet)

ITDC-PRES-26-2241

Draft Spectral Gamma and Moisture Survey

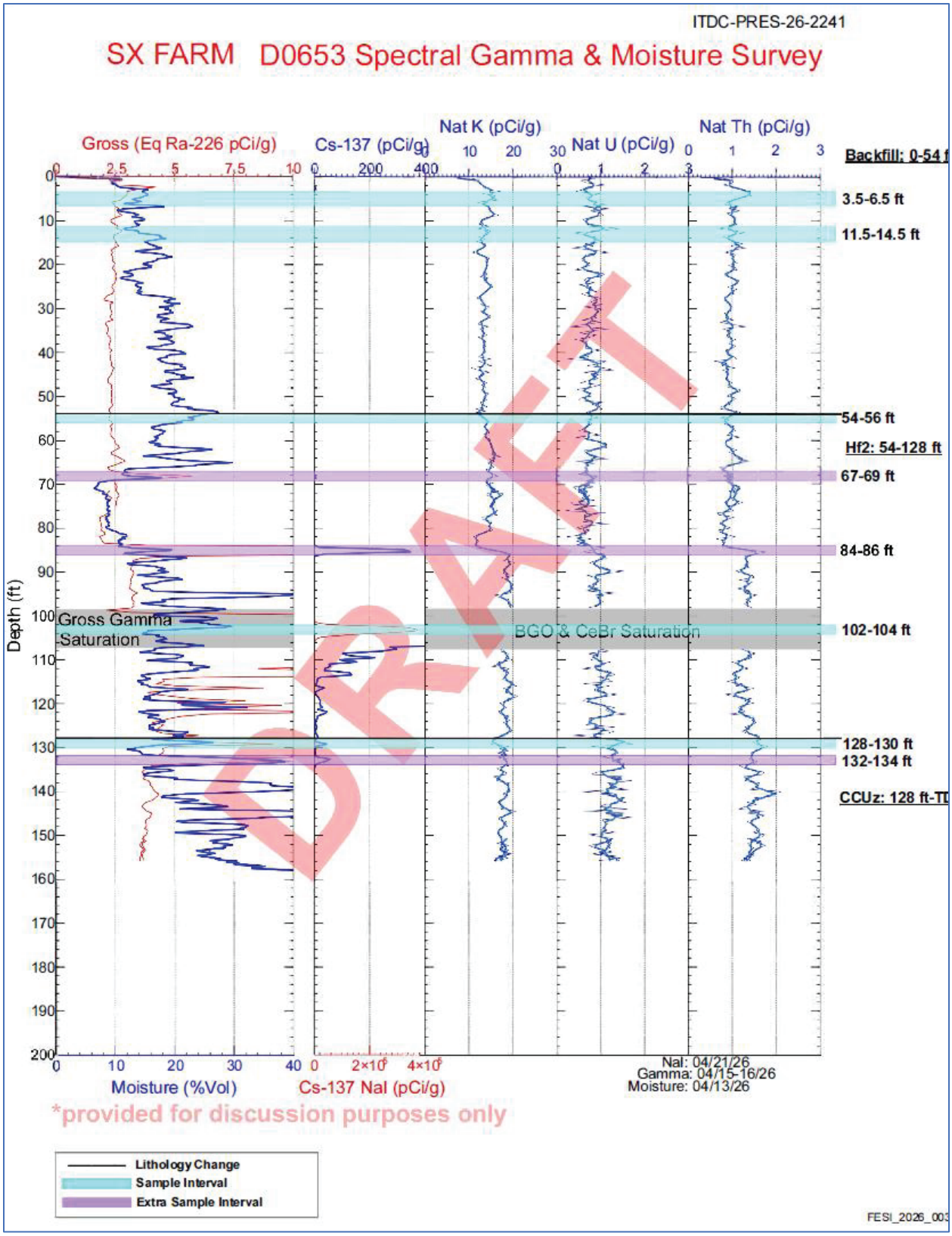
WMA S-SX D0653

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 D0653 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

