Hanford Site

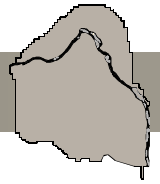
Groundwater/Vadose Zone Integration Project

200 Area ER Remedial Action Project

EMSP Vadose Zone Principal Investigator Workshop

M. E. Todd

November 5, 2001



Purpose

- Characterize and clean up 200 Area contaminated soil sites

Scope

- Approximately 800 waste sites organized into 23 process-based operable units
- Cribs, trenches, ditches, ponds, reverse wells, burial grounds and unplanned releases
- Excludes tank farms and buildings/facilities
- Vadose zone

Characterization Approach

- Analogous Site Approach
  - Waste sites grouped into process-based operable units (e.g., received similar waste types)
  - Characterize representative waste sites
- Phased soil characterization
  - Remedial investigation (for remedial decision-making)
  - Confirmatory/remedial design sampling
  - Verification sampling (post-remediation)
- Use CERCLA process as a framework with modifications, as needed, to satisfy RCRA requirements (TSD characterization)

200-TW-1 & 200-TW-2 Investigation Summary

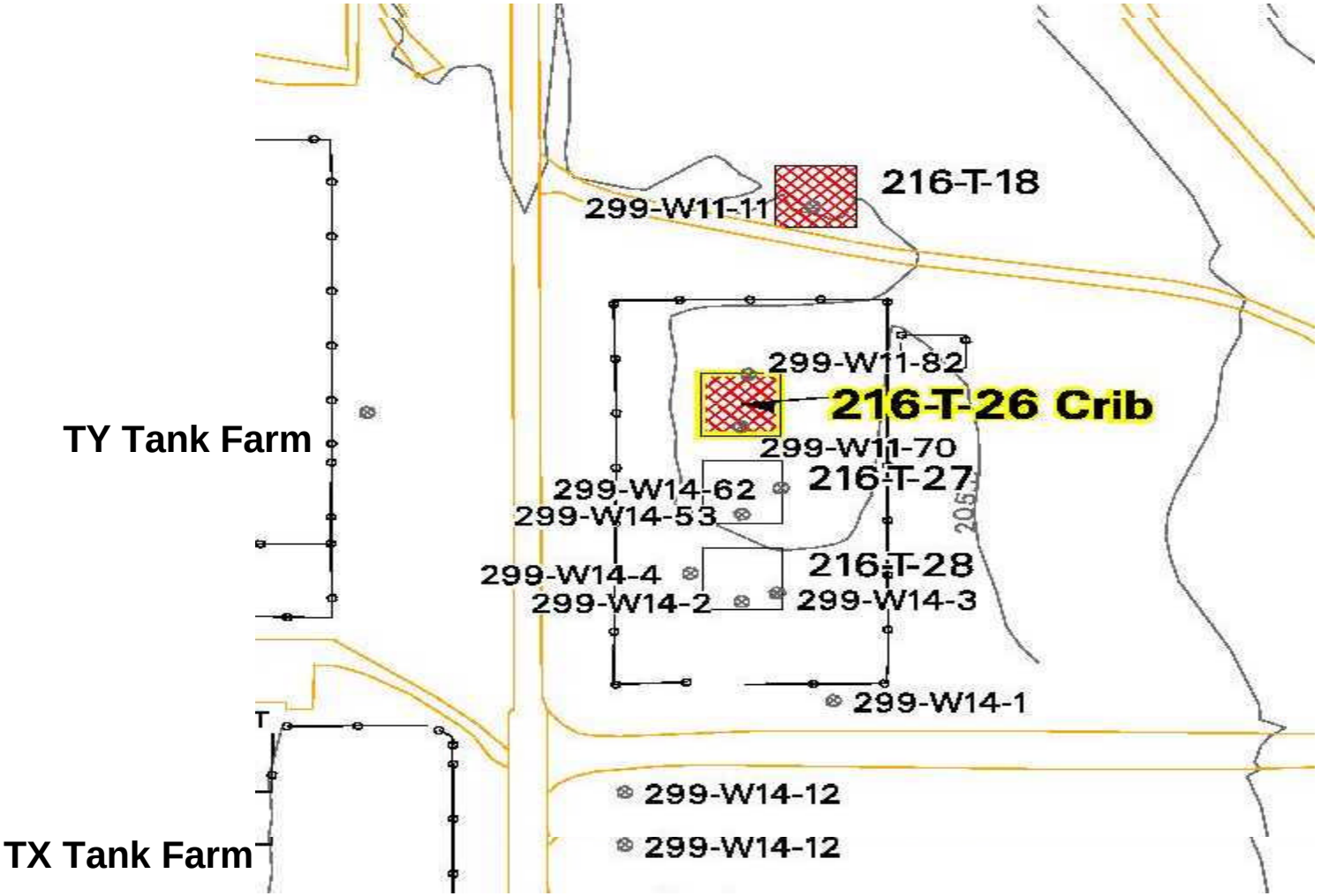
- 3 representative waste sites
- Sequenced implementation based on anticipated dose
- Work coordinated with other core projects and S&T
- Estimated inventories

