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# Central Plateau/River Corridor Quarterly Tri-Party Agreement (TPA) Milestone Review Meeting Minutes

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Department of Ecology Building  
Richland, Washington  
December 20, 2018

Central Plateau/River Corridor  
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SIGNATURES

Approval: *A.K. Smith* Date: 2/25/19  
A.K. Smith, Ecology Representative

Approval: *W.F. Hamel* Date: 2/19/19  
W.F. Hamel, DOE-RL Representative

Approval: *Laura Buelow for D.R. Einan* Date: 3/4/19  
Laura Buelow for D.R. Einan, EPA Representative

Minutes Prepared by: *S.W. Davis* Date: 2/7/19  
S.W. Davis, Mission Support Alliance

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Tri-Party Agreement

U.S. Department of Energy  
Washington State Department of Ecology  
U.S. Environmental Protection Agency

<u>Name</u>	<u>Organization</u>
<u>Stephanie Brasher</u>	<u>MSA</u>
<u>Laura Buelow</u>	<u>EPA</u>
<u>Craig Cameron</u>	<u>EPA</u>
<u>John Price</u>	<u>ECY</u>
<u>Michael Clune</u>	<u>DOE</u>
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Tri-Party Agreement

U.S. Department of Energy  
Washington State Department of Ecology  
U.S. Environmental Protection Agency

<u>Name</u>	<u>Organization</u>
Sara Austin	CHARC
Stephany Simon	ODOE
Stephanie Schlef	ECY
Scott Paers	USA-TPA
Ingrid Siddoway	DOE
Mark French	DOE-RL
Carolyn Noonan	MSA



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**Place:** Ecology, 3100 Port of Benton Blvd., Richland  
**Time:** 9:00-10:30 a.m.  
**Chair:** Bill Hamel

Time	Milestones	Subject	DOE Presenter
9:00 a.m.	M-083	Plutonium Finishing Plant (PFP) Closure	Tom Teynor
9:10 a.m.	M-035	Data Access	Ben Ellison
9:15 a.m.	M-016, 089, 093, 094	100 K Remediation/River Corridor Closure	Mark French
9:35 a.m.	M-026	Land Disposal Restrictions Report	Gary Pyles
9:40 a.m.	M-091, M-092	Acquisition of Facilities to treatment, storage, and disposal (TSD), transuranic (TRU), transuranic mixed (TRUM) and low-level mixed waste (LLMW)	Gary Pyles
9:55 a.m.	M-016, 037, 085	Central Plateau Remediation	Patty Ensign
10:15 a.m.	M-015, 016, 024, 085	Soil and Groundwater Remediation	Mike Cline
10:25 a.m.	—	Richland Operations Office Key Documents List	Mike Cline
10:30	—	Adjourn	—

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**PFM Closure Project – TPA Milestone M-083**

The U.S. Department of Energy, Richland Operations Office (DOE-RL) provided a set of supplemental information today (in addition to the quarterly handout), which included a Platinum Finishing Plant (PFM) field execution schedule, the PFM hazard reduction progress, and photos depicting the north side and south side of PFM in November and December 2018. DOE-RL noted that the quarterly handout reports the PFM project is behind schedule, over budget, and the lower-risk demolition has resumed.

DOE-RL referred to the photos in the supplemental package and stated they reflect the successful work that has been done with regard to debris removal. DOE-RL stated the crew had established a slow and steady rhythm by mid-October 2018, and about 300 cubic meters of waste has been removed that was already on the ground and had been size-reduced. The debris was packaged into the roll-on/roll-off containers and transferred to the Environmental Restoration Disposal Facility (ERDF). DOE-RL noted that all of the debris has been removed from the south side of PFM. DOE-RL added that as long as there are no more equipment failures, and weather permitting, debris removal on the north side is scheduled to be done by the end of January 2019.

DOE-RL referred to the supplemental PFM field execution schedule that was provided, and pointed out the schedule is not risk-informed and does not account for weather delays and staffing bump and rolls that have occurred. DOE-RL stated the original schedule had been delayed due to a number of new workers being hired and trained. Starting December 3, 2018, 39 new workers began training to become demolition workers, and another 20 to 25 workers will start training in early January 2019, with an additional 10 to 20 workers hired by the end of January 2019.

DOE-RL stated the original plan had been to complete the demolition field work by mid-summer, but it has been pushed out to mid-September 2019, followed by transitioning through the remedial action work plan (RAWP) to a surveillance and maintenance mode in the first quarter of 2020. DOE-RL noted that would include installing a temporary cap over the site, finishing the remaining cleanup, and gathering sampling and characterization data. DOE-RL added that it all depends on the safe and deliberate pace of the crew.

DOE-RL pointed out the supplemental information provided today is on the Hanford.gov website, and it is updated on a weekly basis. The information includes a status of the waste and its movement and a weekly report of work that has been performed from the beginning.

DOE-RL stated PFM is still under the TPA Article 32 stop work for the higher-risk work, and the

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contractor plans to run a management assessment from March 4 through March 14, 2019. DOE-RL indicated that after all of the corrective actions have been completed and verified, a request will be made to Washington State Department of Ecology (Ecology) and U.S. Environmental Protection Agency (EPA) to lift the stop work for the higher-risk work in the mid-April 2019 time frame. DOE-RL noted that it will have to lift its own stop work on that aspect of the work.

DOE-RL reported that there is sufficient funding for fiscal year (FY) 2019 to do the work at PFP. There was a \$23 million carryover from FY 2018 into FY 2019, in addition to the FY 2019 funding appropriation. DOE-RL stated that it is anticipated there will be carryover into FY 2020, and that a request will be made for a new budget authorization to avoid impacting other projects. DOE-RL estimated that it would take about 5 to 10 million dollars in FY 2020 to complete the work at PFP.

**Biennial Assessments of Information and Data Access Needs – M-035-09**

Ecology reported that agreement was reached to extend milestone M-035-09 until March 31, 2019. Ecology and DOE-RL are working towards a plan to consolidate access to the Integrated Document Management System (IDMS) for the Hanford operating record. Ecology stated that a tentative schedule has been established for the plan to include new records for Ecology's access, which is why the milestone was extended until March 2019.

**100-K Basins Sludge Removal Project – TPA Milestone M-016-176**

Accomplishments September 2018–November 2018 – DOE-RL noted that the intent had been to combine the 100-K Basins sludge removal project with the River Corridor presentation for today's meeting, which was not done, but it will be done for the next quarterly meeting.

Engineered Container Retrieval and Transfer System (ECRTS) Startup/Operations Activities – DOE-RL stated the project continues to be successful in transferring sludge from the K West Basin into the sludge transport and storage containers (STSC) and then sending it to T Plant. The seventh shipment of sludge was placed in T Plant yesterday (12/19/18), which translates to about one shipment per month. DOE-RL stated the contractor is hiring and training additional staff, with the intent to increase the number of sludge shipments per month and maintain a more continuous effort. DOE-RL noted there have been no issues with system operations, and attributed the success to the mockup training that was done at the Maintenance and Storage Facility (MASF).

Milestone Summary – DOE-RL stated that milestone M-016-176 is on track to complete sludge removal. DOE-RL noted completing the milestone is not just a matter of finishing pumping the

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sludge because calculations will also need to be done to ensure all of the sludge has been removed from each of the STSCs to meet the ERDF waste acceptance criteria.

Project Baseline Performance – DOE-RL stated the project is fully funded and on schedule.

**River Corridor Closure – TPA Milestones M-016/M-089/M-093/M-094**

618-10 Burial Ground Significant Accomplishments (September 2018–November 2018) – DOE-RL reported the 618-10 burial ground was completed, and the revegetation is in progress and should be done by the end of January 2019.

300-296 Soil Removal Significant Accomplishments (September 2018–November 2018) – DOE-RL stated good progress is starting to be made in the facility, with the installation of the first remote excavator arm (REA) completed in B-Cell and completion of the sample loadout room demolition.

DOE-RL reported the 90 percent design review was completed for the structural modification of the facility. DOE-RL stated the structural modification involves placing micropiles, which are concrete columns, under the facility. There will be about 26 or 27 micropiles, and the purpose of installing the micropiles is to shore up the building when the soil is being removed to avoid any settling of the building. DOE-RL noted that there is about a half-inch tolerance, and the intent is to preclude any issues, such as not being able to open the B-Cell door. DOE-RL added that the building is well within the tolerance. DOE-RL stated with the additional funding that was received for this project, preparations for installing the micropiles were accelerated and installation is planned for January 2019. DOE-RL noted part of what helped accelerate the installation of the micropiles was due to the test micropiles that were installed outside the facility, which was done to ensure they held up the strength they were designed to, and they exceeded the design strength.

DOE-RL stated the installation testing of the equipment in the B-Cell mockup facility was completed, and there were a few minor changes needed to ensure the equipment was working and the REAs were integrated with each other.

300-296 Soil Removal Significant Planned Actions – DOE-RL stated the A-Cell crane door needs to be repaired, which is critical for the work going forward in the hot cells. The cable in the crane door got unspooled, and the repair will be starting this week.

DOE-RL stated the geoprobes will be removed that were installed under the cells several years ago after contamination was discovered under B-Cell. The geoprobes were installed to check

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the dose rate.

Milestone Summary – DOE-RL noted milestone M-016-85, M-016-85A and M-016-86 milestones are being reported at risk. For the remediation of the 324 Building waste site, the expectation is that the B-Cell floor will be cut at the end of September 2019, and the soil removal will be done in FY 2020. DOE-RL stated that it will be initiating discussion with Ecology and EPA to revise the at risk milestones.

100-K Closure Project Significant Accomplishments (through November 2018):

100-K Soil Remediation – DOE-RL reported the 116-KE-2 crib went through the Hazardous Review Board in the past few months, and removal of the crib will resume in January 2019. The crew had already excavated down to 20 feet, and removal of the crib will take just a few days. DOE-RL noted from a radiological control standpoint, there were several additional precautions taken as a result of the PFP events.

DOE-RL stated excavation and loadout of the 100-K-47:1 pipeline site will continue, along with other remediation. DOE-RL noted the purpose is to keep soil going to ERDF to mix with the debris from PFP to be able to meet contact requirements for ERDF.

K West Basin Deactivation & Demolition Significant Accomplishments (through November 2018):

Garnet Filter Media Removal System – DOE-RL stated the focus is on removing the garnet filter media. One of the garnet filter sluice outlet valves was stuck, but it was opened manually, verifying that the valve will operate and function when the garnet filter media is removed. DOE-RL stated in addition to the 24 STSCs that were manufactured for sludge removal, four more STSCs were built to be used for removing the garnet filter or if more than 24 STSCs are needed for the sludge removal. DOE-RL noted there is about an 8 to 9 month lead-time to manufacture a new STSC, and by this spring there will be a more accurate estimate on the number of STSCs that will be needed for removing all the sludge.

