Status of Major Nuclear Weapons Production Facilities: 1990[1]

FEED MATERIALS PRODUCTION CENTER

Fernald, OH

Major Functions: converts uranium into "targets" for plutonium and tritium production at Savannah River; major low-level radioactive waste storage site.
Main Sources of Pollution: since 1953, at least 550,000 lbs. of uranium oxide have been released into the air; off-site surface and groundwater is contaminated with uranium, cesium and thorium; "K-65" silos containing 9,700 tons (1600-4600 curies) of Manhattan Project waste emit high levels of radon gas.
Potential Health Risks: collapse of an aging K-65 silo would release radon gas over a wide area; radioactive contamination of drinking water from the aquifer underlying the site; inhalation of uranium particles carried off-site.
Status: uranium production suspended in August 1989 because of environmental and health violations and shut-down of Savannah River reactors; DOE-EPA clean-up plan still being developed; plant in violation of court-ordered hazardous waste management agreement with the State of Ohio.
"Clean-up" Costs: over $1.5 billion.[2]

HANFORD RESERVATION

Richland, WA

Major Functions: processes uranium and extracts plutonium from irradiated nuclear fuel; major high-level radioactive waste site; production plutonium until 1988.
Main Sources of Pollution: since 1944, 200 billion gallons of contaminated water have entered the groundwater and Columbia River; 149 "single-shell" storage tanks hold 46 million gallons of high-level radioactive liquid wastes (50 tanks are known to leak); between 1945 and 1954, Hanford officials knowingly allowed significant amounts of radiation to be released over Washington and Oregon without notifying the public.
Potential Health Risks: historic releases of radioactive materials into the air, groundwater, and Columbia River have already reached workers and nearby residents in significant levels; a single-shell tank explosion would severly contaminate a wide area beyond the site.
Status: Hanford's 9 plutonium-producing reactors are shut down because of safety problems. DOE wants to restart the PUREX plutonium reprocessing plant. DOE, EPA, and the State of Washington have entered a multi-year clean-up agreement, but actual clean-up of the worst contamination is years away.
"Clean-up" Costs: over $6.0 billion.

IDAHO NATIONAL ENGINEERING LABORATORY

near Idaho Falls, ID

Major Functions: recovers highly enriched uranium from spent reactor fuel; conducts research, design, and testing of naval propulsion reactors; major radioactive and hazardous waste storage site.
Main Sources of Pollution: at least 350,000 curies of radioactive iodine and other fission products were released into the atmosphere in the 1950s; radioactive and hazardous wastes, stored in shallow lagoons and trenches, have contaminated the Snake River Aquifer.
Potential Health Risks: worker and area resident exposure to airborne radiation; contamination of Snake River Aquifer, the principal source of irrigation and drinking water for Eastern Idaho.
Status: full operations continue; DOE plans to build a new tritium reactor here.
"Clean-up" Costs: over $2.5 billion.

KANSAS CITY PLANT

Kansas City, MO

Major Functions: produces electronic components for nuclear warheads.
Main Sources of Pollution: soil and groundwater contaminated with PCBs; atmospheric releases of volatile organic compounds; fuel and radioactive waste from underground storage tanks have contaminated soil.
Potential Health Risks: toxic PCBs may pollute nearby rivers; cancer-causing organic chemicals and fuel threaten municipal drinking water.
Status: full operations continue.
"Clean-up" Costs: over $161 million.

KNOLLS ATOMIC POWER LABORATORY

Niskayuna, NY, West Milton, NY, and Windsor, CT

Major Functions: conducts research, design, and testing of prototype nuclear propulsion reactors for naval vessels including the Trident submarine.
Main Sources of Pollution: since 1950, Knolls' six prototype reactors have leaked contaminated water, toxic chemicals, and at least 150 curies of plutonium into the air and water surrounding the plant.
Potential Health Risks: contaminated buildings pose health hazard for workers; a reactor core accident would cause widespread damage.
Status: DOE and the Navy propose to build a prototype Seawolf submarine reactor without a containment structure and without an environmental impact assessment; Knolls officials have issued a "gag" order on workers to thwart whistleblowers.
"Clean-up" Costs: unclear — DOE and the Navy have not released a comprehensive assessment.

LAWRENCE LIVERMORE NATIONAL LABORATORIES

Livermore, CA

Major Functions: designs nuclear weapons; conducts SDI research; stores tritium-contaminated and hazardous wastes.
Main Sources of Pollution: since 1952, hundreds of thousands of curies of tritium have been released into the atmosphere; tritium from Site 300 has contaminated off-site groundwater.
Potential Health Risks: atmospheric releases of tritium; groundwater contamination threatens drinking water supplies in a major metropolitan area.
Status: full operations continue; DOE is seeking to build an incinerator to reduce the lab's waste volume; citizen pressure has forced the University of California to reconsider its role as operator of the Lab.
"Clean-up" Costs: over $31 million.

LOS ALAMOS NATIONAL LABORATORIES

Los Alamos, NM

Major Functions: designs nuclear weapons; recovers plutonium; stores radioactive and hazardous wastes.
Main Sources of Pollution: uranium and toxic compounds from test firings have severly contaminated the soil on-site; radioactive and toxic emissions continue to violate air quality standards.
Potential Health Risks: surface water runoff may lead to off-site contamination; inhalation of harmful air emissions.
Status: full operations continue; DOE plans to construct a new "Special Nuclear Materials Production" building.
"Clean-up" Costs: over $457 million.

MOUND PLANT

Miamisburg, OH

Major Functions: manufactures non-nuclear warhead components; plutonium components for satellites; recovers tritium, stores radioactive waste.

