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By Washington River Protection Solutions, LLC., PO Box 850, Richland, WA 99352
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Drywell 50-02-05 Investigation Plan

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Abstract:
In 2008-2009, increased Cs-137 radioactivity was measured in drywell 50-02-05 using geophysical logging systems. Since this drywell is located between tanks 241-T-102 and 241-T-105, formal leak assessments were conducted for both of these tanks. In August 2014, additional logging showed that gamma activity has continued to increase. This action plan summarizes results of investigations that have been performed since 2009 in support of the leak assessments, and recommends installing direct pushes for logging and sampling to further investigate continuing increases in gamma activity at drywell 50-02-05.

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J. G. Field
Washington River Protection Solutions

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EXECUTIVE SUMMARY

In 2008-2009, increased Cs-137 radioactivity was measured in drywell 50-02-05 using geophysical logging systems. Since drywell 50-02-05 is located between tanks T-102 and T-105, formal leak assessments per TFC-ENG-CHEM-D-42, *Tank Leak Assessment Process*, for both of these tanks were initially started in June 2009. As a result, a leak assessment team was formed and recommended additional investigations to determine the source of the increased gamma activity in drywell 50-02-05. An action plan was prepared in July 2009 (Interoffice memorandum WRPS-0901156 "Drywell 50-02-05 Investigation Plan, Revision 0") and some of the recommendations have been performed. In August 2014, additional logging was performed in drywell 50-02-05 and results indicate gamma activity has continued to increase.

Because gamma activity has continued to increase since 2010, the leak assessment team members have recommended further investigations to assess whether tanks T-102 or T-105 are the source for the increasing Cs-137 activity in drywell 50-02-05.

This action plan summarizes results of investigations that have been performed since 2009, and recommends installing direct pushes for logging and sampling based on data that have been obtained.

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Abbreviations and Acronyms

bgs	below grade surface
ESRB	Executive Safety Review Board
HRLS	High rate logging system
RAS	Radionuclide assessment system
SGLS	Spectral gamma logging system
WRPS	Washington River Protections Solutions

Units

ft	Feet
gm	gram
in	Inch
pCi	pico curries

1.0 BACKGROUND/PURPOSE

In 2008-2009, increased Cs-137 radioactivity was measured in drywell 50-02-05 using geophysical logging systems. Since drywell 50-02-05 is located between tanks T-102 and T-105, formal leak assessments per TFC-ENG-CHEM-D-42, *Tank Leak Assessment Process*, for both of these tanks were initially started in June 2009. Based on liquid level data, there is no indication of a leak from either tank T-102 or tank T-105. However, although both tanks are currently designated as "sound" the possibility of a leak could not be ruled out. As a result, a leak assessment team was formed and recommended additional investigations to determine the source of the increased gamma activity in drywell 50-02-05. An action plan was prepared in July 2009 (Interoffice memorandum WRPS-0901156 "Drywell 50-02-05 Investigation Plan, Revision 0" [WRPS-0901156]) and additional drywell logging was performed through September 2010 in accordance with WRPS-0901156. No further changes in gamma activity were observed between July 2009 and September 2010.

The leak assessment team reconvened between July and August 2012 to continue the T-102/T-105 formal leak assessments. In August 2012, the team concluded that tanks T-102 and T-105 should remain classified as "sound" until further information may become available. These results were presented to the Executive Safety Review Board (ESRB) on March 24, 2014. The ESRB recommended that additional logging of drywell 50-02-05 should be conducted due to the length of time that had passed since the last logging in September 2010.

However, at the recommendation of the ESRB, drywell logging performed in August 2014 showed gamma activity has continued to increase in drywell 50-02-05. This action plan summarizes results of investigations that have been performed since WRPS-0901156, Rev. 0, and recommends installing four direct pushes for logging and sampling based on data that have been obtained.

1.1 DRYWELL 50-02-05 HISTORY

Drywell 50-02-05 is located midway between tanks T-102 and T-105 in the 241-T Tank Farm (Figure 1-1). It was drilled to 91 ft below grade surface (bgs) in March 1974. The driller's log does not mention intercepting soil contamination during the well's construction.