Waste Site Name	Total Uranium (kg)	Total Plutonium (g)	Cesium-137 (Ci)	Strontium-90 (Ci)	Ferro-cyanide (kg)	Nitrate (kg)	Effluent Volume/ Pore Volume
216-T-26 Crib	150	59	76	282	6000	1000000	17.64
216-B-38 Trench	42	1.2	221	759	N/A	120000	0.28
216-B-7A&B Cribs	180	4300	43	2200	N/A	1800000	78.14

200-TW-1 Scavenged Waste Group-Summary

- 36 CPP waste sites, mostly cribs and trenches
- Received scavenged waste from the Uranium Recovery Process & ferrocyanide process
- 2 Representative Sites
  - 216-B-46 Crib
  - 216-T-26 Crib
- 216-B-46 investigated as part of 200-BP-1

216-T-26 Crib - Location



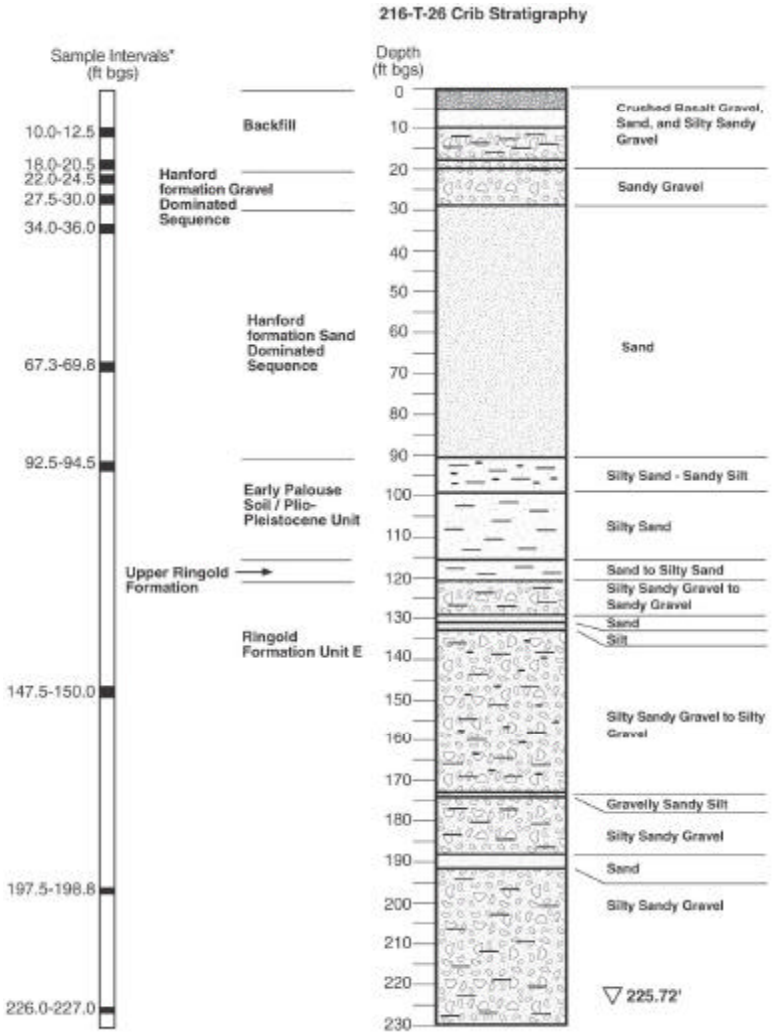
200-TW-1 Scavenged Waste Group-Investigation Summary

