0038307

Federal Facility Compliance Act Resource Book

Plans for Treating DOE's Mixed Radioactive and Hazardous Waste

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INFORMAL NOTE

TO: *PUBLIC PARTICIPATION CONTACTS FOR THE FEDERAL FACILITY COMPLIANCE ACT*

FROM: *THE FEDERAL FACILITY COMPLIANCE ACT TASK FORCE*

RE: *RESOURCE NOTEBOOKS*

DATE: *SEPTEMBER 22, 1994*

THE ENCLOSED FFCACT RESOURCE NOTEBOOKS SHOULD BE FORWARDED AS SOON AS POSSIBLE TO THE READING ROOMS HIGHLIGHTED IN THE ATTACHED LIST. THESE NOTEBOOKS INCLUDE ALL WRITTEN INFORMATION DEVELOPED TO DATE FROM HEADQUARTERS, AS WELL AS A FULL SET OF THE FACT SHEETS FOR EACH SITE THAT HAS PREPARED A DRAFT SITE TREATMENT PLAN. PLEASE NOTE THAT THE FACT SHEETS IN THE GENERAL INFORMATION SECTION HAVE BEEN REFORMATTED SLIGHTLY FROM THE PREVIOUS VERSIONS SENT FOR YOUR USE. IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT MARTY LETOURNEAU (EM-33) AT 301/903-7656 OR KAREN MARTIN (SAIC) AT 301/353-1882.

CC: SITE TREATMENT PLAN WORK GROUP
POLICY COORDINATING GROUP
FFCACT TASK FORCE

This information is provided by the Department of Energy for your use in understanding the issues surrounding the treatment of mixed radioactive and hazardous waste. At this time, the Department is working with the state and Environmental Protection Agency regulators to develop plans for treating these wastes as required by the Federal Facility Compliance Act.

This notebook is organized into two major components:

- *Sections 1 through 6 contain general information;*
- *Sections A through W contain site specific information.*

As development of these plans proceeds, additional information will be added to this collection. Attached is a list of the public Reading Rooms where information regarding this and other Department of Energy programs can be reviewed.

If you have any additional questions, please contact the Center for Environmental Management Information at 1-800-736-3282 from 9:00 A.M. to 7:00 p.m. Eastern Time.

POINTS OF CONTACT AT THE SITES AND ADDRESSES OF PUBLIC READING ROOMS

Facility	State	Reading Room	Point of Contact	Phone	Address
Department of Energy Headquarters		Headquarters U.S. Department of Energy Room 1E-190 1000 Independence Avenue, SW Washington, DC 20585 202/586-6025 Hours: 9:00 am - 4:00 pm M-F Center for EM Information 470 L'Enfant Plaza East, SW Suite 7110 Washington, DC 20024			
Energy Technology Engineering Center (ETEC)	California	The Department of Energy Reading Room 1301 Clay Street Oakland, CA The State (DTSC) Library Lincoln Plaza Bldg 4th and P Street Sacramento, CA Simi Valley Public Library Tapo Canyon Road Ventura, CA	Dave Christy	510/637-1809	U.S. Department of Energy Oakland Operations Office 1301 Clay Street, Suite 825N Oakland, CA 94612 (510) 637-1809
General Atomics		The Department of Energy Reading Room 1301 Clay Street Oakland, CA The State (DTSC) Library Lincoln Plaza Bldg 4th and P Street Sacramento, CA	Dave Christy	510/637-1809	U.S. Department of Energy Oakland Operations Office 1301 Clay Street, Suite 825N Oakland, CA 94612 (510) 637-1809

Facility	State	Reading Room	Point of Contact	Phone	Address
General Electric Vallecitos		The Department of Energy Reading Room 1301 Clay Street Oakland, CA The State (DTSC) Library Lincoln Plaza Bldg 4th and P Street Sacramento, CA	Dave Christy	510/637-1809	U.S. Department of Energy Oakland Operations Office 1301 Clay Street, Suite 825N Oakland, CA 94612 (510) 637-1809
Lawrence Livermore National Laboratory		The Department of Energy Reading Room 1301 Clay Street Oakland, CA The State (DTSC) Library Lincoln Plaza Bldg 4th and P Street Sacramento, CA Lawrence Livermore Eastgate Visitors Center Greenville Rd Livermore, CA	Dave Christy	510/637-1809	U.S. Department of Energy Oakland Operations Office 1301 Clay Street, Suite 825N Oakland, CA 94612 (510) 637-1809
Lawrence Berkeley Laboratory		The Department of Energy Reading Room 1301 Clay Street Oakland, CA The State (DTSC) Library Lincoln Plaza Bldg 4th and P Street Sacramento, CA Berkeley Public Library Kittredge and Shattuck Berkeley, CA	Dave Christy	510/637-1809	U.S. Department of Energy Oakland Operations Office 1301 Clay Street, Suite 825N Oakland, CA 94612 (510) 637-1809

Facility	State	Reading Room	Point of Contact	Phone	Address
Laboratory for Energy-Related Health Research		The Department of Energy Reading Room 1301 Clay Street Oakland, CA The State (DTSC) Library Lincoln Plaza Bldg 4th and P Street Sacramento, CA Davis Public Library 14th Street Davis, CA	Dave Christy	510/637-1809	U.S. Department of Energy Oakland Operations Office 1301 Clay Street, Suite 825N Oakland, CA 94612 (510) 637-1809
Mare Island Naval Shipyard		MINSY Public Affairs Office, Code 1160 Building 47 Vallejo, CA 94592-5100	Mr. R. O'Brien		Code 105 Mare Island Naval Shipyard Vallejo, CA 94592
Sandia National Laboratory - California		SNL/CA Public Reading Room 7011 East Ave Building 901 Livermore, CA	Christina Houston	505/845-5483	U.S. Department of Energy Albuquerque Operations Office Wyoming Blvd, PO Box 5400 Albuquerque, NM 87185-5400
Grand Junction Project Office	Colorado	Government References Section Mesa County Public Library 530 Grand Ave Grand Junction, CO Technical Resource Center Grand Junction Project Office 2597 B 3/4 Road Grand Junction, CO	Christina Houston	505/845-5483	U.S. Department of Energy Albuquerque Operations Office Wyoming Blvd, PO Box 5400 Albuquerque, NM 87185-5400

Facility	State	Reading Room	Point of Contact	Phone	Address
Rocky Flats Environmental Technology Site		Rocky Flats Environmental Technology Site Reading Room Front Range Community College Library 3645 West 112th Ave Westminster, CO 80030 303/469-4453 Hours: 10:30 am - 6:30 pm M,T 10:30 am - 4:00 pm W 8:00 am - 4:00 pm Th,F US Environmental Protection Agency Region VIII Superfund Records Center 999 18th Street, Suite 500 Denver, CO 80202-2405 303/293-1807 Hours: 7:30 am - 4:30 pm M-F Colorado Department of Health 4300 Cherry Creek South Drive Denver, CO 80222-1530 303/692-3300 Hours: 8:00 am - 5:00 pm M-F Rocky Flats Citizens Advisory Board 9035 Wadsworth Parkway, Suite 2250 Westminster, CO 80021 303/420-7855 Hours: 8:30 am - 5:00 pm M-F Standley Lake Library 8485 Kipling Street Arvada, CO 80005 303/456-0806 Hours: 10:00 am - 9:00 pm M-Th 10:00 am - 5:00 pm F 12:00 pm - 5:00 pm Sun	Richard Schassburger	303/966-4888	U.S. Department of Energy Environmental Restoration Division PO Box 928 Rocky Flats Field Office Golden, CO 80402

Facility	State	Reading Room	Point of Contact	Phone	Address
Knolls Atomic Power Laboratory, Windsor	Connecticut	Windsor Public Library 323 Broad Street Windsor, CT 06095	Mr. A. Seepo		Schenectady Naval Reactors Office PO Box 1069 Schenectady, NY 12301-1069
Pinnellas Plant	Florida	Information Repository Center Largo Public Library 351 East Bay Drive Largo, FL 34640 Martin Marietta Specialty Components Community Relations Center 7381 114th Avenue North Suite 403A Largo, FL 34643 Pinellas Park Public Library 7770 52nd Street North Pinellas, FL	Gary Schmidke	813/545-6179	U.S. Department of Energy Albuquerque Operations Office Wyoming Blvd, PO Box 5400 Albuquerque, NM 87185-5400
Pearl Harbor Naval Shipyard	Hawaii	Pearl Harbor Naval Base Library Code 90L 1614 Makalapa Drive Pearl Harbor, HI 96860-5350 Alea Public Library 99-143 Moanalua Road Alea, HI 96701 Hawaii State Library 478 South King Street Honolulu, HI 96813 Pearl City Public Library 1138 Waimano Home Road Pearl City, HI 96782	Mr. D. Yasutake		Code 105 Pearl Harbor Naval Shipyard Pearl Harbor, HI 96860-5350
Argonne National Laboratory - West	Idaho	1776 Science Center Drive PO Box 1625 Idaho Falls, ID 83415-2300	Bob Starck	208/526-1126	US Department of Energy Idaho Operations Office

Facility	State	Reading Room	Point of Contact	Phone	Address
Idaho National Engineering Laboratory		INEL Technical Library 1776 Science Center Drive PO Box 1625 Idaho Falls, ID 83415-2300	Bob Starck	208/526-1126	
Ames Laboratory	Iowa	Ames Laboratory Reference Section Ames Public Library 515 Douglas Ave. Ames, IA 50011 515/233-2229	Mary Jo Acke	708/252-8796	USDOE Chicago Operations Office 9800 South Cass Ave Argonne, IL 60439
Argonne National Laboratory - East	Illinois	Lemont Public Library New Books Section 810 Porter Street Lemont, IL 60439 708/257-6541 Documents Department University Library 3rd Floor Center The University of Illinois 801 S. Morgan St. Chicago, IL 60680 312/413-2594	Mary Jo Acke	708/252-8796	USDOE Chicago Operations Office 9800 South Cass Ave Argonne, IL 60439
Site A/Plot M Palos Forest Preserve		Lemont Public Library New Books Section 810 Porter Street Lemont, IL 60439 708/257-6541 Documents Department University Library 3rd Floor Center The University of Illinois 801 S. Morgan St. Chicago, IL 60680 312/413-2594	Mary Jo Acke	708/252-8796	USDOE Chicago Operations Office 9800 South Cass Ave Argonne, IL 60439

Facility	State	Reading Room	Point of Contact	Phone	Address
Paducah Gaseous Diffusion Plant	Kentucky	Environmental Information Center 175 Freedom Blvd Keul, KY 42053	Stephanie Carnes	502/462-2550	Jacobs Engineering Group, Inc. 175 Freedom Blvd. Kevil, KY 42053
Portsmouth Naval Shipyard	Maine	Portsmouth Public Library 8 Islington Street Portsmouth, NH 03601 Rice Public Library 8 Wentworth Avenue Kittery, Maine 03904	Ms. A. Stillman		Code 105 Portsmouth Naval Shipyard Portsmouth, NH 03804-5000
Kansas City Plant	Missouri	Red Bridge Branch Mid-Continent Public Library 11140 Locust Street Kansas City, Missouri	Christina Houston	505/845-5483	U.S. Department of Energy Albuquerque Operations Office Wyoming Blvd, PO Box 5400 Albuquerque, NM 87185-5400
Weldon Spring Site Remedial Action Project		Weldon Spring Remedial Action Project Office 7295 Highway 94 South St. Charles, MO 63304	Melyssa Noe	615/241-3315	
University of Missouri		Columbia Public Library 100 West Broadway Columbia, MO 65203 ATTN: Marilyn McCleod	Dave Christy	510/637-1809	U.S. Department of Energy Oakland Operations Office 1301 Clay Street, Suite 825N Oakland, CA 94612 (510) 637-1809
Nevada Test Site	Nevada	Nevada Test Site Reading Room Coordination and Information Center 3084 South Highland Drive Las Vegas, NV 98518	Nancy Harkess	702/295-4652	U.S. Department of Energy Nevada Operations Office 2753 South Highland Drive PO Box 98518 Las Vegas, NV 98518
Middlesex Sampling Plant	New Jersey	Maywood DOE Public Information Center 43 West Pleasant Ave Maywood, NJ 07607 201/843-7466	Melyssa Noe	615/241-3315	U.S. DOE P.O. Box 2001 Oak Ridge, TN 37831-8650

Facility	State	Reading Room	Point of Contact	Phone	Address
Princeton Plasma Physics Laboratory		Middlesex County Library Plainsboro Branch PO Box 278 Plainsboro, NJ 08536 609/275-2897	Mary Jo Acke	708/252-8796	USDOE Chicago Operations Office 9800 South Cass Ave Argonne, IL 60439
Inhalation Toxicology Research Institute	New Mexico	National Atomic Museum Kirkland Air Force Base 20358 Wyoming Blvd, South Albuquerque, NM Albuquerque Technical-Vocational Institute Main Campus Library 525 Buena Vista Dr, SE Albuquerque, NM	Christina Houston	505/845-5483	U.S. Department of Energy Albuquerque Operations Office Wyoming Blvd, PO Box 5400 Albuquerque, NM 87185-5400
Los Alamos National Laboratory		Museum Park Complex 15th & Central Suite 101 Los Alamos, NM	Christina Houston	505/845-5483	U.S. Department of Energy Albuquerque Operations Office Wyoming Blvd, PO Box 5400 Albuquerque, NM 87185-5400
Sandia National Laboratory New Mexico		National Atomic Museum Kirkland Air Force Base 20358 Wyoming Blvd, South Albuquerque, NM Albuquerque Technical-Vocational Institute Main Campus Library 525 Buena Vista Dr, SE Albuquerque, NM	Christina Houston	505/845-5483	U.S. Department of Energy Albuquerque Operations Office Wyoming Blvd, PO Box 5400 Albuquerque, NM 87185-5400

Facility	State	Reading Room	Point of Contact	Phone	Address
Brookhaven National Laboratory	New York	Longwood Public Library Reference Department 800 Middle County Rd Middle Island, NY 11953 516/924-6400 Records Center 26 Federal Plaza 29th Floor, Rm 2900 New York, NY 10278 212/264-8770 Mastics-Moriches-Shirley Community Library 425 William Floyd Parkway Shirley, NY 11967 516/399-1511 Brookhaven National Laboratory Research Library Building 477A Upton, NY 11973 516/282-3489 Brookhaven Town Library Public Information Office 3333 Route 112 Medford, NY 11763 516/451-6260	Mary Jo Acke	708/252-8796	USDOE Chicago Operations Office 9800 South Cass Ave Argonne, IL 60439
Colonie Interim Storage Site		Colonie Library 629 Albany-Shaker Rd Loudenville, NY 12211	Melyssa Noe	615/241-3315	U.S. Department of Energy P.O. Box 2001 Oak Ridge, TN 37831-8650
Knolls Atomic Power Laboratory, Kesselring		Schenectady Public Library Main Branch 99 Clinton Street Schenectady, NY 12305	Mr. A. Seepo		Schenectady Naval Reactors Office PO Box 1069 Schenectady, NY 12301-1069

Facility	State	Reading Room	Point of Contact	Phone	Address
Knolls Atomic Power Laboratory, Schenectady		Schenectady Public Library Main Branch 99 Clinton Street Schenectady, NY 12305	Mr. A. Seepo		Schenectady Naval Reactors Office PO Box 1069 Schenectady, NY 12301-1069
West Valley Demonstration Project		WVDP Public Reading Room 10282 Rock Springs Rd West Valley, NY 14171 Town of Concord Library 23 North Buffalo Street Springville, NY 14141 716/592-7742 Buffalo and Erie County Central Public Library Science and Technology Department Lafayette Square Buffalo, NY 14203 716/858-7098 West Valley Central School Library School Street West Valley, NY 14171 716/942-3293	Elizabeth Matthews	716/942-4930	U.S. WVPO Department of Energy P.O. Box 191 West Valley, NY 14171-0191
Battelle Columbus Laboratories Decommissioning Project	Ohio	Main Branch Columbus Metropolitan Library 96 S. Grant Ave. Columbus, OH 43215 614/645-2000 Northside Branch 1423 N. High St. Columbus, OH 614/644-7061 West Jefferson Public Library 301 Main St. West Jefferson, OH 614/879-8448	Mary Jo Acke	708/252-8796	USDOE Chicago Operations Office 9800 South Cass Ave Argonne, IL 60439

Facility	State	Reading Room	Point of Contact	Phone	Address
Fernald Environmental Management Project		Public Environmental Information Center Jamtek Building 10845 Hamilton Cleves Highway Harrison, OH 45030	Gary Stegner	513/648-3153	
Mound Plant		Miamisburg Senior Adult Center Public Reading Room 305 Central Ave Miamisburg, OH	Christina Houston	505/845-5483	U.S. Department of Energy Albuquerque Operations Office Wyoming Blvd, PO Box 5400 Albuquerque, NM 87185-5400
Portsmouth Gaseous Diffusion Plant		DOE Environmental Information Center 505 West Emmitt Ave, Suite 3 Waverly, OH 45690 614/947-5093 Hours: 10am-4pm M, T, W, F 9am - 12noon Th	Sandy Childers	614/947-1583	Science Applications International Corporation Suite 200 11197 US Route 23 Waverly, OH 45690
RMI Titanium Inc.		Kent State University Ashtabula Campus Library 3431 W. 13th St Ashtabula, OH 44004 216/964-4239	Mary Jo Acke	708/252-8796	USDOE Chicago Operations Office 9800 South Cass Ave Argonne, IL 60439
Bettis Atomic Power Laboratory	Pennsylvania	Carnegie Library Science and Technology Department 4400 Forbes Avenue Pittsburgh, PA 15213	Mr. E. Shollenberger		Pittsburgh Naval Reactors Office PO Box 109 West Mifflin, PA 15122-0109
Charleston Naval Shipyard	South Carolina	Charleston County Library 404 King Street Charleston, SC 29403	Mr. J. McNeil		Code 105 Charleston Naval Shipyard Charleston, SC 29408-6100
Savannah River Site		Gregg-Graniteville Library University of South Carolina-Aiken 171 University Parkway Aiken, SC 29801	Virginia Gardner	803/725-5752	US Department of Energy Savannah River Operations Office Environmental Restoration Division Aiken, SC 29802

Facility	State	Reading Room	Point of Contact	Phone	Address
K-25 Site, Oak Ridge Reservation	Tennessee	DOE Environmental Information Resource Center (IRC) 105 Broadway Oak Ridge, TN 37830 615/481-0695 Hours: 9:00am - 5:00pm M,W,F 9:00am - 7:00pm T,Th 9:00am - 1:00pm Sat	Sandy Perkins	615/576-1590	U.S. Department of Energy Oak Ridge Operations Office Office of Environmental Management 105 Broadway Oak Ridge, TN 37830
Oak Ridge National Laboratory, Oak Ridge Reservation		DOE Environmental Information Resource Center (IRC) 105 Broadway Oak Ridge, TN 37830 615/481-0695 Hours: 9:00am - 5:00pm M,W,F 9:00am - 7:00pm T,Th 9:00am - 1:00pm Sat	Sandy Perkins	615/576-1590	U.S. Department of Energy Oak Ridge Operations Office Office of Environmental Management 105 Broadway Oak Ridge, TN 37830
Y-12 Plant, Oak Ridge Reservation		DOE Environmental Information Resource Center (IRC) 105 Broadway Oak Ridge, TN 37830 615/481-0695 Hours: 9:00am - 5:00pm M,W,F 9:00am - 7:00pm T,Th 9:00am - 1:00pm Sat	Sandy Perkins	615/576-1590	U.S. Department of Energy Oak Ridge Operations Office Office of Environmental Management 105 Broadway Oak Ridge, TN 37830
Pantex Plant	Texas	Amarillo College Library Carson County Library Public Reading Room 401 Main Street Panhandle, TX	Tom Williams	806/477-3121	U.S. Department of Energy Albuquerque Operations Office Wyoming Blvd, PO Box 5400 Albuquerque, NM 87185-5400
Norfolk Naval Shipyard	Virginia	Portsmouth Public Library 601 Court Street Portsmouth, VA 23704	Mr. R. Maxson		Code 105 Norfolk Naval Shipyard Portsmouth, VA 23709-5000

Facility	State	Reading Room	Point of Contact	Phone	Address
Hanford Site	Washington	University of Washington Suzzallo Library Government Publications Rm, Mail Stop RM-25 Seattle, WA 98195 (206) 543-4664 ATTN: Eleanor Chase Gozanga University, Foley Center E. 502 Boone Spokane, WA 99258 (509) 328-4220 EXT 3125 ATTN: Lewis Miller Portland State University Branford Price Millar Library Science and Engineering Floor SW Harrison and Park Portland, OR 97202 (503) 725-3690 ATTN: Michael Bowman US Department of Energy Reading Rm Washington State University, Tri-Cities 100 Sprout Rd, RM 130 Richland, WA 99352 (509) 376-8583 ATTN: Terri Traub Department of Ecology Washington State Nuclear & Mixed Waste Library 300 Desmond Drive Lacey, WA 98503 (206) 407-7097 ATTN: Marilyn Smith U.S. Environmental Protection Agency 1200 6th Ave, HW-070 Seattle, WA 98101 (206) 553-1388 ATTN: Karen Prater	Pat Hale	509/376-5628	U.S. Department of Energy Richland Operations Office 825 Jadwin Avenue PO Box 1970, A1-65 Richland, WA 99352

Facility	State	Reading Room	Point of Contact	Phone	Address
Puget Sound Naval Shipyard		Kitsap Regional Library (Downtown) 612 5th Street Bremerton, WA 98310 Kitsap Regional Library (Central) 1301 Sylvan Way Bremerton, WA 98310	Mr. S. Anderson		Code 105 Puget Sound Naval Shipyard Bremerton, WA 98314-5000

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   National Governors Association Issue Brief
   EPA - Mixed Waste Provisions of the Federal Facility Compliance Act
   Draft Site Treatment Plan Notice of Availability

2. Background Information

3. Mixed Hazardous and Radioactive Waste Inventory

4. The Disposal Process

5. The DOE Environmental Management Programmatic Environmental Impact Statement

6. Technology Development

DOE Plans for Treating Mixed Hazardous and Radioactive Waste

- ***What is the Problem?***
  Under the Federal Facility Compliance Act, DOE must define a treatment strategy for DOE mixed waste stored at 49 facilities in 22 states throughout the U.S.

