



# 200-SW-2 Operable Unit Radioactive Landfills Group



*Richland Operations Office*

**RICHLAND**  
**OPERATIONS OFFICE**  
United States Department of Energy

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# 200-SW-2 Operable Unit (OU) Agenda

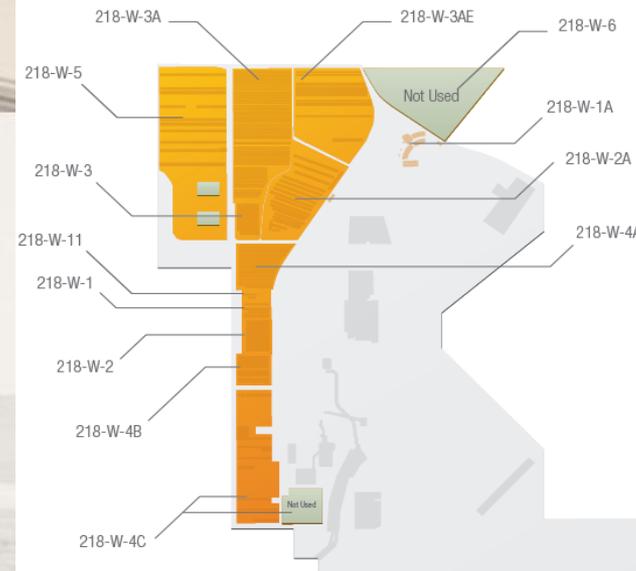
- Overview and status
- Discussion of selected Hanford Advisory Board's (HAB) advice related to the landfills
- Path forward



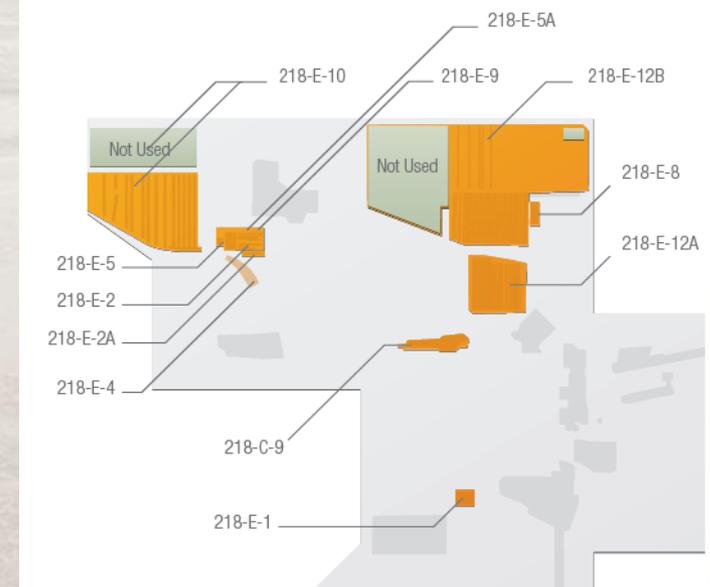
# 200-SW-2 OU Overview

- 24 landfills:
  - Received unsegregated waste, low-level waste and mixed low-level waste
  - Contain ~ 450,000 m<sup>3</sup> of waste
  - Post-1970 stored transuranic waste will be removed (M-91 milestones)
  - Seven landfills include Resource Conservation and Recovery Act (RCRA) temporary storage and disposal components
- 14 co-located waste sites:
  - 11 unplanned releases
  - Z Plant burn pit, T Ponds and 216-C-9 Pond

200 West Radioactive Solid Waste Landfills



200 East Radioactive Solid Waste Landfills



# 200-SW-2 OU Status



- The Remedial Investigation/Feasibility Study (RI/FS) work plan was approved by Ecology on August 15, 2016.
- Throughout the past year, DOE worked with Ecology, and through a series of workshops identified data gaps and data needs for each of the landfills.
- Data needs are identified in the 200-SW-2 work plan and characterization has been proposed to address these needs. Characterization efforts include:
  - Aerial radiological surveys
  - Passive and active soil gas investigations
  - Direct push sampling (geoprobos)
  - Horizontal borings
  - Test pits
  - Baseline and advanced geophysical investigations
  - Multi-detector probes (caisson investigations)
  - Evaluation of existing records and knowledge
- Mobilization of the remedial investigation planned for Fiscal Year 2018