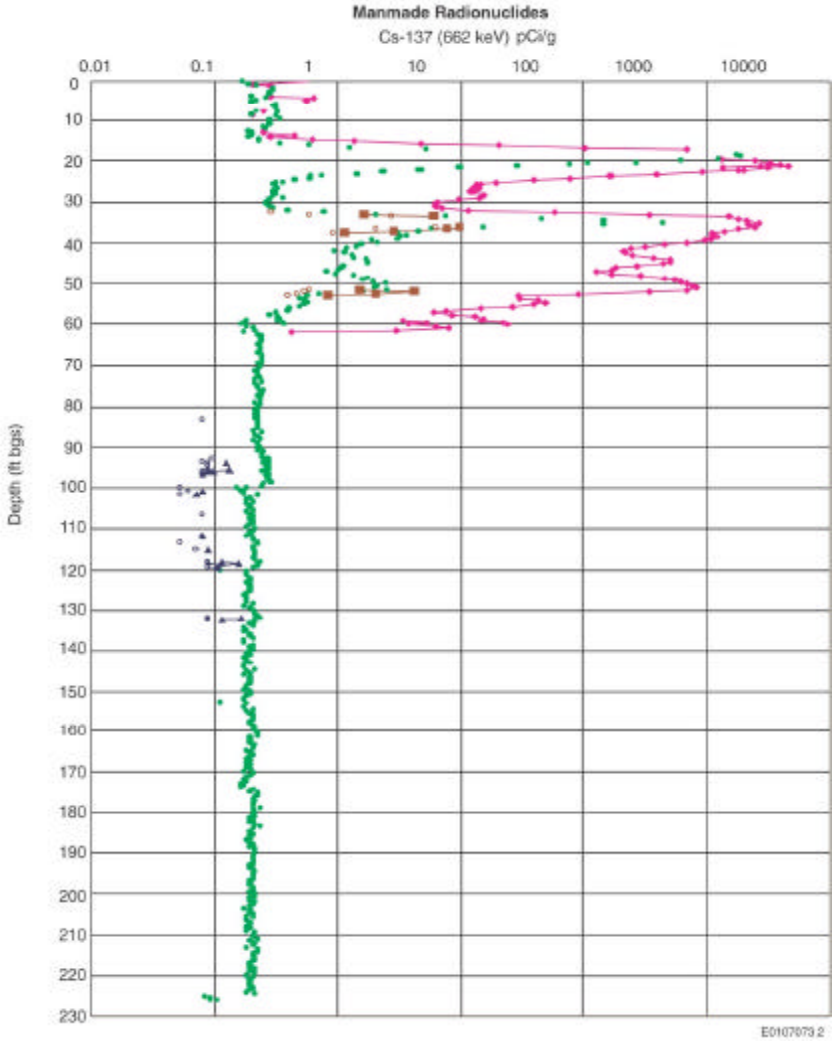
- 1 borehole through crib to groundwater (225 ft)
- Samples collected with cable tool drilling rig using split-spoon samplers
- Soil samples collected in glove bag for chemical, radiological, and physical property analysis
- Analyses include: radionuclides, metals, inorganics, limited organics, grain size distribution, moisture content, pH
- Geophysically logged borehole