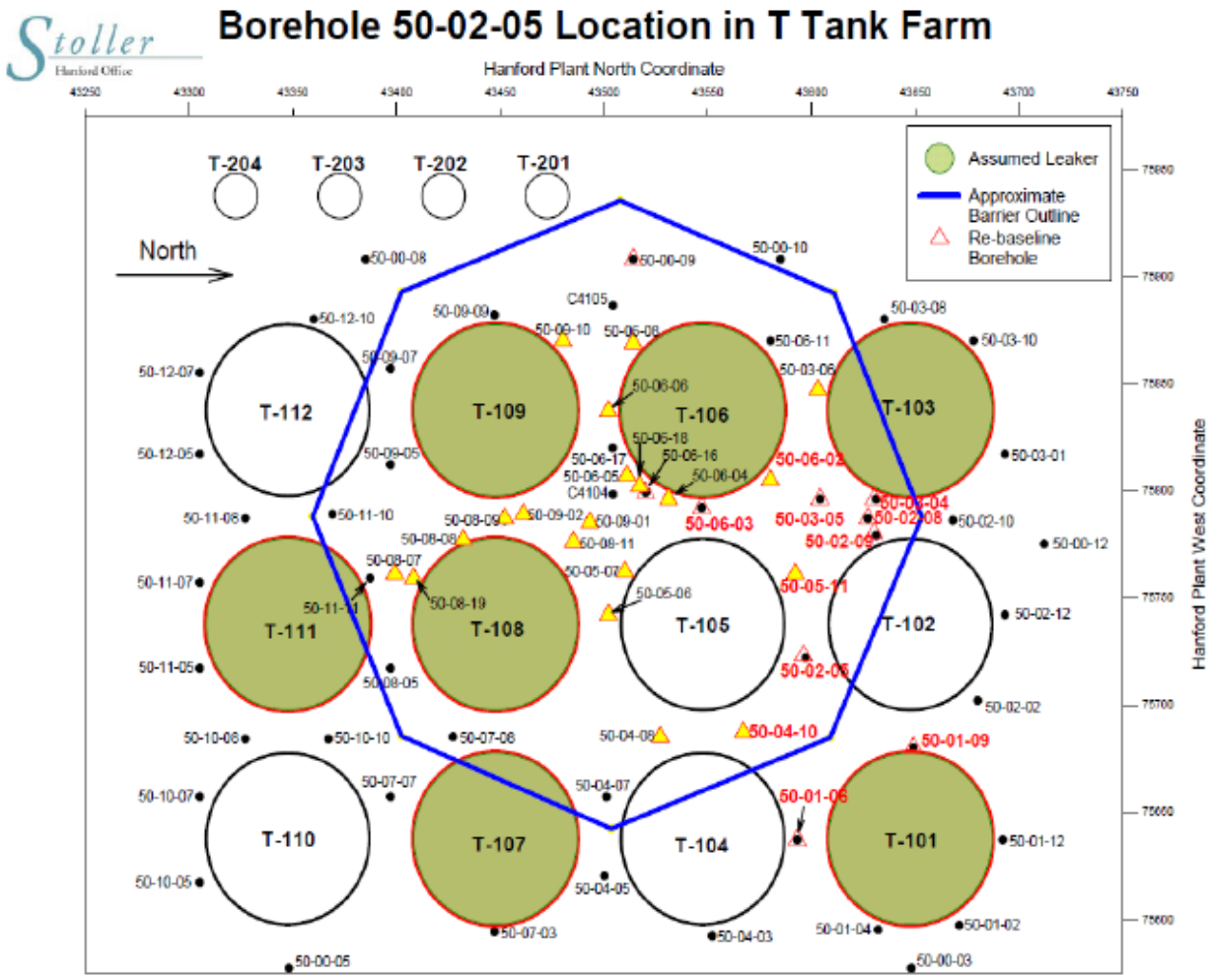

Figure 1-1. 241-T Tank Farm Surface Barrier Outline and Drywell Locations

Fragmentary drywell logging records available for the 1974 – 1977 period show that a contamination interval was present at 38 to 39 ft bgs by November 1974, and that counting the peak required use of a higher count rate instrument. When the drywell was logged in 1977 with a detector capable of identifying individual radionuclides, Ru-106, Cs-137, Co-60, and Eu-154 were detected at 39.5 ft bgs, a depth corresponding to the base of the tank farm excavation. The Ru-106 was reported as equivalent to 26,000 pCi/gm, and Cs-137 as 1,946 pCi/gm. The Co-60 and Eu-154 were near the detection threshold of the detector. Gamma logging between 1980 and 1994 indicated that the peak was decreasing at the Cs-137 half-life after the short-lived Ru-106 had decayed away, and that the peak appeared to be stable.

In 1998 the drywell was logged using the Spectral Gamma Logging System (SGLS) to establish a baseline of subsurface contamination conditions. The SGLS reported the Cs-137 peak as 2,000 pCi/gm. It was noted that the maximum Cs-137 concentration may have been under-estimated as a result of high counting dead time.

Between 2001 and 2003, the radionuclide assessment system (RAS) was used to monitor the contaminated intervals in the drywell at approximately six-month intervals. The 2001 and 2002 logs reported no change in the contaminant profile; the May 2003 log reported an increase in the Cs-137 peak at 39 to 41 ft bgs. The change was reported with a recommendation that logging be continued for the drywell. The drywell was next logged in September 2008.

In April 2008, the installation of an approximate 1.5 acre interim surface barrier over a portion of 241-T Tank Farm was completed. The barrier covered the ground surface above tanks T-105, T-106, T-108, and T-109, and portions of six other tanks (Figure 1-2). Many of the drywells covered by the barrier were re-logged in August and September 2008 with the SGLS. Re-logging was limited to previously identify contaminated intervals in the drywells.

No changes in the contaminated intervals from the 2008 baseline were reported. However, further data review in April 2009 revealed that the SGLS had experienced saturation and unexpectedly high dead time in drywell 50-02-05 contamination interval between 38 and 41 ft bgs. The September 2008 results were therefore suspect, and it was recommended that the drywell be re-logged with the high rate logging system (HRLS), which is specifically designed to measure much high levels of soil contamination.

On June 15, 2009 the contamination interval was re-logged with the HRLS between 37 and 42 ft bgs. The maximum Cs-137 concentration was 49,650 pCi/g; a significant increase from the 1998 value, which prompted the formal leak assessments of tanks T-102 and T-105.

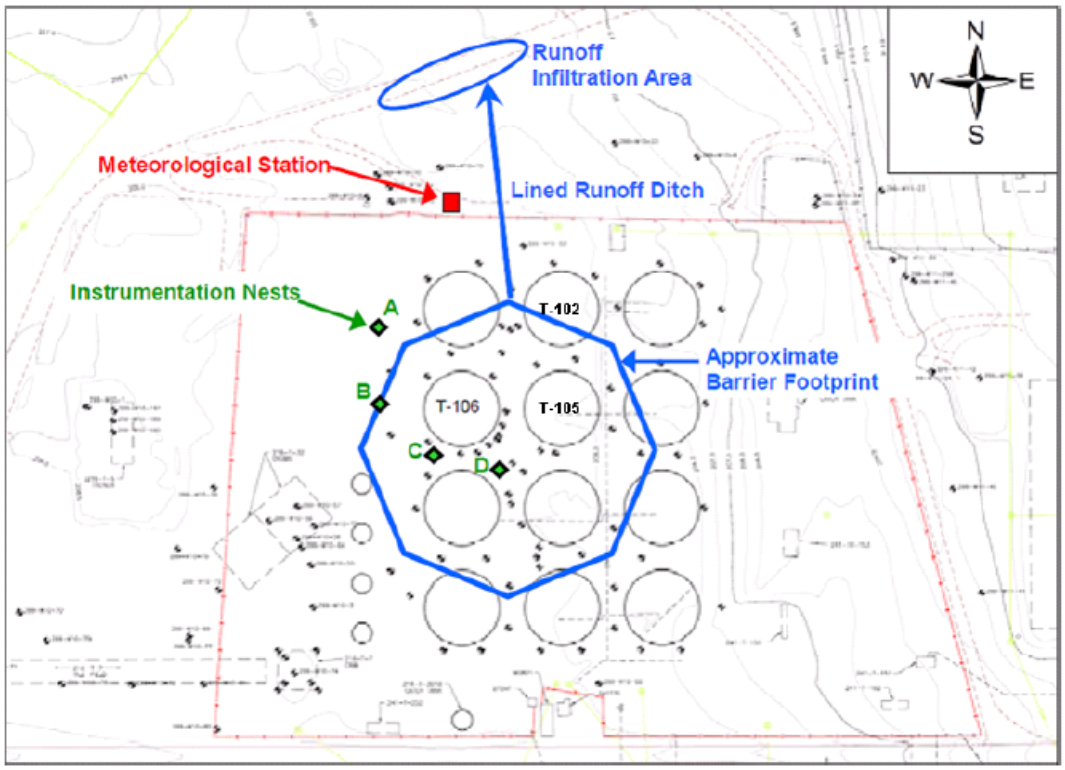

Figure 1-2. 241-T Tank Farm Surface Barrier Features

2.0 LEAK HYPOTHESES

There are four possible explanations for the Cs-137 peak increase in drywell 50-02-05 including a leak from a nearby process line, surface spill, or unplanned release; renewed leak activity from one or more of the nearby "assumed leakers"; a leak from one or more of the nearby "sound" tanks, or a re-leak from a previously undiscovered leak; and mobilization of an existing underground plume caused by installation of the surface barrier, or by infiltration of the barrier's runoff that is collected north of the tank farm. The following sections describe these four possible leak scenarios.

2.1 A LEAK FROM A NEARBY PROCESS LINE, SURFACE SPILL, OR UNPLANNED RELEASE

During the period from about 1978 to 1984, Line 6175 was suspected to be actively draining rainwater and snowmelt from the 241-TR-153 Booster Pump Pit into tank T-102 via one of the tank's sidewall nozzles. The estimated drainage during the period was reported as 2,600 gallons. Construction drawings show that the line passes very close to the location of drywell 50-02-05, and that it was placed in service in 1953. With its long history, this line could be a source of soil contamination.

