

Frequently Asked Questions

Decontamination and Decommissioning of the Former Gaseous Diffusion Plant

1. What is being cleaned up at the site?

Cleanup at the site only involves the gaseous diffusion plant and its supporting operations. The Advanced Centrifuge Project, operated by United States Enrichment Corporation, and the B&W Conversion Services project to convert more than 700,000 metric tons of DUF₆ (depleted uranium hexafluoride) into depleted uranium oxide, are not part of the cleanup program.

2. Why is the Department of Energy tearing down the plant and cleaning up the site?

The gaseous diffusion plant was built between 1952 and 1956 during the height of the Cold War to enrich uranium for national defense purposes (as part of the nuclear weapons complex) and later for producing low enriched uranium for use in commercial nuclear power reactors to produce electricity. In 1989, agreements were signed by the Department of Energy (DOE), Ohio and U.S. EPA that initiated the environmental cleanup program. After the uranium enrichment plant operated for nearly 50 years, production was shut down in 2001. DOE, as the owner of the facility, kept the plant in “Cold Standby” until 2005, maintaining an operational mode should it be required to be restarted. In 2005, the DOE’s Office of Environmental Management, who is responsible for cleanup of the former defense nuclear production sites, made the decision to place the plant in “Cold Shutdown” to permanently shut it down as it was no longer needed. At that time, workers began to deactivate the equipment and prepare for the eventual Decontamination & Decommissioning (D&D) or tear-down of the former uranium enrichment facilities. The gaseous diffusion technology that was used in these old uranium enrichment buildings required a huge amount of electrical power, making it much less economical and efficient than the newer centrifuge technology. DOE awarded a contract in August 2010 to Fluor-B&W Portsmouth LLC to perform the D&D and site cleanup of the former gaseous diffusion plant.

3. Will the entire plant be torn down?

No. The centrifuge facilities DOE has leased to USEC Inc. for the American Centrifuge Plant and DOE’s Depleted Uranium Hexafluoride (DUF₆) Conversion Plant operated by B&W Conversion Services, LLC on the federal property will not be impacted by the D&D of the former uranium enrichment plant.

4. What is the schedule to complete the demolition of the old uranium enrichment buildings?

For planning purposes, DOE is targeting completion of D&D and soil cleanup by 2024. The actual schedule, however, will be dependent on the federal budget and annual funds appropriated by Congress.

5. How many people will be employed during the D&D project?

The Department of Energy and Fluor-B&W are sensitive to the importance of jobs this plant provides to the region. The Site currently employs approximately 2,600 total employees with the majority (about

2,000) working on the D&D project. However, D&D employment will be contingent upon final budget appropriations from Congress.

6. What will happen to the site?

The final decisions have not yet been made on what the site will be after completion of the D&D and cleanup project. The public will be actively involved in the discussions to help identify the appropriate future uses for the plant site. The local elected officials, Site Specific Advisory Board and the community reuse organization (Southern Ohio Diversification Initiative, SODI) have provided input and recommendations to DOE on redevelopment of the site. DOE has also initiated a process by providing a grant to the Ohio University Voinovich School of Public Affairs to work with the communities in the four surrounding counties to obtain the public's visions for the future of the site. Several meetings have been held by Ohio University and much interest has been focused on industrial redevelopment of the site. This process with Ohio University is called the "PORTSfuture Project" and further information is available online at: www.portsfuture.com.

Waste Disposition

1. What are you going to do with all the materials when you tear down the buildings?

The scope of the D&D project involves more than 400 buildings and facilities, including the three massive process buildings that occupy almost 200 acres under roof. Deciding what to do with this material is an important step in the cleanup process that involves input from the public. Public meetings are being held to discuss the waste disposition options: shipping the materials off-site for disposal or a combination of on- and off-site disposal of the materials. A joint decision on how to dispose of the materials will be made by the DOE and approved by the Ohio Environmental Protection Agency. This decision is expected in the fall of 2012 and cannot be made without prior public input. The formal public comment period is planned for summer 2012.