- ***What are the Draft Site Treatment Plans?***
  The Draft Plans identify each DOE site's proposed treatment options for its mixed waste and present the reasoning behind the recommendations. Each site at which DOE stores or manages mixed waste is preparing a Draft Plan.

- ***How were the Draft Plans developed?***
  Based on discussions with the State and EPA regulators, each site first identified a number of possible treatment options for each mixed waste stream and then narrowed these options to its preferred option by considering factors such as technical effectiveness, stakeholder involvement, and cost.

- ***How will the Draft Plans be used?***
  The Draft Plans will provide a basis for further discussions among DOE, its regulators, and other interested parties regarding the overall DOE mixed waste treatment strategy and issues of equity. Considering the input it receives, DOE will prepare and submit in February 1995 the Final Proposed Site Treatment Plans to the States and EPA for approval.

- ***When and where will the Draft Plans be available?***
  The Draft Plans for each site will be placed in the site's Reading Room after August 31, 1994. A full set of all Draft Plans will be at the Reading Room in Washington, D.C. In addition, short fact sheets outlining the proposed treatment options for each site will be in every Reading Room. DOE will also develop a summary document that presents a compiled picture of the individual Draft Plan options that will also support these discussions. Once completed in October 1994, the summary document will also be placed in each Reading Room.

8/16/94-EM-ga109

DOE NEWS

MEDIA NEWS CONTACT:
Jayne Brady (202)586-5820

FOR IMMEDIATE RELEASE
August 31, 1994

DEPARTMENT OF ENERGY TAKES "NEXT STEP" MEETING FEDERAL REQUIREMENTS FOR TREATING MIXED WASTE

The U.S. Department of Energy (DOE) today released draft plans proposing treatment of mixed radioactive and hazardous waste at 48 sites in 22 states. This represents a dramatic change from years of accumulating and storing waste. The DOE is taking deliberate steps toward treating waste, in compliance with the requirements and process laid out in the Federal Facilities Compliance Act (FFCA) of 1992. The site's plans propose to treat more than 90% of the mixed waste on site.

Mixed waste has been generated over the last 40 years primarily from research and production of nuclear weapons. Currently, there is insufficient treatment capacity for the DOE's mixed waste and in some cases, lack of available treatment technologies to treat the waste. For this reason, the Draft Site Treatment Plans contain preferred options for developing new treatment capacity and technologies. Proposed treatment technologies include solidifying liquids, removing metals, using high heat or incineration to destroy chemicals, and chemical processes to change the characteristics of the waste.

-MORE-

This is the second step in a three step process for developing a site treatment plan at each of the 48 DOE sites. The DOE has worked closely with the U.S. Environmental Protection Agency (EPA) and the states to develop these plans. The first step was Conceptual Site Treatment Plans which identified the broad range of options available to treat the DOE waste.

While the Draft Site Treatment Plans identify each site's preferred treatment option, further review and evaluation is required. The DOE, in partnership with the States along with input from the general public, will evaluate the combined proposals in the individual draft plans to identify a sensible national configuration of treatment systems. The proposals are expected to change, as a result, prior to the DOE submitting Proposed Site Treatment Plans for state or EPA approval in February 1995.

Although the FFCA does not require the DOE to address disposal of the treated mixed waste, the Department and the States also are evaluating issues related to disposal of residuals in conjunction with the site treatment plan process. The DSTPs describe this process.

Each plan is available through the site or the Center for Environmental Management Information (800-736-3282). The DOE invites the public to comment on the proposals directly to the sites by October 31, 1994. Comments will be considered in developing the Proposed Site Treatment Plans.

-DOE-

Sites Preparing Draft Site Treatment Plans

Facility/Location	State
Energy Technology Engineering Center (ETEC), Canoga Park	California
General Atomics, San Diego	
General Electric Vallecitos Nuclear Center, Vallecitos	
Lawrence Livermore National Laboratory, Livermore	
Lawrence Berkeley Laboratory, Berkeley	
Laboratory for Energy-Related Health Research, Davis	
Mare Island Naval Shipyard, Vallejo	
Sandia National Laboratory - California, Livermore	
Grand Junction Project Office, Grand Junction	Colorado
Rocky Flats Environmental Technology Site, Golden	
Knolls Atomic Power Laboratory, Windsor	Connecticut
Pinellas Plant, Largo	Florida
Pearl Harbor Naval Shipyard, Honolulu	Hawaii
Argonne National Laboratory - West, Idaho Falls	Idaho
Idaho National Engineering Laboratory, Idaho Falls	
Ames Laboratory, Ames	Iowa
Argonne National Laboratory - East, Argonne	Illinois
Site A/Plot M Palos Forest Preserve, Cook County	
Paducah Gaseous Diffusion Plant, Paducah	Kentucky
Portsmouth Naval Shipyard, Kittery	Maine
Kansas City Plant, Kansas City	Missouri
Weldon Spring Site Remedial Action Project, St. Charles County	
University of Missouri, Columbia	
Nevada Test Site, Mercury	Nevada
Middlesex Sampling Plant, Middlesex	New Jersey
Princeton Plasma Physics Laboratory, Princeton	
Inhalation Toxicology Research Institute, Albuquerque	New Mexico
Los Alamos National Laboratory, Los Alamos	
Sandia National Laboratory - New Mexico, Albuquerque	
Brookhaven National Laboratory, Upton	New York
Colonie Interim Storage Site, Colonie	
Knolls Atomic Power Laboratory - Kesselring, West Milton	
Knolls Atomic Power Laboratory - Schenectady, Niskayuna	
West Valley Demonstration Project, West Valley	
Battelle Columbus Laboratories Decommissioning Project, Columbus	Ohio
Fernald Environmental Management Project, Fernald	
Mound Plant, Miamisburg	
Portsmouth Gaseous Diffusion Plant, Portsmouth	
RMI Titanium Inc., Ashtabula	
Bettis Atomic Power Laboratory, West Mifflin	Pennsylvania
Charleston Naval Shipyard, Charleston	South Carolina
Savannah River Site, Aiken	
K-25 Site, Oak Ridge Reservation, Oak Ridge	Tennessee
Oak Ridge National Laboratory, Oak Ridge Reservation, Oak Ridge	
Y-12 Plant, Oak Ridge Reservation, Oak Ridge	
Pantex Plant, Amarillo	Texas
Norfolk Naval Shipyard, Norfolk	Virginia
Puget Sound Naval Shipyard, Bremerton	Washington[1]

[1]The Hanford Site in Richland, Washington, has signed a Tri-Party Agreement with the State of Washington which addresses mixed waste treatment. Therefore, the Hanford site is not preparing a Site Treatment Plan, but is actively participating in the FFCAct discussions.

Site Treatment Plans for DOE's Mixed Radioactive and Hazardous Waste

◆ Federal Facility Compliance Act ◆ Issue Alert #2 ◆ September 1994 ◆

The Department of Energy (DOE) is preparing plans for treating its mixed radioactive and hazardous wastes for each of 48 sites in 22 states, as required by the Federal Facility Compliance Act (FFCAct). The Draft Plans, an interim step in the process, are now available for review. ◆

The Site Treatment Plan Process

The FFCAct requires DOE to prepare plans for developing treatment capacity and technologies for any site at which DOE generates or stores mixed waste. The plans are needed because DOE does not currently have adequate capacity for treating its mixed waste, generated by operations over the past 40 years, to standards required by the Resource Conservation and Recovery Act (RCRA). The Site Treatment Plans must be submitted to the regulating state or the U.S. Environmental Protection Agency (EPA) for approval. The regulatory agency will then ensure that DOE complies with the approved plan and schedules through a compliance order.

DOE is developing the Site Treatment Plans in three stages: the Conceptual Plans, published in October 1993, which identify preliminary treatment options; the Draft Plans, published in August 1994, which identify the site's preferred options; and the Proposed Site Treatment Plans, due in February 1995, to be submitted to the appropriate regulatory agency (the state or EPA) for approval. The process is intended to provide an opportunity for DOE to work closely with the states and others throughout the development of the Plans.

The Draft Site Treatment Plans

The Draft Plans (the intermediate version of the Site Treatment Plans) are being provided to the states and EPA and made available to the public for review and comment. The Draft Plans contain the site's preferred options for treating its mixed waste, and include preliminary schedule information. They were prepared using a "bottom-up," or site-specific approach, and have not yet been evaluated as a whole for their impact on other DOE sites and on the overall DOE program. Changes in the preferred options and associated schedules are possible as evaluation of the individual Draft Plans from the DOE-wide perspective progresses, as state-to-state discussions take place, and as other stakeholder input is received. In conjunction with identifying treatment options, DOE is also evaluating options for disposal of mixed waste treatment residuals at the request of the states. The Draft Plan contains a description of the process DOE and the states are following to evaluate disposal options.

Availability and Opportunity for Comment

Individual Draft Plans will be available at each site's public Reading Room or at nearby locations by mid-September 1994. To review or request information on a specific Draft Plan, a DOE contact name and Reading Room address for each site can be obtained by calling the DOE Center for Environmental Management Information at 1-800-7EM-DATA. The full set of 48 individual Draft Plans may be reviewed at the U.S. Department of Energy Headquarters Reading Room, Room 1E-190, 1000 Independence Ave., Washington, D.C. 20585, and at the Center for Environmental Management Information, 470 L'Enfant Plaza East, S.W. Suite 7110, Washington, D.C. 20024.

Additional information on the Plan process, related activities, and site-specific fact sheets describing the Draft Plans may be obtained from the DOE Center for Environmental Management Information. Persons interested in receiving a Summary Report of the Draft Site Treatment Plans when available, or other information, should provide their name, address, and topics of interest to the DOE Center for Environmental Management Information. Comments on the Plans are encouraged, and will be considered in developing the Proposed Site Treatment Plans, due in February 1995. Comments should be submitted to the appropriate DOE site contact by October 31, 1994. ◆

Table 1. Sites Preparing Site Treatment Plans

Facility/Location	State	Agency Approving Plan (EPA or State)
Energy Technology Engineering Center (ETEC), Canoga Park	California	State
General Atomics, San Diego		
General Electric Vallecitos Nuclear Center, Vallecitos		
Lawrence Livermore National Laboratory, Livermore		
Lawrence Berkeley Laboratory, Berkeley		
Laboratory for Energy-Related Health Research, Davis		
Mare Island Naval Shipyard, Vallejo		
Sandia National Laboratory - California, Livermore		
Grand Junction Project Office, Grand Junction	Colorado	State
Rocky Flats Environmental Technology Site, Golden		
Knolls Atomic Power Laboratory, Windsor	Connecticut	State
Pinellas Plant, Largo	Florida	State
Pearl Harbor Naval Shipyard, Honolulu	Hawaii	EPA
Argonne National Laboratory - West, Idaho Falls	Idaho	State
Idaho National Engineering Laboratory, Idaho Falls		
Ames Laboratory, Ames	Iowa	EPA
Argonne National Laboratory - East, Argonne	Illinois	State
Site A/Plot M Palos Forest Preserve, Cook County		
Paducah Gaseous Diffusion Plant, Paducah	Kentucky	State
Portsmouth Naval Shipyard, Kittery	Maine	EPA
Kansas City Plant, Kansas City	Missouri	State
Weldon Spring Site Remedial Action Project, St. Charles County		
University of Missouri, Columbia		
Nevada Test Site, Mercury	Nevada	State
Middlesex Sampling Plant, Middlesex	New Jersey	EPA
Princeton Plasma Physics Laboratory, Princeton		
Inhalation Toxicology Research Institute, Albuquerque	New Mexico	State
Los Alamos National Laboratory, Los Alamos		
Sandia National Laboratory - New Mexico, Albuquerque		
Brookhaven National Laboratory, Upton	New York	State
Colonie Interim Storage Site, Colonie		
Knolls Atomic Power Laboratory - Kesselring, West Milton		
Knolls Atomic Power Laboratory - Schenectady, Niskayuna		
West Valley Demonstration Project, West Valley		
Battelle Columbus Laboratories Decommissioning Project, Columbus	Ohio	State
Fernald Environmental Management Project, Fernald		
Mound Plant, Miamisburg		
Portsmouth Gaseous Diffusion Plant, Portsmouth		
RMI Titanium Inc., Ashtabula		
Bettis Atomic Power Laboratory, West Mifflin	Pennsylvania	EPA
Charleston Naval Shipyard, Charleston	South Carolina	State
Savannah River Site, Aiken		
K-25 Site, Oak Ridge Reservation, Oak Ridge	Tennessee	State
Oak Ridge National Laboratory, Oak Ridge Reservation, Oak Ridge		
Y-12 Plant, Oak Ridge Reservation, Oak Ridge		
Pantex Plant, Amarillo	Texas	State
Norfolk Naval Shipyard, Norfolk	Virginia	EPA
Puget Sound Naval Shipyard, Bremerton	Washington[1]	State

[1]The Hanford Site in Richland, Washington, has signed a Tri-Party Agreement with the State of Washington which addresses mixed waste treatment. Therefore, the Hanford site is not preparing a Site Treatment Plan, but is actively participating in the FFCAct discussions.

Overview of the Draft Site Treatment Plans

U.S. Department of Energy **August 31, 1994**

For more than 40 years, the United States has produced materials for nuclear weapons, and conducted research with nuclear materials. These activities generated wastes that are both radioactive and hazardous. The Department of Energy (DOE) is faced with the challenge of managing these mixed wastes.

Waste containing both a hazardous and radioactive component, mixed waste, has also been generated at DOE facilities. Mixed waste can be categorized as high level waste (HLW), mixed-transuranic waste (MTRU), or mixed low level waste (MLLW). The management of this waste is particularly challenging to the Department. There is insufficient capacity, and in some cases a lack of available technologies, to treat these wastes. DOE currently generates, stores, or is expected to generate mixed waste at 49 sites in 22 States, the locations of which are indicated in Figure 1.

DOE is developing Site Treatment Plans to provide treatment capacity for its mixed waste. This Overview describes the process used by these sites in preparing Draft Site Treatment Plans and summarizes the locations for treatment proposed in these Plans.

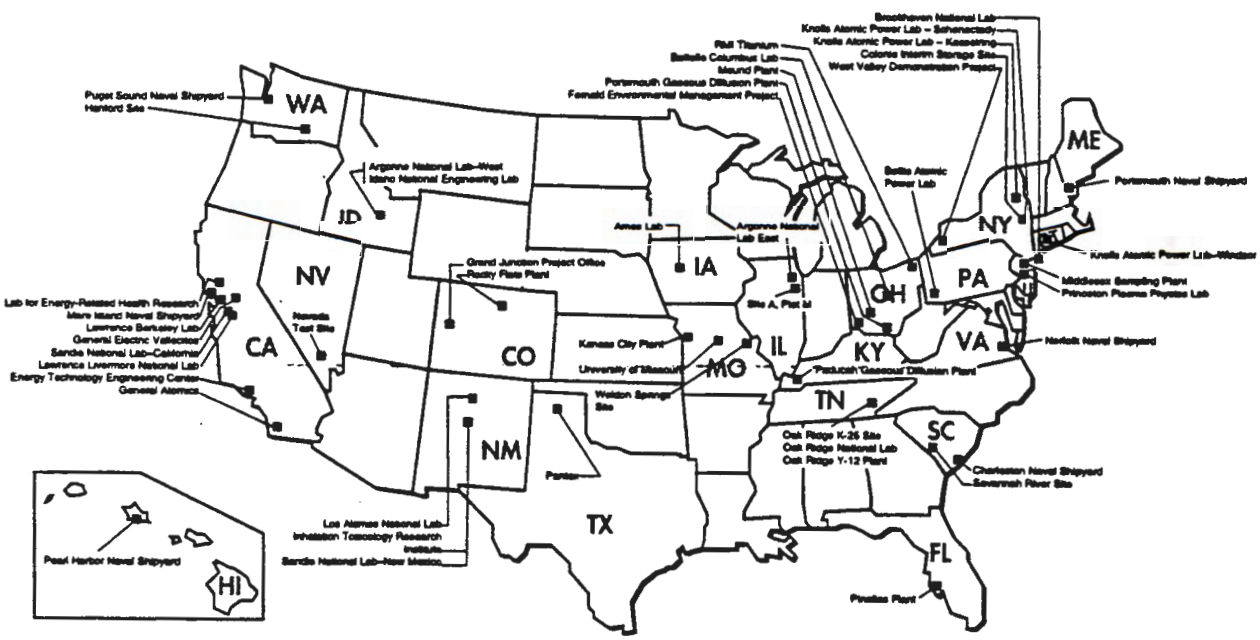
The Federal Facility Compliance Act

The Federal Facility Compliance Act of 1992 (FFCAct) requires the Secretary of Energy to develop and submit Site Treatment Plans for the development of treatment capacity and technologies for treating mixed waste for each facility at which DOE stores or generates these wastes. These plans will identify how DOE will provide the necessary mixed waste treatment capacity, including schedules for bringing new treatment facilities into operation.

The FFCAct amends the Resource Conservation and Recovery Act (RCRA), the law that defines requirements for the management of hazardous waste. RCRA contains specific restrictions on the land disposal of hazardous waste, including treatment standards that must be met prior to disposal and storage. In general, DOE sites that store mixed waste are not in compliance with these land disposal restrictions because of the lack of capacity for treating mixed waste.

DOE is following a three-phased approach for developing a Site Treatment Plan for each of the 48 sites that store, generate, or expect to generate DOE mixed waste. (The Hanford site is exempt from the requirement to prepare a Site Treatment Plan

Figure 1. DOE currently generates, stores, or expects to generate mixed waste at 49 sites in 22 states.



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because there is an agreement in place that meets FFCAct requirements.) The National Governors' Association (NGA), through a cooperative agreement with DOE, is coordinating representatives from the 22 states and the U. S. Environmental Protection Agency (EPA) to assist the DOE sites in evaluating the candidate treatment options and developing mixed waste treatment plans.

In the first phase, the Conceptual Site Treatment Plans were submitted to the sites' regulating agencies (State or EPA) in October 1993. They identified the broad range of options available to treat DOE's mixed waste.

In the second phase of this process, the Draft Site Treatment Plans have been developed to narrow the range of options and present the individual sites' proposed treatment options for their mixed waste. These Draft Site Treatment Plans are being submitted to the states or EPA in August 1994.

These Draft Site Treatment Plans were prepared using a "bottom-up", or site-specific approach. An assessment will be performed, beginning immediately after the issuance of the Draft Site Treatment Plans, to determine what accommodations are necessary to blend the "bottom-up" plans into a sensible national configuration of treatment systems.

In the third phase, DOE will prepare Proposed Site Treatment Plans by February 1995. DOE will submit these plans to the state regulatory agency (or to the EPA, as appropriate) for approval, approval with modification, or disapproval. Implementation of the Plans will be formalized through Compliance Orders to be issued by the regulatory agency by October 6, 1995. These Proposed Site Treatment Plans will contain the treatment configuration that results from discussions with the states and Stakeholders, and from State, NGA, and DOE evaluations of the emerging treatment configuration. Further discussions will take place after the issuance of these Proposed Site Treatment Plans in working toward the treatment configuration that will be enforced in the Compliance Orders.

Although the FFCAct does not specifically require DOE to address disposal of treated mixed wastes, both DOE and the states have recognized that disposal issues are an integral part of mixed waste management activities. Currently there are no active permitted mixed waste disposal facilities operated by DOE for disposal of residuals from the treatment of MLLW. Through the Site Treatment Plan development process, DOE and the States are evaluating issues related to disposal of such residuals. Through this process, criteria have been defined to narrow the list of 49 sites to a smaller group of sites that may be suitable for disposal of these residuals. Evaluation of these sites and determination of possible disposal locations is continuing and will not be completed by the October 1995 issuance of Compliance Orders.