Sand Filter Media Removal System – DOE-RL stated the design is being developed for the sand filter media removal system, and the plan is to put the sand and garnet filter media removal systems in service in 2020 after the sludge has been removed.

K West Basin Characterization – DOE-RL stated there was a lot of debris left in the basin during reactor startup operations, including spent fuel canisters and the fuel removal system. An effort will be made to characterize the debris and separate the low-level waste from transuranic waste

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(TRU). DOE-RL stated that as part of that effort, a water jet is being used to sweep up (sparging) some of the sludge that's remaining on the basin floor. Additional small fuel pieces have been found that are being collected separately, and a disposition path for those pieces is being developed. DOE-RL noted the intent is to fit the small fuel pieces in with the sludge removal.

DOE-RL stated there is an issue with the sparging process when the water is sprayed on the bottom of the basin and more particulate gets into the water, which can clog up the ion exchange modules (IXM). Efforts are underway to remove the IXMs before they reach a TRU level, and one IXM filled up fairly quickly. DOE-RL stated that the planning has been for two STSCs before changing out the next IXM, and when one IXM appeared to be reaching its limit after one week of operation, sparging of the sludge and other equipment on the floor was cut back, which is posing a significant challenge. DOE-RL stated a gamma camera will be used for 3D modeling of the basin, but the camera needs to be calibrated. A source is needed to calibrate the camera, and Pacific Northwest National Laboratory (PNNL) will be conditioning some of the spent fuel pieces to make the source, which will be put back in the basin so the camera can be calibrated.

Ancillary Facility Deactivation and Demolition Significant Accomplishments (through November 2018) – DOE-RL stated the goal is to complete the East Area, and work is being done on some of the smaller facilities to continue with the D&D efforts. DOE-RL noted the fuel storage building has a fuel oil tank with about 30,000 gallons of fuel, and a contractor will be procured to pump the fuel out of the tank.

K East and K West Reactor Interim Safe Storage (ISS) Significant Accomplishments (through November 2018) – DOE-RL stated the current focus is on the K East Reactor ISS, and efforts are underway to award contracts for the final design for placing the K East Reactor in ISS. A contract will also be awarded to remove some of the excess asbestos from the reactor building and to seal up some of the damaged asbestos. DOE-RL stated there is funding to do the K East Reactor ISS work, and the plan is to finish in 2020.

Significant Planned Actions (December 2018 through February 2019):

K West Basin Characterization – DOE-RL stated the contractor is working on plans for removing the debris out of the basin and separating out some of the higher dose debris that will likely be TRU waste. DOE-RL noted the effort to condition the spent fuel pieces to use in calibrating the gamma camera will require compliance with safeguards and security, but it is believed a path forward has been identified.

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Ancillary Facility Deactivation & Demolition (D&D) – DOE-RL stated the work continues on ancillary facility D&D and the K East Reactor Interim Safe Storage.

2018 Significant Accomplishments (through November 2018) – DOE-RL stated the 618-10 burial ground revegetation should finish by the end of January 2019 and the weather (moisture) is conducive to supporting that right now.

Project Baseline Performance – DOE-RL stated the project is doing well from a cost and schedule standpoint.

**Land Disposal Restrictions (LDR) TPA Milestone M-026-01**

DOE-RL stated comments were received from Ecology in August 2018 on the 2014 calendar year LDR full report. DOE-RL has addressed and closed about 75 percent of the comments, and the goal is to complete the remaining 25 percent during the first quarter of FY 2019. DOE-RL stated that until all of the comments have been resolved, the project manager meetings have been placed on hold. DOE-RL noted a TPA change control form was approved on September 27, 2018, to forego the publication of the 2018 LDR summary report.

**Solid Waste Stabilization and Disposition Project TPA Milestone Series M-091, M-026 and M-092**

M-091 Accomplishments (September 2018–November 2018) – DOE-RL noted milestone M-091-47D was completed in August 2017 to certify or treat 280 cubic meters of TRU mixed waste or mixed low-level waste. DOE-RL stated that an additional 535 cubic meters have been completed since milestone M-091-47D was met, and waste continues to be shipped to Permafix Northwest to be packaged.

DOE-RL stated milestone M-091-52-T01B requires 10 TRU mixed waste containers to be removed from outside storage area A or B by November 30, 2019, and seven containers have been removed.

DOE-RL stated milestone M-091-52-T02 requires an interim response action for retrieval of waste by 2021, and the contractor has been developing the functional design criteria. The conceptual design report was incorporated into the engineering evaluation and cost analysis (EE/CA), and the contractor is expected to submit the draft EE/CA to DOE-RL for review during the first quarter of 2019.

DOE-RL stated milestone M-091-52-T03 is due in 2022 to submit the Critical Decision-1 (CD-

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1) package for contact handled processing facility capability, and the contractor has completed the draft of the mission needs statement. DOE-RL indicated that progress will continue towards the CD-1.

DOE-RL reported negotiations are underway with Ecology regarding milestone M-091-53 as part of the M-091 TPA negotiations, and an extension until January 31, 2019 was signed today to continue negotiations.

M-092-09 and M-092-00 – DOE-RL stated the M-092 milestones are associated with the disposition of the cesium and strontium capsules. DOE-RL noted that change control forms were approved modifying the dates for milestones M-092-00 and M-092-09.

Project Baseline Performance through November 2018 – DOE-RL noted the project is slightly behind schedule, but there is a positive cost variance.

Planned Activities (December 2018 – February 2019) – Ecology noted a new milestone (M-092-21) has been established under M-092 to complete shipment of the cesium/strontium capsules to the dry storage area in 2025, and that design activities are currently underway. Ecology suggested the next presentation should include the activities associated with the new milestone.

**Central Plateau Remediation Project – TPA Milestones M-016, M-037, M-085**

PUREX Tunnel No. 2 Stabilization Accomplishments (September 2018-November 2018) – DOE-RL reported grouting of PUREX Tunnel No. 2 is underway, and as of yesterday, 63.34 percent of the grout has been placed, which equates to 2,534 trucks. DOE-RL stated that at this point, grouting of the tunnel is going well.

REDOX Risk Reduction Accomplishments (September 2018 – November 2018) – DOE-RL stated investigative entries into the REDOX Canyon were performed, and the entries went well. DOE-RL reported there were no issues, other than some legacy waste that was found and will probably need to be removed. DOE-RL noted the REDOX north sample gallery egress door was opened and standing water was observed around the loadout area. A robot was deployed over the hump on the east side to sample up to the water, and the radiological smears weren't as high as expected. The work packages are being redone to allow characterization of the water. EPA asked if the water is coming from the roof. DOE-RL responded that the crew is still investigating where the water may have come from, and there is speculation that the water came in through a crack in the bottom of the egress door. Oregon Department of Energy (ODOE) inquired about the volume of the legacy waste in the REDOX Canyon and the pathway for disposition of the waste. DOE-RL responded that a work package is being prepared to

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remove the legacy waste, but the volume or disposition pathway for the waste was not known at this time.

Other Accomplishments (September 2018 – November 2018) – DOE-RL stated changeout of the prefilters in B Plant was completed, and there is now a good flow rate. DOE-RL noted there had been an issue with loading of the B Plant filter bank, and it has been stabilized with the adjustments that were made.

DOE-RL reported 11 steam line crossover removals have been completed in the 200 West Area.

DOE-RL stated initial planning and entry assessments have been done for 242-B/BL, and noted a Tier 2 Miscellaneous Sampling and Analysis Plan (SAP) will need to be approved before the work can continue in 242-B/BL.

DOE-RL stated the Rev. 0 closure plan for 276-BA has been issued, and Ecology was encouraged to initiate the public comment process. Ecology responded the public comment process has been held up because DOE-RL needed approval on the RAWP in order for Ecology to issue the permit modification. Ecology stated the permit modification has been signed, and the public comment process will be initiated. DOE-RL stated the RAWP is in concurrence and will be transmitted to Ecology in the near future.

DOE-RL stated the REDOX Action Memorandum Rev. 0 has been issued, and the REDOX SAP and RAWP are currently in comment resolution. EPA stated DOE-RL may need to issue a Rev. 1 if EPA's comments are not addressed regarding the onsite/offsite issue and the DOE-RL's table of potential ARARs. EPA noted they were ARARs at the point the action memo was signed. EPA added that if the onsite/offsite comments are not addressed properly, there may be inspections and issues with DOE-RL's authority. EPA stated that DOE-RL needs to follow what has been done for years and declare what is onsite waste, and if waste is sent offsite that has not been delegated to DOE-RL, an offsite determination needs to be worked through with EPA. DOE-RL responded that it would be working through those comment resolutions.

Canyon Stabilization Documents:

DOE-RL reported the B Plant SAP, Draft A and the Tier 2 Miscellaneous SAP have been submitted to the regulators for review. Ecology acknowledged receipt of the Tier 2 Miscellaneous SAP, and stated that it would send its comments on the SAP to EPA since EPA has approval authority. EPA noted it provided comments on the REDOX documents. DOE-RL stated the next document to be submitted to the regulators will be the Tier 2 Miscellaneous RAWP, and then the focus will be on the Tier 2 PUREX RAWP.

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Milestone Summary – DOE-RL noted milestones M-016-255 and M-016-256 are in negotiations, and DOE-RL is considering what could potentially be done in FY 2019. DOE-RL added the cultural and ecological reviews have been the holdup in moving forward with these milestones.

Project Baseline Performance through November 2018 – DOE-RL stated the baseline performance is on schedule.

Planned Activities (December 2018–February 2019) – DOE-RL stated the grouting of PUREX Tunnel No. 2 will continue. Ecology stated the permit modification for PUREX Tunnel No. 2 was issued Monday (12/17/18), and it will be effective until January 16, 2019. DOE-RL noted installation of the mobile office trailer has been completed to support the surveillance and maintenance staff.

DOE-RL stated the PUREX EE/CA and the B Plant EE/CA have been submitted to Ecology and EPA for comment.

**Soil and Groundwater Remediation Project – TPA Milestones M-015, M-016, M-024, M-085**

River Corridor Accomplishments (September 2018–November 2018) – DOE-RL stated the draft 100-K technical impracticability (TI) waiver was submitted to EPA for review in October 2018, and efforts are underway to finalize the TI waiver. EPA stated a draft version of the TI will be submitted to EPA Region 10 for additional review, to be followed by EPA Headquarters' review.

DOE-RL reported the Rev. 0 KW soil flushing/treatability test was submitted to EPA for review in November 2018, and preparations are being made to start the soil flushing/treatability test. DOE-RL noted the wells have been installed in the infiltration area, and the flushing should start in the near future.

DOE-RL stated the draft 100-N TI waiver was submitted to EPA and Ecology in October 2018, and it is similar to the TI waiver that was submitted for 100-K. EPA indicated there were to be some updates based on discussions with Ecology, and an updated version is expected. Ecology added that a meeting has been scheduled for January 7, 2019, to discuss the 100-N TI waiver.

