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April 2016

The Search Continues

An important scientific experiment has resumed its work in the WIPP underground – 2,150 feet below the earth’s surface.

The Enriched Xenon Observatory (EXO)-200 experiment is studying neutrinos, a subatomic particle that could be responsible for the universe being composed of matter.

Stanford University leads a group of academic institutions in the experiment, which is currently working on improving data through electronics upgrades and removing radon from the laboratory air. The EXO-200 experiment had been on hold since WIPP suspended operations in 2014.

For many years, the DOE Carlsbad Field Office has made WIPP’s unique underground facility available to the scientific community to promote and foster research. WIPP’s underground is a very effective environment for experiments, such as EXO-200, that require extremely low levels of background radioactivity, which WIPP provides due to its depth and location in a salt bed.

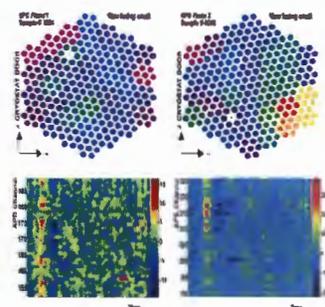
The EXO-200 experiment was installed in the north end of the WIPP underground in 2007. It is housed in six modules that together form a clean room. Every effort is made to eliminate contaminants, such as salt dust, that could affect the experiment. In the final and cleanest module, enriched xenon is cycled through an ultra-sensitive detector.



EXO collaborators conduct work inside clean rooms. Every effort is made to eliminate contaminants, such as salt dust, that could affect the experiment.

EXO-200 has already become the first experiment to observe double beta decay in xenon. In this type of radioactive decay, an unstable nucleus emits two electrons and two antineutrinos.

The search is ongoing for neutrinoless double beta decay, a process in which only two electrons are emitted. This would only be possible if neutrinos are their own antiparticles. This phenomenon is thought to exist but has not yet been seen. If observed, it would revolutionize particle physics and could explain why the universe is composed of matter, not antimatter.



An example of EXO data collection.

For more information on EXO-200, visit the [WIPP EXO-200 Web site](#) and [Physics World magazine](#)

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EM-1 gets first-hand look at new EOC

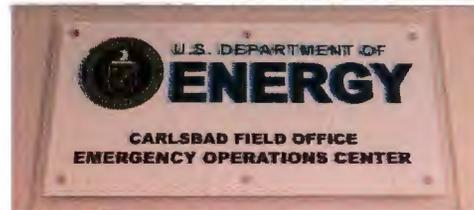
Dr. Monica Regalbuto, Assistant Secretary for Environmental Management, toured WIPP's new Emergency Operations Center (EOC) in the Skeen-Whitlock Building on March 23.

Regalbuto also visited the WIPP Site, where she saw progress on the new Interim Ventilation System and went underground for a first-hand look at restart activities.

At the EOC, Regalbuto was briefed on the enhanced capabilities that the 4,000-square-foot, state-of-the-art EOC provides. Included are a primary EOC area,

Emergency Management support area and several contingency rooms. Other key upgrades include the installation of new computers, wall-mounted monitors and interactive message boards.

A number of software enhancements have also been added that are designed to improve incident response capabilities. The most noticeable addition is WebEOC, a web-based incident management tool that will allow employees at the WIPP facility who are managing an emergency event to provide real-time information to the new EOC.



Assistant Secretary for Environmental Management Monica Regalbuto recently visited WIPP's new EOC. On hand were NWP Emergency Management Section Manager Joel Arnwine, from left, NWP Emergency Management and Security Dept. Manager David Stuhan and CBFO Manager Todd Shrader.

▶ DOE NEPA

WIPP named as disposal site for 6 metric tons of surplus plutonium

A Record of Decision (ROD) for Disposition of Surplus Non-Pit Plutonium was issued on March 30 for the Final Surplus Plutonium Disposition Supplemental Environmental Impact Statement.

The ROD outlines the DOE's National Nuclear Security Administration path forward to prepare and process 6 metric tons (MT) of surplus non-pit plutonium at the Savannah River Site. After the material is diluted, the

plutonium will be disposed of at WIPP, where nearly 5 MT of surplus plutonium is already emplaced.