Established processes are being implemented by DOE for studying, designing, constructing, and ultimately operating disposal facilities for HLW and MTRU wastes (specifically the HLW repository in Nevada, and the Waste Isolation Pilot Plant in New Mexico).

Overview of the Draft Site Treatment Plans

The purpose of this Overview is to present a summary of the emerging complex-wide treatment configuration resulting from the individual treatment options presented in the Draft Site Treatment Plans. As shown in Figure 2, over 60% of DOE's mixed waste is high-level waste (HLW), 32% is mixed low-level waste (MLLW), and approximately 8% is mixed transuranic waste (MTRU).

The Draft Site Treatment Plans are based on several key assumptions that affected the selection of the proposed treatment options. One of these assumptions is that the Draft Site Treatment Plans would not affect the current strategies being developed for the treatment of DOE's HLW. HLW is managed at four sites (the Hanford site in Washington, the Savannah River site in South Carolina, the West Valley Demonstration Project in

Definitions

Mixed Waste: Mixed waste is waste that contains both hazardous waste and radioactive material (source, special nuclear, or by-product material as regulated by the Atomic Energy Act of 1954 [42 U.S.C. 2011 et seq.]). Mixed waste is classified by DOE according to the type of radioactive waste that it contains as either mixed low-level waste (MLLW), or mixed transuranic waste (MTRU). DOE's high-level waste (HLW) is assumed to be mixed waste because it contains hazardous components or exhibits the characteristic of corrosivity.

Low-level Waste: Low-level waste (LLW) is radioactive material that is not classified as high-level waste, TRU waste, spent fuel, or uranium or thorium mill tailings.

Transuranic waste: Transuranic waste (TRU) refers to radioactive materials that are contaminated with Uranium-233 (and its daughter products), certain isotopes of plutonium, and nuclides with atomic number greater than 92 (uranium.) It is produced primarily from the chemical processing of spent nuclear fuel and from use of plutonium in the fabrication of nuclear weapons.

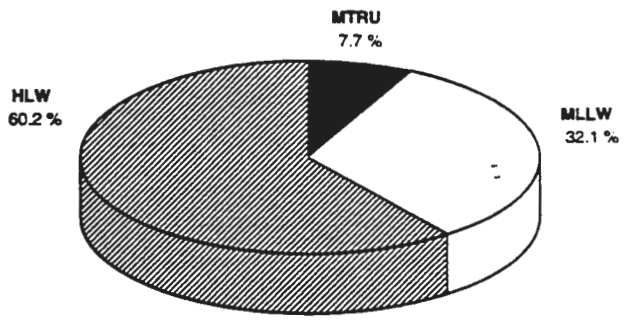
High-Level Waste: High-level waste (HLW) is highly radioactive material containing fission products, traces of uranium and plutonium, and other transuranic elements, that result from chemical processing of spent nuclear fuel.

New York, and the Idaho National Engineering Laboratory in Idaho). HLW will only be transported from these sites as a stable solid waste form ready for disposal.

The development of the Draft Site Treatment Plans is also consistent with DOE's current policy that defense related MTRU waste will be disposed of at the Waste Isolation Pilot Plant (WIPP) using the No Migration Variance and will not require treatment to meet the Land Disposal Restriction (LDR) standards. Therefore, the Draft Site Treatment Plans identify the required characterization and processing of TRU waste to meet the WIPP Waste Acceptance Criteria. The Proposed Site Treatment Plans, which will be submitted in February 1995, will recognize that DOE's policy regarding the WIPP is under review and may change in the future. The Draft Site Treatment Plans also include options for treatment of non-defense related MTRU waste to meet the LDR standards.

The proposed treatment options in the Draft Site Treatment Plans identify on-site treatment for over 82% of DOE's MLLW. This large percentage reflects the view of the states that preference be given to on-site treatment whenever possible. In addition, approximately 58% of the waste to be treated on-site is in the form of aqueous liquids, which were assumed in this process to continue to be treated on-site, due to associated transportation difficulties. The proposed treatment options identify off-site treatment for less than 6% of the MLLW.[1] The remaining 12% of the MLLW includes wastes for which no technology currently exists, wastes requiring characterization or technology assessment, or waste streams with unspecified locations for treatment. The summary of the waste volumes

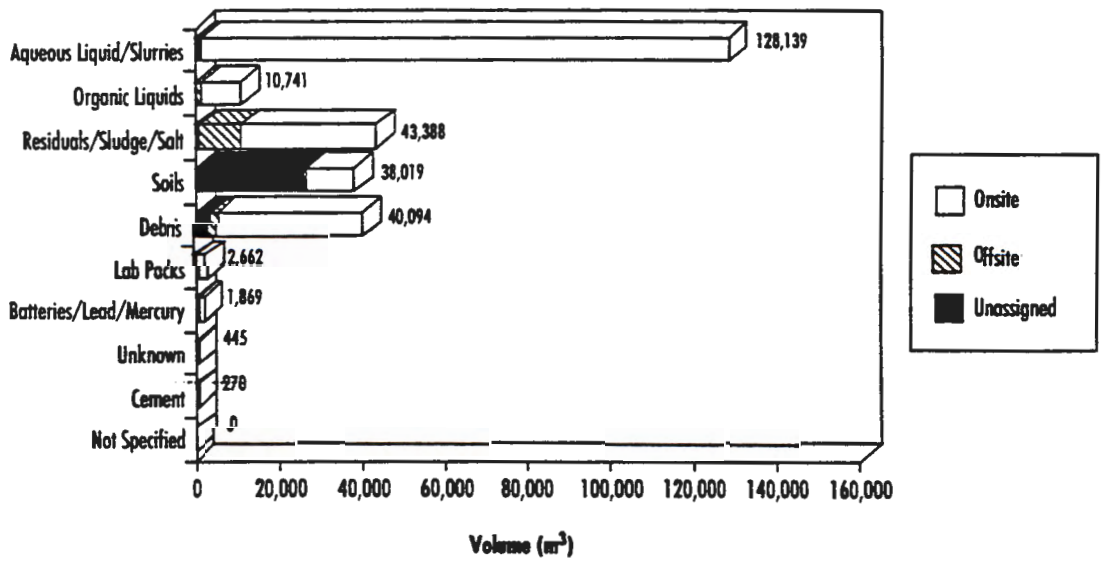
Figure 2: Relative Volumes of Mixed Waste Types.



Current and Five Year Projections

[1] Less than 2% of the MLLW is proposed to be treated outside of the State in which it is generated or currently stored.

Figure 3. Summary of MLLW Treatment, Current and Five-Year Projected Volumes.



DSTP options summary database as of August 22, 1994

proposed for on-site and off-site treatment is shown on Figure 3. The breakdown of these volumes by State is shown in Table 1.

In addition to existing and proposed DOE treatment facilities, Table 1 proposed treatment options include the development of mobile treatment units and increased utilization of existing commercial vendor treatment facilities. Additionally, some sites are pursuing on-site vendor options through privatization efforts.

While Draft Site Treatment Plans identify each site's proposed treatment options for each mixed waste stream, further review and evaluation is required. DOE, in partnership with the States through NGA, will evaluate the complex-wide configuration resulting from the individual Draft Site Treatment Plans to blend the "bottom-up" plans into a sensible national configuration of treatment systems. The individual Draft Site Treatment Plans are available at each site and the DOE Headquarters reading rooms for review. Stakeholders will have opportunities to work with the States and DOE. Comments regarding the Plans should be submitted to the respective site no later than October 31, 1994. The proposed treatment options in the Draft Site Treatment Plans may change as a result of the public comments and State, NGA, and DOE evaluation.

Table 1. Volume of Mixed Low-Level Waste (by State) and Proposed Treatment Locations.

Inventory plus 5-year projected generation in cubic meters (m^3)

STATE	DOE WASTE TREATED IN STATE	STATES RECEIVING WASTE FROM OUT-OF-STATE DOE SITES									TREATMENT LOCATION NOT SPECIFIED		TOTAL
		CO	FL	ID	NM	SC	TN	TX	UT[2]	WA	INVENTORY WASTES	WASTES NOT YET GENERATED	
California	1,067.9	2.4	4.7	44.4	9.9		0.7	3.7	3.5	245.4	36.3	22.5	1,441.4
Colorado	16,251.1	—		931.8	659.8		142.6			203.7	0.0[1]		18,189.0
Connecticut						7.0				7.3			14.3
Florida													0.0[3]
Hawaii	0.5									2.2			2.7
Iowa							0.3			0.0[1]			0.3
Idaho	26,721.2			—			8.9						26,730.1
Illinois	107.8						11.6		26.4	29.5	0.1	1,512.8	1,688.2
Kentucky							588.1			161.8	116.8		866.7
Maine	0.2									0.6			0.8
Missouri	1,774.8	0.5					60.1		0.4	1.7			1,837.5
New Jersey	14.7										24,480.0	5.5	24,500.2
New Mexico	965.4		4.5		—		9.3		8.2		269.9		1257.3
Nevada	4,160.0		0.2								2.7		4,162.9
New York	9.8					18.7	13.7	4.0	5.7	42.3	76.6	31.1	201.9
Ohio	14,313.3						840.9		471.5	13.5	273.2	25.0	15,937.4
Pennsylvania	0.7			0.2		7.1				14.7			36.2
South Carolina	5,688.8			7.7		—					2,902.8	675.6	9,274.9
Tennessee	25,579.9						—		586.5		9,871.0	0.2	36,037.6
Texas	285.4		0.0[1]				9.4	—	5.8				300.6
Virginia	1.0			2.5		0.5							4.0
Washington	122,964.6						45.4			—	48.9	105.3	123,164.2
STATE TOTALS	219,906.5	2.9	9.4	986.6	669.7	27.3	1,731.0	7.7	1,108.0	722.9	38,078.3	2,378.0	265,628.3

1 Less than 0.05 cubic meters of waste.

2 Some waste proposed may not require treatment.

3 Although the Pinellas Plant has prepared a Draft Site Treatment Plan, no mixed waste is currently stored or generated.

DSTP options summary database as of August 22, 1994

NATIONAL GOVERNORS' ASSOCIATION

Issue Brief

August 22, 1994

Natural Resources Policy Studies

Contacts: John Thomasian, (202) 624-7881
Jill Litt, (202) 624-5356

State Overview of the Federal Facility Compliance Act Implementation Process

Background

The Federal Facility Compliance Act of 1992 (FFCA) provides a unique opportunity for the U.S. Department of Energy (DOE) to work with the states, the U.S. Environmental Protection Agency (EPA), and other interested parties to develop treatment plans for the 600,000 cubic meters of mixed radioactive and hazardous wastes currently generated or stored by DOE[1]. Under the act, forty-eight site-specific plans will be submitted to the affected states or EPA for review and approval[2]. The states or EPA are required by law to make the plans available for public comment and to consult with other affected states during the review period. States also must consider the need for regional treatment facilities. The states or EPA must approve, approve with modification, or disapprove the plans within six months of receipt. Upon approval, the state or EPA will issue an order requiring the DOE site to comply with the plan.

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[1] Mixed waste is defined by the Atomic Energy Act (AEA) and the Resource Conservation and Recovery Act (RCRA) as waste that contains both radioactive and hazardous components. High level, transuranic, and low-level mixed waste, currently in storage, was generated by past DOE operations related to research, production, and storage of nuclear materials for the U.S. defense program. Additional waste will be generated as DOE begins to decontaminate and decommission its facilities and clean up its burial and storage sites.

[2] While representatives from Washington State are actively involved in the FFCA-related discussions, the Hanford site in Richland, Washington will not prepare a site treatment plan because of the tri-party agreement signed by the state of Washington, the Environmental Protection Agency (EPA), and the DOE which addresses mixed waste treatment.

Regulators may assess fines and penalties against the DOE sites if approved plans are not in place by October 1995 or if DOE is not in compliance with its plan.

In order to fulfill its mandate under the FFCA, DOE must identify treatment technologies and facilities for some 2,000 different waste streams. Although not required by the act, DOE has recognized the need to work closely with states during the development of the treatment plans. Because the success of many site plans will depend on the approval of plans at other sites destined to receive or export waste, all affected states must be involved throughout the plan development process. Moreover, to facilitate eventual plan approval, the Governors -- as the chief executive officers vested with the decision-making authority of the states -- must have a voice in plan content and development.

Although the law is silent on disposal of treatment residuals, the states and DOE agreed that the disposal of treatment residuals must be addressed as part of the site treatment plan development process.

State Involvement

After enactment of the Federal Facility Compliance Act (FFCA) in 1992, representatives from the affected states met -- both with DOE representatives and among themselves -- to discuss a strategy for implementing the new law. At that meeting, states sent a clear message to DOE that the mixed waste treatment plans must be developed using a "bottoms-up" approach. In other words, development of the site treatment plans should be based on site specific issues and information.

States recommended that the National Governors' Association (NGA)[3] coordinate the state role in the site treatment plan development process. DOE and NGA negotiated a cooperative agreement to support this goal. In order to carry out the objectives of the agreement, NGA convened a task force of policy and technical representatives appointed by the Governors of the twenty-two states with DOE sites with mixed waste.[4] Members of the National Association of Attorneys General (NAAG) and a number of Indian tribal governments also are represented on the task force.

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[3] Membership in the National Governors' Association (NGA) includes the Governors of the fifty states, the commonwealths of the Northern Mariana Islands and Puerto Rico, and the territories of American Samoa, Guam, and the Virgin Islands. Through NGA, Governors deal collectively with issues of public policy and governance. The association's ongoing mission is to support the work of the Governors by providing a bipartisan forum, to help shape and implement national policy, and to solve state problems.

[4] The affected states are California, Colorado, Connecticut, Florida, Hawaii, Idaho, Illinois, Iowa, Kentucky, Maine, Missouri, Nevada, New Jersey, New Mexico, New York, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, and Washington.

Under the cooperative agreement, NGA facilitates state participation in site plan development and provides a forum for state, tribal, DOE, and EPA representatives to discuss technical, policy, and implementation issues concerning the site treatment plans.

As mandated under the FFCA, states with the Resource Conservation and Recovery Act (RCRA) authorization to regulate the hazardous components of mixed waste will review and approve, approve with modifications, or disapprove the DOE site treatment plans. In the six states where EPA is responsible for reviewing DOE's site treatment plans, it must do so in consultation with the host state.[5]

To the extent DOE proposes interstate shipments of mixed waste in the site treatment plans, coordination and consultation among affected states and other interested parties will be critical to gaining support for such treatment proposals and to ensuring that the individual site plans together form a coherent treatment strategy across the entire DOE complex. Moreover, the regulator must consider public comments in making a determination on the plan.

State Activities Related to the Development and Review of the Site Treatment Plans

The NGA process provides an ongoing forum for reviewing inventory data, discussing the development of site treatment plans, and addressing technical, policy, and other concerns. Such dialogue also enables states, tribes, DOE, and EPA to identify areas of agreement and disagreement, and to determine where problem-solving efforts need to be focused. Furthermore, communication among states serves to provide all states with the same information.

Some state representatives have volunteered to focus extra attention on specific technical, disposal, legal, or public involvement issues in order to provide greater insight to the task force regarding the site treatment plan development process. States then are able to provide feedback to DOE regarding such issues as improved waste characterization data, treatment technology selection, and rationale for the movement of wastes.

Moreover, states have underscored their preference for on-site treatment of waste and that such treatment decisions must be made in a consistent manner across DOE facilities nationwide. To meet this objective, DOE is evaluating on-site treatment options including small scale and mobile technologies. In most cases, states would prefer to treat waste on site; however, when

[5] EPA will review DOE mixed waste treatment plans for the following states that do not have requisite RCRA authority: Hawaii, Iowa, Maine, New Jersey, Pennsylvania, and Virginia.

off-site treatment is proposed, DOE must provide a well-documented explanation for not pursuing on-site alternatives.

Next Steps

In late August 1994, the Department is scheduled to release the draft site treatment plans (STPs) to the affected states and EPA for review and comment. Prior to the release of the draft plans, DOE intends to present information on FFCA implementation activities at a public open house. Also, DOE is considering a national workshop in October 1994 to provide an opportunity for DOE to inform and get input from the public about the content of the site treatment plans and the FFCA implementation process overall. In addition to these national activities, DOE sites will conduct outreach activities with regional and local stakeholders.

Subsequent to the release of the draft STPs, DOE will distribute a draft STP summary highlighting the treatment configuration emerging across the DOE complex. Additionally, the summary will identify wastes proposed for treatment at existing or planned facilities, wastes proposed for off-site treatment, and wastes targeted for DOE's mixed waste technology development efforts.

Efforts to inform the public at the regional and national level do not supplant the DOE, state, or EPA site-level responsibilities. The FFCA mandates states and EPA to publish a public notice of the availability of the final STPs, expected to be released by DOE in February 1995. At that time, state and EPA-sponsored site-specific public involvement activities will begin.

As site level proposals are made and a national configuration of waste treatment begins to emerge, DOE will involve stakeholders at the site, regional, and national level. States and EPA have agreed to participate in DOE's public outreach efforts.

MIXED WASTE PROVISIONS OF THE FEDERAL FACILITY COMPLIANCE ACT

This update describes the activities that the Environmental Protection Agency (EPA), the Department of Energy (DOE), and the States are taking under the requirements of the Federal Facility Compliance Act (FFCAct). Specifically, this document provides a status report of the mixed waste provisions and the related Site Treatment Plans that DOE is required to develop under FFCAct.

The Federal Facility Compliance Act

On October 6, 1992, President Bush signed the Federal Facility Compliance Act. FFCAct modifies the waiver of sovereign immunity provision of the Resource Conservation and Recovery Act (RCRA). The objective of FFCAct is to bring all Federal facilities into compliance with applicable Federal and State hazardous waste laws, and to ensure that Federal facilities are treated the same as private parties with regard to compliance. For more information on FFCAct, see 58 *Federal Register* 49044.

The new enforcement authorities allow for the following measures:

- EPA can issue complaints or compliance orders against Federal facilities. These actions may include fines and penalties. EPA may pursue penalties against Federal facilities only for violations that occurred after the effective date of the Act.

- Federal agencies may challenge the complaint (40 CFR Part 22 procedures) and may confer with the EPA Administrator after hearing procedures are exhausted.

The Federal Facility Compliance Act and Mixed Waste

Mixed waste is waste with both radioactive and hazardous components. For three years after the date of its enactment, the waiver of sovereign immunity will not apply to the executive branch for RCRA land disposal restriction violations involving the storage of untreated mixed waste (Section 3004(j)). FFCAct contains a specific provision for mixed waste regulated by DOE. Specifically, FFCAct requires DOE to develop Site Treatment Plans for treating the mixed radioactive and hazardous waste for sites at which DOE is storing or generating such waste. DOE has until October 1995 to work with EPA and the States to finalize these plans and have them incorporated into permits or orders by the regulators for treating mixed waste.

The Role of the Regulators Under the Federal Facility Compliance Act

DOE must submit the Site Treatment Plans to the State for approval or disapproval, if a State has both the authority to prohibit land disposal of mixed waste until treated under State law **and** to regulate the hazardous component of mixed waste under RCRA. At this

time, it appears that 42 of the 48 DOE plans will be reviewed by the States, and EPA has primary responsibility for the remaining six plans.

Even where a State has the responsibility for the Site Treatment Plan, the State still must consult with EPA and the other States in which the facility affected by the plan is located. Once the State/EPA approves the plan, the State/EPA then issues an order to DOE requiring compliance with the plan.

In an April 6, 1993 *Federal Register* notice, DOE defined a three-phased approach for developing a Site Treatment Plan to handle mixed waste:

- **Development of Conceptual Site Treatment Plan** - This provides a preliminary set of candidate treatment options for treating each mixed waste stream. It also describes currently available treatment facilities and their capabilities. In October 1993, DOE delivered these documents to the State regulators and EPA for review.

- **Preparation of Draft Site Treatment Plan (DSTP)** - DOE will work with States, EPA, and others in evaluating the candidate treatment options for mixed waste. By August 1994, DOE will prepare draft Site Treatment Plans, which will identify the preferred treatment option(s).

- **Preparation of Final Proposed Plan** - By February 1995, DOE will prepare a Final Proposed Plan. DOE will submit these plans to the appropriate State (or EPA) for approval and as a basis for a Compliance Order.

The National Governors' Association (NGA) is assisting DOE, the States, and EPA to develop a consensus on the major issues relating to the Site Treatment Plans.

Other National Issues

Although Congress through FFCAct established a process in which the States would play the major role with respect to approving and providing oversight for the implementation of Site Treatment Plans for mixed waste, EPA on a national, regional, and site level still has a major role to play in a number of issues that will impact the outcome of developing appropriate management solutions for mixed waste. The following issues on managing mixed waste will require input of DOE, EPA, and the States, as well as the public.

- **Equity Concerns about Treatment and Disposal** - The States and the public are concerned about addressing equity issues in the distribution of the treatment and disposal of mixed waste. DOE must evaluate and consider the States' and public's concerns about treatment of off-site wastes.