2. What are the disposal options?

Under requirements of the regulatory documentation, the disposal options being evaluated include: 1) No action (this is required to be considered); 2) ship all materials to off-site disposal facilities, or; 3) ship materials with highest contamination off-site and dispose lower contaminated materials in an engineered on-site disposal facility. If an element of disposal includes the on-site option, it will be configured so as not to hinder redevelopment of the main process area of the site. More details on the size of a possible disposal cell are contained in the response to question 12 below.

3. So if there is onsite disposal, waste would still be shipped offsite?

Yes. The materials that are highly contaminated would be shipped off-site. Only lower contaminated materials, mostly building rubble and some of the less contaminated process equipment and soil would remain on site.

4. How much waste will be generated during demolition of the plant?

Waste volumes have been estimated primarily based on past knowledge at the site, lessons learned from other D&D projects at similar DOE sites, and engineering studies. The current estimates range from a low of 1.7 million cubic yards to a high-end estimate of 2.9 million cubic yards. The majority of the materials would be concrete rubble, debris, process gas equipment, and soils. About 110,000 cubic yards are assumed to be metals with a high potential for recycling.

5. How many trucks or rail cars will be required to ship all the materials off site? How is the material packaged?

Current preliminary data estimates that shipping all waste off-site would require about 16,000 local truck shipments, and 9,700 truck shipments to Nevada and 15,000 rail car shipments to Utah. These shipments result in about 43 million miles of truck travel and 55 million miles of rail travel. The on-site disposal alternative is estimated to require about 152,500 local truck shipments to bring clay and gravel to the site, 4,500 truck shipments to Nevada, and 260 rail car shipments to Utah. These shipments result in about 24 million miles of truck travel and 950 thousand miles of rail travel. These on-site shipment numbers assume that 228,000 cubic yards of material is still shipped off site, including the X-326 process gas equipment. This data is preliminary and subject to revision as the Waste Disposition Remedial Investigation and Feasibility Study (RI/FS) proceeds.

6. What are the hazards associated with these shipments?

Statistics are published by the Department of Transportation and other organizations to estimate the risk of transportation-related incidents based on the number of miles travelled. These statistics show that shipping all waste to off-site disposal facilities could be estimated to result in about 26 traffic accidents, 19 injuries and 2.6 fatalities. The same statistics suggest that shipping the most contaminated waste off-site and disposing the least contaminated materials in an engineered disposal cell on-site could be estimated to result in about 11 traffic accidents, 8 injuries and less than 1 fatality. These on-site shipment numbers assume that 228,000 cubic yards of material is still shipped off site, including the X-326 process gas equipment. This data is preliminary and subject to revision as the Waste Disposition Remedial Investigation and Feasibility Study (RI/FS) proceeds.

7. How many jobs will be required for the two different disposal options?

Current preliminary data estimates that shipping all waste off-site would require about 2 million labor hours. The on-site disposal alternative is estimated to require about 4.3 million hours of labor. These labor hours are site-related labor for the waste disposal decision activities only and do not include the remainder of site activities such as deactivation, demolition, surveillance and maintenance, site utilities, site-wide security, etc. Labor for D&D is expected to be the same for either alternative. The labor figures are for the projected subset of on-site jobs associated with the waste disposal decision, not total hours associated with all jobs on plant site. This data is preliminary and subject to revision as the Waste Disposition Remedial Investigation and Feasibility Study (RI/FS) proceeds.

8. There has been talk of an On-Site Disposal Cell (OSDC). What is an On-Site Disposal Cell and has the decision already been made to build one?