Other possible leak sources could be the cascade inlet and/or outlet lines, spare nozzles, and Lines 6017, 6041, and 6121 located at the 8:00 position of tank T-102.

In 2006 an inventory of known, and previously-reported, tank farm pipeline leaks, surface spills, and unplanned releases was published. It did not identify any significant leaks or spills near the drywell.

2.2 CONTINUING LEAK FROM AN "ASSUMED LEAKER"

Tanks T-101, T-103, T-106, T-107, T-108, and T-109 are classified as "assumed leakers." One of these tanks may have recently started leaking again, supplying waste to an existing plume, and causing the plume to migrate toward drywell 50-02-05. The 1998 SGLS baseline showed that the Cs-137 plume detected at the base of the tank in 50-02-05 was isolated from other plumes. (See Figure 2-1, Figure 2-2, and Figure 2-3). Thus, it appears these tanks are not likely the cause of the increase reported in drywell 50-02-05.

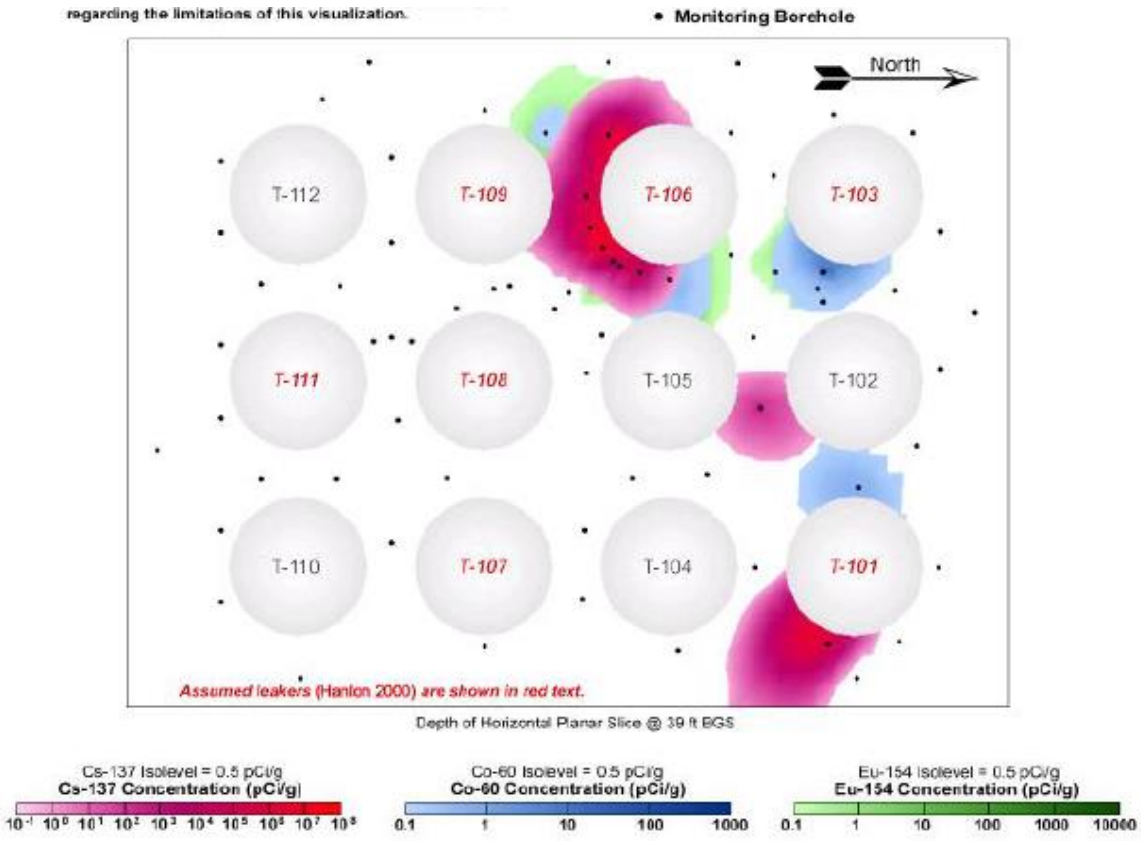

Figure 2-1. Visualization of 241-T Tank Farm Soil Contamination Plumes Present at 39 feet Below Surface in 1998

The visualization shows that the Cs-137 plume intercepted by drywell 50-02-05 appears to be isolated. The plumes are based on interpolation of data from nearby drywells. The absence of Cs-137 in other drywells near 50-02-05 effectively constrains the size of the plume.

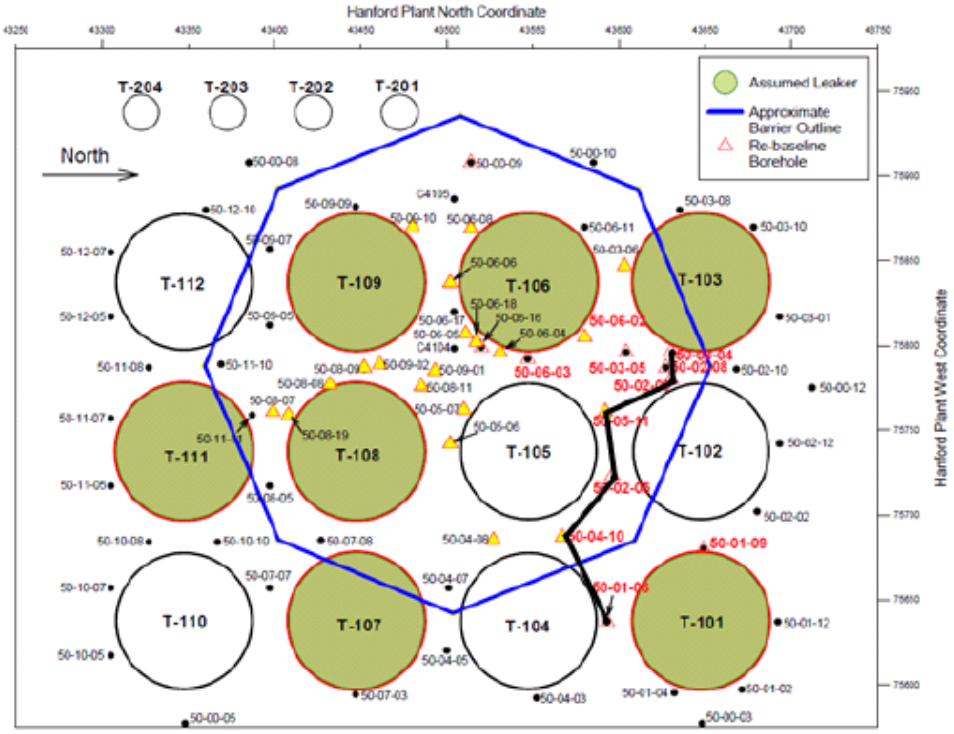

Figure 2-2. Location of Cs-137 Plume Intercept Drywells with 1998 Spectral Gamma Logging Data System