- **Technical Factors** - The Site Treatment Plans need to take into consideration various technical criteria and the strengths and weaknesses of conventional and

alternative treatment. EPA, DOE, and the States must also consider the technologies with respect to characterization of waste streams.

- **Pollution Prevention and Waste Minimization** - EPA Administrator Carol Browner stated that generators of waste must shoulder some of the responsibility to implement waste minimization measures, which will assist in prevention of risk to today's and tomorrow's environment. Due to the complexity of treating, storing and disposing of mixed waste, pollution prevention and waste minimization will be important components of DOE's Site Treatment Plans and overall program for addressing mixed waste.

- **Regulatory Issues** - A number of regulatory issues involving RCRA and other environmental laws will need to be addressed in developing and implementing Site Treatment Plans. For example, Land Disposal Restriction requirements and best demonstrated achievable technologies (BDATs) need to be met when selecting technologies. DOE, EPA, and the States are also exploring the use of mobile treatment units. In order to use such technology, permitting issues need to be addressed.

- **Environmental Restoration and Decontamination/Decommissioning** - Additional mixed waste may be generated as more DOE facilities are decontaminated and dismantled and as old burial and storage sites are cleaned up.

- **Public Involvement** - Open houses and workshops will be held to facilitate public involvement in the development of the Site Treatment Plans. States, EPA, and DOE will provide opportunities for interested parties to obtain information, express their opinion, or discuss the site plans and associated mixed waste issues with DOE, State, and EPA representatives. The Site Treatment Plans address such public issues as: the type and location of treatment, and disposal of treated waste.

For More Information on RCRA, the Comprehensive Environmental Response and Compensation Liability Act (CERCLA) and Other Waste Management Topics that Impact Mixed Waste Management:

RCRA/Superfund Hotline - The Hotline is helpful to the public on general RCRA issues that may impact DOE's management of mixed waste through FFCAct. Questions requiring interpretation of the Federal regulations, legal analysis, or involving highly technical or unresolved issues are referred to the appropriate EPA office, Federal or State agency, or other sources. The Hotline can be reached at: 1-800-424-9346, TDD (800) 553-7672, Monday - Friday, 8:30 a.m. - 7:30 p.m. EST, Closed Federal Holidays.

6450-01-P
U.S. Department of Energy
Office of Environmental Management
Draft Site Treatment Plan
Notice Of Availability

AGENCY: U.S. Department of Energy
ACTION: Notice of Availability

SUMMARY: Today's notice announces the availability of and requests public comment on Draft Site Treatment Plans for treating the Department of Energy's (DOE) mixed radioactive and hazardous waste. As an interim step toward meeting the requirements of the Federal Facility Compliance Act of 1992 (FFCAct or the Act), DOE has prepared a Draft Site Treatment Plan (Draft Plan) for each of 48 sites located in 22 states where DOE is currently storing, generating, or is expected to generate mixed hazardous and radioactive waste within the next five years. These Draft Plans contain the sites' preferred treatment options for this waste, where available. The Draft Plans are being provided at each site for public review and comment as well as for review and discussion among the state and U.S. Environmental Protection Agency (EPA) regulators. Comments on the Draft Plans will be considered in developing Proposed Site Treatment Plans to be submitted to the regulators for approval in February 1995.

DATES: Comments should be provided to the appropriate site representative by October 31, 1994.

ADDRESSES: The address for submitting comments on a specific Draft Site Treatment Plan can be obtained by calling the Center for Environmental Management Information at 1-800-7EM-DATA (1-800-736-3282).

SUPPLEMENTARY INFORMATION:

I. Background

The DOE is required by section 3021(b) of the Resource Conservation and Recovery Act (RCRA), as amended by the FFCAct, to prepare Site Treatment Plans (Plans) describing the development of treatment capacities and technologies for treating mixed waste for each site at which DOE stores or generates mixed waste. Mixed waste is defined by the Act as waste containing both a hazardous waste subject to RCRA, and source, special nuclear or by-product material subject to the Atomic Energy Act of 1954. The Site Treatment Plans will be submitted to the regulating State or the U.S. Environmental Protection Agency (EPA) for approval, approval with modification, or disapproval. The Draft Plans are the intermediate version of the Site Treatment Plans and are being provided to the States and EPA, and made available to the public, for review and comment. DOE is preparing Site Treatment Plans for the following sites:

TABLE 1. Sites preparing Site Treatment Plans[1]

Facility/Location	State	Agency to receive plan (EPA/State)
Energy Technology Engineering Center (ETEC), Canoga Park	California	State

Facility/Location	State	Agency to receive plan (EPA/State)
General Atomics, San Diego		
General Electric Vallecitos Nuclear Center, Vallecitos		
Lawrence Livermore National Laboratory, Livermore		
Lawrence Berkeley Laboratory, Berkeley		
Laboratory for Energy-Related Health Research, Davis		
Mare Island Naval Shipyard, Vallejo		
Sandia National Laboratory - California, Livermore		
Grand Junction Project Office, Grand Junction	Colorado	State
Rocky Flats Environmental Technology Site, Golden		
Knolls Atomic Power Laboratory, Windsor	Connecticut	State
Pinellas Plant, Largo	Florida	State
Pearl Harbor Naval Shipyard, Honolulu	Hawaii	EPA
Argonne National Laboratory - West, Idaho Falls	Idaho	State
Idaho National Engineering Laboratory, Idaho Falls		
Ames Laboratory, Ames	Iowa	EPA
Argonne National Laboratory - East, Argonne	Illinois	State
Site A/Plot M Palos Forest Preserve, Cook County		
Paducah Gaseous Diffusion Plant, Paducah	Kentucky	State
Portsmouth Naval Shipyard, Kittery	Maine	EPA

Facility/Location	State	Agency to receive plan (EPA/State)
Kansas City Plant, Kansas City	Missouri	State
Weldon Spring Site Remedial Action Project, St. Charles County		
University of Missouri, Columbia		
Nevada Test Site, Mercury	Nevada	State
Middlesex Sampling Plant, Middlesex	New Jersey	EPA
Princeton Plasma Physics Laboratory, Princeton		
Inhalation Toxicology Research Institute, Albuquerque	New Mexico	State
Los Alamos National Laboratory, Los Alamos		
Sandia National Laboratory - New Mexico, Albuquerque		
Brookhaven National Laboratory, Upton	New York	State
Colonie Interim Storage Site, Colonie		
Knolls Atomic Power Laboratory - Kesselring, West Milton		
Knolls Atomic Power Laboratory - Schenectady, Niskayuna		
West Valley Demonstration Project, West Valley		
Battelle Columbus Laboratories Decommissioning Project, Columbus	Ohio	State
Fernald Environmental Management Project, Fernald		
Mound Plant, Miamisburg		

Facility/Location	State	Agency to receive plan (EPA/State)
Portsmouth Gaseous Diffusion Plant, Portsmouth		
RMI Titanium Inc., Ashtabula		
Bettis Atomic Power Laboratory, West Mifflin	Pennsylvania	EPA
Charleston Naval Shipyard, Charleston	South Carolina	State
Savannah River Site, Aiken		
K-25 Site, Oak Ridge Reservation, Oak Ridge	Tennessee	State
Oak Ridge National Laboratory, Oak Ridge Reservation, Oak Ridge		
Y-12 Plant, Oak Ridge Reservation, Oak Ridge		
Pantex Plant, Amarillo	Texas	State
Norfolk Naval Shipyard, Norfolk	Virginia	EPA
Puget Sound Naval Shipyard, Bremerton	Washington[1]	State

[1]The Hanford Site in Richland, Washington, has signed a Tri-Party Agreement with the State of Washington which addresses mixed waste treatment. Therefore, the Hanford site is not preparing a Site Treatment Plan, but is actively participating in the FFCAct discussions.

As outlined in an April 6, 1993, Federal Register notice (58 FR 17875), DOE is developing the Site Treatment Plans in three stages. The first stage, the Conceptual Site Treatment Plans, were released in October 1993 and described a wide range of possible treatment alternatives for each mixed waste stream. The Draft Site Treatment Plans were issued in August 1994, and include one or two options identified at the site, with input from the State, as the preferred treatment for each mixed waste stream. After further analysis of the preferred options for the DOE complex as a whole, discussions among the States, and consideration of public comments, DOE will submit Proposed Site Treatment Plans in February 1995 to the appropriate regulatory agency (i.e., the State or EPA). The regulatory agency will issue an Order requiring compliance with the approved Plan. Sites that are in compliance with approved Plans and Orders after October 1995 will be exempt from fines and penalties related to the storage prohibitions [section 3004(j)] under the Resource Conservation and Recovery Act (RCRA).

II. Draft Site Treatment Plans

In response to early discussions with the States, DOE followed a "bottom-up" approach in which the DOE Operations Offices evaluated treatment options for the mixed waste at each site, in conjunction with the host State and others. The Draft Plans contain the results of this site-specific evaluation of the treatment options identified in the Conceptual Plans, and present the currently preferred option for treating the site's mixed waste. The Draft Plans have not yet been evaluated as a whole for impacts on other DOE sites and to the overall DOE program. Changes in the preferred option and associated schedules are possible as evaluation from the DOE-wide perspective progresses, as State-to-State discussions take place, and as other stakeholder input is received.

DOE defined a common framework to provide a consistent approach to Draft Plan development among all of the DOE sites. This framework, developed with input from State representatives, established common terminology, objectives, planning assumptions, and a recommended methodology for narrowing the alternatives presented in the Conceptual Plan to the preferred options in the Draft Plan. Evaluation criteria included sound technical judgment; regulatory compliance; environmental, health, and safety concerns; stakeholder involvement; implementability; and efficient use of limited resources.

The Draft Plans also follow a common format, consisting of a Background Volume and a Compliance Plan Volume, supplemented by an Appendix(s). The Background Volume describes the site's treatment options, including the associated uncertainties, budget status, and regulator and stakeholder reactions, when known. The Compliance Plan Volume identifies the preferred treatment option(s) and associated schedules, and also broadly describes provisions to implement and update the Plan once approved. When finalized, the Compliance Plan Volume is intended to contain information that will ultimately be enforced through an Order. Each Draft Plan also includes an Appendix that explains how the options presented in the Conceptual Plan were narrowed to select the preferred option. Some site Draft Plans include additional appendices to present other related information.

In conjunction with identifying treatment options, DOE is also evaluating options for disposal of mixed waste treatment residuals, at the request of the States. The Background Volume of each Draft Plan contains a description of the process for evaluating disposal options.

A Draft Site Treatment Plan Summary Report is being prepared to present a compilation of the information contained in the individual sites' Draft Plans. The Summary Report will also provide a preliminary indication of the configuration that may emerge for the DOE complex as a whole, and is intended to useful for discussions among the States, EPA and other interested parties. This Summary Report will include brief discussions of the Draft Plan development process, a DOE complex-wide look at treatment options for the different mixed waste streams, information on waste characterization, technology development and other related topics. The Summary Report will be released as soon as possible.

III. Availability of Draft Site Treatment Plans and Opportunity for Comment

The individual Draft Site Treatment Plan will be available at each site's public reading room or at nearby locations by mid-September, 1994. To review or request information on a specific Draft Plan, a DOE contact name and reading room address for each site can be obtained by

calling the DOE Center for Environmental Management Information at 1-800-7EM-DATA. The full set of 48 individual Draft Plans can also be reviewed by mid-September 1994 at the U.S. Department of Energy Headquarters reading room, Room 1E-190, 1000 Independence Ave., Washington, DC 20585, and at the Center for Environmental Management Information, 470 East L'Enfant Plaza, Suite 7110, Washington, DC 20585.

Comments should be provided to the appropriate DOE site contact by October 31, 1994. Additional opportunities for public involvement in the Site Treatment Plan development process will be offered at many sites; information on these opportunities can be obtained from the DOE site contact. Comments from the public will be considered by DOE in preparing the Proposed Plans, to be submitted to regulators in February 1995.

Additional information on the Site Treatment Plan process, related activities, and site-specific fact sheets describing the Draft Plans can be obtained from the DOE Center for Environmental Management Information at 1-800-7EM-DATA (1-800-736-3282). Persons interested in receiving the Summary Report when available, or other information on the development of the Site Treatment Plans and related activities, such as evaluation of options for disposal, should provide their name, address, and items of interest to the DOE Center for Environmental Management Information.

Issued in Washington, DC on _____.

Jill E. Lytle
Deputy Assistant Secretary
for Waste Management
Environmental Management

SIGNED AND SUBMITTED; WILL BE POSTED IN THE FEDERAL REGISTER ON AUGUST 31, 1994.

Questions and Answers About the Federal Facility Compliance Act

◆ Federal Facility Compliance Act ◆ Issue Alert #1 ◆ September 1994 ◆

The Federal Facility Compliance Act of 1992 (FFCAct or the Act) provides an unprecedented opportunity for the Department of Energy (DOE or the Department) to work with its regulators to resolve a long-standing issue - how to treat large amounts of mixed radioactive and hazardous waste now being stored or generated at DOE sites. The Act directs the Department to prepare a plan for developing mixed waste treatment capacities and technologies for each site at which DOE generates or stores mixed waste. DOE will submit these site treatment plans to the appropriate State [or the Environmental Protection Agency (EPA)] for approval. If not in compliance with an approved plan, DOE facilities could face fines and penalties from the State or EPA after October, 1995.

This Issue Alert has been developed by the Department of Energy for members of the public who may be affected by, or interested in, DOE's upcoming decisions relating to mixed waste. The following questions and answers provide information on mixed waste, the recently passed Federal Facility Compliance Act, DOE's Site Treatment Plans and opportunities for public involvement in preparation of the plans. ◆

What does the FFCAct require?

The FFCAct makes Federal facilities subject to potential fines and penalties for violations of the Resource Conservation and Recovery Act (RCRA), the law that sets requirements for the management of hazardous waste. However, the FFCAct allows a three-year delay of the imposition of fines and penalties for certain violations related to DOE's storage of mixed waste. During that time, the FFCAct requires DOE to: 1) prepare and submit a national inventory report to the regulators identifying its mixed waste volume, characteristics, treatment capacity and available technologies; and 2) prepare Site Treatment Plans for developing the needed treatment capacity and treating the mixed waste. These plans will be developed for each site at which DOE generates or stores mixed waste.

The plans will be submitted to the regulating agency (either the State or the Environmental Protection Agency) for review. The regulators are required by the FFCAct to approve, approve with modifications, or disapprove each plan within six months and to issue an order requiring compliance with the plan. As long as DOE is in compliance with the plan, the Department will not be subject to fines and penalties for violations of the storage prohibitions of the RCRA mixed waste land disposal restrictions. These storage prohibitions define the circumstances under which untreated waste can be stored.

In general, the mixed waste currently in storage at DOE sites is not in compliance with these restrictions. However, DOE must continue to store mixed waste until treatment technologies are developed and approved for use. The plans required by the FFCAct will propose alternatives for treatment technology and how, when, and where suitable treatment capacity will be developed and built.

What is Mixed Waste and where did it come from?

Mixed waste is waste that includes both radioactive and hazardous components. Mixed waste currently in storage was generated by past DOE operations related to

research, production and storage of nuclear materials for the U.S. defense program. Additional mixed waste will be generated as more DOE facilities are decontaminated and dismantled and as old burial and storage sites are cleaned up.

How do we know about what wastes there are and how much exists?

DOE is currently working to identify and characterize the types of mixed waste at each of its sites. Some sites have very small amounts from specific research activities and others have large amounts that have accumulated from decades of defense production activities.

Information about DOE's mixed waste can be found in the Interim National Inventory of DOE Mixed Wastes And Treatment Technologies and Capacities issued by DOE on April 21, 1993. This report provides detailed information on over 2,000 mixed waste streams at 50 sites in 22 states. The information includes current and anticipated waste volumes, waste characteristics, available treatment technologies and capacities, volume of waste that is subject to the RCRA land disposal restrictions, and waste minimization efforts in place. Under the FFCAct, EPA and the states have 90 days to comment on this report; then DOE must consider any comments in the preparation of the final report. Efforts are currently underway to improve DOE's mixed waste data and to respond to comments. DOE's goal is to finalize the inventory report in late 1994. DOE intends to update the inventory information routinely.

Why does the waste need to be treated?

There are many different types of mixed waste and different reasons for treating them. To be in compliance with the RCRA land disposal restrictions, the hazardous components of mixed waste must meet specific treatment standards. The treatment technology selection must also consider the radioactive components. In addition, certain treatment processes may be used to change the waste into a form that is more suitable for storage or disposal or to meet the waste acceptance criteria of a specific storage or disposal facility. In other cases, the mixed waste may be treated to reduce the volume of waste needing permanent disposal.

Who develops the Site Treatment Plans?

DOE Operations Offices have the lead role in working with the regulatory agencies and the local publics in developing the Site Treatment Plan for each site. DOE Headquarters will be closely involved in the development of the plans to ensure that they are consistent with DOE-wide requirements and that issues impacting more than one DOE facility are identified. It is vitally important for DOE to develop these plans in cooperation with the regulators and the public so that the public concerns and issues can be considered and the final Site Treatment Plans can be approved and supported by the regulators.

To provide multiple opportunities for comment and discussion, DOE will issue the Site Treatment Plans for public review at three levels of development. A conceptual, draft, and final Site Treatment Plan will be prepared for each site (see box).

Key Dates in the Development of Site Treatment Plans

10/93 Conceptual Site Treatment Plan
Identifies preliminary options for treating each site's wastes.

Discussions occur among states, EPA, DOE, and other stakeholders.

8/94 Draft Site Treatment Plan
Identifies, based on regulator/stakeholder discussions, preferred option for treating each site's mixed wastes. Identifies specific mixed waste treatment facilities and locations, and proposed treatment schedules.

Discussions occur among states, EPA, DOE, and other stakeholders.

2/95 Final Site Treatment Plan
Identifies final DOE options for treatment technologies, facilities, locations, and schedules for each site's wastes. Goes to regulators for review and approval.

10/95 Compliance Date
Date by which all sites must be in compliance with an approved Site Treatment Plan. ◆

DOE is also encouraging each of its sites to work with the regulators, with site-specific interest and advisory groups, and through other established means to provide additional opportunities for public discussion throughout the Site Treatment Plans development process.

Who decides where and how the wastes will be treated?

The states, or in cases where they do not have regulatory authority, the EPA, will approve, approve with modifications, or disapprove the final Site Treatment Plans. The plans will be prepared for 48 DOE facilities and will identify the treatment facilities to be developed to provide the needed treatment capacity. Twenty-two states will be involved in discussing the plans as well as the many issues of equity and tradeoffs among the states that must be resolved. The states have chosen the National Governors' Association to facilitate discussions on the development of the Site Treatment Plans among the states, DOE, Tribal representatives and other affected parties.

When will decisions be made and who will make them?

To meet the requirements of the FFCAct, DOE will submit final plans to the regulators by February, 1995. However, the alternatives for mixed waste treatment capacities and technologies will be discussed and developed throughout the development of the Site Treatment Plans. Many factors must be weighed, and DOE will strive for consensus on the preferred approach. The state regulators (or EPA) will maintain the authority to approve or disapprove the Site Treatment Plans. The regulators will direct DOE's implementation of the approved plans through formal Compliance Orders.

Why should the public be interested?

The major waste management decisions facing DOE and the states (and EPA) will affect the local communities around each site. Decisions include the location of facilities, the type of treatment to be used, where the waste will be shipped for treatment and how the treated waste will be disposed.

Providing opportunities for the public to participate in decision-making early in the process can lead to a more complete identification and consideration of issues and alternatives. Addressing public and state concerns and comments early will help DOE and the regulators to develop final Site Treatment Plans that reflect public interests and can be more readily accepted and approved by the regulators.

How will local interests be balanced against national needs?

At the DOE facilities, DOE representatives will work with the local community, regulators, and other interested parties to identify and address issues concerning the treatment of mixed waste. Besides the document review process, DOE will use existing site-specific groups and public interactions to secure public involvement in the Site Treatment Plans development process.

For national issues and discussions among the states, the National Governors' Association is working with DOE to sponsor a series of national meetings to hear the concerns of the States, Tribal governments, EPA and other stakeholders. These meetings will provide a forum for identifying issues, discussing alternatives and their associated tradeoffs, and developing strategies to achieve an equitable approach to mixed waste treatment.

Where can I find a copy of the Site Treatment Plans?