Fluor-B&W is required under its contract with DOE to gather information for the best choices for disposing of the materials from the cleanup and present all the information to the DOE and public to consider. Since on-site disposal is one of the options under evaluation, extensive work is underway to identify potential locations with the best geology for a specially constructed disposal facility called an On-site Disposal Cell (OSDC), should on-site disposition be the selected alternative. An OSDC is a specially engineered disposal site with multiple layers of liners and soils and a leachate collection system designed to be protective over the long term. The required state of the art protective features of an OSDC are specified by the United States Environmental Protection Agency and Ohio Environmental Protection Agency in their regulations. The disposal facility is designed to consolidate demolition debris and rubble into a much smaller footprint. The final decision for where and how to dispose site D&D materials has not been made at this time. A final decision would follow the formal public comment process planned for later in 2012.

9. What is leachate?

Leachate is the drainage that is collected from inside the OSDC and is passed through a treatment facility. Wastewater from an OSDC, including leachate and storm water that contacts the waste during construction of the OSDC, must be managed and treated appropriately to ensure surface water quality standards are not exceeded. Leachate comes from three sources: 1) drying of the material placed in the OSDC after it is removed from the exposure to the elements (e.g., rain); 2) water added to compact soil during construction of the OSDC; and 3) rain that fell during the time that the cell was open to receive materials.

10. How would an on-site disposal facility be designed to be protective?

Location would be based on geology with particular consideration of an area with a deep layer of bedrock beneath the disposal site to protect the groundwater. The design itself would follow strict regulatory requirements. The materials would be largely debris, soils and concrete materials from the buildings. The radioactive materials that may be in the cell would be categorized as low-level. The chance for human exposure from anything placed in the facility would be very, very low. An OSDC would be surrounded by monitoring wells to continually sample the groundwater and ensure the cap is being protective.

11. If a disposal site is located at the plant, will waste be brought in from other places?

No. If an OSDC is selected as the waste disposal option, it would only accept materials from the cleanup at the plant. DOE has a legal agreement with Ohio EPA that prevents any waste materials being brought in from anywhere else. Ohio EPA oversees compliance with this agreement.

12. Where would a disposal facility be located?

The feasibility studies identified four potential locations, narrowed down from an initial 16 potential sites reviewed for an OSDC. A location in the northeastern most portion of the DOE property is considered to have the most suitable geology and hydrologic conditions. This site has been identified as a representative location for further technical study.

13. How large would the on-site disposal facility be?

Under current planning, if selected, an OSDC would be built over approximately 100 acres, about 1,500 ft by 2,400 ft in size. This footprint would not just be for the fenced disposal cells, but would include the maintenance road, storm water channel, and monitoring and leachate management systems. The actual disposal cell footprint is projected to be about 70 acres. This configuration leaves more than 3,500 acres of the site available for other uses, including the 1,000 acre main production area.

14. If there is on-site disposal, wouldn't there still be waste which has to be shipped off site?

Yes. The on-site disposal option includes some off-site shipping. The most contaminated materials, which would not meet the technical criteria for on-site disposal, would be shipped off site to specialized disposal facilities in Utah or Nevada. DOE and Ohio EPA can also identify additional restrictions or prohibited items based on community input.

15. How will an on-site disposal facility be monitored after DOE and its contractors are gone?

Environmental law (the Comprehensive Environmental Response, Compensation and Liability Act or CERCLA) requires that cleanup actions meet federal standards, criteria, limitations, or more stringent state standards determined to be legally applicable or relevant and appropriate requirements called ARARs. An OSDC, if constructed, would be operated and closed within an approximate 10 to 15 year period, depending on funding. DOE will be required to operate the leachate collection system and monitor the site for many years after the D&D project is complete. The facility will be fenced off, monitored and maintained perpetually by the DOE. Continued oversight by Ohio EPA would be required including reviews of site conditions every 5 years.