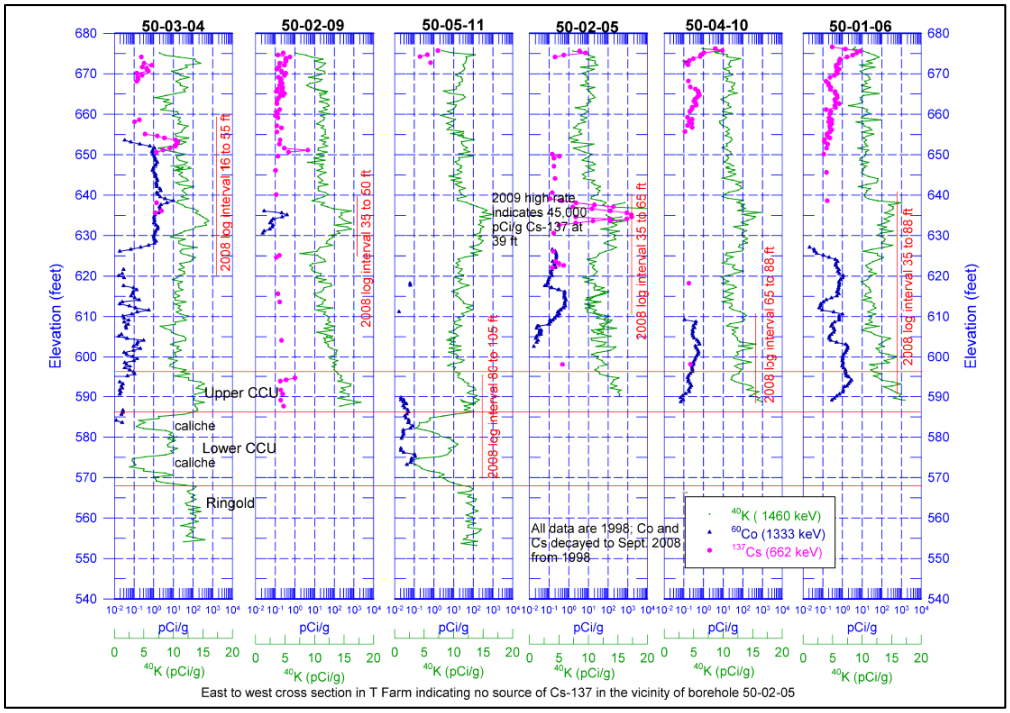

Figure 2-3. 1998 Spectral Gamma Logging System Results for 241-T Tank Farm Drywells Expected to Intercept a Cs-137 Plume near Drywell 50-02-05

In 1998 there was no evidence that external Cs-137 plumes were present at 39 ft bgs in the vicinity of drywell 50-02-05.

2.3 NEW OR PREVIOUSLY UNDISCOVERED LEAK

Tanks T-102 and T-105 are classified as "sound," interim stabilized tanks. Tank T-102 was administratively stabilized in 1981 with 7,000 gallons of remaining supernatant. In 1983 Occurrence Report 83-16, *Tank 241-T-102 Liquid Intrusion*, reported that a water intrusion of 2,600 gallons had occurred in tank T-102 during 1981 to 1983. Photographic evidence indicates that the intrusion probably began no later than 1978. The intrusion was reported as terminated in 1984. Tank T-102 is currently estimated to contain 13,000 gallons of supernatant, and 19,000 gallons of sludge holding an estimated 3,000 gallons of drainable interstitial liquid. The tank is monitored with an ENRAF instrument that is contacting the surface pool (Figure 2-4). The precision of the ENRAF is reported as ± 0.01 inches, equivalent to ±~ 30 gallons at current waste level. The waste level trend has been stable.

Figure 2-4. Tank T-102 Waste Supernatant Pool in 1983

(108626-15cn [N1992213] Photograph taken August 1, 1983; Surface Level = 18.8 in to center bottom of tank). Tank T-102 waste surface is free of floating crust and beachline crystallization indicating supernatant is dilute. Evaporation has probably been minimal. Supernatant pools like Tank T-102's provide high precision ENRAF surface level readings (i.e., surface level changes are readily detectable).

Tank T-105 was administratively stabilized in 1987 with 98,000 gallons of sludge remaining. The sludge contains 5,000 gallons of drainable interstitial liquid. There is no supernatant present (Figure 2-5). The tank is monitored for intrusion with an ENRAF instrument that is contacting the hard surface.

Figure 2-5. Tank T-105 Waste Surface in 1983

(108373-5cn [N1993185] Photograph taken June 24, 1983 Surface Level = 41.1 in to center bottom of tank). Tank T-105 waste surface is solid with no visible free liquid. In this 1983 photograph, the FIC (ENRAF predecessor) is contacting solids. Discolored area surrounding the FIC plummet is probably the result of repeated flushing to remove solids accumulating on the plummet in order to re-establish a reliable surface level reading.

2.4 241-T FARM INTERIM SURFACE BARRIER EFFECTS

Construction of the approximate 1.5 acre barrier over 241-T Tank Farm was completed in April 2008. The surface barrier is equipped with four moisture monitoring instrument nests (see Figure 1-2) that are showing a general drying trend in the first few feet of soil, but have detected no moisture changes deeper in the vadose zone. The runoff infiltration area is located northwest

of the tank farm in uncontaminated, undisturbed soil, well beyond the original excavation perimeter for the tank farm. If the runoff infiltration plume behaves similar to the existing plumes in 241-T Tank Farm, it should pass to the west of the tanks. Thus, it appears the 241-T Tank Farm barrier did not play a significant role in the Cs-137 increase of drywell 50-02-05.

3.0 CANDIDATE DRYWELL INVESTIGATION ACTIVITIES AND OBJECTIVES

Three candidate activities, labeled A through C, described below were selected with the intent to identify the source of the plume that is causing the increase in the Cs-137 peak in drywell 50-02-05. The ESRB previously authorized Activity A, Re-log drywells, and the activity was completed as described below. Activity B, Tank T-102 and T-105 In-Tank Visual Inspection, was also completed with the visual inspection of tank T-102 performed in September 2014. Activity C, Direct push soil moisture and radiation logging and samples, requires ESRB concurrence to proceed and will require a change request (Section 3.3 includes cost estimates for Activity C).

3.1 ACTIVITY A. RE-LOG DRYWELLS 50-01-06, 50-01-09, 50-02-05, 50-04-10 AND 50-05-11

This activity was recommended in an attempt to determine if past releases of Cs-137 have migrated toward drywell 50-02-05.

Five drywells form an intercepting letter T for drywells near drywell 50-02-05, with the long axis separating the tank T-101 – T-103 cascade from the tank T-104 – T-106 cascade, and the short axis separating the tank T-101 – T-104 and tank T-102 – T-105 pairs (see Figure 3-1). Review of the 1998 SGLS logs shows that the only significant Cs-137 peak in the drywells along the T was the peak in drywell 50-02-05. The visualization in Figure 3-1 shows that a Cs-137 leak plume moving east toward drywell 50-02-05 from tank T-106 would first intercept drywell 50-05-11. That drywell showed no Cs-137 peaks during the 1998 SGLS logging. The interval from 35 to 45 ft bgs was not re-logged in September 2008. The plume movement direction would be contrary to the generally southwest direction that the tank T-106 and T-103 plumes have taken.