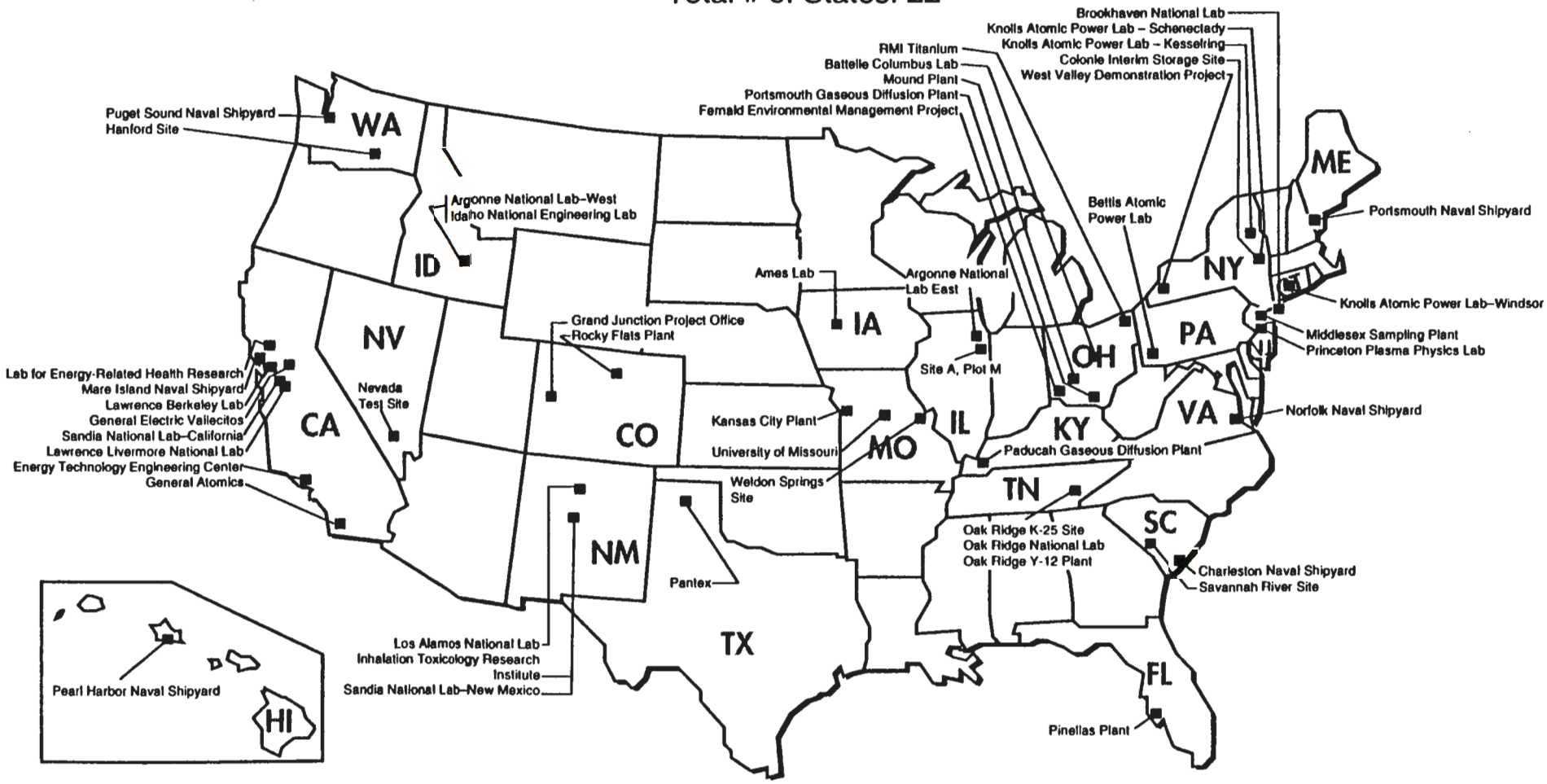
As the three revisions (conceptual, draft, and final) of the Site Treatment Plans are produced, copies will be placed in DOE Public Reading Rooms. The plan for each site will be placed in the local DOE Public Reading Room. A set of all the plans will also be placed in the DOE Headquarters Public Information Reading Room located at 1000 Independence Avenue SW, Washington, D.C. ◆

For Further Information

If you would like further information or would like to be added to the mailing list for future information releases, please contact the Center for Environmental Management Information at 1-800-736-3282, or in D.C. at 202-863-5084. ◆

Locations of Sites Storing or Projecting to Generate Mixed Waste

Total # of Sites: 49
Total # of States: 22



M94-GT-0350-1

DOE Tackles the Mixed Waste Issue . . .

◆ July 1994 ◆

Are you interested in the Department of Energy's Waste Management Issues?

Are you curious about the treatment and disposal of mixed hazardous and radioactive waste?

Do you want to know about ongoing efforts to answer these questions?

The Department of Energy invites you to participate in its ongoing efforts to address the issue of mixed radioactive and hazardous waste treatment and disposal under the requirements of the Federal Facility Compliance Act (FFCAct). These DOE wastes are generated or stored (or are expected to be soon) at 49 sites in 22 different states. Additional DOE mixed waste will be generated as more facilities are decontaminated and dismantled and as old burial and storage sites are cleaned up. The FFCAct evaluations include some very important issues:

- The types of treatment that should be used for these wastes; for example, deactivation, incineration, solidification, and others.
- The potential for consolidation of similar wastestreams or sharing of treatment facilities between DOE sites.
- Transportation of waste before and after treatment.
- New technologies needed to treat mixed wastes.
- Construction of new facilities and prioritization among other DOE programs.
- The associated issue, not required under the FFCAct, of disposal of mixed waste treatment residues.

In order for the decisions made on the FFCAct to reflect public opinions, concerns, and recommendations, it is very important that DOE and the State and EPA regulators discuss these proposals with the public during the upcoming months. Opportunities will be provided for information sharing and involvement at both the individual DOE site level and at the national level.

A fact sheet addressing the development of Site Treatment Plans and a Status Report on the FFCAct are attached for your information. If you are interested in receiving further information, would like to attend an event focused on this issue, or have further information needs, please return the enclosed reply information card to DOE.

Thank you for taking the time to look at the enclosed materials and for expressing your interest.

Status Report on the Federal Facility Compliance Act

◆ Federal Facility Compliance Act ◆ Status Report ◆ September 1994 ◆

The Department of Energy (DOE) would like to invite you to participate in resolving a long-standing issue, the need for treatment of mixed wastes. The management of these wastes, containing both radioactive and hazardous materials, is a unique challenge in terms of existing regulations, waste treatment technologies and facilities, and the disposal of treatment residues.

Background

The Federal Facility Compliance Act of 1992 (FFCAct) provides an unprecedented opportunity for the Department of Energy (DOE) to work with its regulators and other interested parties to resolve the issue of how to treat the approximately 600,000 cubic meters of mixed radioactive and hazardous DOE waste now being stored, as well as mixed wastes expected to be generated in the future. In August 1994, each of 48 facilities[1] that manage DOE mixed waste, located in 22 states, will release for public review and comment a Draft Site Treatment Plan that outlines a preliminary strategy for treating these wastes.

DOE faces a challenging task. Mixed waste treatment strategies must be developed for over 1500 different types of waste, new technologies must be developed and facilities built to treat the waste, and arrangements must be made to ship waste to other facilities when it cannot be handled on-site for technical, economic, or other reasons. A wide variety of waste treatment methods are being evaluated, including solidification of liquid waste, incineration, polymer encapsulation, chemical oxidation, and other methods. Additional information on the development of the Site Treatment Plans and the issues that they address is provided in the attached Issue Alert.

Status

Since passage of the FFCAct, DOE has worked closely with the Environmental Protection Agency (EPA) and the State regulators to define the approach to developing the Site Treatment Plans. The development of the plans has proceeded through several stages, including:

- Development of an inventory of mixed waste and mixed waste treatment facilities throughout the DOE complex including high level, transuranic, and low level mixed wastes.
- Publication of a process and schedule for preparing the plans (58 FR 17875, April 1993).
- Identification of potential mixed waste treatment options in the Conceptual Site Treatment Plans, released in October 1993.
- Development of a framework to evaluate treatment options.
- Development of draft strategies in the Draft Site Treatment Plans, to be released in August 1994.
- Preliminary efforts to identify DOE sites that could be used for disposal of mixed waste treatment residues.

[1] *The Hanford Site in Richland, Washington, has signed a Tri-party Agreement with the State of Washington which addresses mixed waste treatment (among other issues). Therefore, the Hanford site is not preparing a Site Treatment Plan, but is actively participating in the FFCAct discussions.*

The Draft Site Treatment Plans

As required by the FFCAct, the Site Treatment Plans will identify how, when, and where suitable treatment capacity for the mixed wastes will be developed and installed. The main goals of the Draft Site Treatment Plans are:

- To describe the DOE sites' preferred options, reflecting state input, for treating mixed wastes at a specific location;
- To describe the other options for management of the mixed waste and how they were evaluated; and,
- To promote discussion of the preferred options and other issues that need to be resolved.

In order to make the Draft Plans consistent and comparable, a framework was developed to establish common terminology, objectives, values, planning assumptions, and a recommended methodology for identifying the preferred options from among the wide range of alternatives that were presented in the Conceptual Site Treatment Plans. The methodology considers protection of human health and the environment, effective mixed waste treatment, stakeholder involvement, regulatory compliance and efficient use of limited resources.

The framework lays out assumptions to ensure the sites follow a consistent approach that reflects DOE policy in developing the Draft Plans. The process of evaluating these options is documented in the Draft Site Treatment Plans, along with the preferred treatment option for each mixed waste, a description of the wastes that are covered in the plan, and other related topics such as a discussion of the disposal issue. A contact for each of the sites involved in the FFCAct process is listed on page three.

Looking At Disposal

Although the FFCAct does not address disposal of the treated mixed wastes, both DOE and the States recognize that disposal issues are an integral part of treatment discussions, and have established working groups to focus on disposal issues. The primary focus of these working groups has been evaluating the capability of sites for the disposal of low level mixed waste residues which will be left after treatment. Through this process, sites that are not suitable for disposal activities are removed from further evaluation. Remaining sites are evaluated at progressively more detailed levels. Ultimately, some number of sites would remain at which disposal of at least some types of mixed waste is technically feasible. DOE, through public input and evaluation processes, would then decide which of these sites would be proposed for development as disposal sites, and would initiate the permitting process with its State and Federal regulators. Other sites, both commercial and throughout the DOE complex, may be considered for disposal, and would be evaluated as appropriate.

The information gathered by these working groups will be used during the discussion of the Draft Site Treatment Plan options and issues of equity between the states, and will be available to the public. Preferred alternatives or final destinations for disposal of residues from the treatment of mixed waste probably will not be included in the Final Site Treatment Plans due to the time required to complete the technical evaluations.

As a first step in the disposal site evaluation process, DOE and the States agreed to start with the 49 sites that are included in the mixed waste inventory and cull them down to those that are technically feasible as disposal locations. The working groups removed sites from this list by using the disposal facility location criteria from the Resource Conservation and Recovery Act and considering minimum facility size requirements:

- The disposal facility must not be within a 100-year floodplain;
- The disposal facility must not be within 61 meters of an active fault; and,
- There must be sufficient area to accommodate a 100 meter buffer zone around a facility.

By using these criteria, the number of sites being evaluated was reduced to 26. DOE is preparing fact sheets on each of the remaining 26 sites. The fact sheets will provide additional site-specific information for understanding the strengths and weaknesses of each of the remaining 26 sites for disposal activities. The fact sheets will include the following information:

- Site Description including geographic location, size, demographics, site mission, and current employment;
- Institutional Factors describing ownership of the site, presence of mixed low level waste facilities, regulatory agreements, and volumes of mixed waste stored;
- Technical Factors describing climate, geology, hydrology, and sensitive environments at the site; and,
- Additional Reading providing references to more detailed site information.

These fact sheets will be made available in the DOE Reading Rooms along with the Draft Site Treatment Plans.

Site Contacts

SITE	CITY/STATE	CONTACT/PHONE #
Ames Laboratory	Ames, IA	Mary Jo Acke, 708/252-8796
Argonne National Laboratory - East	Argonne, IL	Mary Jo Acke, 708/252-8796
Argonne National Laboratory - West	Idaho Falls, ID	Bob Starck, 208/526-1126
Battelle Columbus Laboratories	Columbus, OH	Mary Jo Acke, 708/252-8796
Bettis Atomic Power Laboratory	West Mifflin, PA	Elmer Naples, 703/603-6126
Brookhaven National Laboratory	Upton, NY	Mary Jo Acke, 708/252-8796
Charleston Naval Shipyard	Charleston, SC	Elmer Naples, 703/603-6126
Colonie Interim Storage Site	Colonie, NY	Melyssa Noe, 615/241-3315
Energy Technology Engineering Center	Canoga Park, CA	Dave Christy, 510/637-1809
Fernald Environmental Management Project	Fernald, OH	Gary Stegner, 513/648-3153
General Atomics	San Diego, CA	Dave Christy, 510/637-1809
General Electric Vallecitos Nuclear Center	Vallecitos, CA	Dave Christy, 510/637-1809
Grand Junction Project Office	Grand Junction, CO	Christina Houston, 505/845-5483
Hanford Site	Richland, WA	Pat Hale, 509/376-5628
Idaho National Engineering Laboratory	Idaho Falls, ID	Bob Starck, 208/526-1126
Inhalation Toxicology Research Institute	Albuquerque, NM	Christina Houston, 505/845-5483
Kansas City Plant	Kansas City, MO	Christina Houston, 505/845-5483
Knolls Atomic Power Laboratory - Kesselring	West Milton, NY	Elmer Naples, 703/603-6126
Knolls Atomic Power Laboratory - Schenectedy	Niskayuna, NY	Elmer Naples, 703/603-6126
Knolls Atomic Power Laboratory - Windsor	Windsor, CT	Elmer Naples, 703/603-6126
Laboratory for Energy Related Health Research	Davis, CA	Dave Christy, 510/637-1809
Lawrence Berkeley Laboratory	Berkeley, CA	Dave Christy, 510/637-1809
Lawrence Livermore Laboratory	Livermore, CA	Dave Christy, 510/637-1809
Los Alamos National Laboratory	Los Alamos, NM	Christina Houston, 505/845-5483
Mare Island Naval Shipyard	Vallejo, CA	Elmer Naples, 703/603-6126
Middlesex Sampling Plant	Middlesex, NJ	Melyssa Noe, 615/241-3315
Mound Plant	Miamisburg, OH	Christina Houston, 505/845-5483
Nevada Test Site	Mercury, NV	Nancy Harkess, 702/295-4652
Norfolk Naval Shipyard	Norfolk, VA	Elmer Naples, 703/603-6126
Oak Ridge K-25 Site	Oak Ridge, TN	Sandy Perkins, 615/576-1590
Oak Ridge National Laboratory	Oak Ridge, TN	Sandy Perkins, 615/576-1590
Oak Ridge Y-12 Plant	Oak Ridge, TN	Sandy Perkins, 615/576-1590
Paducah Gaseous Diffusion Plant	Paducah, KY	Sandy Perkins, 615/576-1590
Pantex Plant	Amarillo, TX	Tom Williams, 806/477-3121
Pearl Harbor Naval Shipyard	Honolulu, HI	Elmer Naples 703/603-6126
Pinellas Plant	Largo, FL	Gary Schmidke, 813/545-6179
Portsmouth Gaseous Diffusion Plant	Portsmouth, OH	Sandy Perkins, 615/576-1590
Portsmouth Naval Shipyard	Kittery, MA	Elmer Naples, 703/603-6126
Princeton Plasma Physics Laboratory	Princeton, NJ	Mary Jo Acke, 708/252-8796
Puget Sound Naval Shipyard	Bremerton, WA	Elmer Naples, 703/603-6126
RMI Titanium Company	Ashtabula, OH	Mary Jo Acke, 708/252-8796
Rocky Flats Plant	Golden, CO	Richard Schassburger, 303/966-4888
Sandia National Laboratory - CA	Livermore, CA	Christina Houston, 505/845-5483
Sandia National Laboratory - New Mexico	Albuquerque, NM	Christina Houston, 505/845-5483
Savannah River Site	Aiken, SC	Virginia Gardner, 803/725-5752
Site A/Plot M Palos Forest Preserve	Cook County, IL	Mary Jo Acke, 708/252-8796
University of Missouri	Columbia, MO	Dave Christy, 510/637-1809
Weldon Springs Site	St. Charles County, MO	Melyssa Noe, 615/241-3315
West Valley Demonstration Project	West Valley, NY	Elizabeth Matthews, 716/942-4930

DOE will evaluate the remaining 26 sites using the information in the fact sheets, and will propose that any additional sites that are unacceptable for disposal activities be eliminated from further consideration. The results of this evaluation step will be completed at the same time as the Draft Plans.

Next Steps

Soon after the release of the Draft Site Treatment Plans in August 1994, DOE will release a summary of the Draft Plans that will provide an overall picture of the options proposed by the sites. The summary will describe what wastes are proposed to be treated in existing facilities, what new facilities are proposed to be built, and what wastes are proposed for treatment at other facilities, both DOE and commercial. The summary will also discuss the development of new technologies for treating mixed waste.

A large number of issues must be discussed and resolved prior to presenting DOE's selected option for mixed waste treatment in the Proposed Final Site Treatment Plans in February 1995. These issues include:

- Discussion among states that may ship or receive mixed wastes;
- Other equity concerns;
- The states' preference for on-site treatment of wastes, which reduces transport among sites and the need to treat off-site wastes;
- The complexities of scheduling and implementation of large construction projects;
- How disposal issues will be addressed; and,
- How DOE can meet its commitment to fund FFCAct activities while considering budgetary constraints and other priority activities.

EPA/State Role

Although DOE is developing the Site Treatment Plans, DOE does not have final word. The Act gives the State and EPA regulators authority to approve/disapprove the plans and enforce them through compliance orders. To ensure that these decisions reflect public opinions, concerns, and recommendations, DOE and the regulators must discuss these proposals with the public while proceeding towards the Final Site Treatment Plans.

To date, DOE and the regulators have worked closely with the States and EPA at the site level and at the national level through the National Governors' Association to define the scope of and technical approach to developing the Site Treatment Plans, the method used to evaluate the wastes and technologies, and the issue of disposal. Cooperative efforts will increase during the period from August 1994 through February 1995 when the Draft Site Treatment Plans and issues of equity will be discussed among DOE, the regulators, and the public. In addition, the States or EPA must provide a public review and comment period after the Final Site Treatment Plans are issued in February 1995.

Public Involvement Opportunities

Efforts to involve the public in the development of the Draft Site Treatment Plans have been primarily focused at the DOE site level, and these efforts will continue throughout the Site Treatment Plan development process. However, now that each site has developed a Draft Site Treatment Plan, a national picture of treatment options is beginning to emerge based on the Draft Plans. From August 1994 through February 1995, numerous issues that may influence which options are presented in the Final Site Treatment Plans will be discussed. DOE will provide opportunities for interested parties to get information, express their opinions, or discuss these plans and associated mixed waste issues with DOE and State representatives.

At this time, several initial opportunities for DOE to provide information and discuss the FFCAct are scheduled. On August 23, 1994, DOE will hold an informal open house at the Environmental Management Information Center in Washington, D.C. where additional information will be available and DOE and State representative involved in the Site Treatment Plan process can answer questions on FFCAct issues. In addition, a national workshop is currently being planned during October to provide an interactive information exchange and discussion opportunity. Additional workshops may be offered if there is sufficient interest in the Site Treatment Plan process.

Other opportunities for involvement and information will be provided in the future. In order for DOE to determine what opportunities could meet your level of interest, please complete the attached postage paid card and return it to DOE Headquarters. Further information, including DOE site representatives involved with the FFCAct, can be obtained by contacting the Center for Environmental Management at 1-800-736-3282.

Mixed Waste

◆ Federal Facility Compliance Act ◆ Issue Alert #3 ◆ September 1994 ◆

What Are Mixed Wastes?

Mixed waste contains both radioactive and hazardous components. The radioactive component is defined by the Atomic Energy Act and the hazardous component is regulated by the Resource Conservation and Recovery Act (RCRA).

Where Do Mixed Wastes Come From?

Most mixed wastes in the U.S. are generated by DOE. DOE generates mixed wastes through research and production activities surrounding nuclear weapons and nuclear energy also through activities such as environmental clean-up. Commercial industry, government agencies, hospitals, and research institutions also generate mixed wastes. Under the Federal Facility Compliance Act, DOE has published a nationwide inventory describing each mixed waste DOE manages in an interim Mixed Waste Inventory Report. This report was initially published in April 1993 and is currently being updated.

What Are DOE's Different Types Of Mixed Wastes?

DOE classifies mixed wastes according to both radioactive and hazardous characteristics. DOE uses three categories to classify the mixed waste based on its radioactive characteristics. High-Level Waste includes specific highly radioactive wastes that result from the reprocessing of spent nuclear fuel. Generally high level waste is a sludge or slurry form that is stored in tanks. Mixed Transuranic Waste contains greater than 100 nanocuries per gram of transuranic elements with half-lives greater than 20 years. Transuranic elements have atomic numbers higher than that of uranium, and are generally a concern because of their longevity. All other mixed waste is classified as Mixed Low-Level Waste. This waste varies greatly in the level and type of radioactivity it contains.

Physically, mixed transuranic and mixed low-level wastes include a wide variety of materials such as used chemicals and oil, paper wipes, sludges from water and waste treatment, and used laboratory and processing equipment that have been contaminated by both hazardous waste and radioactivity. These wastes are usually stored in drums or boxes.

DOE further classifies transuranic and low-level wastes according to the level of radiation they emit. Wastes with radiation levels of at least 200 millirem/hour at the surface are classified as Remote Handled. These wastes must be handled and stored behind shielding to protect workers and the environment from radiation. Wastes emitting lower radiation levels are Contact Handled. These wastes can be handled directly.

