

# WASTE ISOLATION PILOT PLANT

“We are making great progress on many fronts at WIPP, with safety being the cornerstone of everything we do. We continued to improve WIPP’s infrastructure in 2021. Projects like the permanent ventilation system help ensure we can carry out WIPP’s critical national defense mission for years to come. WIPP employees also performed at a very high level despite the many challenges related to the COVID-19 pandemic.”

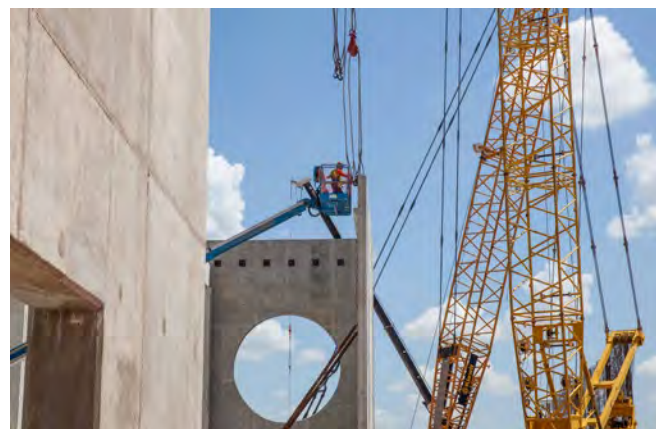
– Reinhard Knerr, Manager, Carlsbad Field Office

## HIGHLIGHTS

- Completed Panel 8 mining to create additional TRU waste disposal space.
- Completed construction of the Salt Reduction Building, a key component of the Safety Significant Containment Ventilation System (SSCVS) to improve air quality in the underground portion of the site – an EM 2021 priority.
- Safely received up to 12 TRU waste shipments weekly, for an average of five shipments per week, despite COVID-19 restrictions.
- Continued multiple infrastructure upgrades including a fire water system.
- Began mining of the West Access Drifts – an EM 2021 priority.
- Completed the initial testing of the 700-C ventilation fan in preparation of its restart.
- Completed 97 projects during a two-month-long maintenance outage.
- Transported waste shipments safely over more than 222,000 cumulative miles; more than 15 million safe miles over the life of the project.
- Received more than 200 TRU waste shipments; more than 13,000 all-time shipments received.

## PROJECTS SPIN UP IN YEAR OF RESURGENCE

Multiple projects slowed by the pandemic spun back up to speed in 2021 and showed visible progress, led by the SSCVS. The SSCVS is the largest containment fan system in the DOE complex and will significantly increase airflow underground. Work on the system’s three major facilities showed major advancements. The foundation for the New Filter Building, where 1,000-horsepower fans will pull air through HEPA filtration, was completed three weeks early, kick-starting construction of the building’s walls. The Salt Reduction Building went vertical with the installation of precast concrete walls in advance of roof work. The utility shaft, the massive air intake for the system, has reached 124 feet of its projected 2,275-foot depth.



Workers attach a precast wall at WIPP’s Salt Reduction Building, part of the SSCVS.

The new shaft saw the installation of a plenum and ductwork that forces air into the underground. It is WIPP’s largest shaft at 26 feet in finished diameter.



Workers attach guiding tag lines to ductwork before lowering it into a channel adjacent to the utility shaft at WIPP.

## RESTARTING THE LEGACY 700-C FAN

Bridging the gap between the current ventilation system and when the SSCVS is scheduled to start in 2025, WIPP is on the verge of restarting one of its legacy fans, the 700-C. The WIPP ventilation

system currently pulls 170,000 cubic feet per minute (CFM) of filtered air throughout the underground. The 700-C fan provides 240,000 CFM of unfiltered air for non-emplacment activities such as mining and rock bolting. When the SSCVS comes online, it will provide up to 540,000 CFM in either filtered or unfiltered modes. More air allows more machinery to work in the underground and makes for a safer and more comfortable working condition.

## PREPARING FOR FUTURE WASTE EMPLACEMENT

As Panel 7 nears capacity, mining crews excavated the last of more than 120,000 tons of salt to create Panel 8. After outfitting with power, communications and air monitors, Panel 8 is preparing to accept waste starting in 2022. When Panel 7 is full, which is anticipated in April 2022, Panel 7 will be sealed. WIPP’s first six panels have already been filled and sealed. Mining at WIPP is timed so that a disposal panel is only ready when it is needed. This is because the natural movement of salt causes mined openings to close at a rate of two to four inches yearly. Panels are mined slightly larger than the desired size to account for this closure. This closure is attributed to salt rock movement which eventually permanently encapsulates the waste.



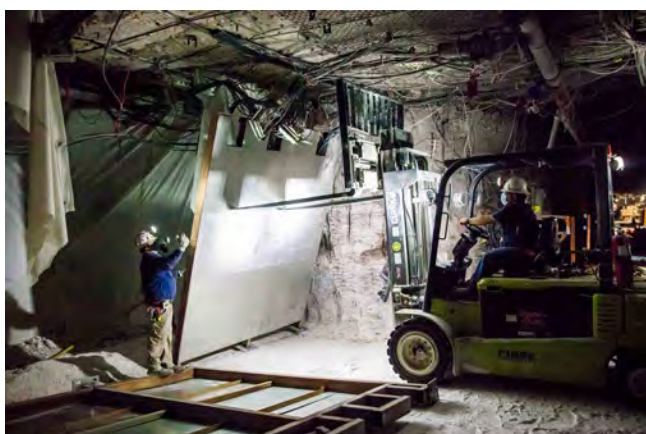
A continuous miner machine in WIPP’s underground chews through a final section of salt to finish the preliminary rough cut of Panel 8.

## OVERHAULING AGING INFRASTRUCTURE

WIPP’s aging infrastructure is getting a massive overhaul. A new fire protection system is close to completion, including new 200,000-gallon water tanks, a pump house, and mains. Updated electrical substations above and below ground replace aging equipment. The new equipment provides compressed air for underground airlocks. A new Central Monitoring Room and fiber-optic network allows for close monitoring of all WIPP operations. The site’s upgraded lightning protection system safeguards critical infrastructure such as the hoists and water supply.

## MAINTENANCE OUTAGE COMPLETES 97 PROJECTS

WIPP personnel prioritize maintenance in the form of daily through yearly preventive maintenance checks, and once a year, the most complex projects receive attention over an extended period of time. A two-month maintenance outage proved productive at the WIPP site as crews completed 97 projects. The largest effort included removing tracks at the waste station 2,150 feet underground. This included digging out six feet of rock and releveling the area with gravel and salt. The tracks serve a dual purpose of moving remote-handled waste and materials when they reach the WIPP underground. A double bulkhead that supplies airflow to the station was also replaced, including new ventilation fans.



Workers in the WIPP underground install a bulkhead as part of a two-month maintenance outage.