216-T-26 Field Effort

216-T-26 Field Effort

216-T-26 Results





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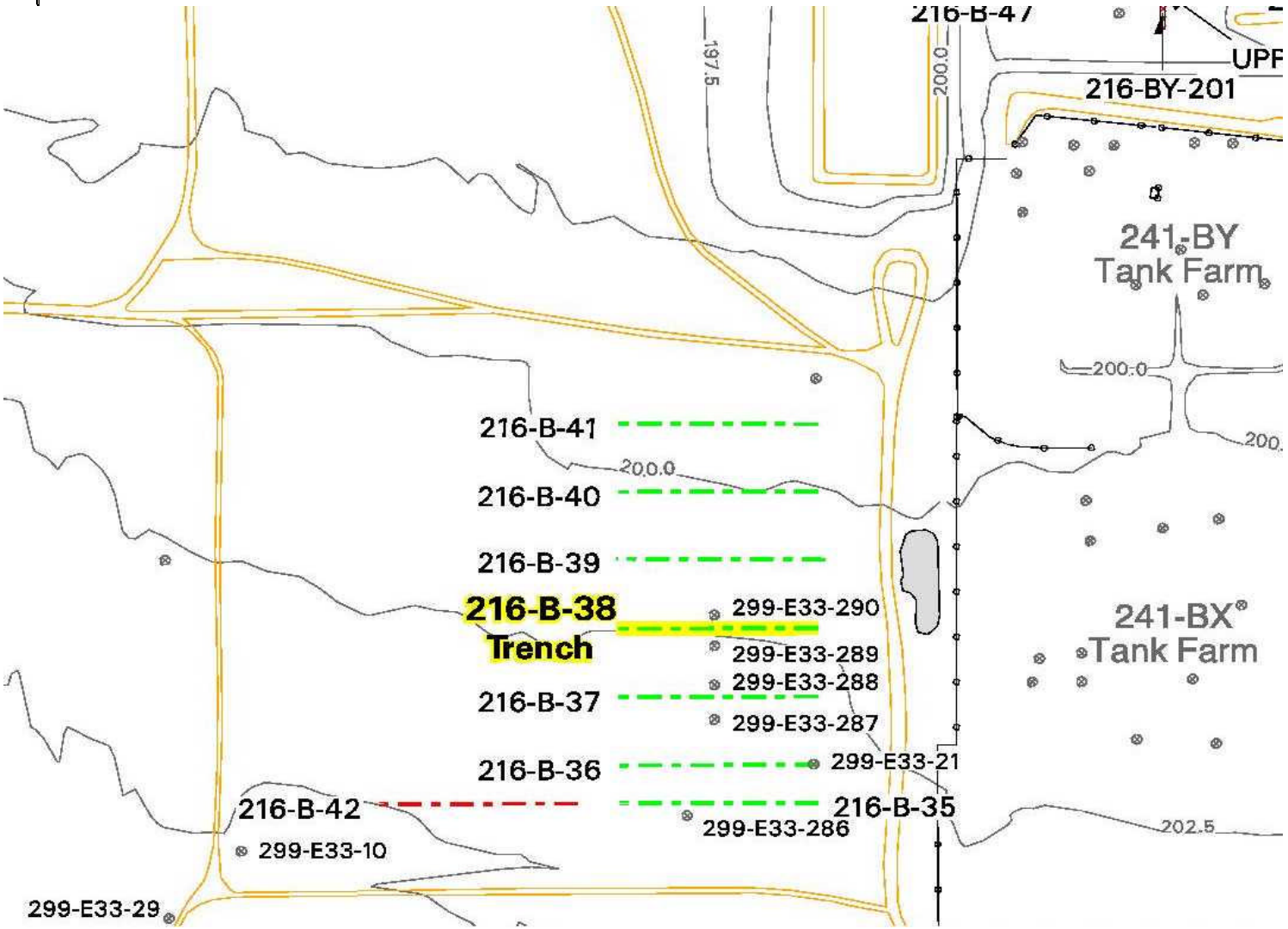
216-B-38 Trench - Location



