MAIN PLANT PROCESS BUILDING REMOVAL

Protecting the health and safety of our employees, surrounding community, and our environment remain our top priority.

Quick Facts

WHAT'S PLANNED?

The U.S. Department of Energy (DOE) is removing the Main Plant Process Building (MPPB) and is disposing the waste offsite at licensed disposal facilities as part of our ongoing cleanup efforts at the West Valley Demonstration Project (WVDP) site. Removal of the MPPB started in September 2022 and is expected to take approximately 30 months to complete.

WHAT IS THE MAIN PLANT PROCESS BUILDING (MPPB)?

The MPPB is a 35,100 square-foot building that operated as a commercial reprocessing facility recovering reusable plutonium and uranium from spent nuclear reactor fuel. The MPPB was in operation from 1966 to 1972.

WHY?

The Department is demolishing the MPPB as the next step in its mission to decontaminate and decommission facilities at the West Valley Demonstration Project. This is the last major facility remaining to be demolished at the site.

WHAT ARE THE RISKS?

Significant work has been done over the past two decades to prepare the MPPB for removal in a manner that is protective of human health and the surrounding environment.

The site has worked to safely reduce remaining radioactivity in the facility by 98 percent through the removal of more than 7 miles of contaminated piping and over 50 tons of contaminated equipment to ensure that removal is **safe and protective** of the surrounding community. An extensive modeling and air monitoring system has been established to ensure any potential radiological exposure from removal activities is kept well below regulatory levels and is protective of the site's surroundings.

DOE and its cleanup contractor at West Valley are committed to keeping state and local officials, nearby residents and other stakeholders informed of the preparations and progress of the MPPB removal effort.

Your Safety and the Safety of Our Environment is Our Foremost Priority

The WVDP has developed a comprehensive monitoring plan that will be strictly adhered to during the removal of the MPPB to protect the health and safety of the workforce, surrounding community, and environment.

Experienced radiological personnel will monitor, provide guidance, and respond immediately to changing conditions to protect the health and safety of the workforce, surrounding community, and environment.

The WVDP has worked closely with the EPA and the U.S. Nuclear Regulatory Commission (NRC) for several years, regarding our plans and approaches to demolish the MPPB in an open-air manner that maintains public and environmental protection.

Work procedures include necessary requirements to minimize any potential for contaminant releases from the site and to maintain compliance with regulatory standards. Demolition debris will be packaged and safely disposed of at a licensed commercial waste disposition facility.

WEST VALLEY DEMONSTRATION PROJECT

QUARTERLY AMBIENT AIR MONITORING REPORT
Third Quarter 2022

Summary of Latest Monitoring Results

The September 2022 quarterly monitoring results at the hypothetical maximum potential exposure location at the predominant prevailing downwind direction is only 0.56% or less of the NESHAP limit values. These compliance limits are based on airborne concentrations present, over a one-year period, resulting in an annual dose of 10 millirem (mrem). Based on the results, the associated dose would be a small fraction of the 10 mrem limit, explained below. The quarterly ambient air monitoring results for strontium-90, iodine-129, cesium-137, uranium-232, plutonium-238, plutonium-239/240 and americium-241 at this location can be viewed at: http://www.chbwv.com/MPPB/Report/Ambient-Air-Concentrations-3rd-Qtr-2022.pdf

What does this mean?

The WVDP permitted limit (measured in dose) from air emissions to a member of the public is 10 mrem per year. This means that the WVDP site cannot release a concentration of airborne radioactivity that would cause an individual living at the site boundary 24 hours/day, 365 days/year to receive a radiological dose above 10 mrem per year, or, on average, more than 0.833 mrem/month.

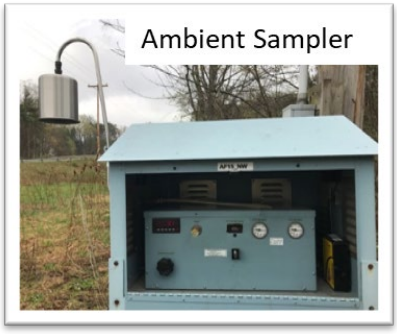
As noted above, the quarterly results are all far below the compliance limits and therefore, the hypothetical dose to a member of the public would be a small fraction of the 10 mrem dose limit.

Real-time onsite air monitoring ensures worker and community protection and provides early warning of a potential change in work area conditions.

In addition, a **network of off-site continuous air samplers** installed in 2012 have been shown to effectively protect the local community and surrounding ecology during the Vitrification Facility demolition (2017-2018). This network of 16 locations is used to demonstrate annual compliance with the National Emission Standards for Hazardous Air Pollutants (NESHAP) established by the U.S. Environmental Protection Agency (EPA).

WHAT is Ambient Air Monitoring?

The WVDP Ambient Air Monitoring System is a U.S. Environmental Protection Agency (EPA)-approved ambient air monitoring system. The network's detection limit meets (and is better than) the required EPA detection limit. The system operates continuously and is used to demonstrate compliance with the EPA annual dose standard (10 mrem/year) in air (see page 4 for the explanation about 'dose').



The Ambient Air Monitoring System consists of samplers which pull the air across filters that capture small particulates. Samples are sent to an off-site laboratory where radioactive materials are chemically separated and analyzed by very sensitive instruments. This technology provides much better detection sensitivity for low levels of airborne radioactivity - up to one million times more sensitive than real-time monitors.

The WVDP has placed sixteen (16) Ambient Air Samplers, deployed in 16 compass sectors within one (1) mile of the site, in proximity to our nearest residents. The samples are collected every two weeks, composited, and analyzed on a quarterly basis. The resulting composite is utilized to evaluate trending and validate that WVDP air emissions remain well below the EPA dose limit.