DOE-RL stated EPA's comments were incorporated into the draft Rev. 0 100-BC-5 proposed plan and sent to EPA for a final review. DOE-RL added the Tri-Parties are due to meet with the Yakama Nation (YN) to discuss the TI and then go through the public comment process. EPA responded the proposed plan went through another round of legal and policy reviews due to some of the major changes that were made on the first draft. EPA stated a review was

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completed with DOE-RL yesterday (12/19/18), and a final review will be done in January 2019. EPA concurred that there will be discussion with the YN on the technical level for consultation.

DOE-RL stated the 300-FF-5 Stage B uranium sequestration injections were completed in September 2018. DOE-RL noted all of the equipment has been demobilized. Sampling will continue for the SAP, and some core samples will be taken later in FY 2019 for leachability testing.

Central Plateau Accomplishments (September 2018–November 2018) – DOE-RL reported the Draft A 200-UP-1 southeast chromium plume remedial design investigation report was submitted to EPA for review in September 2018, and EPA had some questions on the cost estimate.

DOE-RL stated the Draft A groundwater tracer study SAP was transmitted to Ecology and EPA for review in October 2018. Ecology inquired about the tracer study. DOE-RL responded the tracer study is to identify where the groundwater flow is going through, and the speculation is that there is a channel near the 200-BP area.

DOE-RL stated EPA and Ecology were briefed in September 2018 on the results from the 200-DV-1 treatability test evaluation report, and the final report is expected to be submitted to EPA and Ecology in mid-January 2019. Ecology noted the briefing was in September, and it will be almost five months when the final report is issued. DOE-RL responded that significant changes were made to the report based on the meeting and the comments that were received, and that was followed by another internal review process.

DOE-RL noted the second phase of the chlorination pilot test was completed in October 2018. DOE-RL stated that hydrochloride is being injected into the wells from the injection building on the east side of the pump and treat facility, and the purpose is to kill the biological growth in the wells to help with some of the maintenance on the wells. A plug is also being sent through the lines (called pigging) to clean out a lot of the bio-growth that was left over prior to the chlorination injection, and the goal is to finish pigging all the lines by the end of FY 2019.

DOE-RL stated the modular storage units optimization pilot test was successfully completed, which involved running a pipeline from the Modutanks over to the B Farm Complex area where there are two pipelines that go over to 200 West. DOE-RL added that the two pipelines were installed when pumping groundwater from the B Complex Area was started. DOE-RL noted the second pipeline was installed for reserved for future technetium 99 pumping by C Farm and possibly A Farm. DOE-RL stated the second pipeline is currently being used to pump Modutank water, which is a very small amount, over to the 200 West Pump and Treatment

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Facility for treatment, as a test.

DOE-RL stated that about 500,000 gallons have been pumped over to 200 West for treatment as a test, and the results have been shared with EPA. Another 400,000 gallons will be pumped, and the goal is to establish a permanent option for disposing of water from the Modutanks. DOE-RL noted that evaporation will still be used, but the amount of wells being installed and the amount of rehabilitation being performed on the wells at the 200 West pump and treat has far exceeded the evaporation aspect of the design for the Modutanks. DOE-RL stated the modular storage units and the pipeline will provide an option to continue working on wells and treat water.

Ecology stated its understanding was part of the reason for the test was that water going to Effluent Treatment Facility (ETF) contained too much sediment. DOE-RL responded when there was excess water it was sent to ETF, but there were issues with the cost of sending it to ETF and ETF not wanting to accept water with biological growth. DOE-RL added the goal is to curtail the amount of water sent to ETF to allow the US Department of Energy, Office of River Protection (DOE-ORP) to retool the facility for their use.

Milestone Summary through FY19 – DOE-RL stated the 200-EA-1 Remedial Investigation/Feasibility Study (RI/FS) work plan was submitted to Ecology, meeting milestone M-015-92A, and efforts are underway to finalize the work plan and resolve two open issues associated with the recharge and PCBs.

DOE-RL stated milestone M-015-93C is in dispute, and it is included in the draft tentative agreement that was recently sent to Ecology. DOE-RL noted milestone M-015-98 is included in the draft tentative agreement.

DOE-RL stated milestone M-015-96 is on schedule, and the 100-OL-1 RI report was submitted as the first part of the milestone. DOE-RL added the second part of the milestone is to establish a change request date for the feasibility study, and that is on track to be completed in February 2019.

DOE-RL reported milestone M-015-21A is on track for submittal of the 200-BP-5 FS and proposed plan, and as previously noted, the FS has been submitted. DOE-RL stated that feedback on the FS will be factored into the proposed plan, which should be transmitted to Ecology by the end of March 2019. Ecology pointed out that there have been discussions about needing to go through the regional EPA board, which may affect the schedule. DOE-RL responded the plan is to finalize the proposed plan before the schedule could be impacted. DOE-RL stated the goal has been to issue the Record of Decision (ROD) by the end of

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December 2018, and noted that it has been an aggressive schedule and it will take both DOE-RL and the regulators to issue the ROD in that time frame.

DOE-RL stated the M-024 milestones are either completed or on schedule. DOE-RL noted the three-year rolling list of wells will be heavily populated with the RCRA wells identified in the engineering reports.

River Corridor Planned Activities (December 2018 - February 2019) – DOE-RL stated the 100-BC-5 Rev. 0 RI/FS and proposed plan will be issued and public review will be initiated. EPA pointed out that 100-BC-5 is a groundwater operable unit, and the documents to be issued are for all of 100-BC. DOE-RL agreed with Ecology that the documents are for all of the 100-BC area.

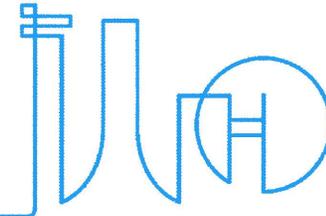
DOE-RL stated TI waiver documents will be issued for 100-K and 100-N. EPA clarified a TI waiver would not be formally approved until a ROD is issued, and the TI documents could be submitted but not issued as stand-alone, approved documents. DOE-RL responded the wording in the presentation would be revised to state finalized instead of issued. EPA agreed the word finalize would be acceptable.

Ecology asked when the Draft A 100-HR-3 RD/RA work plan will be transmitted. DOE-RL responded that it will be transmitted in January 2019.

Central Plateau Planned Activities (December 2018 – February 2019) – DOE-RL reported the Draft A 200-BP-5/200-PO-1 FS for the interim action ROD was transmitted to Ecology and EPA for review on December 18, 2018.

**Richland Operations Office Key Documents List**

DOE-RL stated that most of the documents in the key documents list were discussed during today's presentation. DOE-RL noted the changes in the key documents list are highlighted in red.



# PFP Closure Project – September - November 2018

TPA Milestone Series: M-083



*PFP workers perform site preparations after authorization to restart demolition-related activities.*



**December 20, 2018**  
U.S. Department of Energy  
U.S. Environmental Protection Agency  
State of Washington, Department of Ecology



# Milestone

Milestone	Due Date	Description	Status
M-083-00	9/30/17	Complete PFP Facility transition & selected disposition activities. Completion of this major milestone includes the following key elements: 1) completion of all activities necessary to achieve end point criteria established through Milestone M-83-20 for placing the PFP facility in a safe and stable S&M mode, 2) completion of all activities described in the approved M-83 series interim milestones and target date; and 3) completion of the balance of PFP selected disposition activities pursuant to the final action memoranda and work plans. Also see "description/justification" contained in change form M-83-01-03.	Missed



# Project Baseline Performance

## Contract to Date (Through November 2018)

RL-0011 Nuclear Material Stabilization and Disposal	Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance (\$)	Schedule Variance (%)	Cost Variance (\$)	Cost Variance (%)	Budget at Completion (BAC)	Estimate at Completion (EAC)	Variance at Completion (VAC)
<b>Total</b>	\$992.9	\$980.3	\$1,150.9	(\$12.6)	(1.3%)	(\$170.7)	(17.4%)	\$1,006.0	\$1,213.1	(\$207.5)

## Fiscal Year to Date (Through November 2018)

RL-0011 Nuclear Material Stabilization and Disposal	Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance (\$)	Schedule Variance (%)	Cost Variance (\$)	Cost Variance (%)
<b>Total</b>	\$2.3	\$2.6	\$10.0	\$0.4	15.8%	(\$7.4)	(280.6%)



## Status: September through November 2018

- Authorization given to resume low risk demolition activities
- Plutonium Reclamation Facility rubble remains under at least 18 inches of clean overburden and fixative
- All ERDF containers of previously packaged waste shipped
  - Previously packaged waste comprises 90 percent of the material-at-risk
- Low risk rubble (already on ground) removal started
  - Rubble size reduction
  - Rubble movement
  - Rubble load out



# Status: September through November 2018



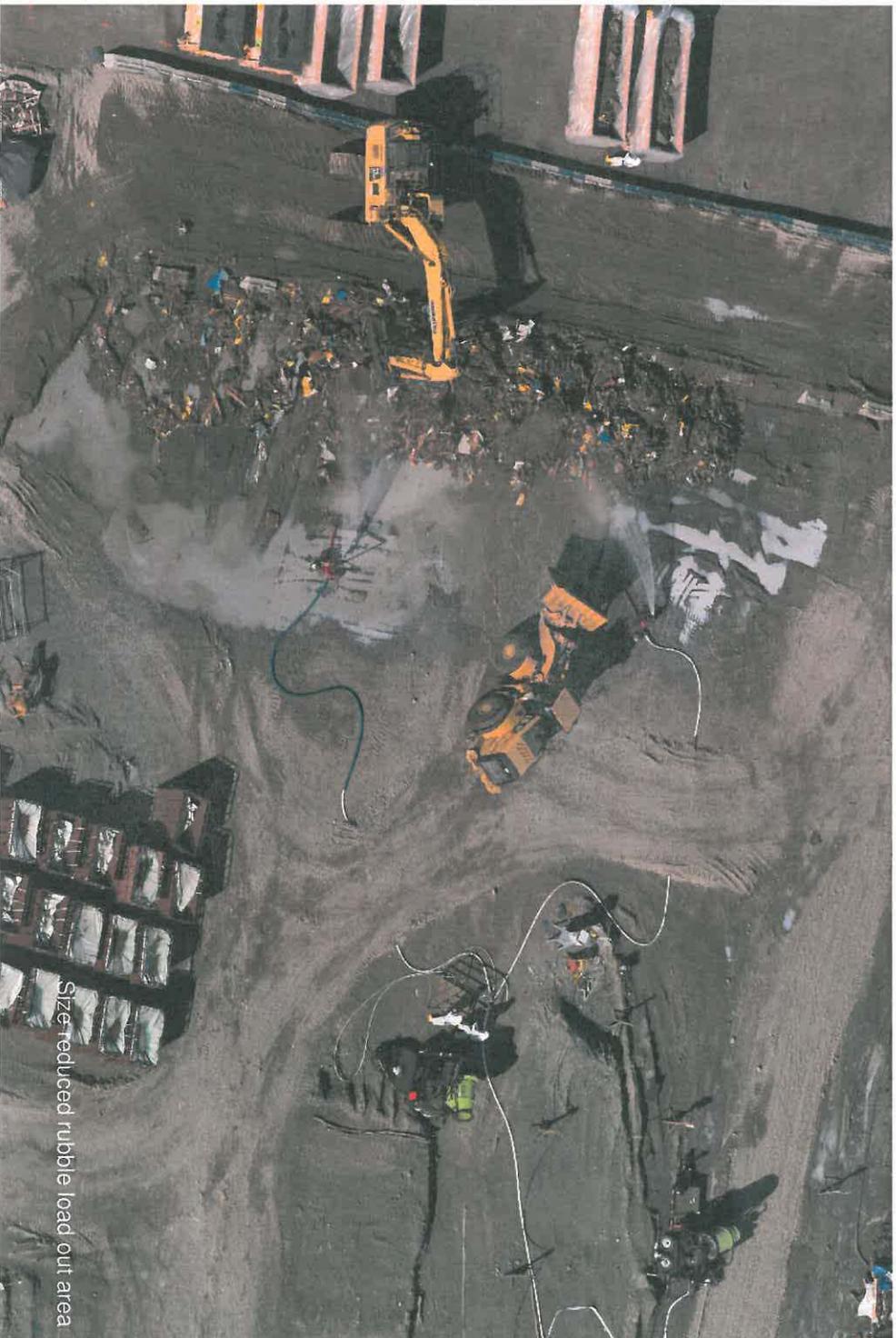
# Status: September through November 2018