16. Have On-Site Disposal Cells been constructed at other DOE site locations?

On-site Disposal Cells under CERCLA regulations have been constructed at six DOE sites, three of which are still operating. Operational on-site CERCLA disposal facilities are located in Oak Ridge, TN; Hanford, Washington; and Idaho Falls, ID. On-site CERCLA disposal facilities have been closed and are now under long-term monitoring in Fernald, OH; Weldon Springs, MO; and Monticello, UT. DOE also has active low-level waste disposal facilities in Savannah River, SC; Nevada Nuclear Security Site, NV; Hanford, WA; Los Alamos, NM; and Idaho Falls, ID. No incidents of exposure to people or the environment have been experienced to date at these on-site disposal facilities.

17. Why doesn't DOE consider constructing a new disposal location off-site instead of on the existing DOE reservation?

Locating a disposal facility capable of long-term disposal of solid, hazardous, and low-level radioactive waste has to meet stringent siting criteria consistent with Ohio EPA and U.S. EPA regulations. The siting of any type of disposal facility also requires formal permitting and significant public participation and scrutiny including the justification of the need for the disposal facility and the location. In addition, obtaining a permit is a very complex and lengthy process to resolve hydro-geologic issues (for siting and ground water monitoring) and design considerations. It would be difficult to justify to the community

the construction of a new off-site location when on-site geology and conditions meet established siting criteria. Further complicating the permitting of such an off-site disposal facility would be the disparate types of wastes encountered at PORTS.

Another consideration involves the chemical hazards that are currently present on the PORTS reservation. These hazards currently exist in the form of a former operational facility. These hazards will continue to exist on the PORTS reservation through the D&D effort and disposal in a potential On Site Disposal Cell. In short, the chemical hazards currently present at PORTS will remain at PORTS. Constructing an off-site disposal facility results in relocating these chemical hazards to a new location where these hazards do not presently exist. This is not considered to be good stewardship of the environment and our natural resources especially in light of the PORTS reservation already meeting the siting criteria for on-site disposal.

From a regulatory perspective, remediation of a site such as is being considered for PORTS enjoy certain regulatory efficiencies under CERCLA that only apply if the selected remedy is conducted on-site. DOE would not be eligible for these regulatory efficiencies if a new off-site disposal location was constructed. The loss of these regulatory efficiencies could have a significant impact on the cost and schedule for completing the remediation of the PORTS reservation.

One must also consider that the potential on-site disposal of remediation wastes would have minimal disruption to the surrounding community. Community development over the years in the surrounding areas of PORTS has taken into account the PORTS reservation. Building a new disposal location off-site would have a significant impact to a potential receiving community.

Environmental Cleanup

1. How contaminated is the site?

When the uranium enrichment process was started in the early 1950s at the site, some of the materials used at the time were not considered harmful. Over the years, further information became available and more stringent requirements were established by the Environmental Protection Agencies, Occupational Safety and Health Administration (OSHA), and DOE. The use of trichloroethene, also called trichloroethylene, or TCE, an industrial degreasing solvent used at many industrial sites across the country including the local plant site, was banned by U.S. EPA in the late 1970s. The site's cleanup program has been ongoing since agreements were signed by DOE with Ohio and U.S. EPA in 1989 and many cleanup actions have been completed. Five groundwater plumes (areas with groundwater contamination beneath the surface) have been identified at the site and all have active treatment programs in place. As the plant prepares for demolition of the process buildings, special requirements will be in place to address the radioactive contamination inside equipment and buildings, and in the soil under and around the buildings. Many of the structures have asbestos and polychlorinated biphenyl (PCB) materials because of their age – asbestos was a common insulator and fire retardant material

used in the 1950s and PCBs were banned from use in the United States in 1979. Soil samples are being collected now and will continue during 2012 to determine how much soil must be cleaned up.

2. How long will it take to clean up all the contamination?

For planning purposes, DOE is targeting completion of D&D and soil cleanup by 2024. The remaining environmental cleanup actions will be implemented during the D&D Project over the next 10-15 years. Some of the groundwater monitoring will continue by DOE far beyond the D&D Project completion date under the oversight of the Ohio EPA. Groundwater cleanup may also continue beyond D&D completion.