In summary, DOE has deployed the best technology in consideration of overall purpose, locations to be monitored or sampled, and detection capability (or sensitivity) of the system. Sixteen (16) Ambient Air Samplers are concentrically located about one (1) mile from MPPB removal, in close proximity to the nearest member of the public.

The EPA-approved system has verified air emissions remain far less than EPA's dose standard.

WEST VALLEY DEMONSTRATION PROJECT

QUARTERLY OFF-SITE SURFACE WATER MONITORING REPORT Third Quarter 2022

Summary of Latest Monitoring Results

The 2022 monitoring results at the two downstream monitoring locations were only 0.11% or less of the DOE Derived Concentration Technical Standard (DCS) guideline values. These guideline values are based on concentrations in ingested water, over a one-year period, that would result in an annual dose of 100 millirem (mrem). The monthly and semiannual water monitoring results for strontium-90 and cesium-137 at the two downstream and one background sampling locations can be viewed at: http://www.chbwv.com/MPPB/Report/Off-Site-Surface-Water-Concentrations-3rd-Qtr-2022.pdf

What does this mean?

As noted above, the recent results for the off-site, downstream monitoring locations were well below the DOE-STD-1196-2021, "Derived Concentration Technical Standard" guideline values that are defined as the concentration of a radionuclide that, a member of the population based on conditions of continuous exposure for one year by one exposure mode (e.g., water, food, recreation), would result in a dose of 100 mrem. The 2022 monitoring results are also comparable to prior monitoring results at these locations. The WVDP models the annual waterborne dose to off-site individuals and reports the results in the WVDP Annual Site Environmental Reports (ASER).

Off-Site Surface Water Monitoring

Waters from the WVDP site eventually drain into Buttermilk Creek, which flows northward, east of the site. Buttermilk Creek converges with Cattaraugus Creek north of the site, and Cattaraugus Creek then flows westward away from the WVDP and drains into Lake Erie. Off-site surface water is sampled at three stream locations, one background location upstream of the site from Buttermilk Creek (not affected by WVDP activities), one downstream of the WVDP from Buttermilk Creek, and one further downstream of the WVDP from Cattaraugus Creek.

WHAT is Off-Site Surface Water Monitoring?

The water samples are collected once every two weeks and combined into semiannual samples at the Buttermilk Creek sampling locations and into monthly samples at the Cattaraugus Creek sampling location. Creek water samples are collected with a continuous water sampling system and then shipped to a certified laboratory for radiological and chemical analyses.

The samples collected at these three stream locations are used to ensure that the off-site surface water is safe and complies with DOE's guidelines for ingested water.

The WVDP models the annual dose to off-site individuals through all water pathways using comprehensive waterborne radiological data, including site discharges into these creeks. Members of the public do not have access to the WVDP site or the on-site water. No potable drinking water is drawn from Cattaraugus Creek downstream of the WVDP site. As previously mentioned, the modeling results are included in the WVDP ASER and continually show the dose to be a very small fraction of the DOE limit of 100 mrem/year.

The Low Down on Millirems

WHAT IS A MILLIREM?

A millirem is a unit of absorbed radiation dose by a human being.

MILLIREMS AND YOU

The WVDP permitted limit (measured in dose) from air emissions is 10 millirem per year (mrem/yr.) to the Maximally Exposed Off-Site Individual (MEOSI). This means that the WVDP site cannot release an amount of radiation that would cause an individual at the site boundary line to receive a radiological dose above 10 mrem/yr.

The estimated potential dose for the more than 30-month removal of the MPPB is 0.077 mrem. This represents less than 0.2% of the 10 mrem/yr. standard and less than 1/4 of the radiological dose one would receive by taking a one-way flight from Washington, D.C. to Seattle, WA.

Radiation in Your Every Day Life

WHAT IS BACKGROUND RADIATION?

Background radiation exists all around us, no matter where we live. Most background radiation occurs naturally. It mainly comes from natural minerals, some of which are even found in the human body, and cosmic radiation.

DOES THIS MEAN THE AVERAGE AMERICAN IS EXPOSED TO RADIATION EVERY DAY?

Yes. In fact, according to the National Council on Radiation Protection and Measurements, the average American is exposed to 620 mrem/yr., about half of which comes from natural background radiation.

The Amount of Radiation Absorbed By a Person is Measured in Dose

To ensure the safety and protection of workers and the public, a worldwide body of experts has established basic principles to safely regulate radiation exposure, including dose limits. These global principles date back to 1928 and are part of the International Atomic Energy Agency's (IAEA) Basic Safety Standards for Radiation Protection. The IAEA's standards are published jointly with the World Health Organization, the International Labor Organization, and the Organization for Economic Cooperation and Development's Nuclear Energy Agency.

The Department of Energy and Environmental Monitoring

The Department of Energy (DOE) works hard to ensure communities near our facilities maintain safe and healthy environments while meeting national and state environmental standards. To do this, DOE extensively monitors the environment in and around the WVDP, by collecting and testing various samples, including air samples. Samples are collected at differing frequencies, in order to assess the impact that site operations may have on public health or the environment.

The Department of Energy is committed to working with the community and the state to ensure the safety, health and protection of our workforce, the general public and the environment. The Department has safely and successfully conducted numerous open air demolitions throughout the DOE complex and will utilize lessons learned, modeling and other data to ensure the safe removal of the MPPB. WVDP ASER can be found at: **www.wv.doe.gov**

Relative Doses from Radiation Sources