If the Cs-137 plume source is tank T-101, then the plume should have intercepted drywell 50-01-06, and possibly 50-04-10 before reaching drywell 50-02-05. Neither drywell 50-01-06 nor drywell 50-04-10 showed Cs-137 peaks during the 1998 SGLS logging. In the September 2008 logging, no detectable Cs-137 was found at the base of the excavation in drywell 50-01-06; the same interval was not logged in drywell 50-04-10.

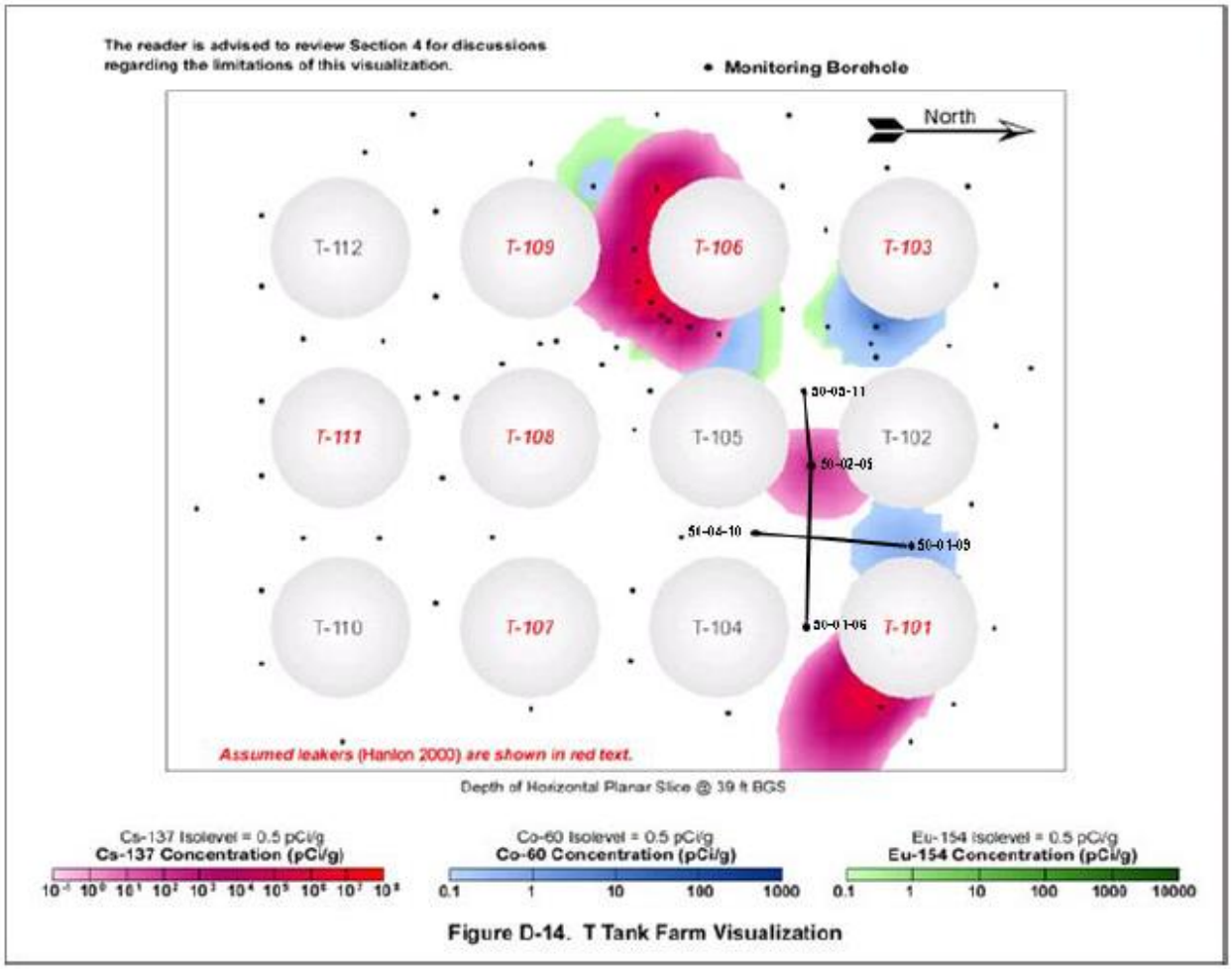

Figure 3-1. Location of Drywells 50-01-06, 50-01-09, 50-02-05, 50-04-10, and 50-05-11 Recommended for Re-Logging Using the Spectral Gamma Logging System

The discovery of a new Cs-137 peak in any of the drywells along the "T" axes in Figure 3-1, its depth, and the level of contamination in the soil, will provide information about the source of the Cs-137 plume. For example, if the drywell log shows a Cs-137 peak located no deeper than the peak in drywell 50-02-05, and the measured Cs-137 soil contamination is greater than measured in 50-02-05, then the plume is probably moving past that drywell toward drywell 50-02-05. This information would reduce the likelihood that either tank T-102 or T-105 was the source of the plume, and increase the likelihood that the source is an existing leaking tank or tank T-104.

If the drywell log shows a Cs-137 peak located deeper than the peak in drywell 50-02-05, and the measured Cs-137 soil contamination is less than measured in 50-02-05, then the plume is probably moving toward that drywell from a source close to drywell 50-02-05. This evidence would increase the likelihood that the plume was originating from either tank T-102 or T-105, and reduce the likelihood that the source is due to migration from other tank leaks.

3.1.1 Results of Re-Logging Drywells

Full depth SGLS logs of the four drywells surrounding drywell 50-02-05 and drywell 50-02-05 were obtained in August 2009. No change indicating migration of contaminants was observed compared to the 1998 SGLS results (Figure 3-2). This indicates that gamma activity near drywell 50-02-05 appears to be localized and that the increased gamma activity is probably not due to migration from tank T-104 or other currently designated leaking tanks.

