

M-015-00 Milestone Series: Investigation Work on the Central Plateau



Work under the M-015 milestone series deals with completing the investigation of waste sites which is done in multiple ways. Investigation activities include drilling wells to collect groundwater samples, taking soil samples for chemical analysis, and researching past activities at waste site. Work under this milestone series also includes analyzing different cleanup options and selecting a cleanup approach through issuance of a cleanup decision, known as a Record of Decision (ROD). The culmination of work under the M-015 milestone series is the issuance of all RODs primarily on the Central Plateau.

Milestone	TPA Milestone Language	Explanation	TPA Old Date	TPA New Date	Delay
M-015-92A	Submit a RCRA Facility Investigation/Corrective Measures Study and Remedial Investigation/Feasibility Study work plan for the 200-EA-1 operable unit (200 East Inner Area) to Ecology.		6/30/2015	9/30/2017	2 Years
M-015-21A	Submit a 200-BP-5 and 200-PO-1 OU Feasibility Study Report and Proposed Plan(s) to Ecology.		6/30/2015	6/30/2018	2 Years
<u>M-015-96</u>	<u>Submit the 100-OL-1 Remedial Investigation report and a change request to establish a date for the feasibility study report to EPA and Ecology.</u>			8/31/2018	NEW
<u>M-015-98</u>	<u>Complete remedial investigation of U Plant related waste sites located in 200-WA-1 in accordance with the WA-1 RI/FS Work Plan.</u>			6/30/2019	NEW
<u>M-015-99</u>	<u>Complete remedial investigation of PFP related waste sites located in 200-WA-1 in accordance with the WA-1 RI/FS Work Plan.</u>			6/30/2019	NEW
M-015-91B	Submit Feasibility Study Report(s) and Proposed Plan(s) for the 200-BC-1/200-WA-1 operable units (200 West Inner Area) to EPA		12/31/2015	7/31/2021	6 Years
M-015-92B	Submit <u>RCRA Facility Investigation/Corrective Measures Study & Remedial Investigation/Feasibility Study Report(s)</u> and Proposed Corrective Action Decision(s)/Proposed Plan(s) for the 200-EA-1 and 200-IS-1 OUs (Central Plateau 200 East Inner Area) to Ecology.		12/31/2016	11/30/2022	6 Years
M-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.		12/31/2016	1/31/2023	6 Years
<u>M-015-92C</u>	<u>Submit RCRA Facility Investigation/Corrective Measures Study & Remedial Investigation/Feasibility Study Report and Proposed Corrective Action Decision/Proposed Plan for the 200-IS-1 OU to Ecology.</u>			3/31/2023	NEW
M-015-38B	Submit a Feasibility Study Report and Proposed Plan(s) for the 200-CW-1, 200-CW-3, and 200-OA-1 Operable Units for Waste Sites in the Outer Area of the Central Plateau to EPA.		10/30/2015	7/31/2023	8 Years
M-015-110B	Submit Corrective Measures Study & Feasibility Study Report and Proposed Plan/Proposed Corrective Action Decision for the 200-DV-1 OU to Ecology.		9/30/2015	9/30/2023	8 Years
M-015-00 (Major Milestone)	Complete the RI/FS (or FRI/CMS and RI/FS) process for all non-tank farm operable units except for canyon/associate past practice waste site OU's covered in M-85-00		12/31/2016	6/30/2026	9 Years

M-016-00 Milestone Series: Cleanup Work on the Central Plateau

Work under the M-016 milestone series deals with the implementation of cleanup decisions identified in the Records of Decision (ROD). Once a Record of Decision is issued, a Remedial Design/Remedial Action (RD/RA) Work Plan is due within 6 months of signing of the ROD or by an alternative date on which the TPA agencies agree. The RD/RA Work Plan includes an enforceable schedule for completion of the cleanup. New milestones or revisions to current milestones are made to match schedules in work plans, making them an important part of cleanup scheduling. The proposed changes to the M-016-00 major milestone show a "to-be-determined" (TBD) date, which will be informed by the completion of all investigation work under the M-016-00 major milestone. Once remedies are selected, a realistic schedule can be made based on the associated work plans. (See M-016-02).