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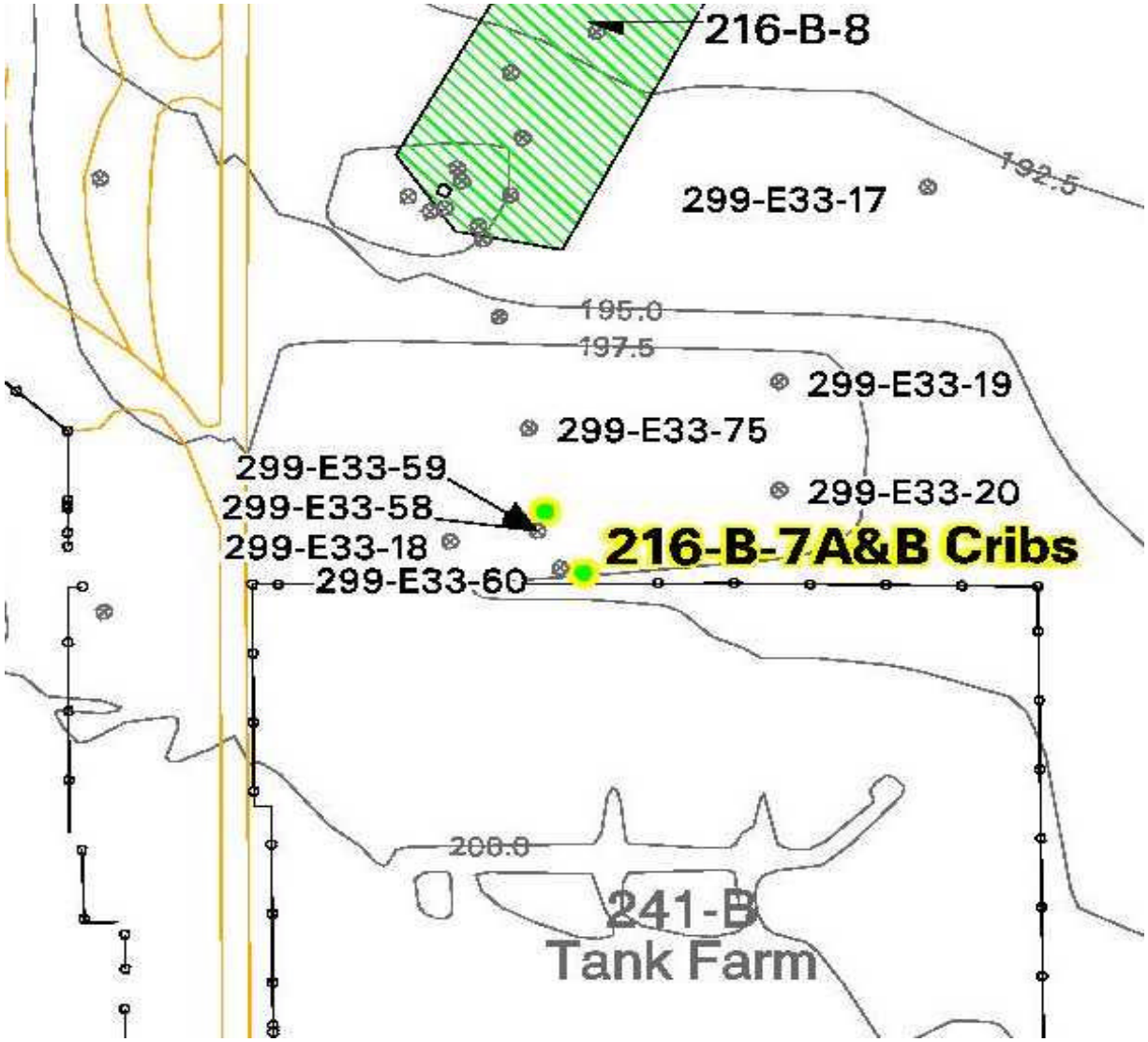
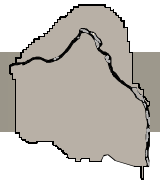
216-B-7A&B Cribs - Location