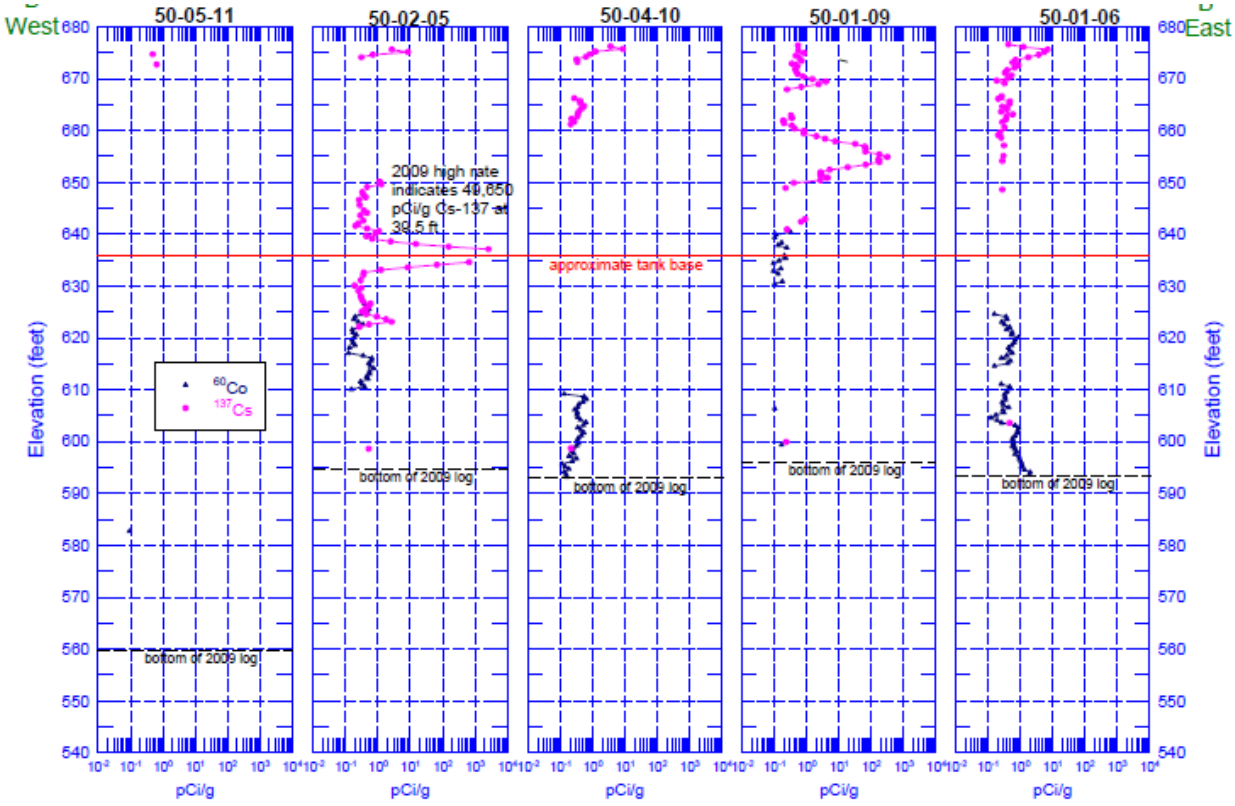

Figure 3-2. 2009 Spectral Gamma Logging System Drywell Logging Results
No change between 2008 and 2009 SGLS measurements in drywell 50-02-05. No difference between 1998, 2008, and 2009 SGLS measurements for the 4 nearby drywells

At the conclusion of the SGLS logging activity, the results were reviewed with the ESRB and a recommendation was made to use RAS to log drywell 50-02-05 quarterly and monitor for changes in total gamma activity until the investigation is closed. Although the RAS does not provide the high-resolution gamma energy spectra of the SGLS, the RAS is capable of measuring total gamma, and includes gamma energy "windows" for counting Cs-137 and Co-60. The system can complete logs rapidly, and is operated by plant forces.

Six sets of RAS logs were obtained between September 2009 and September 2010, with no further change observed in the gamma activity in drywell 50-02-05 (Figure 3-3). As a result, a decision was made to stop monitoring. No further logs were obtained until results were again presented to the ESRB in April 2014 and direction was given to use RAS to log the drywells one more time to determine if anything had changed since September 2010. When drywell 50-02-05 was logged on April 10, 2014, an increase in gamma activity was observed. The well was re-

logged on June 9, 2014 to confirm the April result (Figure 3-4). In addition, the five surrounding wells logged previously were also re-logged to see if anything had changed at these wells. No change was observed in any of the five surrounding wells, but results confirmed gamma activity had increased by ~8% in drywell 50-02-05 since it was logged in September 2010. A decrease of 8% activity was expected due to decay. No further re-logging has been recommended.

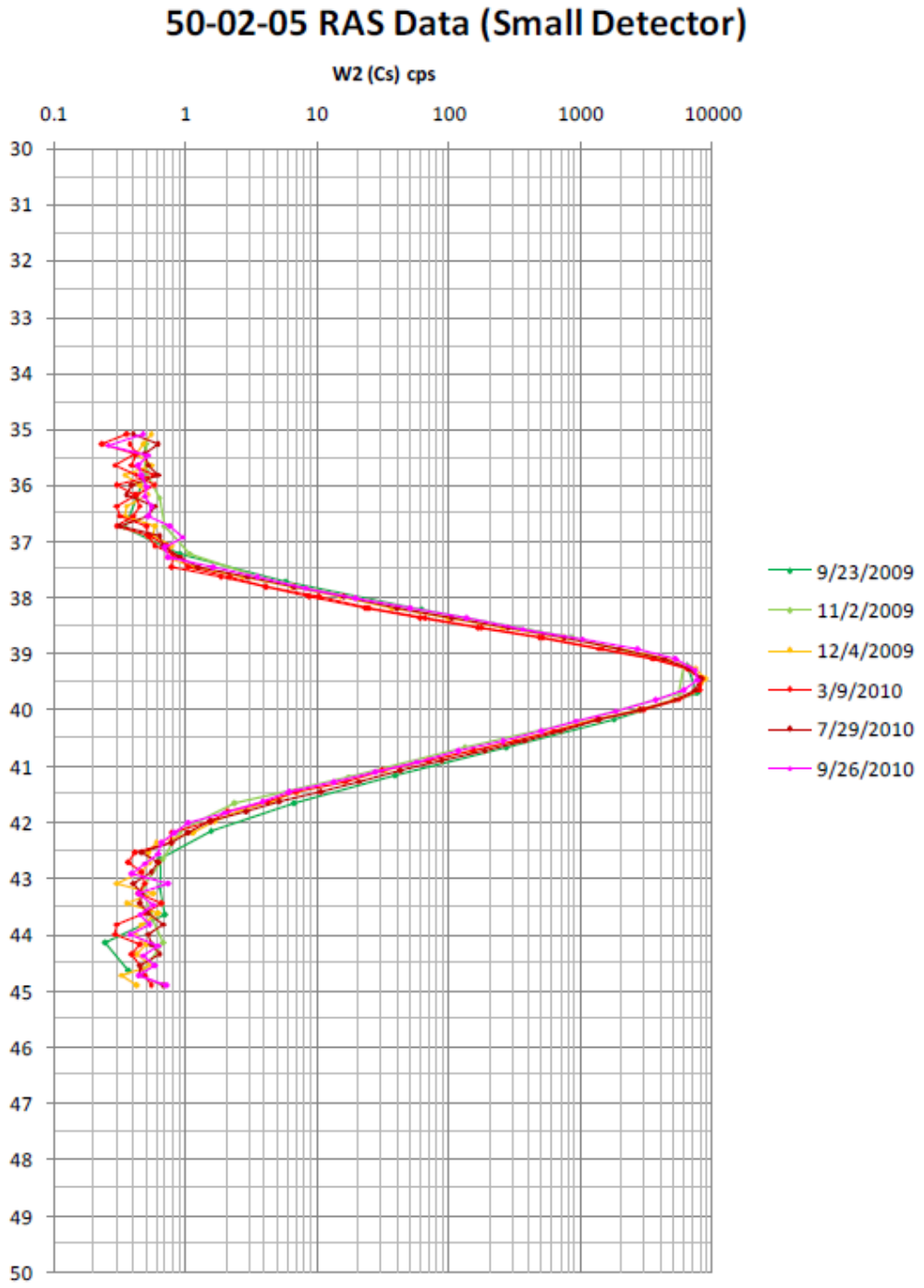

Figure 3-3. Drywell 50-02-05 Radiation Assessment System Logging Results

Total gamma RAS measurements for drywell 50-02-05 were stable from September 2009 through September 2010. RAS logging was discontinued after 9/26/2010.