618-10 Burial Ground (M-016-00B): Includes waste that was placed in trenches and vertical pipe units, which are five fifty-five gallon drums welded together and were used to shield and contain highly radioactive waste.

618-11 Burial Ground (M-016-86): Similar to the 618-10 Burial Ground with additional challenges due to its location next to Energy Northwest, the commercial nuclear power station that leases land from the Hanford Site.

324 Building (M-016-85): Also known as the Chemical Materials Engineering Laboratory. Two "hot cells" inside this building were used for highly radioactive activities.

300-296 Waste Site (M-016-85): The 324 Building hot cell known as B-cell leaked extremely hot radioactive waste under the building. This waste is emitting radiation levels at fatal doses and will require robotics to remove safely.

Milestone	TPA Milestone Language	Explanation	TPA Old Date	TPA New Date	Delay
M-016-250	<u>Develop a three year rolling prioritized schedule consistent with site-wide clean-up priorities to implement waste site removal actions per Action Memoranda (DOE/RL-2009-37, DOE/RL-2009-48, and DOE/RL-2009-86). This milestone series will continue on a yearly basis to reaffirm selected sites and recommend any changes to the list, to maintain a three year rolling prioritized schedule, until such time that removal actions are completed.</u>			3/31/2016 And Annually Thereafter	NEW
M-016-00B	Complete all interim 300 Area remedial actions including the 618-10 and 618-11 burial grounds but not including the 618-11 burial ground, 300-296, and sites associated with retained 300 Area facilities and the utility corridors in accordance with the RD/RA Work Plan for 300-FF-2 Soils (DOE/RL-2014-13-ADD1) and as clarified in TPA-CN-660. Completion of interim remedial actions for waste sites associated with the retained 300 Area facilities and their utilities are subject to approved Remedial Design/Remedial Action Work Plans.		9/30/2018	9/30/2018	No Change
M-016-85	<u>Complete remedial actions for 300-296 Waste Site in accordance with RD/RA Work Plan for 300-FF-2 Soils (DOE/RL-2014-13-ADD1) and final disposition for the 324 Building and Ancillary Buildings in accordance with the Removal Action Work Plan (DOE/RL-2004-77).</u>			9/30/2021	NEW
M-016-86	<u>Complete remedial actions for 618-11 Burial Ground in accordance with RD/RA Work Plan for 300-FF-2 Soils (DOE/RL-2014-13-ADD1).</u>			9/30/2021	NEW
M-016-200A	Complete U Plant canyon (221 U Facility) demolition in accordance with the Remedial Design/Remedial Action Work Plan.		9/30/2017	9/30/2021	4 Years
M-016-200B	Complete U Plant (221 U Facility) barrier construction in accordance with the Remedial Design/Remedial Action Work Plan.		9/30/2021	9/30/2024	3 Years
M-016-02	<u>Submit a change package to establish a schedule for completion of remedial actions for all non-tank farm and non-canyon operable units (M-016-00) in accordance with the RD/RA WPs.</u>			6/30/2026	NEW
M-016-00 (Major Milestone)	<u>Complete remedial actions for all non-tank farm and non-canyon operable units in accordance with schedules established in approved RD/RA work plans.</u>		9/30/2024	TBD	NEW

M-037 Milestone Series: Closure Requirements for Treatment, Storage and Disposal Units

The M-037 milestone series deals with the completion of closure requirements for 12 specific Treatment, Storage, and Disposal Units, all of which are in the site-wide Dangerous Waste Permit.

207-A South Retention Basin: This basin had three cells that could hold up to 70,000 gallons. The basins operated from 1977 to 1989, and held contaminated liquids before they were discharged to a crib. It is located in the 200 East Area.

216-A-29 Ditch: Located in the 200 East Area, it is an unlined ditch, 3,600 feet long, varying from 2-16 feet deep. The ditch led from PUREX Canyon, where plutonium was extracted from fuel rods using chemicals, to other trenches, which discharged to B-Pond. The ditch received waste from 1955 to 1986, and was stabilized in 1991.