3. Can the contaminated groundwater get into my drinking water?

DOE and Ohio EPA have worked tirelessly to prevent migration of the contaminated groundwater on site. DOE has installed a series of extraction wells and four pump and treatment facilities to remove trichloroethylene (TCE) from the groundwater and limit the spread of contamination. More than 1,000 groundwater monitoring wells have been installed to investigate the site. The contamination (primarily the chemical solvent TCE) is limited to a shallow aquifer beneath the site that is not used for drinking water. The groundwater contamination is contained to the DOE property.

Decision Process

1. Do I really have a say in the decisions?

Public acceptance is one of nine criteria that DOE must consider in proposing a final solution for cleanup. Citizens rightfully expect that DOE will carefully consider and fairly evaluate concerns the community has voiced. It is not enough that DOE ask for and read public comments. Guidance states that it is DOE's responsibility to honestly listen to citizens, and genuinely take into account their concerns. It is DOE's responsibility to show citizens that their comments have been carefully and thoughtfully considered.

2. How do I provide my input?

Ongoing public input helps DOE incorporate community values as best as possible into its development and evaluation of cleanup alternatives before issuing a proposed plan. There are several ways to share your input or concerns with DOE before the formal public comment period. You can talk with site personnel at DOE's quarterly "Stay Informed" public meetings. Site experts are tracking questions and concerns they receive at each meeting and sharing them with management afterwards. You can also get on DOE's mailing list so you receive fact sheets requesting your input on specific topics of interest (Contact Deneen Revel of Fluor-B&W at 740-897-2609 to be added to the mailing list.) You can also call our question line at 888-603-7722 or email us at questions@fbportsmouth.com .

During the formal public comment period expected in 2012, DOE will hold a formal public hearing with a court reporter to explain the Proposed Plan to the public and receive official public comments for the record. Official fact sheets with comment pages will also be issued at this time to explain the proposal

and receive public comments. DOE must consider and respond to these comments in its final Record of Decision submitted to Ohio EPA for approval.

3. Who makes the final decisions?

The final decision will be made by DOE and the Ohio EPA, after consideration of all public comments.

4. When will these decisions be made?

The decision on the waste disposition is planned for fiscal year 2013. A public review period is planned for 2012 in which the public will be able to formally present their opinions on the disposal options. The Site Specific Advisory Board will also be evaluating the options and providing feedback. The DOE and Ohio EPA will take comments, feedback, and recommendations into consideration before determining the path forward.

5. What is Fluor's profit for combination off-site/on-site versus shipping all off-site?

Fluor-B&W Portsmouth LLC was awarded a \$2.1 billion contract in August 2010 for the decontamination and decommissioning of the former gaseous diffusion plant (GDP) at the DOE Portsmouth Site in Piketon. This contract is for five years with a five-year extension, with work beginning in March 2011 and anticipated to continue at least to 2021. Although the initial scope of the contract was valued at \$2.1 billion, funding is allocated annually. Fluor-B&W schedules cleanup work based on its best understanding of the next year's budgeted federal appropriations, which are controlled by Congress. The contract is an incentive type called "cost-plus-award-fee." This means that Fluor-B&W bills DOE for the work it performs and DOE reimburses Fluor-B&W for cost of the work. DOE annually awards Fluor-B&W a fee. This includes a base amount fixed at the start of the contract and an award amount that Fluor-B&W earns through performance over a given year. The DOE publishes the base fee for the Portsmouth D&D on its website:

<http://www.em.doe.gov/Pages/EMContractorPayments.aspx> Work done for either the on-site or off-site alternatives for material disposal will be scheduled and billed according to the cost of the work required. Fluor-B&W does not receive a flat fee that would result in profit by choosing a less costly alternative. Given the higher cost and longer duration of the off-site shipping alternative, Fluor-B&W would expect to earn more award fee for the off-site alternative than the on-site disposal alternative.