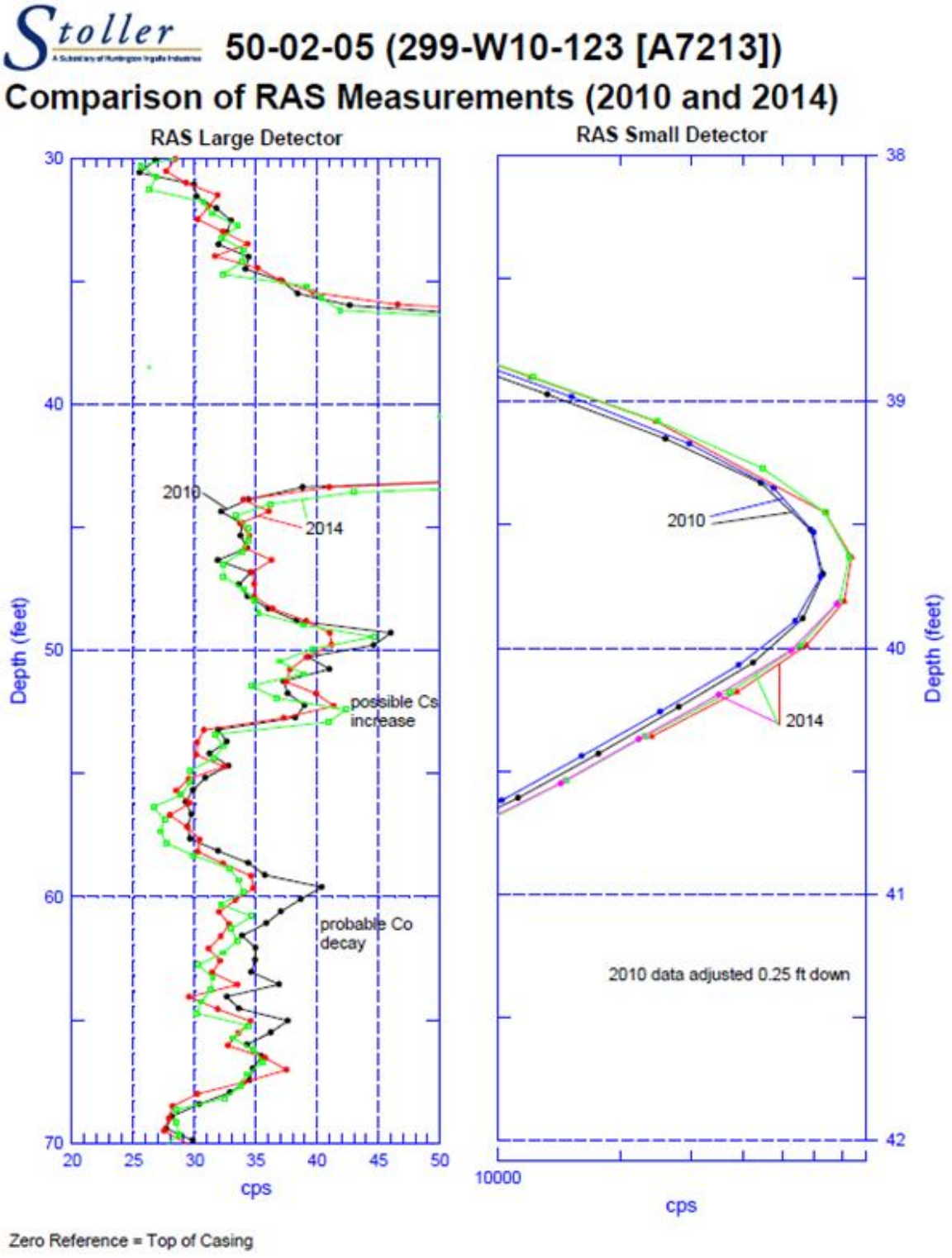

Figure 3-4. 2010 and 2014 Logging Results for Drywell 50-02-05

3.2 ACTIVITY B. TANK T-102 OR T-105 IN-TANK VISUAL INSPECTION

The last in-tank photographs taken in tanks T-102 and T-105 are listed in Table 3-1. Since there is no current visual evidence of the condition of the waste surface of these tanks, an in-tank visual inspection was recommended in 2009 (WRPS-0901156).

Table 3-1. Last In-Tank Photo Missions for Tanks T-102, T-104, and T-105 (WHC-EP-0182-92).

Tank	Date	Photo Mission Number
T-102	Nov 8, 1983 Jun 28, 1989	110507 Not available in IDMS
T-104	Aug 2, 1984 Jun 29, 1989	8405334 89062918
T-105	Jun 24, 1983 May 14, 1987	108373 8702966

3.2.1 Results of the In-Tank T-102 Visual Inspections

The first visual inspection of tank T-102 occurred January 28, 2011 to look for potential tank intrusions. The inspection video was reviewed and results reported in RPP-RPT-51404, *Fiscal Year 2011 Visual Inspection Report for Single-Shell Tanks*. No areas of concern were found from visual inspection of the dome or steel liner, and the in-tank equipment and risers appeared to be in sound condition (see Figure 3-5).

An additional in-tank inspection of tank T-102 was completed on September 23, 2014 to determine whether the ENRAF probe is measuring liquid changes or resting on solids. If the ENRAF is in the liquid pool, the ENRAF provides a good indicator of a very small leak or no leak from tank T-102. If resting on solids, the liquid level measurements for tank T-102 cannot be used for leak detection.

The video showed an inch or more of liquid under the plummet, however, it was also observed that the ENRAF gage appeared to be sticking and ENRAF level readings were not reproducible. Consequently, the ENRAF liquid level data does not confirm whether or not tank T-102 is leaking. Maintenance of the T-102 ENRAF was recommended.

Tank T-105 has not been visually inspected to date and no further recommendations have been made regarding visual in-tank inspections of this tank.

Figure 3-5. Visual Inspection of Tank T-102, January 2011

3.3 ACTIVITY C. DIRECT PUSH SOIL MOISTURE AND RADIATION LOGGING AND SAMPLES

Direct pushes are needed to determine if there is any contamination between the drywell and the two tanks. Another potential source of contamination that should be investigated is between drywell 50-02-05 and the T-101 pump pit. A key benefit of the direct push holes is to enable moisture measurements. The T Farm drywells are double incased with grout between the casings. As such, soil moisture measurements cannot be obtained from the drywells. Given the large overflow from the spare inlets at tank T-101 and the large leak from tank T-106, there may be high soil moisture content at the foundation of the tank farm, which may explain Cs-137 movement. Direct pushes will also enable taking soil samples to determine the concentration of sodium and other ions near the drywell.

It was originally recommended in July 2009 (WRPS-0901156) for direct pushes to be installed near drywell 50-02-05. However, none have been installed to date. The vadose zone program

developed the following plan for direct push holes to further investigate the source of increased gamma activity at drywell 50-02-05.