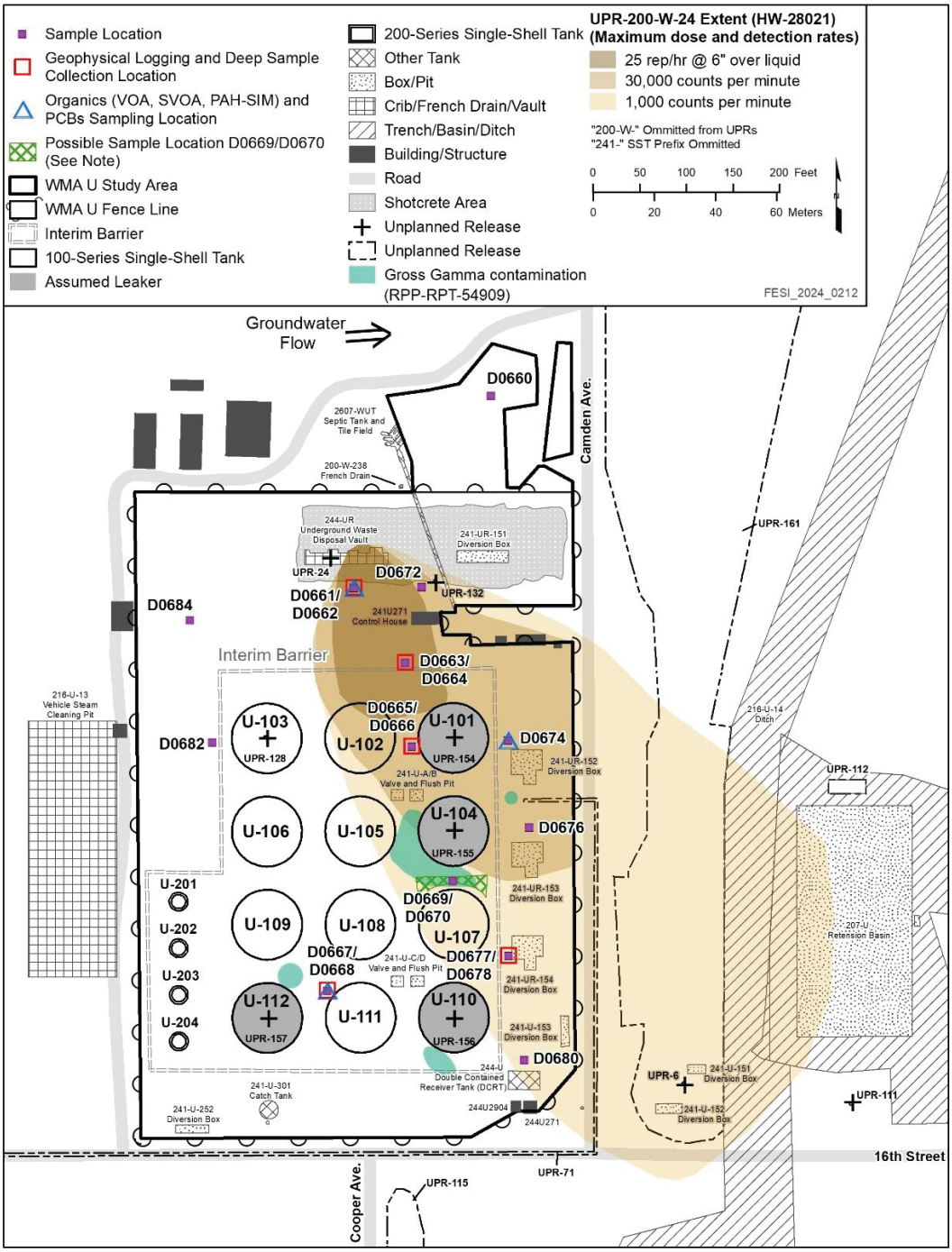
Approved for Public Release;
Further Dissemination Unlimited


ITDC-PRES-26-2241
SX FARM D0653 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)
Backfill: 0-54 f
3.5-6.5 ft
11.5-14.5 ft
54-56 ft
Hf2: 54-128 ft
67-69 ft
84-86 ft
102-104 ft
128-130 ft
132-134 ft
CCUz: 128 ft-TT
Gross Gamma Saturation
BGO & CeBr Saturation
Moisture (%Vol)
Cs-137 NaI (pCi/g)
NaI: 04/21/26
Gamma: 04/15-16/26
Moisture: 04/13/26
DRAFT
*provided for discussion purposes only
Lithology Change
Sample Interval
Extra Sample Interval
FESI_2026_003

Attachment 3

WMA U Sampling Locations

(4 pages including cover sheet)



Note 1: With respect to D0669/D0670, an attempt was made to site a similar push location for the 2022 interim measures investigation but was not possible due to infrastructure issues. It is anticipated that this location, D0669/D0670, will not be able to be pushed due to the same issue of infrastructure.
Note 2: Refer to Table D4-1 for volatile organic compounds, semi-volatile organic compounds, PAH, and PCB sample depth collection.
Note 3: As with other sampling investigations, the locations will not be finalized until a new ground penetrating radar survey and field walkdowns are conducted.

PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
SIM = selected ion monitoring
SST = single-shell tank
SVOA = semi-volatile organic analysis
UPR = unplanned release
VOA = volatile organic analysis
WMA = Waste Management Area

Reference: RPP-RPT-54909, *Hanford Single-Shell Tanks Leak Causes, Locations, and Rates: Summary Report*.

Source: Figure D4-1 in RPP-PLAN-66053, *Phase 2 RCRA Facility Investigation/Corrective Measures Study Work Plan for Waste Management Area U*