See: <http://nnsa.energy.gov/about/ouoperations/generalcounsel/nepaoverview/nepa/spdsupplementa-feis>

DOE issues Final EIS for Greater-Than-Class-C Waste

In February, DOE issued a Final Environmental Impact Statement (EIS) for the Disposal of Greater-Than-Class-C (GTCC) Low-Level Radioactive Waste (LLRW) and GTCC-Like Waste. GTCC LLRW has radionuclide concentrations

exceeding the limits for Class C LLRW and is generated commercially. GTCC-like waste has similar characteristics but is owned or generated by DOE.

The Final EIS identifies a preferred alternative of WIPP disposal and/or land disposal at generic commercial facilities.

Prior to a Record of Decision, DOE will submit a report and await action by Congress, as required by the Energy Policy Act of 2005. Further congressional action would be required for this waste to be accepted at WIPP, which is authorized to dispose of only defense-generated transuranic waste.

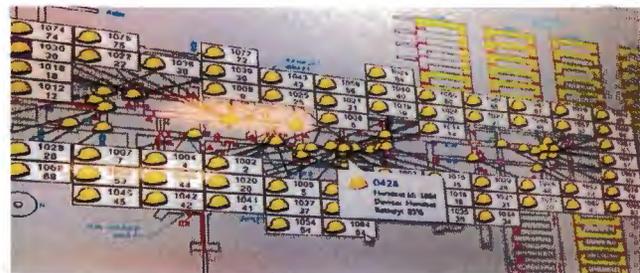
See: <http://www.gtccis.anl.gov/>

WIPP Recovery News: Underground notification system installed

A new underground wireless notification and tracking system has been installed at WIPP that allows for two-way communication with each person underground via radio.

An important feature is an emergency alert button that the person carrying the radio can press if they are in trouble or see an emergency situation. This activates an emergency alert that overrides all other communication and signals an alarm on three separate monitors above ground. The location will be known because the monitors show where each radio is at all times.

This communications system is an important addition to WIPP's emergency response capabilities.



Hard hat icons, representing dozens of workers, appear on one of the tracking monitors located at the WIPP facility. The hats actually move in real time as WIPP employees travel throughout the underground.

WIPP shares information on return to operations

Can you guess the No. 1 WIPP question asked by attendees at the Waste Management Conference in Phoenix, Ariz., in March? Yes, it was "When will you be accepting waste again?"

WIPP participants answered this question and more at the annual event, which attracts thousands of registrants from around the world involved in the management of radioactive waste.

A panel discussion focused on WIPP's return to operations and lessons learned, chaired by NWP Project Manager Phil Breidenbach and CBFO Manager Todd Shrader. Also on the panel were CBFO TRU Sites and Transportation Division Manager J.R. Stroble and participants from the U.S. Environmental Protection Agency, the State of New Mexico Environment Department, and Idaho and Los Alamos DOE offices.

The Communications Group staffed a WIPP exhibit and a transportation roadshow to provide information throughout the conference.



NWP Project Manager Phil Breidenbach, from right, CBFO Manager Todd Shrader, CBFO Recovery Manager Sean Dunagan and NWP Recovery Manager Jim Blankenhorn spoke during the WIPP panel at last month's Waste Management Conference.



NWP Communications' Susan Scott staffs the WIPP informational booth in the exhibit hall at the Waste Management Conference.

WIPP Recovery News: Combustible reduction efforts continue

Efforts continue to reduce combustibles in the WIPP underground. Most recently, lube oil storage improvements were implemented that resulted in the elimination of combustibles from a former lube bay.

Since the 2014 fire, a large number of combustibles have been removed or placed in appropriate storage, including 80 pallets, 50 cable spools and more than 100 tires. A Combustibles Control Area was also established near the air intake and salt shafts, and there is a permitting process in place to control combustibles taken into the underground.



The U.S. Department of Energy
Waste Isolation Pilot Plant