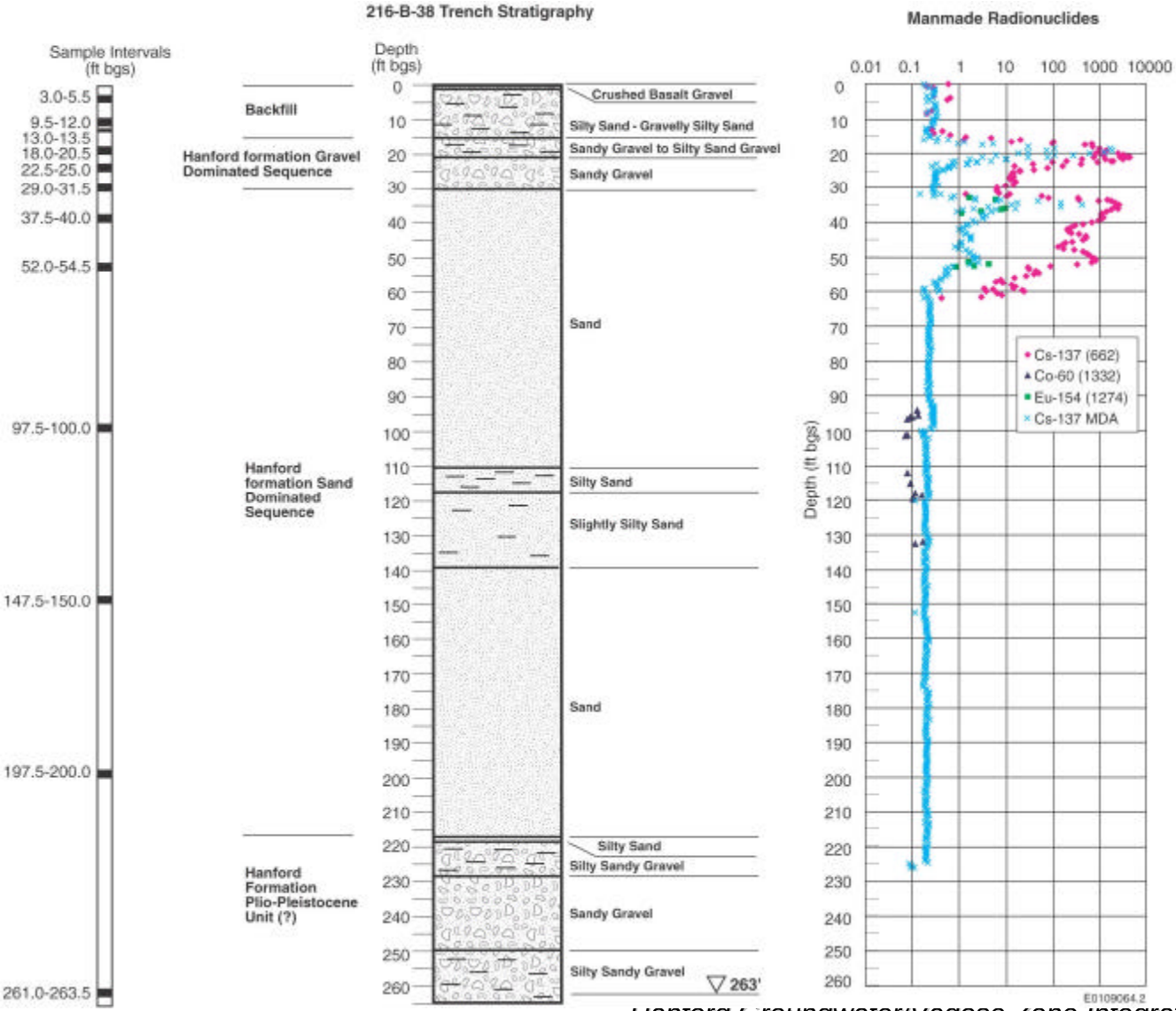




200-TW-2 Tank Waste Group-Investigation Summary

- 5 drive casings at B-38 to 60 ft bgs
- Geophysically logged drive casings; used results to locate B-38 borehole
- 1 borehole each through B-38 & B-7A to groundwater
- Samples collected with cable tool drilling rig using split-spoon sampler
- Soil samples collected in glove bag for chemical, radiological, and physical property analysis
- Analyses include: radionuclides, metals, anions, grain size distribution, moisture content, pH
- Geophysically logged borehole
- 5 samples at B-7A for S&T; samples every 10 ft for RPP