To classify wastes according to their hazardous characteristics, DOE uses the hazardous waste regulations established by the Environmental Protection Agency (EPA) and the states under the RCRA. RCRA defines a waste as hazardous if it is specifically listed by the EPA, or if it exhibits the hazardous characteristics of ignitability, corrosivity, reactivity, and toxicity.

What Is DOE Doing To Properly Manage Its Mixed Wastes?

Due to the potential environmental hazards associated with mixed waste, DOE is reducing the quantity and toxicity of mixed wastes that it generates. This is done through the reduced use of hazardous and radioactive materials and recycling. Where the generation of mixed wastes is unavoidable, DOE is working to provide treatment for the waste so that it can be safely disposed. Historically, some mixed wastes have been stored because there is no available treatment facility that can accept them. Under the Federal Facility Compliance Act, DOE is preparing Site Treatment Plans to provide a strategy for the future treatment of these mixed wastes.

DOE Mixed Waste

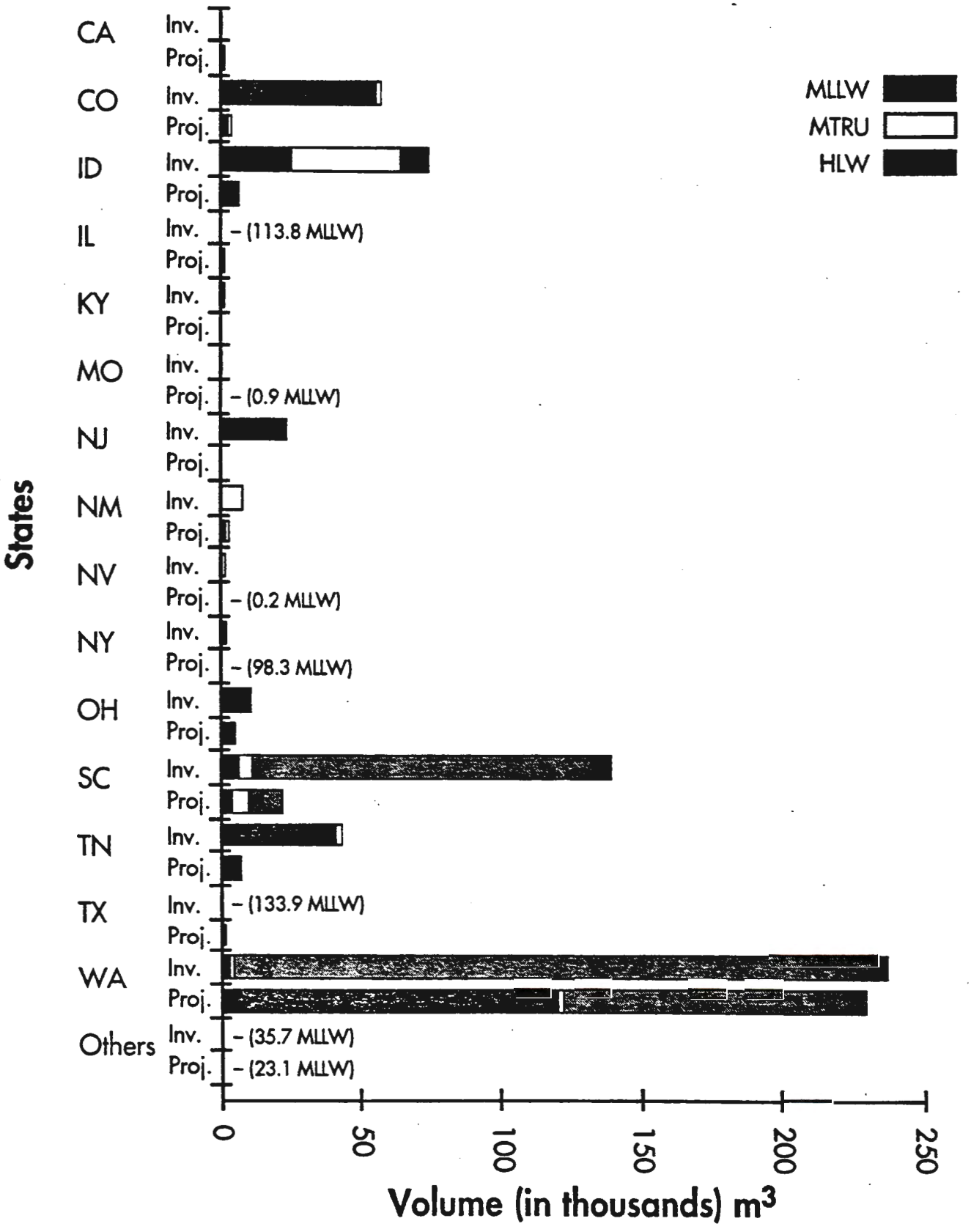
(based on May 14, 1994 Mixed Waste Inventory Report database)

State	MLLW Current Inventory (m^3)	MTRU Current Inventory (m^3)	HLW Current Inventory (m^3)	MLLW Five-Year Projections (m^3)	MTRU Five-Year Projections (m^3)	HLW Five-Year Projections (m^3)
CA	963.2	1.9	NA	1,943.8	9.5	NA
CO	56,030.4	1,116.1	NA	3,369.0	284.0	NA
CT	0.0	NA	NA	14.3	NA	NA
HI	2.0	NA	NA	0.9	NA	NA
IA	0.4	NA	NA	0.3	NA	NA
ID	25,495.2	39,155.0	10,452.0	2,460.0	36.1	5,825.0
IL	113.8	2.5	NA	2,176.9	1.8	NA
KY	596.5	13.5	NA	0.0	0.0	NA
ME	0.4	NA	NA	0.2	NA	NA
MO	1,680.1	0.1	NA	0.9	0.4	NA
NJ	24,480.0	NA	NA	0.0	NA	NA
NM	734.7	8,214.9	NA	540.2	605.8	NA
NV	0.4	612.0	NA	0.2	0.0	NA
NY	124.1	2.2	289.0	98.3	0.2	0.0
OH	11,745.9	3.1	NA	6,437.4	0.2	NA
PA	32.9	NA	NA	5.9	NA	NA
SC	6,554.7	5,023.7	128,337.0	4,435.7	5,813.0	13,566.4
TN	42,038.1	1,847.7	NA	8,296.2	108.5	NA
TX	133.9	NA	NA	343.9	NA	NA
VA	0.0	NA	NA	1.5	NA	NA
WA	3,163.7	180.9	232,523.0	120,023.3	164.1	109,753.0
Subtotal	***173,890.4***	***56,173.6***	***371,601.0***	***150,149.9***	***7,023.6***	***129,144.4***
Total Inventory 601,665.0				**Total Projected 286,317.9**		

- NA indicates "Not Applicable."
- 0.0 indicates a potential for future generation.
- Some sites did not provide projection numbers.
- Contaminated media (e.g., soil, debris) that may become waste through future remediation and D&D activities is not included.

DOE Mixed Waste

Data from 1994 MWIR



"Others" includes: CT, HI, IA, ME, PA, and VA

- Some sites did not provide projection numbers.
- Contaminated media (e.g., soil, debris) that may become waste through future remediation and D&D activities is not included.

M94-GT-0372-c

DEPARTMENT OF ENERGY FACT SHEET

FEDERAL FACILITY COMPLIANCE ACT DISPOSAL WORK GROUP MEETING JULY 26-27, 1994

BACKGROUND

The Federal Facility Compliance Act (FFCAct) of 1992 requires the Department of Energy (DOE) to work with its regulators and other members of the public to establish plans for the treatment of DOE's mixed wastes. DOE currently stores or is expected to generate mixed waste at 49 sites in 22 States. The National Governors' Association (NGA), through a cooperative agreement with DOE, is coordinating representatives from these 22 states to provide input to DOE's development of mixed waste treatment plans.

Although the FFCAct does not specifically address disposal of treated mixed wastes, both DOE and the States recognize that disposal issues are an integral part of treatment discussions, and have representatives working on and discussing the disposal issues. The primary focus of these discussions has been to evaluate the technical feasibility of sites for the disposal of mixed low-level waste (MLLW) residuals which will remain after treatment. Sites determined to be unsuitable for disposal activities will be removed from further evaluation. Remaining sites will be evaluated more extensively. Ultimately, a number of sites are expected to be technically acceptable for disposal activities.

The results of this technical information gathering process will be considered during the discussions about development of the FFCAct Site Treatment Plans, both between DOE and States and among States themselves. These results will also be available for public review. Preferred alternatives or final destinations for disposal of treatment residuals may not be known at the time final Site Treatment Plans are submitted to the States and EPA in February 1995.

DISPOSAL SITE FACT SHEETS AND MEETING JULY 26-27, 1994

A predecisional draft of the report "Framework for DOE Mixed Low-Level Waste Disposal: Site Fact Sheets" was forwarded for comment and review to the State representatives who have been discussing the disposal issues with DOE on July 8, 1994. The report was prepared by DOE's FFCAct Disposal Work Group at the request of the States to promote discussions between DOE and the affected States concerning disposal of treated MLLW residuals. DOE and the State representatives will discuss this report and any ensuing proposals at a meeting July 26-27, 1994, in Denver, Colorado.

DISPOSAL SITES EVALUATION PROCESS

The sites being evaluated in this process are the 49 sites reported to Congress by DOE in the Mixed Waste Inventory Report, April 1993, as currently storing or expected to generate mixed waste. The initial step in this process was to group sites that were in geographic proximity together for evaluation and this grouping reduced the number of sites to 44. Next, the sites were screened against three exclusionary criteria. At a joint DOE/States meeting in Tucson, Arizona on March 3-4, 1994, State representatives agreed that a site:

- must not be located within a 100-year floodplain;
- must not be located within 61 meters of an active fault; and
- must have sufficient area to accommodate a 100-meter buffer zone.

Application of the three exclusionary criteria resulted in the removal of 18 sites from further consideration. The results were presented at the March 30-31, 1994, joint DOE/States meeting in Dallas, Texas. As a result of this meeting, the State representatives agreed that DOE would prepare fact sheets on the remaining 26 sites to provide additional site-specific information to establish the strengths and weaknesses of the remaining sites for the purpose of disposal activities. These 26 sites are listed in Attachment 1. As a result of the fact sheets and associated discussions, it was mutually agreed that DOE and any affected States may propose additional sites for elimination from further evaluation.

The DOE Disposal Work Group has evaluated the information contained in the Site Fact sheets, and will be proposing to the States that the following sites be discussed for possible elimination from further evaluation:

SITE	STATE
Energy Technology Engineering Center	California
General Atomics	California
General Electric Vallecitos Nuclear Center	California
Pinellas Plant	Florida
Site A/Plot M	Illinois
Weldon Spring Remedial Action Project	Missouri
Brookhaven National Laboratory	New York
Knolls Atomic Power Laboratory-Niskayuna	New York
Mound Plant	Ohio
Bettis Atomic Power Laboratory	Pennsylvania

Additionally, DOE and the State representatives will discuss how to prioritize the remaining sites for further evaluation, and identify other sites that should be considered for inclusion or removal from further evaluation. It is important to note that inclusion of a site for further evaluation does not constitute a decision by DOE to propose disposal operations at a site. The evaluation is solely for the purpose of obtaining and discussing information on the suitability of a site for hosting a disposal facility. The ultimate identification of sites that may host mixed waste disposal activities will follow state and federal regulations for siting and permitting and will include public involvement in the decision-making. Moreover, any recommendations concerning removal of sites from further evaluation under this process do not affect environmental restoration decisions by DOE under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) concerning remediation activities, including leaving waste in place.

NEXT STEPS

Following the July 26-27, 1994, meeting in Denver, Colorado, DOE and the States' representatives will develop recommendations for the full FFCAct Task Force and States' as to what action, if any, should be taken.

For the sites remaining for further evaluation, a more technically detailed performance evaluation will be conducted to better define the strengths and weakness of a site's potential for disposal and to better define what types of disposal activities could or could not occur at a site. Ultimately, this process will allow DOE to carry out its commitment to manage mixed waste from the time of initial generation to final disposal in compliance with federal and state regulations and with full involvement of the public.

ATTACHMENT 1

26 SITES EVALUATED BY DOE

California
- Energy Technology Engineering Center
- General Atomics
- General Electric Vallecitos Nuclear Center
- Lawrence Livermore National Laboratory, Site 300

Colorado
- Rocky Flats Plant

Florida
- Pinellas Plant

Idaho
- Idaho National Engineering Laboratory

Illinois
- Argonne National Laboratory
- Site A/ Plot M

Kentucky
- Paducah Gaseous Diffusion Plant

Missouri
- Weldon Spring Remedial Action Project

Nevada
- Nevada Test Site

New Mexico
- Los Alamos National Laboratory
- Sandia National Laboratory

New York
- Brookhaven National Laboratory
- Knolls Atomic Power Laboratory - Kesselring
- Knolls Atomic Power Laboratory - Niskayuna
- West Valley Demonstration Project

Ohio
- Fernald Environmental Management Project
- Mound Plant
- Portsmouth Gaseous Diffusion Plant

Pennsylvania
- Bettis Atomic Power Laboratory

South Carolina
- Savannah River Site

Tennessee
- Oak Ridge Reservation

Texas
- Pantex Plant

Washington
- Hanford Site

DEPARTMENT OF ENERGY FACT SHEET

FEDERAL FACILITY COMPLIANCE ACT DISPOSAL WORK GROUP
SITE EVALUATION UPDATE
July 29, 1994

BACKGROUND

The Federal Facility Compliance Act (FFCAct) of 1992 requires the Department of Energy (DOE) to work with its regulators and other members of the public to establish plans for the treatment of DOE's mixed wastes. DOE currently stores or is expected to generate mixed waste at 49 sites in 22 States. The National Governors' Association (NGA), through a cooperative agreement with DOE, is coordinating representatives from these 22 states and the U. S. Environmental Protection Agency (EPA) to assist in DOE's development of mixed waste treatment plans.

Although the FFCAct does not specifically address disposal of treated mixed wastes, both DOE and the States recognize that disposal issues are an integral part of treatment discussions, and have representatives working on and discussing the disposal issues. The focus of these discussions has been to identify, from among the sites currently storing or expected to generate mixed waste, sites that are suitable for further evaluation regarding their disposal capability. Sites determined to have marginal or no potential for disposal activities will be removed or postponed from further evaluation under this process. Remaining sites will be evaluated more extensively. Ultimately, a number of sites are expected to be technically acceptable for disposal activities.

The results of this technical information gathering process will be considered during the discussions about development of the FFCAct Site Treatment Plans, both between DOE and States and among States themselves. These results will also be available for public review. Preferred alternatives or final destinations for disposal of treatment residuals may not be known at the time final Site Treatment Plans are submitted to the States and EPA in February 1995.

SITE EVALUATION PROCESS

The sites being evaluated in this process are the 49 sites reported to Congress by DOE in the Mixed Waste Inventory Report, April 1993, as currently storing or expected to generate mixed waste. The initial step in this process was to group sites that were in geographic proximity together for evaluation and this grouping reduced the number of sites to 44. Next, the sites were screened against three exclusionary criteria. At a joint DOE/States meeting in Tucson, Arizona on March 3-4, 1994, the representatives agreed that a site:

- must not be located within a 100-year floodplain;
- must not be located within 61 meters of an active fault; and
- must have sufficient area to accommodate a 100-meter buffer zone.

Application of the three exclusionary criteria identified 18 sites which did not meet the criteria. The results were presented at a March 30-31, 1994, joint DOE/States meeting in Dallas, Texas. At the meeting, it was agreed to remove the 18 sites from further evaluation and that DOE would prepare fact sheets on the remaining 26 sites to provide additional site-specific information to identify the strengths and weaknesses of the remaining sites for the purpose of disposal activities. These 26 sites are listed in Attachment 1. It was also agreed that DOE and any affected States may propose additional sites for elimination from further evaluation after review of the fact sheets and other information.

UPDATE ON DISPOSAL SITE EVALUATION DISCUSSIONS

A predecisional draft of the report "Framework for DOE Mixed Low-Level Waste Disposal: Site Fact Sheets" was forwarded for comment and review to the State representatives who have been discussing the disposal issues with DOE on July 8, 1994. The report was prepared by DOE's FFCAct Disposal Work Group at the request of the States to promote discussions between DOE and the affected States concerning disposal of treated MLLW residuals. DOE and the State representatives met on July 26-27, 1994, in Denver, Colorado to discuss the report and to consider proposals for elimination of sites from further evaluation. The States identified a number of deficiencies and ambiguities within the draft fact sheets report. However, as a result of the meeting, DOE and the States were able to agree that the following sites would be eliminated from further evaluation under this process regarding the sites' disposal capabilities:

SITE	STATE
Energy Technology Engineering Center	California
General Atomics	California
General Electric Vallecitos Nuclear Center	California
Pinellas Plant	Florida
Site A/Plot M	Illinois

Additionally, DOE and the States agreed that due to its geographic proximity, the Knolls Atomic Power Laboratory at Niskayuna, New York, would be merged with the Knolls Atomic Power Laboratory at Kesselring, New York, for purposes of further analysis. DOE and the States also agreed that the following sites, while not eliminated from further evaluation, would be given a lower priority for further evaluation:

SITE	STATE
Weldon Spring Remedial Action Project	Missouri
Brookhaven National Laboratory	New York
Mound Plant	Ohio
Bettis Atomic Power Laboratory	Pennsylvania

Sites assigned a lower priority for further evaluation had issues that required further consideration, including whether the technical abilities of the site were adequately known, the volume of mixed waste which may be generated by the site, and whether other arrangements for disposal of the sites' mixed waste were adequate. DOE and the States agreed to further evaluate these sites in terms of their ability to dispose of their own mixed waste on-site only if no other options for disposal of their wastes could be identified through the disposal evaluation process. In no case would these sites be considered as a disposal option for wastes from other sites.

NEXT STEPS

For the sites not eliminated from further evaluation or assigned a lower priority for evaluation, a more technically detailed performance evaluation will be conducted to increase the group's understanding of the strengths and weakness of a site's potential for disposal and to better identify what types of disposal activities could or could not occur at a site. The sites being carried forward for this analysis are:

SITE	STATE
Lawrence Livermore National Laboratory, Site 300	California
Rocky Flats Plant	Colorado
Idaho National Engineering Laboratory	Idaho
Argonne National Laboratory	Illinois

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Paducah Gaseous Diffusion Plant	Kentucky
Nevada Test Site	Nevada
Los Alamos National Laboratory	New Mexico
Sandia National Laboratory	New Mexico
Knolls Atomic Power Laboratory - Kesselring	New York
West Valley Demonstration Project	New York
Fernald Environmental Management Project	Ohio
Portsmouth Gaseous Diffusion Plant	Ohio
Savannah River Site	South Carolina
Oak Ridge Reservation	Tennessee
Pantex Plant	Texas
Hanford Site	Washington

It is important to note that inclusion of a site for further evaluation does not constitute a decision by DOE to propose disposal operations at a site. The evaluation is solely for the purpose of obtaining and discussing information on the suitability of a site for hosting a disposal facility. The ultimate identification of sites that may host mixed waste disposal activities will follow state and federal regulations for siting and permitting and will include public involvement in the decision-making and preparation of the appropriate environmental impact analyses in accordance with the National Environmental Policy Act. Moreover, any recommendations concerning removal of sites from further evaluation under this process do not affect environmental restoration decisions by DOE under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) concerning remediation activities. Ultimately, this process will allow DOE to carry out its commitment to manage mixed waste from the time of initial generation to final disposal in compliance with federal and state regulations and with full involvement of the public.