Size reduced rubble movement to load out area



# Status: September through November 2018



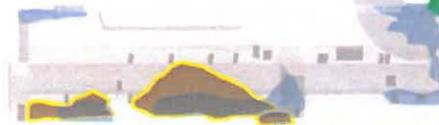
Sized-reduced rubble load out area



# PRF HAZARD REDUCTION PROGRESS

## MAR and Waste Reduction During Demo

**234-SZ Rubble**  
Represents <1% total remaining MAR



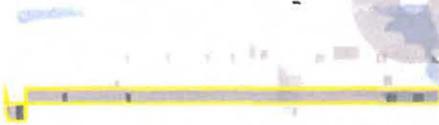
**300m<sup>3</sup> of 875m<sup>3</sup>**  
2 grams of 5 grams

**234-SZ Building (Excluding Processing Lines)**  
Represents <1% total remaining MAR



**0m<sup>3</sup> of 1072m<sup>3</sup>**  
0 grams of 5 grams

**234-SZ Processing Lines**  
Represents 2% total remaining MAR



**0m<sup>3</sup> of 323m<sup>3</sup>**  
0 grams of 64 grams

**PRF Rubble**  
Represents 7% total remaining MAR



**0m<sup>3</sup> of 589m<sup>3</sup>**  
0 grams of 230 grams

**% Total MAR shipped**  
(312 grams total)

**% Total volume shipped**  
(2,859 m<sup>3</sup> total)

**90%**

**Overall % MAR shipped**

## Loaded Low Level Waste

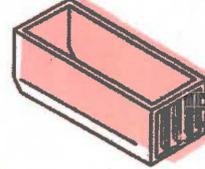
**58%**

**72 of 103 containers shipped**

LLW Drums



LLW RORO's



LLW Boxes



## Loaded Universal/Hazardous Waste

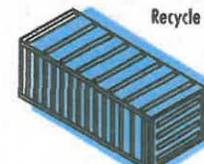
**59%**

**25 of 42 containers shipped**

Recycle Drums



Recycle Boxes



Hazardous Waste Drums



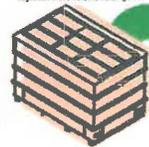
## TRU Waste Dispositioning During Stabilization

**TRU SL1000**  
Represents 24% total remaining MAR



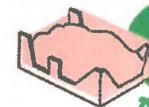
**18 Shipped of 18**

**TRU SLR2**  
Represents 41% total remaining MAR



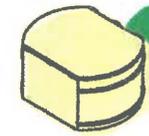
**12 Shipped of 12**

**TRU Suppor SAC**  
Represents 40% total remaining MAR



**20 Shipped of 20**

**TRU SWB**  
Represents 5% total remaining MAR



**4 Shipped of 4**

**TRU Drum**  
Represents <1% total remaining MAR



**30 Shipped of 34**

MAR=Material at Risk (Plutonium)

PRF=Plutonium Reclamation Facility

TRU=Transuranic (Waste)

SWB=Standard Waste Box

234-SZ=Main Processing Facility

LLW-RORO=Low Level Waste Roll-On/Roll-Off Container

SLR2=Standard Low Level Box 2

Activity	Start Date	End Date	Duration	Notes
234-SZ Plutonium Finishing and Storage Facility	22-Sep-18	22-Sep-18	1d	
234-SZ Debris Loadout	27-Sep-18	23-Sep-18	4d	
234-SZ Lower Risk Demolition - Post-Jobs/Lessons Learned	27-Sep-18	23-Sep-18	4d	
234-SZ Migration of Debris for Higher Risk Demolition	27-Sep-18	23-Sep-18	4d	
234-SZ Higher Risk Demolition	27-Sep-18	23-Sep-18	4d	
234-SZ Higher Risk Demolition - Post-Jobs/Lessons Learned	27-Sep-18	23-Sep-18	4d	
Remove Contaminated Material	27-Sep-18	23-Sep-18	4d	
234-SZ Plutonium Reclamation Facility	02-Oct-18	12-Oct-18	10d	
236-Z Plutonium Reclamation Facility	02-Oct-18	12-Oct-18	10d	
236-Z Canyon Demolition and Debris Loadout	14-Oct-18	14-Oct-18	1d	
236-Z Canyon Demolition and Debris Loadout - Post-Jobs/Lessons Learned	17-Oct-18	17-Oct-18	1d	
236-Z and 242-Z Slab Characterization	17-Oct-18	17-Oct-18	1d	
Core Drill and Characterize 236-Z and 242-Z Slabs	17-Oct-18	20-Oct-18	3d	

This is a descriptive schedule with the following assumptions:  
 - Significant impact from last work day due to cost or issue of the following:  
 - Safety  
 - Equipment Access  
 - Day Work  
 - Site conditions  
 - Other unknown circumstances  
 - Planned date configurations and contractual deadlines will be observed as indicated.

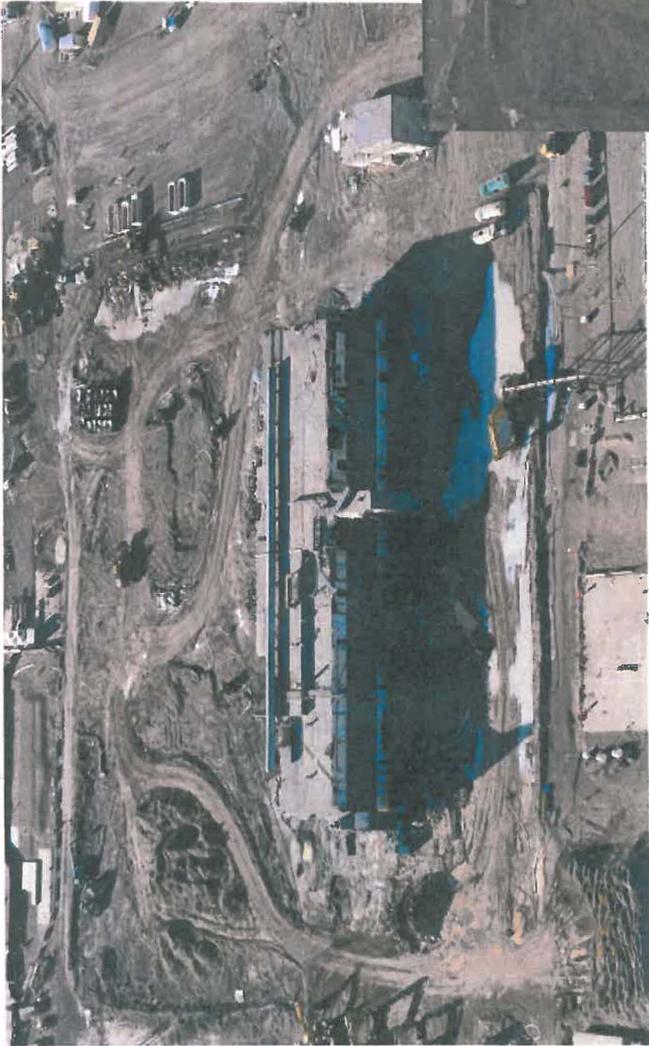


November 2018

## PPF Southside

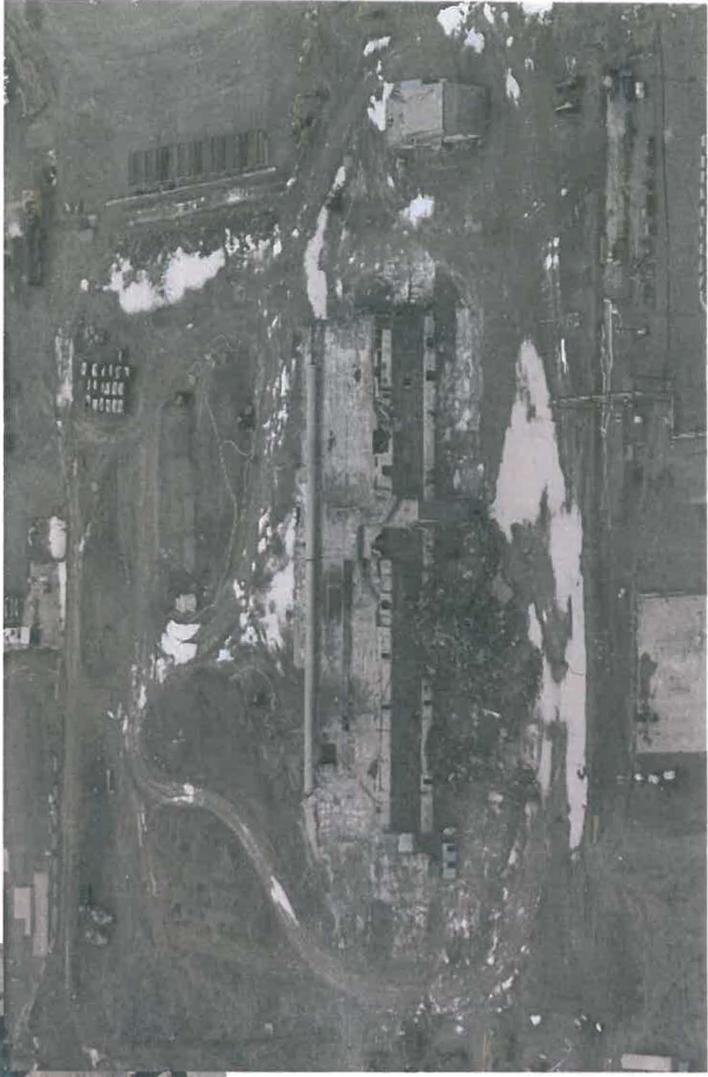


December 2018



November 2018

December 2018



## PFP Northside



**M-035-09**

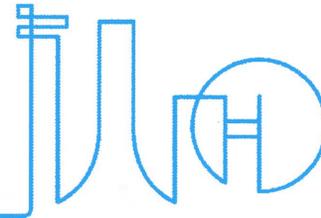
**RICHLAND**  
**OPERATIONS OFFICE**  
United States Department of Energy

*Conduct Biennial Assessments of Information  
and Data Access Needs*



## M-035-09: Conduct Biennial Assessments of Information and Data Access Needs

- “Conduct biennial assessments of information and data access needs with EPA and Ecology. DOE will propose implementation schedules (TPA Milestones) for enhancements as a result of the biennial assessments.”
- The VHCAR approval notification email has been updated to provide more specific instructions.
- Ecology does not have satisfactory access to operating record files, and will not consider milestone complete until an implementation plan, including schedule, is complete for a centralized operating record repository.
- M-035-09K, originally due March 31, 2018, has been extended through March 31, 2019.