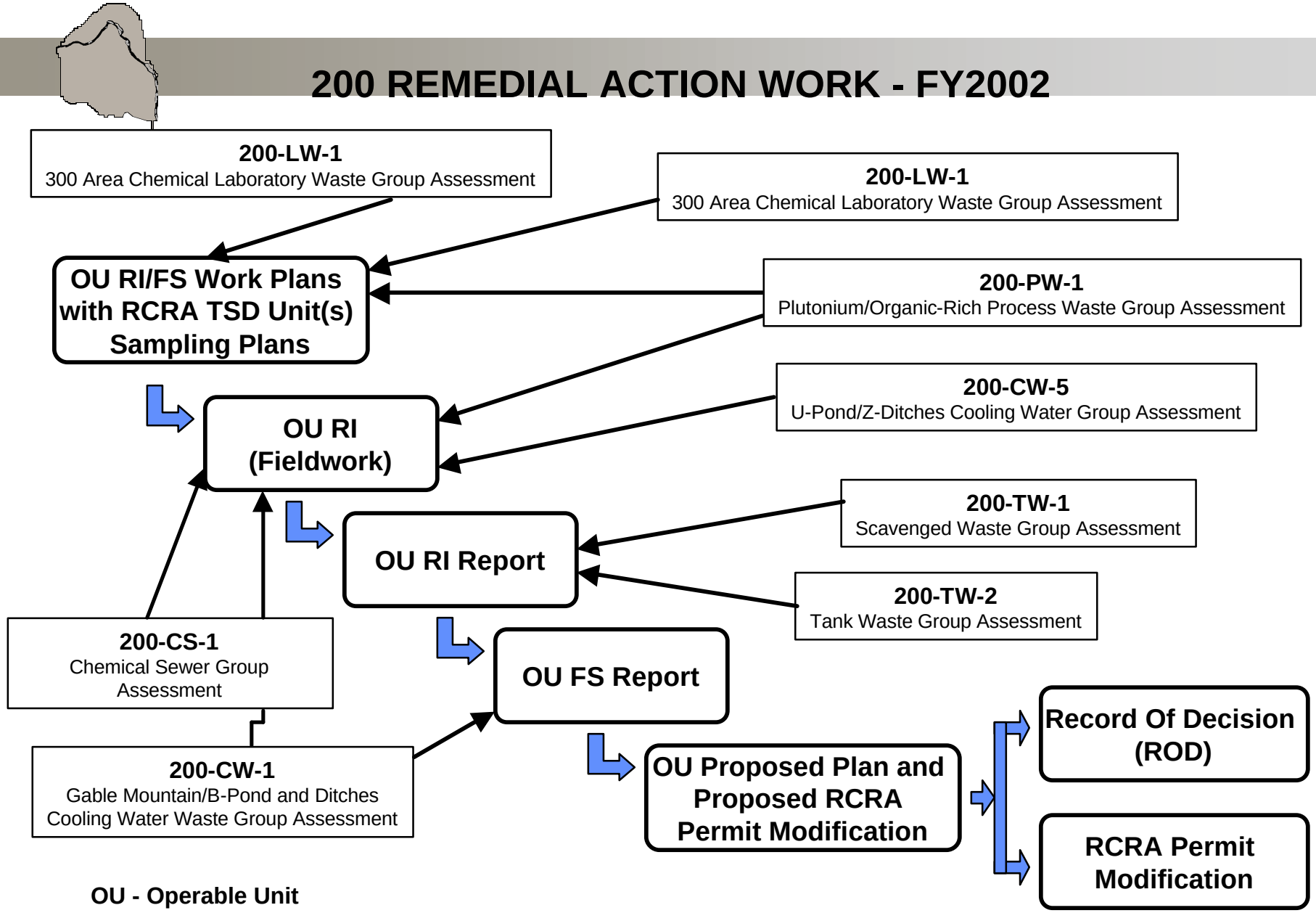
216-B-38 Results



Summary & Path Forward

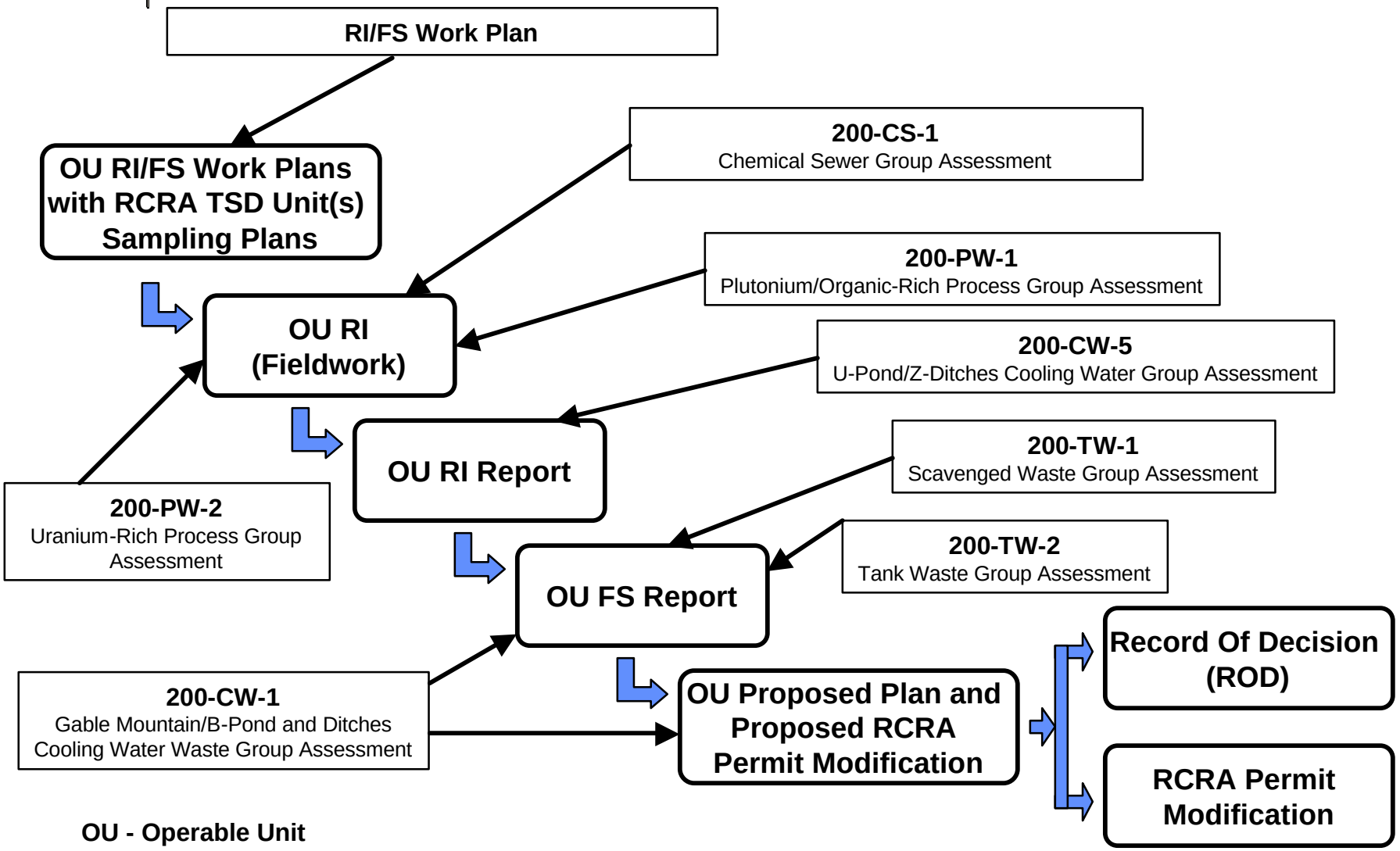
- Prepare Borehole Summary Reports (end of CY)
- Evaluate Laboratory Data
- Prepare Remedial Investigation Reports with modeling and risk assessment (M-15-41b and M-15-42b)
- Prepare Feasibility Study Reports & Proposed Plans (M-15-41c and M-15-42c)
- Obtain Records of Decision

200 REMEDIAL ACTION WORK - FY2002



OU - Operable Unit
RI - Remedial Investigation
FS - Feasibility Study

200 REMEDIAL ACTION WORK - FY2003



OU - Operable Unit
RI - Remedial Investigation
FS - Feasibility Study

FY2002 Field Activities

- 200-CS-1:
  - 216-B-63 - 2 - 25’ Test Pits
  - 216-A-29 - 2 - 15’ Test Pits, CHG Test Pit
  - 216-S-10 - 5 - 15 to 25’ Test Pits, 1 Auger Hole
- 200-CW-5:
  - 216-Z-11 - 16 Drive Points; 1 Borehole to GW, 1 Borehole to 25 ft
- 200-PW-1:
  - Carbon Tet Shallow and Intermediate Depth Soil Vapor Screening

FY2003 Field Activities

- 200-CS-1:
  - 216-B-63 - 1 Borehole to 100’
  - 216-A-29 - 1 Borehole to GW
  - 216-S-10 Ditch - 1 Borehole to GW, Integration
- 200-PW-1:
  - 216-Z-1A - 1 Borehole to Groundwater
  - 216-Z-9 - 2 Slant Boreholes Under Crib
- 200-PW-2:
  - 216-A-10 - 6 Drive Casings; 1 Borehole to GW
  - 216-A-19, 216-A-36B, and 216-B-12 - 1 Borehole to GW in Each Site