July 29, 1994

ATTACHMENT 1
26 SITES DISCUSSED AT DOE/STATES MEETING IN DENVER, JULY 26-27, 1994

California
* Energy Technology Engineering Center
* General Atomics
* General Electric Vallecitos Nuclear Center
  Lawrence Livermore National Laboratory, Site 300

Colorado
  Rocky Flats Plant

Florida
* Pinellas Plant

Idaho
  Idaho National Engineering Laboratory

Illinois
  Argonne National Laboratory
* Site A/ Plot M

Kentucky
  Paducah Gaseous Diffusion Plant

Missouri
** Weldon Spring Remedial Action Project

Nevada
  Nevada Test Site

New Mexico
  Los Alamos National Laboratory
  Sandia National Laboratory

New York
** Brookhaven National Laboratory
  Knolls Atomic Power Laboratory - Kesselring
● Knolls Atomic Power Laboratory - Niskayuna
  West Valley Demonstration Project

Ohio
  Fernald Environmental Management Project
** Mound Plant
  Portsmouth Gaseous Diffusion Plant

Pennsylvania
** Bettis Atomic Power Laboratory

South Carolina
  Savannah River Site

Tennessee
  Oak Ridge Reservation

Texas
  Pantex Plant

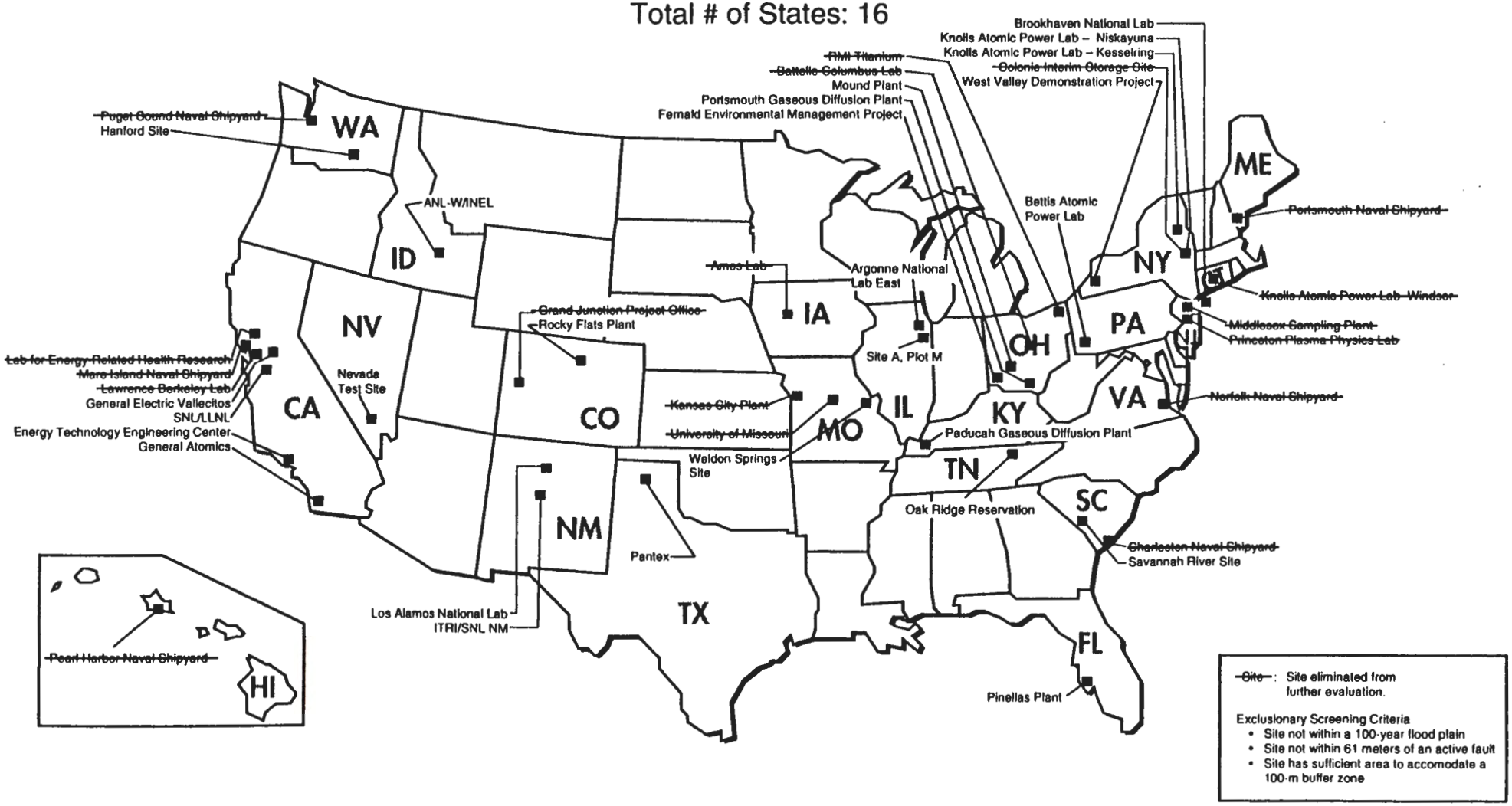
Washington
  Hanford Site

* Site eliminated from further evaluation;
** Site assigned lower priority for further evaluation;
● Due to geographic proximity, merged with Knolls Atomic Power Laboratory - Kesselring site for purposes of further analysis; see discussion in *Federal Facility Compliance Act Disposal Work Group Site Evaluation Update, July 29, 1994.*

July 29, 1994

Sites that Passed the Initial Exclusionary Criteria

Total # of Sites: 26
Total # of States: 16



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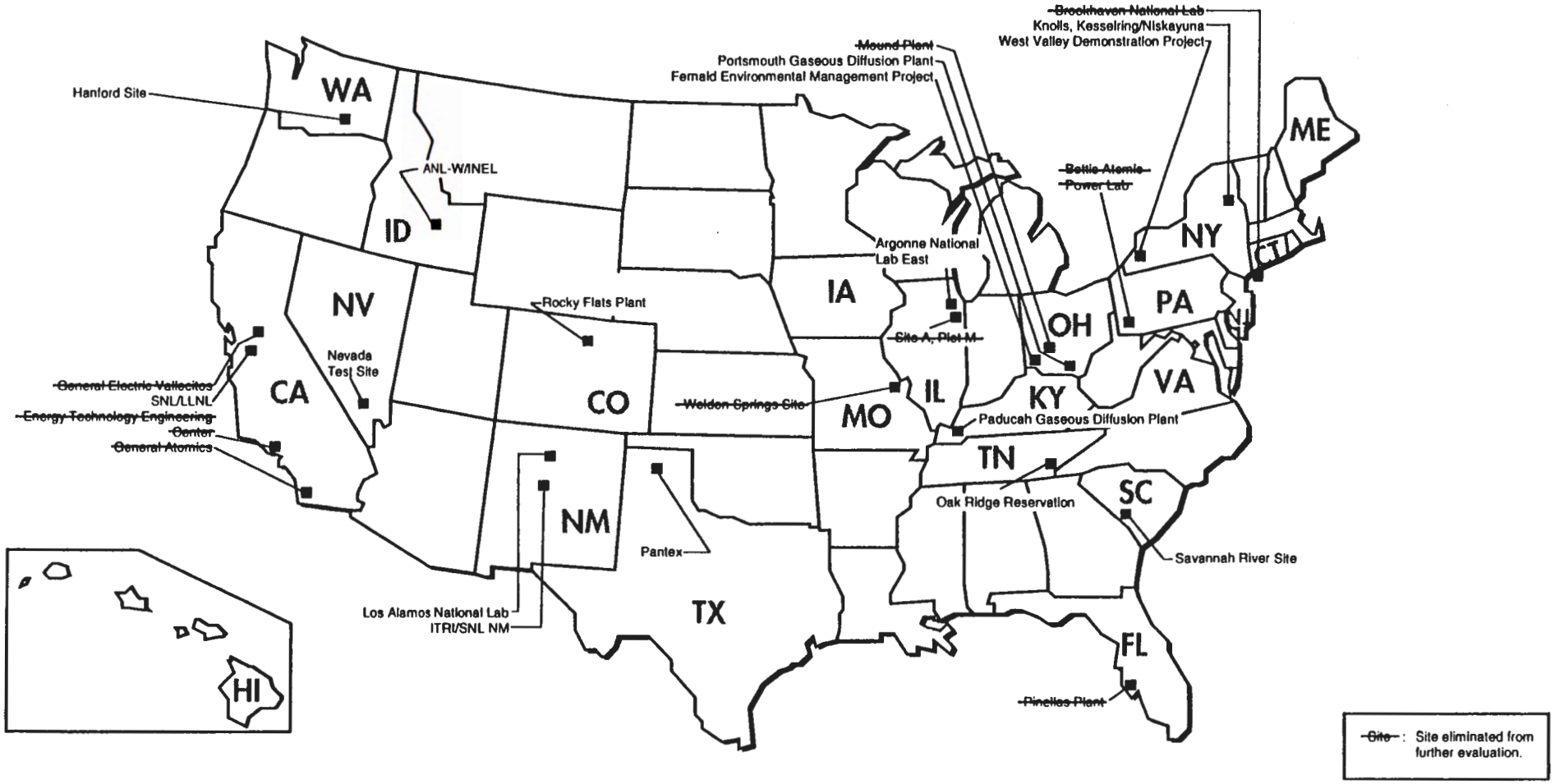
Sites Recommended for Further Performance Evaluation

Total # of Sites: 16
Total # of States: 13



M94-GT-0350-4

8.0 PROCESS FOR EVALUATING DISPOSAL ISSUES IN SUPPORT OF THE STP DISCUSSIONS

8.1 Introduction

This section discusses the overall process developed by DOE for evaluating issues related to the disposal of residuals from the treatment of mixed low-level wastes (MLLW) subject to the Act. [INSERT SITE NAME] [IS/IS NOT] among the sites being analyzed further under this process for potential development as a disposal site for residuals from the treatment of MLLW subject to the Act.

The Federal Facility Compliance Act requires only that DOE develop a plan for the treatment of mixed wastes. The Act does not impose any similar requirement for the disposal of mixed wastes. DOE recognizes, however, the need to address this final phase of mixed waste management. The following process reflects DOE's current strategy for evaluating the potential options for disposal and, consistent with the purpose of this Background Volume, is provided for informational purposes only.

It is important to note that the ultimate identification of sites that may host mixed waste disposal activities will follow state and federal regulations for siting and permitting and will include public involvement in the decision-making and preparation of the appropriate environmental impact analyses in accordance with the National Environmental Policy Act. Moreover, any recommendations concerning removal of sites from further evaluation under this process do not affect environmental restoration decisions by DOE under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) concerning remediation activities.

Mixed waste subject to the Act includes high level waste (HLW) and mixed-transuranic waste (mixed TRU). However, established processes are already being implemented for studying, designing, constructing, and ultimately operating disposal facilities for these wastes (e.g., HLW repository, Waste Isolation Pilot Project). Currently, however, there are no active permitted disposal facilities operated by DOE for residuals from the treatment of MLLW.

Previously, the DOE planning baseline included the development of MLLW disposal facilities at the six DOE sites currently disposing of low-level waste (Hanford Site, Savannah River Site, Oak Ridge, Idaho, Nevada, and Los Alamos). Plans for the development of these facilities are currently on hold pending the results of this process and the Environmental Management Programmatic Environmental Impact Statement (EM PEIS) currently being prepared by DOE. Once the process of acquiring permits for these sites is initiated, along with associated design and radiological performance assessment efforts, some sites may be found to not be desirable for disposal activities. Additionally, some sites which have not been before considered for disposal activities may be suitable for the disposal of some MLLW residuals.

Pursuant to discussions between DOE and the States, DOE developed a process for evaluating the potential options for disposal of the residuals from treatment of mixed waste subject to the Act. The sites subject to this

- The Oak Ridge National Laboratory, Oak Ridge K-25 Site, and Oak Ridge Y-12 are all located within the Federally-owned Oak Ridge Reservation, in Oak Ridge, Tennessee, and were considered a single site for further analysis.

Initial Site Screening

The remaining 44 sites were screened against three exclusionary criteria. These criteria were developed by reviewing Federal and State laws regarding the siting of waste treatment, storage, and disposal facilities to determine whether any criteria existed which could be considered exclusionary minimum requirements for hosting disposal activities and which could be applied uniformly across sites. It was agreed at a joint DOE/States meeting in Tucson, Arizona on March 3-4, 1994, that in order to be further evaluated for potential disposal activities, a site:

- must not be located within a 100-year floodplain;
- must not be located within 61 meters (200 feet) of an active fault; and
- must have sufficient area to accommodate a 100-meter buffer zone.

Two of the criteria (100-year floodplain and active fault) are derived from regulatory requirements under the Resource Conservation and Recovery Act which restrict the location of waste treatment, storage, and disposal facilities. The third criteria (sufficient area for 100-meter buffer) is derived from guidance from the U.S. Environmental Protection Agency, U.S. Nuclear Regulatory Commission, and U.S. Department of Energy concerning the area required to properly operate such facilities.

Application of the three exclusionary criteria identified 18 sites which did not meet the criteria (see Figure 8-1). The results were presented at a March 30-31, 1994, joint DOE/States meeting in Dallas, Texas. At the meeting, it was agreed to remove the 18 sites from further evaluation and that DOE would collect additional site-specific information on the remaining 26 sites to identify the strengths and weaknesses of the remaining sites for the purpose of disposal activities (see Figure 8-2). It was also agreed that DOE and any affected States may propose additional sites for elimination from further evaluation after review of the site-specific information and further discussions.

26 Site Evaluation

DOE and the States met on July 26-27, 1994, in Denver, Colorado to discuss the site specific information on the 26 sites and to consider proposals for elimination of sites from further evaluation. The focus of these discussions was to identify sites suitable for further evaluation regarding their disposal capability. It was agreed that sites determined to have marginal or no potential for disposal activities would be removed or postponed from further evaluation under this process. As a result of the meeting, DOE and the States agreed that the following sites would be eliminated from further evaluation due to their limited potential for disposal activities:

surroundings: geotechnical setting, groundwater and surface water characteristics, and other factors related to the disposal capabilities of each site. This information will then be used to evaluate the sites and determine what types and quantities of waste may be able to be disposed at a given site. The performance evaluations will be initiated in August, 1994, and will be completed by February, 1995. The 16 sites being carried forward for this analysis are:

SITE	STATE
Lawrence Livermore National Laboratory, Site 300	California
Rocky Flats Plant	Colorado
Idaho National Engineering Laboratory	Idaho
Argonne National Laboratory	Illinois
Paducah Gaseous Diffusion Plant	Kentucky
Nevada Test Site	Nevada
Los Alamos National Laboratory	New Mexico
Sandia National Laboratory	New Mexico
Knolls Atomic Power Laboratory - Kesselring	New York
West Valley Demonstration Project	New York
Fernald Environmental Management Project	Ohio
Portsmouth Gaseous Diffusion Plant	Ohio
Savannah River Site	South Carolina
Oak Ridge Reservation	Tennessee
Pantex Plant	Texas
Hanford Site	Washington

Configuration Analysis

Through the Draft EM PEIS currently being prepared by DOE, the potential cost, risks, transportation, and other environmental impacts of using each of the remaining 16 sites for some level of disposal activity will be analyzed. This analysis is currently scheduled to be released for public review and comment in Late 1994/early 1995.

Site Limitations Analysis

Following public comment on the Draft EM PEIS and completion of the performance evaluations on the remaining 16 sites, DOE will work with the States and public to develop estimates of the quantities and types of waste that could be disposed at the 16 sites. It is expected that the results of these two analyses may indicate that some of the remaining 16 sites are not suitable for further analysis.

Final EM PEIS

While the final proposed Site Treatment Plans are being prepared, and following their submission by DOE to the States and other regulators, it is expected that individual States and DOE will enter discussions concerning what wastes will be treated at which sites. It is also expected that as a part of these discussions, some arrangements may be established between DOE sites and States as to how any future disposal activities will be handled. DOE expects

FIGURE 8-1
SITES ELIMINATED IN INITIAL SCREENING

SITE	EXCLUSIONARY CRITERIA		
	100 meter buffer	100-Year Floodplain	Active Fault
California			
Lawrence Berkeley Laboratory	●		
Laboratory for Energy-Related Health Research	●		
Mare Island Naval Shipyard (a)		●	
Colorado			
Grand Junction Project Office		●	
Connecticut			
Knolls Atomic Power Laboratory, Windsor	●		
Hawaii			
Pearl Harbor Naval Shipyard (a)		●	
Iowa			
Ames Laboratory	●		
Maine			
Portsmouth Naval Shipyard (a)		●	
Missouri			
Kansas City Plant		●	
University of Missouri	●		
New Jersey			
Middlesex Sampling Plant	●		
Princeton Plasma Physics Laboratory	●		
New York			
Colonie Interim Storage Site	●		
Ohio			
Battelle Columbus Laboratory	●		
RMI Titanium, Inc.	●		

FIGURE 8-2
26 SITES REMAINING AFTER INITIAL SCREENING

California
- Energy Technology Engineering Center
- General Atomics
- General Electric Vallecitos Nuclear Center
- Lawrence Livermore National Laboratory, Site 300

Colorado
- Rocky Flats Plant

Florida
- Pinellas Plant

Idaho
- Idaho National Engineering Laboratory

Illinois
- Argonne National Laboratory
- Site A/ Plot M

Kentucky
- Paducah Gaseous Diffusion Plant

Missouri
- Weldon Spring Remedial Action Project

Nevada
- Nevada Test Site

New Mexico
- Los Alamos National Laboratory
- Sandia National Laboratory

New York
- Brookhaven National Laboratory
- Knolls Atomic Power Laboratory - Kesselring
- Knolls Atomic Power Laboratory - Niskayuna
- West Valley Demonstration Project

Ohio
- Fernald Environmental Management Project
- Mound Plant
- Portsmouth Gaseous Diffusion Plant

Pennsylvania
- Bettis Atomic Power Laboratory

South Carolina
- Savannah River Site

Tennessee
- Oak Ridge Reservation

Texas
- Pantex Plant

Washington
- Hanford Site

Relationship Between the Environmental Management Programmatic Environmental Impact Statement and the Federal Facility Compliance Act

◆ Federal Facility Compliance Act ◆ Issue Alert #4 ◆ September 1994 ◆

The Department of Energy (DOE) is undertaking two related activities that will affect its future decisions for managing "mixed waste" containing both hazardous and radioactive components. First, DOE is undertaking a very broad, or programmatic environmental impact analysis of alternative strategies for waste management activities in the Environmental Management Programmatic Environmental Impact Statement (PEIS). The PEIS, being developed in accordance with the provisions of the National Environmental Policy Act (NEPA), will include an evaluation of the potential environmental impacts of mixed waste management activities at a very broad level. In a second effort under the Federal Facility Compliance Act of 1992 (FFCAct), DOE is preparing individual Site Treatment Plans that will provide a detailed technical strategy for the treatment of mixed waste that is generated or stored at the DOE sites. This fact sheet describes the scope and schedule of each activity and DOE's efforts to ensure that a consistent set of mixed waste treatment alternatives are being considered. ◆

The Programmatic Environmental Impact Statement

The management of wastes from past operations, cleanup activities, and current operations poses a significant challenge for DOE. In November 1989, these activities were consolidated under the Office of Environmental Restoration and Waste Management. On October 22, 1990, DOE published a Federal Register notice (55 FR 42634) announcing its intent to prepare the Environmental Management Programmatic Environmental Impact Statement (PEIS) to assess the potential environmental impacts of alternative ways of conducting its waste management activities.

The PEIS will identify and analyze the alternative configuration of waste management facilities. As requested by the States, in connection with the FFCAct process, these configurations will include the alternative of each site managing its own waste. The PEIS will evaluate alternatives to determine the potential for impacts to human health and the environment from the alternative waste management strategies.

The Federal Facility Compliance Act

The Federal Facility Compliance Act of 1992 (FFCAct) directs DOE to address the treatment of mixed radioactive and hazardous waste that DOE generates or stores. The FFCAct amends the Resource Conservation and Recovery Act (RCRA), the law that defines requirements for the management of hazardous waste. RCRA contains specific restrictions on the land disposal of hazardous waste, including treatment standards and storage prohibitions. In general, DOE sites that are storing mixed waste are unable to comply with these land disposal restrictions because of a lack of capacity for treating the mixed waste.

In order to move DOE toward compliance with the land disposal restrictions, the FFCAct requires DOE to develop mixed waste Site Treatment Plans, and gives approval and enforcement authority over these plans to regulatory agencies. Site Treatment Plans, which must be prepared for each site that stores or generates mixed waste, will identify how DOE will provide the necessary mixed waste treatment capacity, including schedules for bringing new treatment facilities into operation. DOE has defined a three step process for developing a Site Treatment Plan for each of the DOE sites that handle mixed waste.

The first step in the process, the development of Conceptual Site Treatment Plans, provides a description of currently available treatment facilities, their capacities, and options for treatment of the mixed waste. These documents were delivered to the States and the U.S. Environmental Protection Agency (EPA) for review in October 1993.

As discussions are held with the States and the Conceptual Site Treatment Plans are studied, DOE will narrow its range of options in the second step of the process, the Draft Site Treatment Plans, to be issued in August 1994. Further discussions will lead to the identification of DOE's final proposed treatment strategies in the third step, when the Site Treatment Plans are submitted in February 1995 to the State or EPA, as appropriate, for approval. The State or EPA is then required to issue an order requiring DOE to comply with the approval plan. If the DOE site is in compliance with the approved plan and the Compliance Order by October, 1995, DOE will not be liable for fines and penalties related to the storage prohibition under the RCRA land disposal restrictions for mixed wastes.

Relationship of the PEIS and the Site Treatment Plans

As required by the FFCAct, the Site Treatment Plan process will assess mixed waste treatment needs at a detailed, site-by-site level, and will result in decisions about how and where each mixed waste stream will be treated, including what facilities will be built to provide needed treatment capacity. The PEIS, which is broadly analyzing DOE's waste management activities, will provide the analysis of environmental impacts to support those decisions.

DOE is ensuring that the two efforts are integrated and consistent. To accomplish this, the mixed waste treatment alternatives described in the Draft PEIS (which is scheduled for release after the Draft Site Treatment Plans are submitted) will be broad enough to assess the potential environmental impacts of the configuration that results from the FFCAct process. The Draft PEIS will not identify a preferred alternative for mixed waste treatment facilities, since this will be evolving throughout the Site Treatment Plan development process.