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# K Basins Sludge Removal Project

## TPA Milestone M-016-176

September – November 2018



*Columbia River White Bluffs*

U.S. Department of Energy  
U.S. Environmental Protection Agency  
State of Washington, Department of Ecology



December 20, 2018



# K Basins Sludge Removal Accomplishments September 2018 – November 2018

## Engineered Container Retrieval and Transfer System (ECRTS) Operations

- Sludge Transport and Storage Container (STSC) #3 delivered to T Plant on September 4, 2018.
- STSC #4 was delivered to T Plant on September 28, 2018.
- STSC #5 was delivered to T Plant on October 31, 2018.
- STSC #6 was delivered to T Plant on November 26, 2018.
- STSC #7, started sludge loading on December 3, 2018, delivery to T Plant is expected by December 17, 2018.
- Sludge Transport System (STS) #2 was returned to service in October after the new cask lid passed leak testing, used for STSC #6.
- T Plant crane mechanical maintenance (planned outage) completed in November.



# Milestone Summary

Milestone	Due Date	Description	Status
<b>M-016-00C Complete all response actions for the 100 K Area (9/30/24)</b>			
M-016-175	9/30/2018	Begin Sludge Removal from 105-KW Fuel Storage Basin	<b>Complete</b>
M-016-176	12/31/2019	Complete Sludge Removal from 105-KW Fuel Storage Basin	On Schedule

# Project Baseline Performance (Contract to date through November 2018)

RL-0012 Spent Nuclear Fuel Stabilization and Disposal	Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance (\$)	Cost Variance (\$)	Budget at Completion (BAC)	Estimate at Completion (EAC)	Variance at Completion (VAC)	SPI	CPI
<b>Base Total</b>	<b>746.8</b>	<b>746.4</b>	<b>716.6</b>	<b>(0.4)</b>	<b>29.8</b>	<b>762.0</b>	<b>731.2</b>	<b>30.8</b>	<b>1.00</b>	<b>1.04</b>



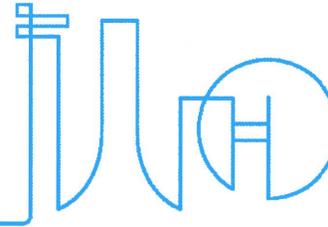
# Planned Activities

## December - February

### **K Basins Sludge Removal Operations**

- Continue ECRTS operations, process STSCs nos. 7-11.
- T Plant crane electrical maintenance outage planned for January 2019, after delivery of STSC #8.
- Following completion of T Plant crane outage, ECRTS operations will commence “5-10s” work schedule to improve STSC production, safely.





# River Corridor Closure

TPA Milestone Series: M-016, M-089, M-093, M-094

September – November 2018  
December 20, 2018



U.S. Department of Energy  
U.S. Environmental Protection Agency  
State of Washington, Department of Ecology

*Columbia River White Bluffs*



# 618-10 Burial Ground Complex

## Significant Accomplishments (September 2018 through November 2018)

- Completed 618-10 Burial Ground project closeout activities.
- Transferred the 618-10 Burial Ground complex to the Long Term Stewardship program.



# 300-296 Soil Removal

## Significant Accomplishments (September 2018 through November 2018)

- Completed installation of first remote excavator arm (REA) in B-Cell.
- Issued operating instructions for the REA system.
- Completed sample load out (SLO) room demolition.
- Completed the 60% design review of the Structural Modification design.
- Completed design testing and verification of micropiles.
- Completed installation testing of the modified B-Cell filter frame at Mockup.
- Completed Integrated Testing at Mockup.
- Awarded contracts for the waste containers and waste box shielding for 324.
- Finalized the Waste Management Plan for 324.



REA movement into B-Cell on new modified rail system



Debris loadout during Integrated Testing



# 300-296 Soil Removal

## Significant Planned Actions

- Installation of lights and cameras in REC Cells
- Continue B-Cell cleanout
- Submit final Emergency Planning Hazards Assessment (EPHA) for RL approval
- Receive HVAC snorkels and floor saw at the Mockup
- Continue proficiency training at the Mockup
- Repair A-Cell crane door
- Perform geo-probe partial removal
- Receive and review 90% Structural Modification design



*Micropile Drilling on South side of 324 Building*



*SLO Room Before Demolition / After Demolition*



# Milestone Summary

Milestone	Due Date	Description	Status
<b>M-016</b>			
M-016-00B	9/30/2018	Complete all 300 Area remedial actions including the 618-10 burial ground, but not including the 618-11 burial ground, 300-296, and sites associated with retained 300 Area facilities and the utility corridors. Completion of all remedial actions is defined as the completion of the ROD requirements in accordance with an approved RD/RA work plan for all waste sites except 618-10, 316-4 and 600-63 which will be completed through backfill	Complete
M-016-85	9/30/2021	Complete remedial actions for 300-296 and final disposition for 324 building and Ancillary buildings	<del>On Schedule</del> At Risk
M-016-85A	9/30/2019	Complete remote excavation of the 300-296 waste site	<del>On Schedule</del> At Risk
M-016-86	9/30/2021	Complete remedial actions for 618-11 burial ground in accordance with DOE/RL-2014-13-ADD1	<del>On Schedule</del> At Risk
M-016-178	12/31/2019	Initiate Deactivation of 105-KW Fuel Storage Basin	On Schedule
M-016-181	9/30/2023	Complete Deactivation, Demolition & Removal of 105-KW FSB	On Schedule
<b>M-089</b>			
M-089-00	TBD	Closure of Mixed Waste Units in 324 building REC B&D cells and High & Low level vaults	On Schedule
<b>M-093</b>			
M-093-28	12/31/2019	Submit Change Package for Proposed Interim Milestones for 105-KE/KW Interim Safe Storage	On Schedule
<b>M-094</b>			
M-094-00	9/30/2018	Complete disposition of all 300 Area Surplus Facilities excluding the 324 Building	Complete



# 100K Closure Project

## Significant Accomplishments (through November 2018)

### 100K Soil Remediation

- Continued preparation for Waste Site 116-KE-2 radioactive waste crib removal (excavation is approximately 74 percent complete).
- Continued excavation and load out at Waste Site 100-K-47:1 (excavation is approximately 32 percent complete).
- Completed Waste Site 100-K-13 excavation, load out, and verification sample collection.
- Resolved RL comments on Waste Site 100-K-94 Remaining Waste Site Verification Package and submitted to EPA for review and closure approval.



*Waste Site 100-K-47:1  
(Columbia River in Background)*



# 100K Closure Project

## Significant Accomplishments (through November 2018)

### K West Basin Deactivation & Demolition

- Garnet Filter Media Removal System (GFMRS)
  - The full scale mockup of the GFMRS remains in place following the completion of integrated testing to support operating procedure development and operator training. Completed the draft operating procedure for removing media from Garnet Filter Number 1.
  - Completed the Facility Modification Package for the installation of GFMRS equipment in K West Basin. Approved and released the integrated test and the risk-mitigation test reports.
  - The fabrication of Sludge Transport & Storage Container vessels 425, 426, 427, and 428 was completed and the vessels have been delivered.
  - Garnet Filter Number 3 Sluice Outlet Valve V-305 air operator was removed, a manual operator installed, and the valve partially opened. Work instructions are being prepared to verify V-305 opens fully and closes properly using a manual operator.



# 100K Closure Project



*STSC vessels 425-428 are complete and have been delivered to CHPRC*



# 100K Closure Project

## Significant Accomplishments (through November 2018)

### **K West Basin Deactivation & Demolition**

- Sand Filter Media Removal System (SFMRS)
  - The environmental screening is complete, the ALARA design review checklist is complete, and the preliminary hazard analysis (PHA) continues to be worked.
  - Issued the SFMRS design requirements document.



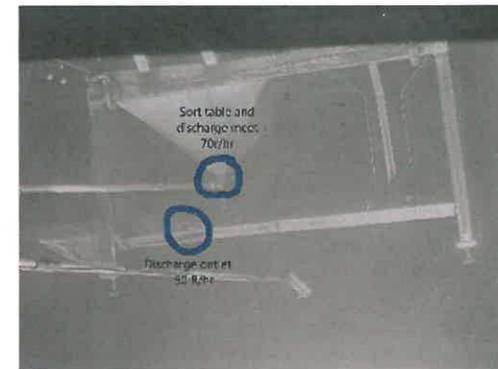
# 100K Closure Project

## Significant Accomplishments (through November 2018)

### K W Basin Deactivation & Demolition

- K W Basin Characterization

- Continued sparging and collecting high dose material (HDM) in the northwest region of the K West Basin Center Bay and placing the HDM into an empty fuel canister. Continued Dose-to-Curie modeling of the HDM collected in the fuel canister.
- HDM was removed from the debris sorting table and will be loaded into a fuel canister.
- Installed a piping jumper to connect Integrated Water Treatment System IXM-1, 2, and 3 to the IXM discharge header. The modification will enable future floor sparging activity to support characterization without shortening Skimmer System IXM-4 in-service time and therefore not affect sludge removal operations.