Direct push holes are recommended at four general locations. Vertical bore holes located north and south of the subject drywell will help to identify whether the Cs-137 source is moving south from tank T-102 or north from tank T-105. The next location is an angle push from the east between tanks T-101 and T-104. At tank T-101 waste was released at the spare inlet ports; there are no drywells between the spare inlet ports on the Southwest side of tank T-101 and drywell 50-02-05. This soil boring will show whether waste has migrated from tank T-101 toward the drywell. The fourth location is an angle push from the west between tanks T-102 and T-106. Although monitoring indicates no change in drywells toward tank T-106 an angle push will help to substantiate drywell indications.

These preliminary site locations may change based on surface and subsurface interferences.

Each investigative site will have two soil borings to approximately100 ft bgs (the depth of the Cold Creek hard layer in T-Farm). The first soil boring is for geophysical moisture and total gamma logging and to install resistivity electrodes for future characterization. The geophysical logging results will be reviewed and at a minimum three sample depths will be selected. The second boring is to obtain samples. Soil samples will be analyzed for technetium-99, nitrate, pH, conductivity, and gamma radionuclides.

The cost for 241-C tank farm direct push investigations with four vertical hole locations, two slant hole locations and eight samples per location, and with boreholes pushed to ~200 ft bgs was ~$2.5 million.

PO Contracts and Planning: $1,075,000
Labor/ Field Work and Decommission: $1,238,000
Analysis and Report: $146,000

The estimated cost for four T Farm direct push locations, pushed to half the C Farm depth and with three samples per location is the same for contracts and planning and about half the cost for labor/field work and decommissioning and analysis and reporting. The total estimated cost for this activity is ~$1.8 million.

4.0 CONCLUSIONS

The source of the original gamma activity and increased gamma activity in drywell 50-02-05 remains unknown. Because gamma activity has continued to increase since 2010, the leak assessment team members have recommended further investigations to assess whether tanks T-102 or T-105 are the source for the increasing Cs-137 activity in drywell 50-02-05.

This action plan summarizes results of investigations that have been performed since 2009, and recommends installing direct pushes for logging and sampling based on data that have been obtained.

5.0 REFERENCES

Occurrence Report 83-16, 1985, *Tank 241-T-102 Liquid Intrusion*, Rockwell Hanford Operations, Richland, Washington.

RPP-RPT-51404, 2012, *Fiscal Year 2011 Visual Inspection Report for Single-Shell Tanks*, Rev. 0, Washington River Protection Solutions LLC., Richland, Washington.

TFC-ENG-CHEM-D-42, "Tank Leak Assessment Process,". Washington River Protection Solutions LLC., Richland, Washington.

Washenfelder, D.J. 2009, "Drywell 50-02-05 Investigation Plan, Revision 0," (interoffice memorandum WRPS-0901156 to T.L. Steelman, July 15), Washington River Protection Solutions LLC., Richland, Washington.

INFORMATION CLEARANCE REVIEW AND RELEASE APPROVAL

Part I: Background Information

Title: Drywell 50-02-05 Investigation Plan	Information Category: ☐ Abstract ☐ Journal Article ☐ Summary ☐ Internet ☐ Visual Aid ☐ Software ☐ Full Paper ☑ Report ☐ Other
Publish to OSTI? ☐ Yes ☑ No	
Trademark/Copyright "Right to Use" Information or Permission Documentation	Yes ☐ NA ☑
Document Number: RPP-PLAN-60001 Revision 0	Date: October 2014
Author: Field, Jim G	

Part II: External/Public Presentation Information

Conference Name:		
Sponsoring Organization(s): WRPS		
Date of Conference:	Conference Location:	
Will Material be Handed Out? ☐ Yes ☑ No	Will Information be Published? ☐ Yes ☑ No	*(If Yes, attach copy of Conference format instructions/guidance.)*

Part III: WRPS Document Originator Checklist

Description	*Yes*	*N/A*	*Print/Sign/Date*
Information Product meets requirements in TFC-BSM-AD-C-01?	☐	☑	
Document Release Criteria in TFC-ENG-DESIGN-C-25 completed? (Attach checklist)	☑	☐	Field, Jim G IDMS workflow data attached
If product contains pictures, safety review completed?	☐	☑	

Part IV: WRPS Internal Review

Function	*Organization*	*Date*	*Print Name/Signature/Date*
Subject Matter Expert	WRPS	07/08/2019	Field, Jim G IDMS workflow data attached
Responsible Manager	WRPS	06/20/2019	Kirch, Nick IDMS workflow data attached
Other:			

Part V: IRM Clearance Services Review

Description	*Yes*	*No*	*Print Name/Signature*
Document Contains Classified Information?	☐	☒	If Answer is "Yes," ADC Approval Required Print Name/Signature/Date
Document Contains Information Restricted by DOE Operational Security Guidelines?	☐	☒	Reviewer Signature: Print Name/Signature/Date
Document is Subject to Release Restrictions? *If the answer is "Yes," please mark category at right and describe limitation or responsible organization below:*	☐	☒	Document contains: ☐ Applied Technology ☐ Protected CRADA ☐ Personal/Private ☐ Export Controlled ☐ Proprietary ☐ Procurement – Sensitive ☐ Patentable Info. ☐ OUO ☐ Predecisional Info. ☐ UCNI ☐ Restricted by Operational Security Guidelines ☐ Other (Specify)
Additional Comments from Information Clearance Specialist Review? Full external clearance review completed Jul-2019 for document released in SPF Nov-2014. lma 07/09/2019	☒	☐	Information Clearance Specialist Approval APPROVED By Lynn M. Ayers at 7:05 am, Jul 09, 2019 Print Name/Signature/Date

When IRM Clearance Review is Complete – Return to WRPS Originator for Final Signature Routing (Part VI)

INFORMATION CLEARANCE REVIEW AND RELEASE APPROVAL

Part VI: Final Review and Approvals

Description	*Approved for Release*		*Print Name/Signature*
	Yes	*N/A*	
WRPS External Affairs	☒	☐	McKenna, Mark - IDMS workflow data attached
WRPS Office of Chief Counsel	☒	☐	Cherry, Steve B - IDMS workflow data attached
DOE – ORP Public Affairs/Communications	☒	☐	Levardi, Yvonne & Beeman, Melinda - IDMS data attached
Other: DOE Counsel	☒	☐	Marvin, Marla K - IDMS workflow data attached
Other: DOE-ORP SME	☒	☐	Stewart, Dustin M - IDMS workflow data attached

Comments Required for WRPS-Indicate Purpose of Document:

This action plan summarizes results of investigations that have been performed since 2009, and recommends installing direct pushes for logging and sampling based on data that have been obtained.

The report will be referenced in a field sampling plan and was requested by Ecology.

APPROVED
By Lynn M. Ayers at 7:05 am, Jul 09, 2019

Approved for Public Release; Further Dissemination Unlimited

Information Release Station

Was/Is Information Product Approved for Release? ☒ Yes ☐ No

If Yes, what is the Level of Releaser? ☑ Public/Unrestricted ☐ Other (Specify) _____

Date Information Product Stamped/Marked for Release: 07/09/2019

Was/Is Information Product Transferred to OSTI? ☐ Yes ☒ No

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