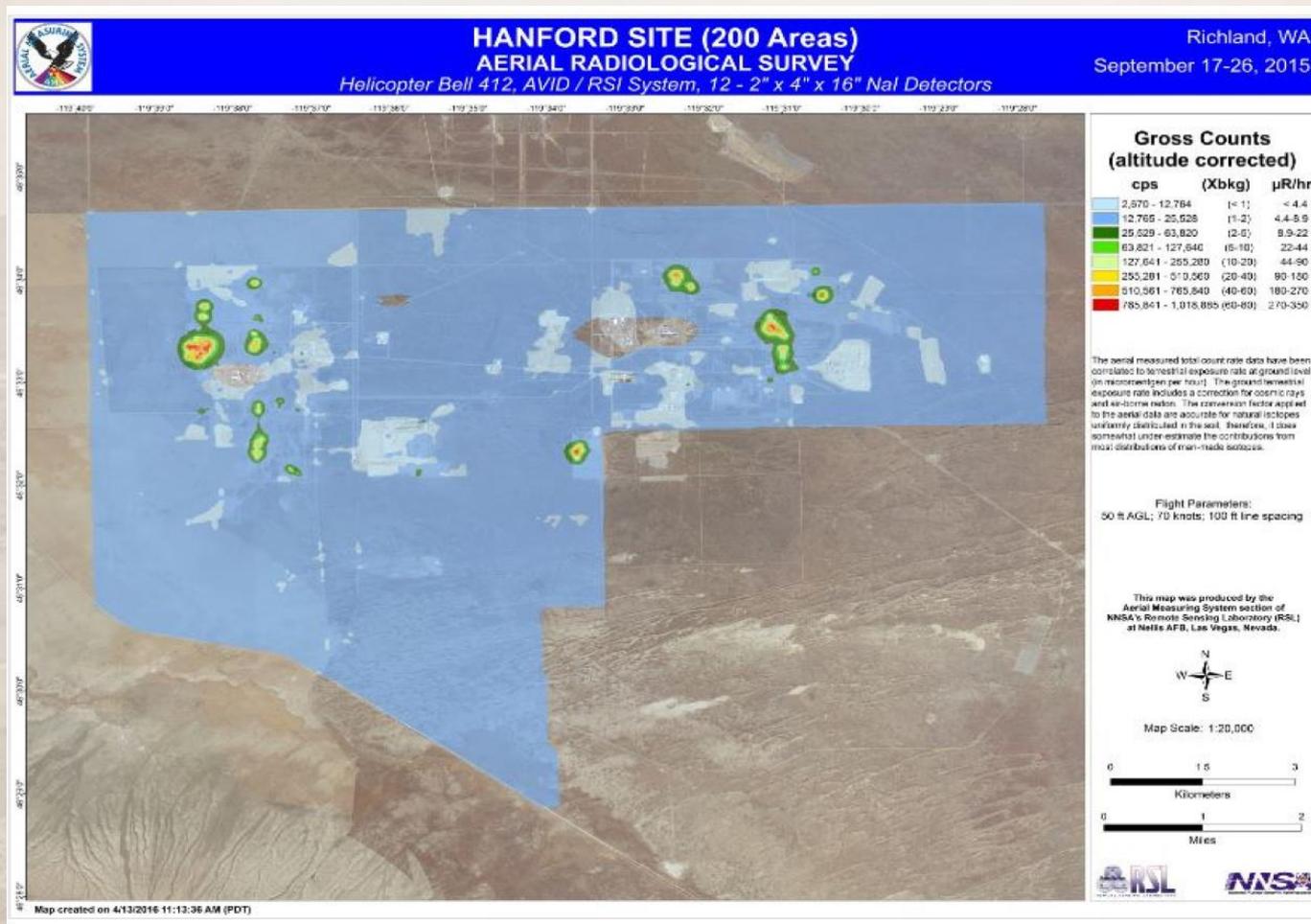


Casecx700



# 200-SW-2 OU Status (Cont'd)

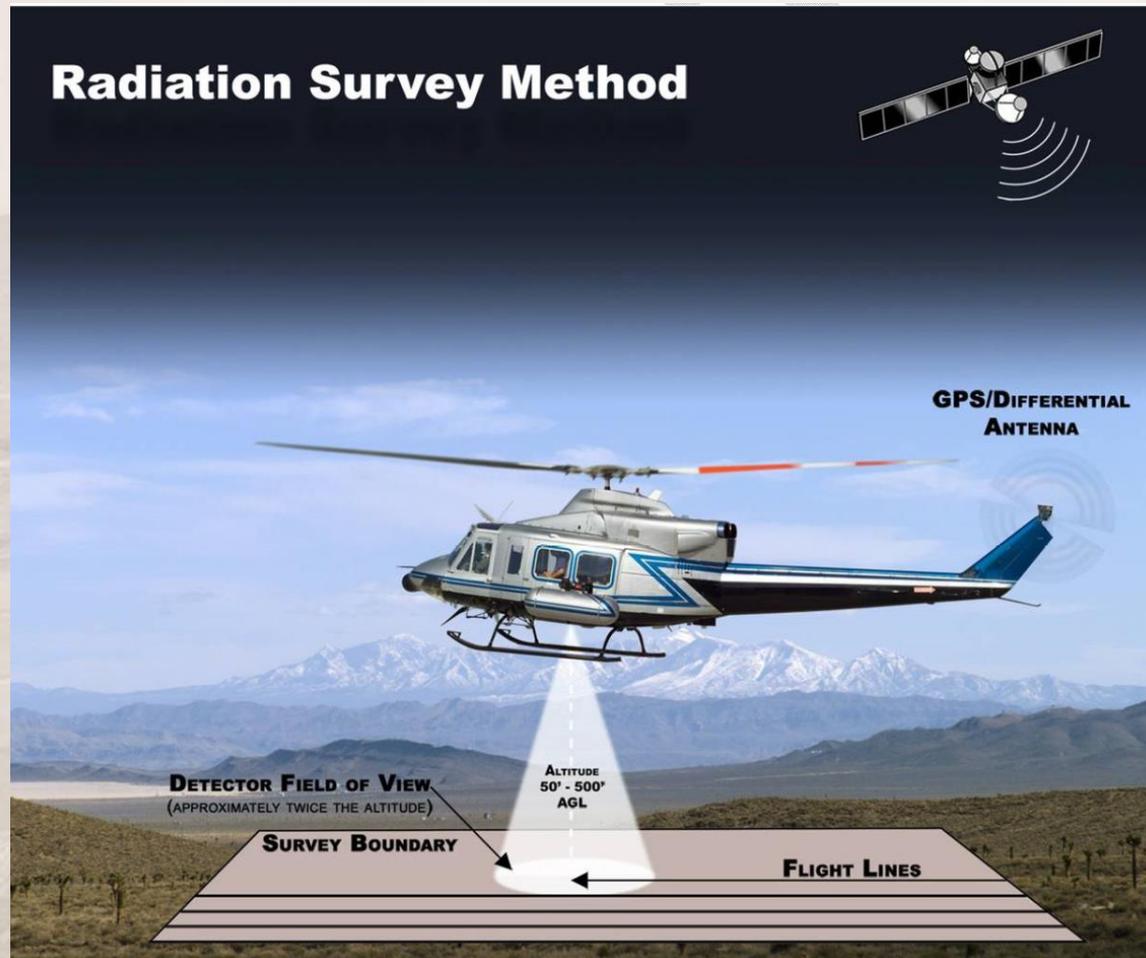
Aerial radiological survey flyover of 200-West and East Areas occurred in September 2015



# 200-SW-2 OU Status (Cont'd)



Aerial radiological survey flyover of 200-West and East Areas occurred in September 2015





# 200-SW-2 OU

## HAB Advice #243, Advice Point #1

**Advice point #1:** The HAB has consistently encouraged Remove-Treat-Dispose (RTD) alternatives.

**Response:** Various options for RTD will be evaluated in the feasibility study along with other alternatives. The evaluation will be based on:

- Recent M-91 transuranic waste retrieval experience
- Test pits in select landfills

Section 5.9 of the work plan provides additional details on the range of potential technologies.

HAB recommended key values be incorporated as the work plan progresses. The nine Comprehensive Environmental Response, Compensation, and Liability Act evaluation criteria include the HAB recommendations.





# 200-SW-2 OU

## HAB Advice #243, Advice Point #4

**Advice point #4:** High-risk materials should be prioritized for removal.

**Response:** Existing data and new data collected during the remedial investigation will be used to determine risk to human health and the environment.

They will include:

- Aerial surveys
- Geophysics
- Soil gas investigations
- Vadose sampling beneath the landfills
- Radiological inventories
- Test pits







# 200-SW-2 OU HAB Advice #243, Advice Point #9

**Advice point #9:** HAB is concerned about the current timeline for investigation and remedial action for the burial grounds.