*Debris Sorting Table  
(Note radiation Levels on  
outlet pipe)*



# 100K Closure Project

## Significant Accomplishments (through November 2018)

### K W Basin Deactivation & Demolition

- K W Basin Characterization
  - MASF Engineers progressed development of the fuel piece specimen conditioning unit.
  - Completed Attila 3D model training for radiological engineers, and progressed development of the K West Basin 3D debris model.
  - Continued development of revision to DOE/RL-2010-52 *Remedial Design and Remedial Action Work Plan for the K Basins Interim Remedial Action: 105-K West Basin Deactivation.*



*K West Basin West Bay*



# 100K Closure Project

## Significant Accomplishments (through November 2018)

### Ancillary Facility Deactivation & Demolition

- Completed thermal system insulation abatement in 165KE Power Control Building.
- Continued planning for 166KE Fuel Storage Basin (FSB) demolition /Waste Site 130-KE-2 remediation.
  - Insulators continued asbestos removal in the fuel oil transfer pump room.
- Provided draft revisions of DOE/RL-2005-26 *RAWP for 100K Reactor and Ancillary Facilities* and supporting AMP to EPA for review and comment.
- Incorporated comments from EPA and RL on draft DOE/RL-2018-47 Remedial Action Report for 100D/H Waste Sites.



# 100K Closure Project

## **Significant Accomplishments (through November 2018)**

### **K East and K West Reactor Interim Safe Storage (ISS)**

- Finalized the 105K East Reactor asbestos removal contract statement of work (SOW) and the ISS design modification contract SOW.
- Incorporated remaining functional review comments into the 105K East Reactor Safe Storage Enclosure (SSE) structural contract SOW (scope includes earthwork, laying the foundation, and the SSE structural work).



# 100K Closure Project

## Significant Planned Actions (December through February 2019)

### 100K Soil Remediation

- Complete excavation of Waste Site 116-KE-2 radioactive crib.
- Continue excavation of Waste Site 100-K-47:1.

### K West Basin Deactivation & Demolition

- Garnet Filter Media Removal System (GFMRS) and Sand Filter Media Removal System (SFMRS)
  - Finalize and approve SFMRS design requirements. Prepare facility modification package for installation details.
  - Receive RL approval of the K West Basin annual DSA update which incorporates GFMRS installation activities.



# 100K Closure Project

## Significant Planned Actions (December through February 2019)

### K West Basin Deactivation & Demolition

- K West Basin Characterization
  - Complete vertical pipe casing (VPC) design. Two VPCs will be used to segregate high activity below-water debris.
  - Complete debris unloading bin design to support emptying debris bins into the VPCs.
  - Complete development of the fuel piece specimen conditioning unit.



# 100K Closure Project

## Significant Planned Actions (December through February 2019)

### Ancillary Facility Deactivation & Demolition

- 166KE Fuel Storage Basin (FSB)/Waste Site 130-KE-2
  - Complete thermal system asbestos removal from the fuel oil transfer pump room.
  - Dispose of electrical switchgear located outside the FSB in preparation for demolition.
  - Initiate removal of the bunker fuel oil in the FSB.

### K East Reactor ISS

- Prepare draft TPA change notice to update the completion dates for ISS of K-East & K-West reactors.
- Finalize the 105K East Reactor SSE structural contract SOW.



# Remaining Closure Operations

## 2018 Significant Accomplishments (through November 2018)

- Completed collecting shrub seeds from various locations around the Hanford Site to support FY2019 re-vegetation efforts.
- Mobilized site revegetation subcontractor.



# Remaining Closure Operations

## **Significant Planned Actions (December through February 2019)**

- Complete revegetation of the 618-10 burial ground site.



# Milestone Summary

Milestone	Due Date	Description	Status	
<b>M-016</b>				
M-016-00B	9/30/2018	Complete all 300 Area remedial actions including the 618-10 burial ground, but not including the 618-11 burial ground, 300-296, and sites associated with retained 300 Area facilities and the utility corridors. Completion of all remedial actions is defined as the completion of the ROD requirements in accordance with an approved RD/RA work plan for all waste sites except 618-10, 316-4 and 600-63 which will be completed through backfill	Complete	
M-016-85	9/30/2021	Complete remedial actions for 300-296 and final disposition for 324 building and Ancillary buildings	<del>On Schedule</del>	At Risk
M-016-85A	9/30/2019	Complete remote excavation of the 300-296 waste site	<del>On Schedule</del>	At Risk
M-016-86	9/30/2021	Complete remedial actions for 618-11 burial ground in accordance with DOE/RL-2014-13-ADD1	<del>On Schedule</del>	At Risk
M-016-178	12/31/2019	Initiate Deactivation of 105-KW Fuel Storage Basin	On Schedule	
M-016-181	9/30/2023	Complete Deactivation, Demolition & Removal of 105-KW FSB	On Schedule	
<b>M-089</b>				
M-089-00	TBD	Closure of Mixed Waste Units in 324 building REC B&D cells and High & Low level vaults	On Schedule	
<b>M-093</b>				
M-093-28	12/31/2019	Submit Change Package for Proposed Interim Milestones for 105-KE/KW Interim Safe Storage	On Schedule	
<b>M-094</b>				
M-094-00	9/30/2018	Complete disposition of all 300 Area Surplus Facilities excluding the 324 Building	Complete	



# Project Baseline Performance

## Contract to Date through November 2018

RL-0041 Nuclear Facility D&D River Corridor	Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance (\$)	Cost Variance (\$)	Budget at Completion (BAC)	Estimate at Completion (EAC)	Variance at Completion (VAC)
<b>Total</b>	<b>611.4</b>	<b>579.0</b>	<b>519.9</b>	<b>(32.3)</b>	<b>59.2</b>	<b>649.3</b>	<b>586.4</b>	<b>62.9</b>
Numbers are rounded to the nearest \$0.1 million.								

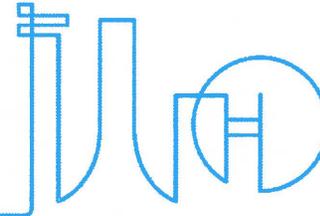




# M-026-01 Land Disposal Restrictions

## TPA Milestone M-026-01 Quarterly Status

- The *CY2014 Hanford Site Mixed Waste Land Disposal Restrictions (LDR) Full Report* TPA primary document review process is ongoing.
  - Review Comment Record (RCR) Ecology Comments/Responses were provided on August 23, 2018. The Parties are currently in TPA comment response technical discussions and anticipate completion during first-quarter of CY2019. To-date, approximately 75% of the RCR comments have been addressed and closed.
  - The Parties agreed to place the LDR PMM's on-hold until the end of the TPA primary document review process for the RCR Ecology Comments/Responses.
- The Parties mutually agreed to forego publication of the CY2018 Hanford Site Mixed Waste Land Disposal Restrictions Summary Report while continuing resolution of comments on the CY2014 Report.
  - Deletion of TPA Milestone M-026-01AC for the CY2018 LDR Summary Report occurred on September 27, 2018.



# Solid Waste Stabilization and Disposition Project

TPA Milestone Series: M-091, M-026, and M-092

September – November 2018

December 20, 2018



U.S. Department of Energy

U.S. Environmental Protection Agency

State of Washington, Department of Ecology

*Columbia River White Bluffs*



# Accomplishments

## September – November 2018

- M-091-47D Certify or Treat 280-m3 of TRUM/MLLW:
  - Waste shipments continue to PFNW.
  - Completed 535 m3 overall achievement since M-091-47D.
- M-091-52-T01B:
  - Continued removal of mixed waste containers from Outside Storage Area A and/or Outside Storage Area B in pursuit of Milestone M-091-52-T01B. Seven (7) of the ten (10) have now been removed.
- M-091-52-T02:
  - Functional Design Criteria (FDC)
  - Conceptual Design Report (CDR)
  - Engineering Evaluation and Cost Analysis (EE/CA)
- M-091-52-T03:
  - Completed Mission Needs statement (CD-0) draft for CH processing facilities/capabilities.
- M-091-53:
  - Continue supporting M-091 TPA negotiations.
  - Development of draft TPA change request.



At PFNW of a PRF Gallery Glovebox Section being processed for eventual packaging into an SWB(s).  
TB053000



At PFNW of a PRF Gallery Glovebox Section being processed for eventual packaging into an SWB(s).  
TB052000



# M-092-09 and M-092-00

Determine disposition path and establish interim agreement milestones for Hanford Site Cesium and Strontium capsules.

- September – November 2018 Accomplishments
  - Change form M-92-18-02 modified the due dates for Major Milestone M-092-00 from “to be established by 9/30/2018” to “12/31/2047 or earlier as established in M-062-00”.
  - Change form M-92-18-02 modified the due date for interim Milestone M-092-09 from 9/30/18 to 12/31/26.
- December – February 2018 Planned Activities



# Milestone Summary

Milestone	Due Date	Description	Status
<b>M-091</b>			
M-091-47D	9/30/2018	Submit change request to establish next two TRU/MLLW annual certification/disposal milestones.	In Abeyance
M-091-52	12/29/2017	Submit change request with target dates for new/modified capabilities to process	Complete
M-091-53	9/30/2018	Submit Milestone Change Request to Replace Target Dates for Capabilities to Process TRUM Waste	In Abeyance
M-091-52-T01A	11/30/2018	Remove 5 MW containers from Outside Storage Area (OSA) A and/or Outside Storage Area B	Complete
M-091-52-T01B	11/30/2019	Remove 10 MW containers from Outside Storage Area (OSA) A and/or Outside Storage Area B	On Schedule
M-091-03	6/30/2019	Submit Revision of TRUM Waste and MLLW PMP to Ecology	On Schedule
<b>M-026</b>			
M-026-07D	3/31/2019	Evaluation of Tritium Treatment Technology to EPA & Ecology	On Schedule



# Project Baseline Performance through November 2018

RL-0013 Solid Waste Stab & Disp	Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance (\$)	Schedule Variance (%)	Cost Variance (\$)	Cost Variance (%)	Budget at Completion (BAC)	Estimate at Completion (EAC)	Variance at Completion (VAC)
<b>Total</b>	<b>746,152.1</b>	<b>745,176.8</b>	<b>675,766.8</b>	<b>(975.4)</b>	<b>-0.1%</b>	<b>69,409.9</b>	<b>9.3%</b>	<b>809,387.2</b>	<b>736,459.6</b>	<b>72,927.5</b>

Numbers are rounded to the nearest \$0.1 million.

Title	Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance	Cost Variance
Central Waste Complex	108,354.8	108,310.8	106,818.8	0.0%	1.4%
Waste Receiving and Processing Facility (WRAP)	54,199.8	54,122.0	52,140.0	-0.1%	3.7%
T-Plant	130,071.2	129,866.0	110,539.9	-0.2%	14.9%
Mixed Low Level Waste Treatment	43,182.5	43,182.5	37,200.3	0.0%	13.9%
TRU Retrieval	100,070.1	100,101.8	112,362.5	0.0%	-12.2%
TRU Repackaging	108,518.6	107,970.8	98,056.6	-0.5%	9.2%
TRU Disposition	33,285.4	33,187.9	24,559.9	-0.3%	26.0%
Project Management	168,469.7	168,434.9	134,088.7	0.0%	20.4%

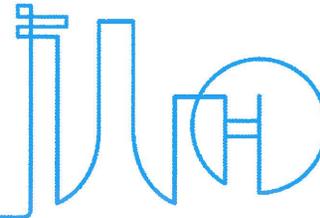


# Planned Activities

## December – February 2018

- M-091-47D TRUM/MLLW Treatment
  - Met volume processed, August 8, 2017. Issue the TPA milestone completion letter along with the required TPA change proposal to establish the next two annual interim milestone objectives.
  - Continue waste processing toward next objective.
- M-091-52 Target Milestones
  - Continue removing mixed waste containers from OSA A and/or OSA B in support of M-091-52-T01B
  - Continue progress towards M-091-52-T02 to develop Interim Response Action to resume waste retrieval in support of M-091-49A.
  - Continue progress towards M-091-52-T03 to develop a mission needs statement (CD-0) regarding CH processing facilities/capabilities.
- M-091-53
  - Continue negotiations.
  - Continue analysis and draft TPA change request.