MOUND, continued

Main Sources of Pollution: elevated levels of tritium and volatile organic compounds contaminate groundwater; 1969 plutonium spill contaminated Great Miami River; the plant has regularly emitted small amounts of tritium and plutonium into the atmosphere.
Potential Health Risks: tritium and organic chemical contamination migrating offsite; ingestion of tritium and plutonium through air and water pathways.
Status: DOE is phasing-out plutonium and tritium operations; DOE-EPA clean-up plan still in negotiation stage.
"Clean-up" Costs: over $342 million.

NEVADA TEST SITE

near Las Vegas, NV

Major Functions: conducts underground tests of nuclear weapons; major radioactive and hazardous waste site.
Main Source of Pollution: over 900 nuclear bomb tests -- above ground from 1951-1961 — below ground since then.
Potential Health Risks: Approximately 75 square miles of the site is thoroughly contaminated with plutonium, cesium, strontium, and other radioactive materials. Downwinders have experienced elevated cancer and thyroid disease rates.
Status: nuclear weapons tests continue; waste still arriving from other facilities.
"Clean-up" Costs: over $ 526 million.

OAK RIDGE RESERVATION

(Y-12 Plant; National Lab; K-25 Plant)
near Knoxville, TN

Major Functions: (Y-12 Plant) produces the lithium-deuteride 2nd stage of nuclear warheads and highly enriched uranium; a major radioactive and hazardous waste storage site.
Main Sources of Pollution: since 1943, the Reservation has emitted thousands of pounds of uranium into the atmosphere; radioactive and hazardous wastes were improperly stored and buried on-site and have severely polluted local streams and reserviors which flow into the Clinch River; the plant continues to violate air and water emissions regulations.
Potential Health Risks: ingestion of radioactive and hazardous materials via nearby streams, groundwater, and the Watts-Bar Reservior, a recreational lake contaminated with at least 175,000 tons of mercury and cesium.
Status: Y-12 and the National Lab continue full operations; DOE wants to build an incinerator to reduce waste volume; DOE claims that the Watts-Bar contamination poses no danger, despite the obvious potential for harm.
"Clean-up" Costs: over $ 2.6 billion.

PANTEX PLANT

near Amarillo, TX

Major Functions: final assembly and disassembly of nuclear warheads; manufacture of high explosives.
Main Sources of Pollution: thousands of gallons of toxic solvents dumped in unlined waste pits have contaminated the groundwater on-site.
Potential Health Risks: extent of groundwater contamination is not yet known — DOE installed groundwater monitoring wells in 1990. The Ogallala Aquifer, underlying the plant, may be contaminated.
Status: full operations continue.
"Clean-up" Costs: over $453 million.

ROCKY FLATS PLANT

near Denver, CO

Major Functions: assembles plutonium "triggers" for nuclear warheads; processes plutonium for weapons.
Main Sources of Pollution: since 1952, over 200 plutonium fires have contaminated the plant and have spread plutonium offsite; volatile organic compounds and plutonium pollute the plant's surface drainage, which flows into drinking water reserviors; the plant has reached the maximum permitted limits for radioactive waste storage; 62 pounds of plutonium is lodged in the plant ventilation ducts.
Potential Health Risks: workers and residents of the Denver metro area may have received excess doses of plutonium through the air and water; operation of unsafe facilities, some of which do not meet building codes.
Status: in late 1989, DOE suspended plutonium activities because of chronic problems. DOE is seeking to restart trigger manufacturing and plutonium processing as soon as possible, but has been unable to verify that it can meet PSR's and the public's miniumum environmental, safety, and health requirements.
"Clean-up" Costs: over $937 million.

SAVANNAH RIVER SITE

near Aiken, SC

Major Functions: reactors produce tritium and plutonium; recovers uranium and plutonium; major hazardous and high-level radioactive waste site.
Main Sources of Pollution: since 1954, millions of curies of tritium gas have been released into the atmosphere as a result of negligence and reactor accidents; radioactive and hazardous wastes were improperly stored and buried on-site and have severely polluted ground and surface water off-site; current waste disposal practices violate the law.
Potential Health Risks: contaminated groundwater migrating off-site into the Tuscaloosa Aquifer; surface water, flowing into the Savannah River, is already contaminated; historic releases of tritium may have adversly affected workers and nearby residents.
Status: tritium and plutonium reactors were shut down in 1988 because of reactor safety problems; other operations continue; DOE wants to restart three tritium-producing reactors beginning in 1991, but faces legal obstacles and safety problems; DOE also plans to build a new tritium reactor at this site.
"Clean-up" Costs: over $4.2 billion.

WASTE ISOLATION PILOT PLANT (WIPP)

near Carlsbad, NM

Major Functions: proposed repository for plutonium-contaminated waste from DOE facilities.
Potential Health Risks: DOE has not shown that WIPP can safely contain plutonium-contaminated wastes which will remain lethal until 26000 A.D.
Status: full-scale operation has been delayed because WIPP has not met EPA waste disposal standards and because of significant technical problems including groundwater intrusion.

OTHER DOE SITES

The complete list of the nuclear weapons industry's contaminated processing plants, mines, laboratories, nuclear reactors and testing grounds includes more than 100 sites in 32 states and the Marshall Islands in the South Pacific. Most of these have been abandoned for years and were never cleaned up. DOE is just beginning plans for decommissioning and decontaminating buildings and property at a few of the sites. Although some of these projects will be fairly simple, the total cost and scope of this program will exceed $200 billion.

NOTES

1. "Staus Report" information is based on DOE, Congressional, and PSR sources, September 1990.

2. "Cleanup" cost estimates are based on DOE's 1990 spending projections for corrective activities, environmental restoration, and waste management from FY 1990 to FY 1996. Costs for technology development and transportation are not included.

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