**Response:** Schedule identified in the approved 200-SW-2 RI/FS work plan.

Task Name	Start Date	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Conduct Site Characterization	Sep-18			[Gantt bar spanning FY 2019 to FY 2022]				
Initiate 200-SW-2 OU characterization field work (TPA Milestone P-015-93C)	Sep-18		▼					
Prepare and Submit Cumulative Impacts Evaluation Approach, Draft A	Oct-16	[Gantt bar spanning FY 2017 to FY 2018]						
Prepare and Approve Cumulative Impacts Evaluation Approach, Rev. 0	Apr-18		[Gantt bar]					
Prepare Cumulative Impacts Evaluation (SW-2)	Jul-18			[Gantt bar spanning FY 2019 to FY 2022]				
Prepare and Issue RFI/RI Report, Draft A	Oct-18			[Gantt bar spanning FY 2019 to FY 2022]				
Prepare and Issue CMS/FS Report, Draft A	Nov-21						[Gantt bar spanning FY 2022 to FY 2023]	
Prepare and Issue Corrective Action Decision/Proposed Plan, Draft A	Nov-21						[Gantt bar spanning FY 2022 to FY 2023]	
Submit 200-SW-2 OU RFI/CMS/RI/FS Report and PCAD/PP (TPA Milestone P-015-93B)	Jan-23							▼

Notes:

1. TPA Milestones are proposed in the tentative agreement.
2. TPA Milestone P-015-93C "Initiate characterization field work for the 200-SW-2 Operable Unit landfills in accordance with the schedule in the approved RI/FS/RFI/CMS Work Plan", due 9/30/2018
3. TPA Milestone P-015-93B "Submit RCRA Facility Investigation/Corrective Measures Study & Remedial Investigation/Feasibility Study Report and proposed Corrective Action Decision/Proposed Plan for the 200-SW-2 OU to Ecology", due 1/31/2023
4. Conduct site characterization includes field investigations and analytical tasks, sample analysis and data validation, data evaluation and field summary reports.
5. Schedules were developed using the review and approval durations established in the TPA, if these durations are exceeded the schedule will experience a day for day slip.



# 200-SW-2 OU

## HAB Advice #243, Advice Point #11

**Advice point #11:** DOE should use descriptive language to accurately communicate the Contaminants of Potential Concern (COPC) and actual condition of the subsurface.

**Response:** The 200-SW-2 work plan (Appendix D) contains detailed information on:

- Landfill history
- Inventory
- Previous investigations
- COPCs
- Subsurface conditions

## 218-W-4B

Landfill

RCRA TSD

Caissons

*September 9, 1975: hotcell waste being placed in caisson in 218-W-4B landfill.*



Curie Content: High

Green Islands: No

Hydraulic Driving Force: Yes

Record Quality: Good

Subsidence: Yes

Soil gas detection: Yes



# 200-SW-2 OU

## Path Forward

- Remedial investigation activities have been initiated with the aerial radiological survey
- Milestone M-015-93C – 09/30/2018
  - Initiate characterization field work for the 200-SW-2 OU landfills in accordance with the schedule in the approved work plan
- Milestone M-015-93B – 01/31/2023
  - Submit RCRA Facility Investigation/Corrective Measures Study & Remedial Investigation/Feasibility Study Report and Proposed Corrective Action Decision/Proposed Plan for the 200-SW-2 OU to Ecology





**Questions?**



# Additional Backup Slides



# Additional HAB advice was provided

Throughout the work plan HAB advice was highlighted in blue text boxes

- **Test pit excavations:** Focused and random test pits will be excavated in select landfills to confirm waste burial records. This characterization task satisfies PSQ 1, PSQ 2, and PSQ 3. The 200-SW-2 OU landfills will have test pits *unless* they meet one or more of the following characteristics:
  - Highly radioactive waste is recorded in any part of the landfill (for greater than 120 R/hr at burial; this primarily applies to TSD landfills).
  - Waste is mainly packaged in large boxes (test pits not needed because waste would not be visible).
  - Photographic history demonstrates good correlation with records (test pits not needed).
  - Good burial records exist (test pits not needed).

*Limited excavations are planned in 15 landfills in accordance with the Hanford Advisory Board (HAB) recommendation that an "observational approach" be adopted where additional information about landfill waste is needed.*

In each landfill selected for test pits, one focused and one random pit will be excavated. The method for selecting the pit locations and the specific locations for each are described in the SAP (Appendix A). In general, the focused locations are based on historical process knowledge, and it is anticipated that these excavations will confirm the locations of the recorded landfill contents. The random locations are based on random coordinates selected using the random number generator in Microsoft® Excel®<sup>1</sup>. Additional information regarding the test pits is provided in the SAP (Appendix A).