



## Environmental assessment identifies potential impacts of underground experiments

The U.S. Department of Energy (DOE) is proposing to expand the availability of Waste Isolation Pilot Plant (WIPP) facilities and infrastructure to scientists who wish to conduct experiments there. DOE would allow these experiments if they can be conducted without interfering with the WIPP's primary transuranic waste disposal mission and if they reflect contemporary budget priorities.

DOE has prepared a draft *Environmental Assessment for Conducting Astrophysics and Other Basic Science Experiments at the WIPP Site*. It examines the potential environmental consequences from conducting particular types of scientific experiments in an area of the WIPP underground called the experiment gallery. The environmental assessment also looks at the potential cumulative impacts of conducting experiments and operating the WIPP as a transuranic waste repository. This fact sheet presents questions and answers about potential impacts to human health and the environment and proposed protections and mitigations, based on the draft environmental assessment.

### ***Why conduct experiments at WIPP?***

The deep geologic repository at the WIPP could be the most favorable U.S. environment currently available for experiments in many scientific disciplines, including particle astrophysics, waste repository science, mining technology, low radiation dose physics, fissile materials accountability and transparency, and deep geophysics. Los Alamos National Laboratory has been conducting one experiment in astrophysics at the WIPP for several years. Other teams of scientists have proposed astrophysics experiments to DOE and are seeking funding from the scientific community for them.

### ***What impacts could occur, and how will DOE avoid serious consequences?***

As part of the Proposed Action, DOE would mitigate (reduce or eliminate) potentially significant impacts that might occur if these experiments were conducted. Some mitigation measures are already in place at the WIPP. Additional mitigation measures would be instituted for individual experiments based on the hazards analysis that DOE would conduct for each experiment before it commenced.

The following table is an overview of the environmental impacts that could occur as a result of the proposed activities at the WIPP site and proposed mitigations.

<b>Area of Concern</b>	<b>Potential Impacts</b>
<i>Human Health</i>	<ul style="list-style-type: none"><li>• Most hazards introduced by potential experiments would be standard industrial or laboratory hazards.</li><li>• Exposures to hazardous materials would be controlled in accordance with DOE procedures: materials would be containerized or controlled, and no routine exposures to dangerous concentrations of hazardous chemicals are expected.</li><li>• Radioactive materials that could be introduced into the WIPP environment as a result of the proposed experiments would be significantly less hazardous than the transuranic waste currently being placed in the WIPP.</li></ul>

	<ul style="list-style-type: none"> <li>No health impacts to experimental workers are anticipated from routine airborne radiological or hazardous chemical emissions from the disposed transuranic waste.</li> </ul>
<i>Accidents</i>	<ul style="list-style-type: none"> <li>Most hazards introduced by potential experiments would be standard industrial or laboratory hazards.</li> <li>Hazards are most likely to occur during handling and maintenance of experimental components, not as a result of the experiments themselves.</li> <li>Accidents as a result of fire, handling, a roof fall, and hoist failure would be mitigated with the use of standard controls and precautions.</li> </ul>
<i>Land Use</i>	<ul style="list-style-type: none"> <li>Impacts would be minimal. Most experimental activities would occur in existing facilities.</li> </ul>
<i>Geology and Hydrology</i>	<ul style="list-style-type: none"> <li>Impacts would be minimal because: <ul style="list-style-type: none"> <li>all experimental activities would occur within the highly impermeable Salado Formation</li> <li>all experimental equipment and materials would be removed before the WIPP's final closure</li> </ul> </li> <li>Impacts to subsurface geology would be limited to excavation of one additional panel equivalent.</li> </ul>
<i>Biological Resources</i>	<ul style="list-style-type: none"> <li>Impacts would be negligible because facilities are underground.</li> <li>Although installation of an array of surface detectors could impact biological resources, impacts would be mitigated by having a qualified biologist review the locations of the detectors and the process by which they would be installed.</li> <li>Impacts resulting from construction of the one proposed surface facility would be negligible because the site is located within a fenced area and would require less than one acre of land.</li> </ul>
<i>Cultural Resources</i>	<ul style="list-style-type: none"> <li>Although installation of an array of surface detectors could impact cultural resources, impacts would be mitigated by having a qualified archeologist review the locations of the detectors and the process by which they would be installed.</li> <li>Impacts resulting from construction of the one proposed surface facility would be negligible because the site is located within a fenced area and would require less than one acre of land.</li> </ul>
<i>Socioeconomics</i>	<ul style="list-style-type: none"> <li>The Proposed Action would result in the hiring of 30 additional employees, an increase of 3 percent in annual total employment at the WIPP.</li> </ul>
<i>Noise</i>	<ul style="list-style-type: none"> <li>Impacts would be minimal. Noise levels would be similar to those of other industrial sites and mitigated as such.</li> </ul>
<i>Air Quality</i>	<ul style="list-style-type: none"> <li>Although proposed activities could result in the releases of four criteria pollutants (nitrogen dioxide, sulfur dioxide, carbon monoxide, and PM<sub>10</sub>), impacts would be negligible.</li> </ul>
<i>Environmental Justice</i>	<ul style="list-style-type: none"> <li>There are no circumstances in which impacts to minority or low-income populations within a 50-mile radius of the WIPP site would be greater than to the population as a whole.</li> </ul>

***How  
do I get more  
information?***

For more information about experiments at the WIPP, or to be placed on the WIPP mailing list, call the WIPP Information Center at 1-800-336-WIPP (9477). Or you may review the full environmental assessment on the WIPP Home Page at <http://www.wipp.carlsbad.nm.us/library/ea/ea.htm>. If you prefer, write to:

WIPP Information Center  
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U.S. Department of Energy  
Carlsbad Field Office  
The Waste Isolation Pilot Plant