216-A-36B Crib: This crib operated from 1966-1972, and again from 1982-1987. It was an unlined disposal structure for contaminated liquids from PUREX Canyon. It received up to 116,000 gallons of diluted nitric acid, ammonium nitrate, and ammonium fluoride per day. It was roughly 23 feet deep and 500 feet wide.

216-A-37-1 Crib: Located east of PUREX, outside the fence of 200 East Area, it was an unlined crib for the disposal of liquids from the 242-A Evaporator, which evaporates liquids in high-level tank waste to reduce tank waste volumes. It was 700 feet long, and 17 feet deep. It operated from 1977-1989 and had a capacity of up to 86,400 gallons/day.

216-B-63 Trench: It was an open, unlined trench, that received emergency cooling water and chemical sewer waste from B Plant and the cesium and strontium facility next door. It is approximately 1,400 feet long and 10 feet deep.

Hexone Storage and Treatment Facility (276-S-141/142): This unit is two inactive underground tanks that held hexone, a common industrial solvent. The tanks' contents were pumped out in 1991, but a hard crust, called "heel," that contains dangerous wastes remains. The heel was contained by adding grout to the tanks.

216-B-3 Main Pond System: This unlined disposal site operated from 1945-1994. It is a natural depression in the ground, covering 35 acres and ranging from 2-8 feet deep. At the peak of operations it received 22 million gallons of process and cooling water from several facilities in the 200 East Area. The pond was filled with soil in 1994.

216-S-10 Pond and Ditch: The ditch was created in 1951, and the pond was created in 1954. Together, they accepted wastewater from REDOX, where plutonium was extracted from fuel rods using chemicals. The pond covered 5 acres and was 8 feet at its deepest point. The ditch was .5 miles long and 6 feet deep.

Non-Radioactive Dangerous Waste Landfill (NRDWL): NRDWL received containerized non-radioactive dangerous waste chemicals and asbestos-containing waste material that came from lab work, processing, maintenance and transportation across Hanford. Last waste receipt was in 1988.

Solid Waste Landfill: This landfill received asbestos-containing material, as well as non-dangerous and nonradioactive solid waste, until 1996. It received more than one million gallons of sewage effluent and 100,000 gallons of garage wash water, which contained small amounts of organic solvents and degreasers in liquid waste trenches during its 21 years of operation.

400 Area Waste Management Unit Fuel Storage Facility and Interim Storage Area: The Fuel Storage Facility is a 112x90x40 foot building that stores two large steel boxes that contain sodium-contaminated core component pots. The Interim Storage Area is a 513x247 foot fenced area that was used for above ground dry cask storage of spent fuel.

241-CX Tank System (241-CX-70/71/72): This consists of three underground tanks that held waste from pilot processes that helped develop plutonium processing methods. The tanks have held a wide variety of dangerous wastes, from arsenic to lead and mercury, plus corrosive chemicals. The tanks hold residues of these wastes. DOE plans to clean close this unit by digging up the tanks and moving them to the Environmental Restoration Disposal Facility, a permanent lined landfill, located on the Central Plateau.

Milestone	TPA Milestone Language	Explanation	TPA Old Date	TPA New Date	Delay
M-037-10	Complete Unit-Specific Closure Requirements according to the closure plan(s) for six (6) seven (7) TSD Units: 207-A South Retention Basin, 216-A-29 Ditch, 216-A-36B Crib, 216-A-37-1 Crib, 216-B-63 Trench, <u>and</u> Hexone Storage and Treatment Facility (276-S-141/142), and 241-CX Tank System (241-CX-70/71/72).		9/30/2020	9/30/2020	No Change
M-037-11	Complete unit-specific closure requirements for two (2) TSD Units: 216-B-3 Main Pond system and 216-S-10 Pond and Ditch.		9/30/2016	9/20/2021	5 Years
<u>M-037-12</u>	<u>Complete closure requirements for Non-Radioactive Dangerous Waste Landfill, Solid Waste Landfill, and 400 Area Waste Management Unit Fuel Storage Facility and Interim Storage Area.</u>			9/30/2022	NEW
<u>M-037-13</u>	<u>Complete Unit-Specific Closure Requirements according to the closure plan-241-CX Tank System (241-CX-70/71/72).</u>			9/30/2022	NEW