# Central Plateau Remediation Project

TPA Milestone Series: M-016, M-037, M-085

Sept – Nov 2018  
December 20, 2018



U.S. Department of Energy  
U.S. Environmental Protection Agency  
State of Washington, Department of Ecology

*Columbia River White Bluffs*



# PUREX Tunnel # 2 Stabilization Accomplishments

## September 2018 through November 2018

- Installed the remaining components of the PUREX Tunnel #2 grout conveyance system and closed out subcontract.
- Released final work packages for batch plant operation and grouting activities.
- Received Temporary Authorization on September 28, 2018 and grout placement began October 3, 2018.
- As of November 20, approx. 16,991 cubic yards (1,712 trucks) of grout have been placed in the tunnel (42.69%).



**PUREX Tunnel #2 Grout  
Conveyance System Installation**

**PUREX Tunnel #2 Mobile  
Batch Plant Allowing on site  
grout batching**



# REDOX Risk Reduction Accomplishments

September 2018 through November 2018

- Performed three investigative entries into REDOX Canyon. First entries into Canyon since 1997.
- Completed installation of light strings inside the REDOX Silo floors 1 thru 8.
- Completed installation of temporary generator to supply power for temporary lights and power into the REDOX silo and tent for reactivation of the Northwest Sample Gallery egress door.



Inside REDOX Canyon



# Other Accomplishments

## September 2018 through November 2018

- Completed Annual B Plant Surveillance
- Performed fourth investigative entry into B Plant to adjust ventilation dampers.
  - Reduce B Plant Stack flow rate to 14,000 CFM
  - Completed Change Out of B Plant Pre-Filters.
- Performed 9 Steam Line Crossover removals in 200 West Area.
- Performed 242-B/BL initial planning and initial entry assessments.
- Complete the Semi-Annual PACM (Presumed Asbestos Containing Material) WIDS sites surveillance.
- DOE/RL-2015-70 276-BA Closure Plan Rev. 0 Issued.
- DOE/RL-2016-52 REDOX Action Memorandum (AM) Rev. 0 Issued.



**Steamline Crossover removed on  
Baltimore Street**



# Accomplishments

## September 2018 through November 2018

### **Canyon Stabilization Documents**

- Submitted to Regulators:
  - DOE/RL-2016-46 Tier 2 B Plant Removal Action Work Plan (RAWP), Rev 0
  - DOE/RL-2017-05 REDOX Sample Analysis Plan (SAP), Draft C
  - DOE/RL-2017-06 REDOX RAWP, Draft A
  - Proposed permit modifications for PUREX Tunnel #2 stabilization.
- Received from CHPRC:
  - DOE/RL- 2017-45 Tier 2 B Plant SAP, Draft A
- In Development Nearing Completion:
  - DOE/RL-2016-47 Tier 2 PUREX RAWP
  - DOE/RL-2016-50 Tier 2 Misc. Facilities RAWP, Decisional Draft (DD) for RL Review
  - DOE/RL-2017-47 Tier 2 Misc. Facilities SAP, DD for RL Review



# Milestone Summary

## Through FY19

Milestone	Due Date	Description	Status
<b>M-016-00 Complete Remedial Actions For All Non-Tank Farm &amp; Non-Canyon OUs</b>			
M-016-255	9/30/2018	DOE shall complete the removal of all waste sites for fiscal year 2018 as identified in TPA change package M-16-16-01	In negotiation
M-016-250C	3/31/2018	DOE shall submit a 3-year rolling prioritized schedule to implement waste site removal actions	<b>Complete</b> 3/29/18
M-016-256	9/30/2019	DOE shall complete the removal of all waste sites for fiscal year 2018 as identified in TPA change package M-16-17-01	In negotiation
<b>M-037 TSD Closure Activities</b>			
		Milestones due past 3 year window	
<b>M-085-00 Complete Response Actions for Specified Canyon Facilities &amp; Waste Sites</b>			
M-085-82	12/31/2017	Submit to Ecology for approval proposal(s) for expedited response action(s) for one or more of the Tier 1 and Tier 2 facilities in the PUREX Geographic Area listed in HFFACO Appendix J.	<b>Complete</b> 12/7/17



# Project Baseline Performance through November 2018

## Contract to Date

BS 040/RL-0040 Nuclear Facility D&D	Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance (\$)	Cost Variance (\$)	Budget at Completion (BAC)	Estimate at Completion (EAC)	Variance at Completion (VAC)	SPI	CPI
BASE	214.5	219.6	214.0	3.1	5.7	290.3	287.7	2.6	1.02	1.03
ARRA	285.5	285.5	266.5	0	19.0	285.5	266.5	19.0	1.00	1.07
<b>Total</b>	<b>500.0</b>	<b>505.1</b>	<b>480.5</b>	<b>5.1</b>	<b>24.6</b>	<b>535.5</b>	<b>554.2</b>	<b>21.6</b>	<b>1.01</b>	<b>1.05</b>

Numbers are rounded to the nearest \$0.1M



# Planned Activities for CPRM

December 2018 – February 2019

- Continuation of PUREX Tunnel #2 Grouting
- Complete REDOX Silo characterization and Life Safety Code upgrades.
- Complete all REDOX temporary power and lighting in the Silo and North Sample Gallery.
- Continuation of effective RCRA Rev 9 permit with modified addendums
- Complete 200W Steam Line Crossover removals with the exception of those inside the PFP RBA
- Complete Installation of the mobile office trailer (MO-6114) and shower trailer



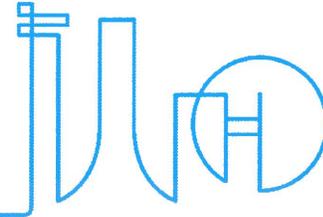
# Planned Activities

December 2018 through February 2019

## Canyon Stabilization Documents

- Ecology approvals:
  - DOE/RL-2017-05 REDOX Sample Analysis Plan (SAP), Draft C
  - DOE/RL-2017-06 REDOX Removal Action Work Plan (RAWP), Draft A
  - DOE/RL-2016-15 PUREX Engineering Evaluation/Cost Analysis (EE/CA), Draft B
  - DOE/RL-2016-46 Tier 2 B Plant RAWP
  - DOE/RL-2016-14 B Plant EE/CA, Draft B
- RL/Ecology Reviews:
  - DOE/RL-2016-50 Tier 2 Misc. Facilities RAWP, Decisional Draft (DD) for RL Review
  - DOE/RL-2017-47 Tier 2 Misc. Facilities SAP, DD for RL Review
  - DOE/RL-2016-47 Tier 2 PUREX RAWP; DD for RL Review





# Soil and Groundwater Remediation Project

TPA Milestone Series: M-015, M-016, M-024, M-085

September 2018 – November 2018  
December 20, 2018



U.S. Department of Energy  
U.S. Environmental Protection Agency  
State of Washington, Department of Ecology

*Columbia River White Bluffs*



# Accomplishments – River Corridor September 2018 – November 2018

- Submitted the draft 100-K Technical Impracticability Waiver Evaluation Documents to EPA for review on October 3, 2018.
- Transmitted the Rev 0 KW Soil Flushing/Infiltration Treatability Test Sampling and Analysis Plan to EPA on November 15, 2018.
- Submitted the draft 100-N Technical Impracticability Waiver Evaluation Documents to EPA and Ecology for review on October 5, 2018.
- Transmitted the Draft Rev 0 100-BC-5 Proposed Plan incorporating EPA legal comments to EPA for final checking on October 24, 2018.



100k Aerial



# Accomplishments – River Corridor September 2018 – November 2018

- Completed 300-FF-5 Stage B Uranium Sequestration polyphosphate injections on September 20, 2018. Approximately 392,000 gallons of phosphate chemicals were injected through 48 injection wells.
  - Completed continuous ERT monitoring to provide real-time imaging of polyphosphate delivery to the subsurface.
  - Completed daily sampling for one week following injections.
  - Completed weekly sampling for four weeks following injections.
- Initiate drilling of the monitoring wells for the KW infiltration study.



300-FF-5 Stage B Uranium Sequestration poly phosphate delivery

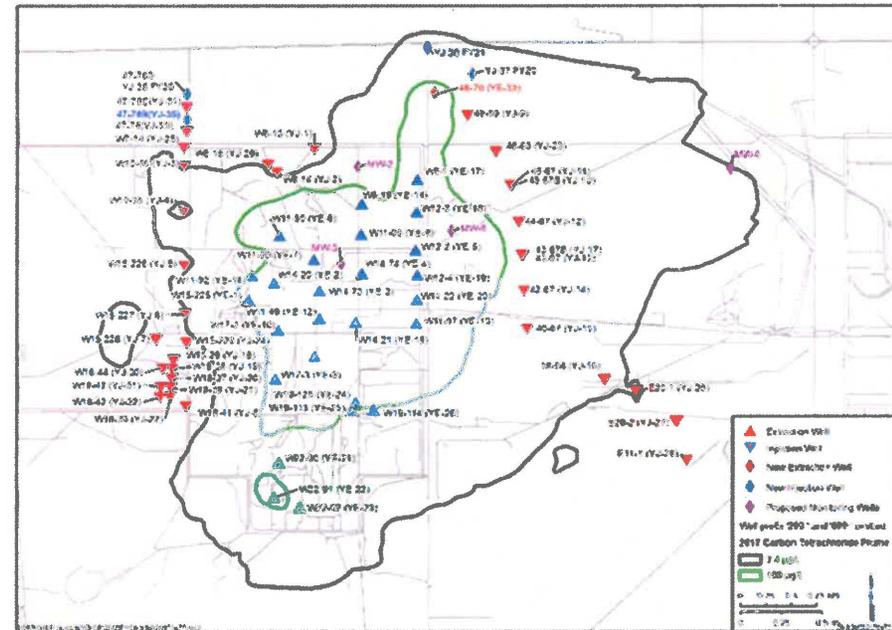


300-FF-5 Stage B Uranium Sequestration groundwater sampling manifold



# Accomplishments – Central Plateau September 2018 – November 2018

- Transmitted the Draft A 200-UP-1 SE Chromium Plume Remedial Design Investigation Report to EPA for review on September 25, 2018 (completes milestone M-016-193).
- Issued the Rev 0 200-BP-5 RI Report and 200-PO-1 RI Report Addendum on September 25, 2018.
- Issued the Rev. 0 200-BP-5 Drilling SAP on November 16, 2018 to allow installation of the planned FY19 monitoring wells.
- Transmitted the Draft A Central Plateau Groundwater Tracer Study SAP to Ecology and EPA for review on October 24, 2018
- Briefed EPA and Ecology on the results from the 200-DV-1 Treatability Test Evaluation Report on September 11, 2018.