M-085-00 Milestone Series: Canyon Cleanup

Work under the M-085 milestone series deals with the completion of cleanup actions for the canyon facilities located on the Central Plateau. Canyons are the facilities at Hanford where chemicals were used to remove plutonium from the uranium fuel rods after the rods had been subjected to the nuclear chain reaction in the Hanford reactors. Hanford has five of these facilities: B Plant (CB-1), T Plant, U Plant, REDOX (CR-1), and PUREX (CP-1). Officially each of these facilities was called a plutonium processing facility or a "chemical separations plant." Canyons are huge, approximately 80 feet high, 70 feet wide, and hundreds of feet long; resembling large warehouses. Based on the proposed changes, the schedule for canyon work is delayed and investigation work on the Central Plateau is prioritized.

<u>Milestone</u>	<u>TPA Milestone Language</u>	<u>Explanation</u>	<u>TPA Old Date</u>	<u>TPA New Date</u>	<u>Delay</u>
<u>M-085-82</u>	<u>Submit engineering evaluation/cost analysis (EE/CA) to Ecology for a non-time-critical removal action to address high priority cleanup for the PUREX Plant in the 200-CP-1 operable unit.</u>			12/31/2017	NEW
<u>M-085-74</u>	<u>Submit engineering evaluation/cost analysis (EE/CA) to Ecology for a non-time-critical removal action to address high priority cleanup for B Plant Canyon in the 200-CB-1 operable unit.</u>			6/30/2018	NEW
<u>M-085-70</u>	<u>Submit Remedial Investigation/Feasibility Study Work Plan for 200-CB-1 to Ecology.</u>			9/30/2019	NEW
<u>M-085-72</u>	<u>Submit Removal Action Work Plan for 224-B to Ecology.</u>			9/30/2020	NEW
<u>M-085-80</u>	<u>Submit Remedial Investigation/Feasibility Study Work Plan for 200-CP-1 to Ecology.</u>			9/30/2020	NEW
<u>M-085-100</u>	<u>Submit Removal Action Work Plan for 224-T to EPA.</u>			9/30/2020	NEW
<u>M-085-90</u>	<u>Submit Remedial Investigation/Feasibility Study Work Plan for 200-CR-1 to EPA.</u>			9/30/2021	NEW
<u>M-085-76</u>	<u>Initiate response actions in accordance with action memorandum for a non-time-critical removal action to address high priority cleanup for B Plant Canyon in the 200-CB-1 operable unit.</u>			9/30/2025	NEW
<u>M-085-84</u>	<u>Initiate response actions in accordance with action memorandum for a non-time-critical removal action to address high priority cleanup for the PUREX Plant in the 200-CP-1 operable unit.</u>			9/30/2025	NEW
<u>M-085-01</u>	<u>Submit a change package to establish a date for major milestone M-085-00 in accordance with schedules established in approved RD/RA work plans.</u>		9/30/2022	6/30/2026	4 Years

M-094-00 Milestone Series: Completion of 300 Area Facilities

The M-094 milestone series deals with completion of cleanup for 300 Area facilities. The majority of work for the 300 Area is identified in milestone M-094-00 with a proposed completion date in 2018. Due to their

<u>Milestone</u>	<u>TPA Milestone Language</u>	<u>Explanation</u>	<u>TPA Old Date</u>	<u>TPA New Date</u>	<u>Delay</u>
<u>M-094-00</u>	Complete disposition of all 300 Area surplus facilities identified in the removal action work plan(s) for the 300 Area facilities, including <u>excluding</u> the 324 Building and its ancillary buildings and structures. Completion of facility disposition is defined as the completion of deactivation, decontamination, decommissioning, and demolition <u>in accordance with the removal action work plan</u> , and obtaining EPA and/or Ecology approval of the appropriate project closeout documents. The cleanup of 300 FF-2 waste sites associated with 300 Area surplus facilities and utilities will be performed in accordance with Tri-Party Agreement major Milestone M-016-00B, M-016-69, and approved remedial design/remedial action work plans for 300 Area waste sites by the specified due date as approved in removal or remedial action work plans.		9/30/2018	9/30/2018	No Change