Map of Well Sites



# Accomplishments – Central Plateau September 2018 – November 2018

- Successfully completed second phase of the Chlorination Pilot Test for YJ-14 in October 2018, which increased the specific injection capacity 5-fold.
- Successfully completed the Modular Storage Units Optimization Pilot Test in early September 2018; briefed EPA on the results November 5, 2018.
- Completed installation of a pipeline from the Modular Storage Units to the 200 West P&T to treat purge water.



MSU #3 after water transfer and sediment removal



MSU line Xing looking SE to MSU #3 and filter skid



# Milestone Summary

## Through FY19

Milestone or Target Date	Due Date	Description	Status
<b>M-015-00</b>			
M-015-92A	7/31/2018	Submit RCRA FI/CMS & RI/FS Work Plan for 200-EA-1 OU to Ecology	Completed
M-015-93C	9/30/2018	Initiate characterization of the 200-SW-2 OU unlined landfills	In Dispute
M-015-96	2/28/2019	Submit 100-OL-1 RI report and change request for FS report to Ecology	On Schedule
M-015-21A	3/31/2019	Submit 200-BP-5 and 200-PO-1 OU FS Report & PP(s) to Ecology	On schedule
M-015-98	6/30/2019	Complete remedial investigations of U Plant wastes sites located in 200-WA-1 in accordance with WP	At Risk*
<b>M-016-00</b>			
M-016-193	9/30/2018	Investigate SE Chromium Plume per 200-UP-1 RD/RAWP	Completed

\* Subsequent follow-on milestones (M-015-84 and M-015-91B) are also at risk.



# Milestone Summary

## Through FY19

Milestone or Target Date	Due Date	Description	Status
<b>M-024-00</b>			
M-024-58K	6/1/2018	Initiate Discussions of Well Commitments	Completed
M-024-69-T01	8/1/2018	Conclude Discussions of Well Commitments initiated under M-024-58	Completed
M-024-69	12/31/2018	DOE shall complete the construction of all wells listed for calendar year 2018 and before	Completed
M-024-58L	6/1/2019	Initiate Discussions of Well Commitments	On Schedule
<b>M-085-00</b>			
M-085-70	9/30/2019	Submit Remedial Investigation/Feasibility Study Work Plan for 200-CB-1 to Ecology	At Risk

# RL-30 Project Baseline Performance

## Contract to Date Through November 2018

RL-0030 Soil and Groundwater Remediation	Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance (\$)	Schedule Variance (%)	Cost Variance (\$)	Cost Variance (%)	Budget at Completion (BAC)	Estimate at Completion (EAC)	Variance at Completion (VAC)
<b>Total</b>	1,520.0	1,513.9	1,463.4	(6.1)	(0.4%)	50.4	3.3%	1,595.6	1,544.5	51.1

Numbers are rounded to the nearest \$0.1 million. Period of performance 10/1/2008 through November 2018



# Planned Activities

December 2018 through February 2019

## **River Corridor**

- Issue the Rev. 0 100-BC-5 RI/FS and PP, and initiate public review.
- Complete the KR-4 Decisional Draft B FS.
- Issue TI Waiver documents for 100-K and 100-N.
- Transmit the Draft A 100-HR-3 RD/RA Work Plan to Ecology for review.
- Initiate construction of the KW infiltration system.

## **Central Plateau**

- Transmit the Draft A 200-BP-5/200-PO-1 FS for the Interim Action ROD to Ecology and EPA for review.
- Complete connection of an additional 200-BP-5 extraction well.
- Complete regulator review of the Draft A Central Plateau Groundwater Tracer Study SAP



TPA Decision Document List

	ROD Area Location	Document	Milestone	Milestone Due Date	Regulatory Review	DOE Lead	Contractor Lead	Regulatory Lead	Agency	Comments/Issues
1	200-IS-1 200 Inner Area/Pipelines	RFI/CMS & RI/FS Work Plan - Draft B	M-015-112: Submit Draft B RCRA Facility Investigation/Corrective Measures Study (RCRA/FS Remedial Investigation/Feasibility Study)	11/30/2020	TBD	D. Hildebrand	M. Hickey	N. Menard	Ecology	Not funded in FY19.
2	200-EA-1 200 East Inner Area	TSD - Closure Plans for 207-A South Retention Basin, 216-A-29 Ditch, 216-A-36B Crib, 216-A-37-1 Crib, 216-B-63 Trench, and the Hexone Storage and Treatment Facility (276-S-141/142)	M-037-10: Complete Closure for 6 Specified TSD Units	9/30/2020	11/8/2018 TBD	M. Kamal	M. Hickey	N. Menard	Ecology	207-A South Retention Basin: Closure complete and approved. Remaining effort includes administrative processing of WDS waste site reclassification form as closed out.  216-A-36B closure plan submitted to Ecology and Ecology has put a "freeze" on the closure plan until needed for the Rev 9 permit.  216-A-37-1 submitted to Ecology for review and comment on October 25, 2018.  Hexone Treatment Facility closure plan is undergoing comment resolution with Ecology.
3	200-CW-1, 200-CW-3, and 200-OA-1 Outer Area	TSDs - Closure Plans for 216-B-3 Main Pond and 216-S-10 Pond and Ditch	M-037-11: Complete Closure Requirements for 216-B-3 & 216-S-10	9/30/2024	TBD TBD	M. Kamal	M. Hickey	N. Menard	Ecology	
4	200-EA-1 200 East Inner Area	RFI/CMS & RI/FS Work Plan	M-015-92A: Submit Draft B RCRA Facility Investigation/Corrective Measures Study (RFI/CMS) & Remedial Investigation/Feasibility Study (RI/FS) work plan for 200-EA-1 OU to Ecology	7/31/2018	7/14/2018 8/16/2018	B. Vannah	M. Hickey	N. Menard	Ecology	Resolved all EPA comments and working to resolve two remaining Ecology comments. Two issues remain on the 200-EA-1 Work Plan and SAP. The first issue is related to the infiltration rate or rates to be used when evaluating the characterization data. The second issue is a request from Ecology to analyze PCB samples for the congeners associated with a specific Aroclor.
5	200-BP-5, 200-PO-1 200 East Area Groundwater	200-BP-5 RI Report	None		8/11/2018 8/9/2018	J. Hanson	C. Wittreich	N. Menard	Ecology	The 200-BP-5 comment resolution process is nearing completion.
6	200-BP-5, 200-PO-1 200 East Area Groundwater	200-PO-1 RI Report Addendum	None		8/11/2018 8/9/2018	J. Hanson	C. Wittreich	N. Menard	Ecology	The 200-PO-1 comment resolution process is complete and the document is being finalized.
New	200-UP-1 200 West Area Groundwater	200-UP-1 Southeast Chromium Plume Remedial Design Report	M-16-193: Complete the remedial design investigation of the southeast chromium plume, including the installation of new wells and evaluation of groundwater monitoring data and	9/30/2018	9/19/2018 12/9/2018	J. Hanson	C. Wittreich	E. Lajja	EPA	Transmitted the Draft A 200-UP-1 SE Chromium Plume Remedial Design Investigation Report to regulators on September 19, 2018, for review and in support of completing TPA M-016-193.
7	200-BP-5, 200-PO-1 200 East Area Groundwater	200-BP-5/PO-1 FS and PP	M-015-21A: Submit a 200-BP-5 and 200-PO-1 OU Feasibility Study Report and Proposed Plan(s) to Ecology.	9/30/2019	12/8/2018 1/21/2019 3/14/2019 4/10/2019	J. Hanson	C. Wittreich	N. Menard	Ecology	The IAMIT approved the IROD Strategy in July. The Draft A FS is on schedule to be transmitted to the regulators in early December and the PP in mid-March for review.
8	100-BC-1, 100-BC-2, 100-BC-5 100-B/C	RI/FS Report and Proposed Plan	M-015-79: Submit RI/FS Report and PP for 100-BC	Milestone Completed 12/15/2016	12/16/2016 01/30/2017	E. Glassbrenner	R. Evans	L. Buelow	EPA	Completed revisions to the Draft Rev D Proposed Plan (PP) incorporating EPA legal comments on October 18, 2018. The revised Draft Rev D PP was forwarded to EPA for final review on October 24, 2018. Received EPA comments on Draft Rev D RI/FS on November 7, 2018. Revisions were completed and EPA provided concurrence to the changes on November 16, 2018. The RI/FS could be finalized provided resolution of comments provided by the Tribes on the National Historic Preservation Act (NHPA) text contained in Chapters 3 & 9 of the Draft Rev RI/FS are quickly resolved. Comments from the Tribes were due November 19, 2018.
9	100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, 100-HR-3 100-D/H	RI/FS Reports and Proposed Plan	M-015-70-T01: Submit FS & PP for HR 1/2/3 and DR 1/2 Complete	Target Completed 12/4/2013		S. Balone	S. Faust	N. Menard	Ecology	Final ROD was signed July 30, 2018.
10	100-KR-1, 100-KR-2, 100-KR-4 100-K	RI/FS Reports and Proposed Plan	M-015-66-T01: Submit RI/FS Report and PP for 100-K Complete	Target Completed 9/21/2011		E. Glassbrenner	S. Faust	L. Buelow	EPA	The RI and FS have been separated to allow for a potential TI waiver to be pursued. The Decisional Draft RI was submitted to RI on September 27, 2018 and FS will go to RL in January 2019. The RI Draft B is scheduled for EPA review early April 2019 and the FS Draft B is scheduled for EPA review in June 2019.
11	100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, 100-HR-3 100-D/H	RD/RAWP	None		TBD TBD	J. Sands	R. Evans	N. Menard	Ecology	On schedule to be provided to the Agencies for review in December 2018.
12	100-NR-1, 100-NR-2 100-N	RI/FS Reports and Proposed Plan	M-015-75: Submit FS/PP for NR 1/2 Complete	Milestone Completed 6/24/2013	6/25/2013 10/2/2013	S. Balone	B. Faught	A. Boyd	Ecology	Continue with preparation of the Draft B RI/FS. Ecology extended comment resolution to March 29, 2019. 11/19/2018: The Draft B RI/FS document has been delivered to RL for comments with the exception of the Executive Summary.

(Information current as of 8/17/2017)

Note: Blue text reflects changes from previous quarter. Shading discriminates change in ROD Area Location from adjacent rows.