Comparison of the PEIS and the Site Treatment Plans

ISSUE	PEIS	Site Treatment Plans
Applicable Statute	NEPA	RCRA/FFCAct
Focus	To evaluate at a complex-wide, programmatic level the environmental impacts of various waste management strategies and provide a basis for decision making	To develop site-specific plans for providing mixed waste treatment capacity to achieve compliance with land disposal restrictions
Wastes Addressed	All DOE wastes are addressed (radioactive wastes; mixed wastes; and hazardous wastes)	Focus solely on mixed wastes (radioactive waste mixed with hazardous waste)
Scope of Activities	All aspects of waste management, including the location of facilities and strategies for treatment, storage and disposal of waste	Treatment of mixed waste (primarily focused on developing sufficient treatment capacity)
Timeframe	Draft - late 94 Final - Fall 95 Record of Decision - After approval of STPs	Conceptual - 10/93 Draft - 8/94 Final - 2/95 Approved Plans and Consent Orders
Responsible Office	Office of Environmental Management	Office of Environmental Management
Outcome	Record of Decision published by DOE that will define the overall strategy for managing wastes throughout the DOE complex; will reflect decisions in approved plans	Approved Site Treatment Plans and Compliance Orders issued by State or EPA, as appropriate. Noncompliance with Orders could potentially result in fines for DOE.
Public involvement	General public - involved through scoping meetings, and workshops; public meetings and opportunities to review and comment on draft EIS. National - address national-level issues through the Environmental Management Advisory Board.	National - National Governors' Association facilitating discussions with States and EPA; public review and comment on plans; inclusion in PEIS interactions. Site-specific - interaction with local communities at involved sites through established forums; varies according to local interest.

In February of 1995, DOE will submit the Site Treatment Plans to the States and EPA for approval, reflecting input on the Draft Plans and the analysis of environmental impacts produced through the PEIS process. After considering public input on the Draft PEIS, the Final PEIS will be issued, currently scheduled for Fall 1995. For mixed waste treatment, the Final PEIS will be consistent with the proposal submitted to the States and EPA in the Site Treatment Plans. Finally, the PEIS Record of Decision will be issued following approval of the Site Treatment Plans and will reflect any changes that occur after the Plans are submitted to the States and EPA.

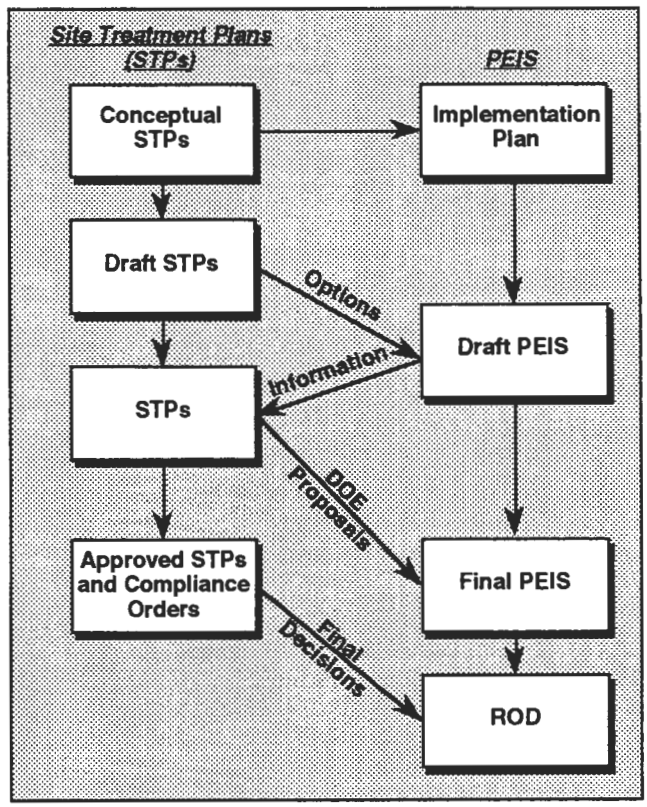
In addition, as the sites implement the Site Treatment Plans and the Orders, each site will undertake any environmental assessment required by NEPA before proceeding with specific projects and actions contained in the Plans.

Involving the Public

Interested members of the public, DOE's stakeholders, will continue to be involved with the PEIS and Site Treatment Plan efforts at both the local and national level.

The PEIS public involvement efforts include:

- As part of the National Environmental Policy Act process, public comments from informal public workshops and scoping hearings were used in defining the waste management alternatives, how they will be analyzed, and the scope of impacts that the PEIS would consider.
- A Draft Implementation Plan outlining the PEIS approach was also released for public comment.
- Additional discussions with the public on the Draft PEIS will include the programmatic mixed waste treatment alternatives as well as other waste management issues.
- DOE has formed the national Environmental Management Advisory Board (EMAB), which includes a wide range of stakeholders, to work with DOE in defining and reviewing the PEIS. Information on the development of the Site Treatment Plans will be forwarded to the EMAB to provide them with a comprehensive overview.



The FFCAct public involvement efforts include:

- Public comments received on the PEIS documents will also be considered in developing the Site Treatment Plans.
- DOE is working with the National Governors' Association at the national level to facilitate its interactions with the State regulators who will approve the plans. EPA and the Native American Tribes also participate. These meetings provide a forum for identifying issues, discussing alternatives and their associated tradeoffs, and developing strategies to achieve an equitable approach to mixed waste treatment.
- DOE will use existing site-specific groups and public interaction mechanisms to involve the public in the Site Treatment Plan development and review. Opportunities for public review will be provided for the Draft Site Treatment plans. These efforts will reflect the level of interest in the local communities and will be conducted at the site level.
- As the STP development process proceeds, national level interactions may be conducted as needed. ◆

For further information, contact the Center for Environmental Management Information at 1-800-736-3282, or in D.C. at 202-863-5084.

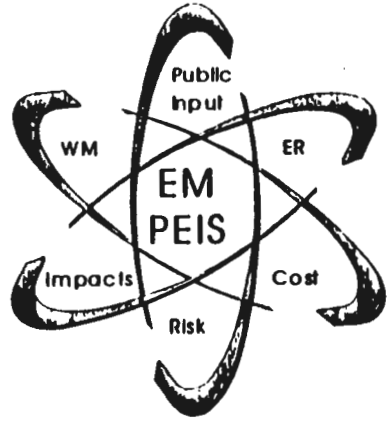
"By the year 2019, all DOE operations will be in full compliance, and the risk to the public and the environment from inactive sites will be reduced to acceptable levels."

—U.S. Department of Energy, *Environmental Restoration and Waste Management Five-Year Plan, Fiscal Years 1994-1998*

MEETING THE WASTE MANAGEMENT CHALLENGE

- Coordinate and integrate data analysis
- Extensively evaluate alternatives
- Actively solicit stakeholder involvement
- Ensure acceptable risk, impacts, and costs
- Effectively communicate viable waste management alternatives

EM PEIS



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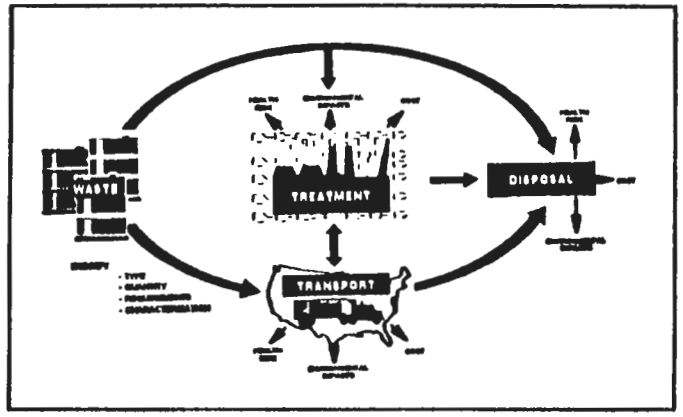
PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

ENVIRONMENTAL MANAGEMENT

Conducted under the Environmental Management Program, the Waste Management Program has been established to minimize, treat, store, and dispose Department of Energy-generated waste to protect human health, safety, and the environment. The program manages nuclear and hazardous wastes generated from Department of Energy defense weapons production and research as well as wastes resulting from the cleanup of contaminated sites and buildings, and encompasses all wastes currently stored or expected to be generated. Under the Federal Facility Compliance Act of 1992 (FFCAct), the Department of Energy is required to develop, within strict deadlines, Site Treatment Plans that bring each facility generating or storing mixed waste into compliance with the Resource Conservation and Recovery Act. Preparation of the EM PEIS and development of the FFCAct Site Treatment Plans are parallel, closely coordinated, and designed to support Department of Energy environmental cleanup and waste management efforts.

The EM PEIS presents the environmental impacts associated with a range of alternatives for locating new or expanded Department of Energy treatment, storage, and disposal facilities. In addition to an alternative representing the current situation, the EM PEIS alternatives evaluate new facilities at a large number of sites (Decentralized Alternatives), smaller groups of sites with more consolidated facilities (Regionalized Alternatives), and facilities at a single location (Centralized Alternative). The EM PEIS assesses waste management alternatives for high-level radioactive waste, low-level radioactive waste, transuranic waste, hazardous waste, and low-level mixed waste (containing both radioactive and hazardous elements).



EM PEIS: Completing the Picture

Generally, the EM PEIS methodology has involved a seven-step analytical process:

- Step 1. Define the proposed Environmental Management Program decisions to be addressed.
- Step 2. Characterize the wastes at each site to identify treatment, storage, and disposal needs.
- Step 3. Develop waste management alternatives with configurations of candidate sites.
- Step 4. Select treatment, storage, and disposal technologies that meet waste management needs, and develop diagrams showing how waste flows through the treatment process before disposal.
- Step 5. Define emissions and costs for each technology in the treatment process.
- Step 6. Assess the human health risks, environmental and socioeconomic impacts, and costs for each alternative.
- Step 7. Evaluate the sensitivity of results to various technological assumptions, reassessing risks and costs.

The EM PEIS integrates environmental restoration and waste management activities. The EM PEIS considers *where* waste management treatment, storage, and disposal activities and facilities should be located rather than *how* to treat, store, or dispose wastes. It assesses how strategies for locating new or expanded treatment, storage, and disposal facilities will affect the Department of Energy complex in the areas of human health risk, environmental impacts, and cost.

The decisions supported by the EM PEIS are listed in the table below:

Decision	High-Level Waste	Transuranic Waste	Low-Level Mixed Waste	Low-Level Waste	Hazardous Waste
Current situation	Stored at 4 sites	Stored at 16 sites, most at 6; no current disposal	Stored at 49 sites; 99% at 14 sites; no current disposal	Generated at 35 sites; 6 sites currently dispose	Each site has own program; most handled in commercial facilities
Where to treat	NO	YES	YES	YES	YES
Where to store after treatment	YES	YES	YES	NO	NO
Where to dispose	NO	NO	YES	YES	NO

EM PEIS

The Department of Energy is conducting two parallel, closely coordinated activities designed to support environmental cleanup and waste management efforts:

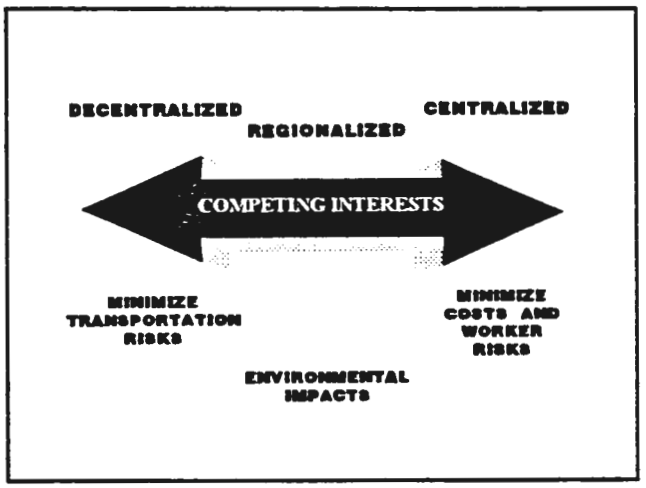
- Preparation of the EM PEIS to comply with the National Environmental Policy Act (NEPA), our national charter for protection of the environment
- Development of Site Treatment Plans to meet requirements of the Federal Facility Compliance Act of 1992 (FFCAct), which amends the Resource Conservation and Recovery Act (RCRA) and requires the Department to develop, within strict deadlines, treatment plans that bring each facility generating or storing mixed waste into compliance with RCRA

The EM PEIS and FFCAct Site Treatment Plans will affect future management decisions for mixed waste containing both radioactive and hazardous components. The Department of Energy is committed to providing the public with opportunities to participate in the environmental management decisionmaking process. Throughout development of the EM PEIS and Site Treatment Plans, public involvement has been continuous and extensive at both the local and national levels. Public participation efforts have included scoping hearings, workshops, formation of the Department of Energy Environmental Management Advisory Board, and involvement with the National Governor's Association to facilitate interactions with the States, U.S. Environmental Protection Agency, and Native American Tribes. The Department of Energy has also worked with local communities, regulators, and other interested parties to identify issues, discuss alternatives and tradeoffs, and develop strategies to achieve an equitable approach to mixed waste treatment.

The EM PEIS integrates environmental restoration and waste management activities. It assesses how decentralized, regionalized, or centralized strategies for locating new or expanded treatment, storage, and disposal facilities will affect the Department of Energy complex in the areas of human health risk, environmental impacts, and cost. It presents the environmental impacts associated with a range of waste management alternatives for high-level radioactive waste, low-level radioactive waste, transuranic waste, hazardous waste, and low-level mixed waste.

Mixed waste, which is generated from a variety of Department of Energy activities, contains radioactive components regulated under the Atomic Energy Act, as amended, and hazardous components regulated under RCRA. All mixed waste must be treated to meet land disposal restrictions by application of the best demonstrated available technology before disposal.

Tradeoffs are involved in determining whether to implement a decentralized or consolidated strategy in locating waste management facilities, as shown below.



Four low-level mixed waste alternatives are analyzed in the EM PEIS: No Action (all sites use existing transport capabilities and store treated waste on site), Decentralized (a large number of sites), Regionalized (smaller groups of sites with more consolidated facilities), and Centralized (a single location). The EM

LOW-LEVEL MIXED WASTE

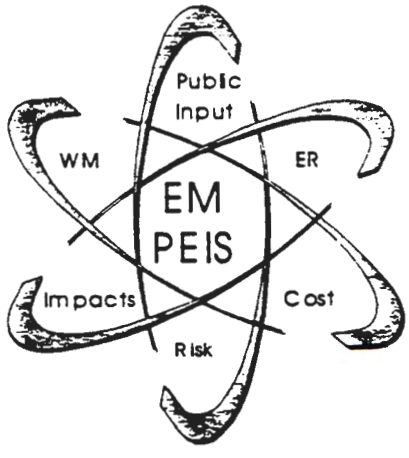
PEIS requires more than four configurations for the extensive range of possible configurations for low-level mixed waste, leading to development of the following cases to evaluate each alternative strategy.

- Decentralized Treatment and Decentralized Disposal: Analysis of 49 sites treating and 16 or more sites disposing
- Regionalized Treatment and Regionalized Disposal: Analysis of 11 sites treating and 12 sites disposing
- Regionalized Treatment and Regionalized Disposal: Analysis of 7 sites treating and 6 sites disposing
- Regionalized Treatment and Centralized Disposal: Analysis of 7 sites treating and 1 site disposing
- Regionalized Treatment and Regionalized Disposal: Analysis of 4 sites treating and 6 sites disposing
- Centralized Treatment and Centralized Disposal: Analysis of 1 site treating and 1 site disposing

To test the sensitivity of the results, analyses have been added that alter the base assumptions. Sensitivity analyses assess the impacts of treating and disposing environmental restoration wastes using vitrification and nonthermal treatment options.

For all alternatives, wastewater treatment remains the responsibility of the individual sites. Disposal sites have been selected in parallel with those selected by the FFCAct State-Department of Energy process to ensure consistency.

The EM PEIS, by assessing impacts for a broad spectrum of alternatives including those under consideration by the FFCAct, provides programmatic NEPA coverage for the Site Treatment Plans.



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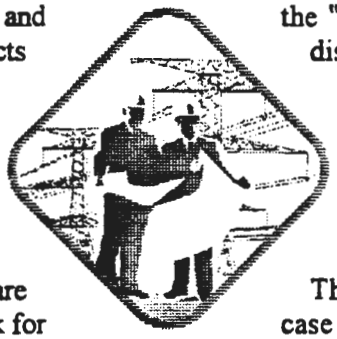
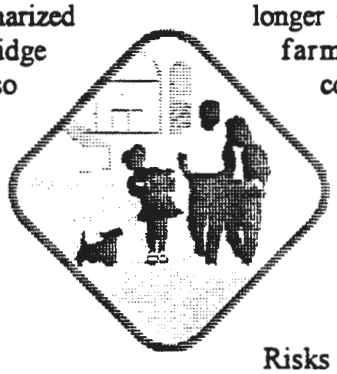
EM PEIS

The EM PEIS assesses how strategies for locating new or expanded treatment, storage, or disposal facilities will affect the Department of Energy complex in the areas of environmental impacts, cost, and human health risk. It evaluates health impacts to the general public and Department of Energy workers from potential exposure to radiation and chemicals as well as physical injury associated with proposed waste management activities. Risks resulting from both routine operations and accidents at Department installations are calculated; the methods used to estimate risk for the Waste Management Program are summarized in technical documents produced by Oak Ridge National Laboratory. The EM PEIS also assesses human health risks resulting from routine transportation of contaminated waste and construction materials as well as transportation accidents; the methods used to perform these assessments are summarized in technical documents produced by Argonne National Laboratory.





Health impacts can result from exposure to radionuclides, chemicals, and physical trauma. Health impacts from radiation exposure assessed for the EM PEIS include cancer (both incidence and fatalities resulting from cancer) and genetic effects. Adverse health impacts associated with chemical exposure include cancer and a range of noncancer toxicity, including organ system toxicity (for example, liver, respiratory, cardiovascular), neurotoxicity, immunotoxicity, developmental toxicity, reproductive toxicity, and genetic toxicity.

Several groups may be exposed to a variety of hazards during the treatment, storage, disposal, and transportation phases of waste management. The EM PEIS considers the general public, which is the population living within an 80-kilometer (50-mile) radius of the installation (referred to as the "offsite population") or those living or traveling along the transportation corridor; the workers on Department installations who are not involved in actual environmental management activities (known as noninvolved or collocated workers and referred to as the "onsite population"); treatment, storage, and disposal workers; and the transportation crew.

To consider maximum potential encroachment upon the site during disposal, the EM PEIS examines the hypothetical case of a farm family of four moving directly onto the site 300 meters downgradient from the disposal facility. This onsite farm family represents the worst case situation, in which institutional controls no longer exist. The family is assumed to engage in farming activities, such as growing and consuming their own crops and livestock, and to use onsite water for drinking, bathing, and recreation as well as for watering their crops and livestock. This hypothetical family is assumed to receive the highest possible exposure to contaminants by all possible routes.

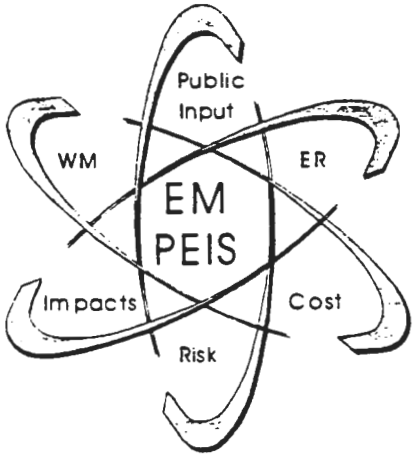
Risks to the offsite and onsite populations from exposure to airborne contaminants are estimated for the first 70 years (first lifetime) when treatment and storage activities take place. Risks to the hypothetical onsite farm family from exposure to groundwater that has been contaminated as a result of a breach in the engineered disposal facility are estimated for 10,000 years (or approximately 143 lifetimes), assuming that the current population size remains constant, because contaminants can reach the groundwater and migrate to the population over several lifetimes. The maximum exposure may occur in a future generation as the peak of the contaminant wave passes the wells of the hypothetical onsite farm family. Worker risks are estimated over 70 years for short-term construction activities as well as for longer term treatment, storage, and disposal operation activities.

The exposure pathways and exposed populations and individuals are summarized in the following table:

RISK

EM PEIS Human Health Risk Assessment

Waste Processing Phase	Pathways to Humans	Potentially Exposed Populations and Individuals
Treatment • Routine emissions • Accidents	Atmospheric • Inhalation (breathing) • Ingestion of crops and animals (no ingestion for onsite populations, no ingestion for chemicals) Direct Radiation	• Public within 50-mile radius • Onsite employees, evenly distributed within installation borders • Onsite most exposed individual • Offsite most exposed individual • Treatment, storage, and disposal worker (inhalation and direct radiation only)
Storage • Routine emissions • Accidents	Atmospheric • Inhalation • Ingestion of crops and animals (no ingestion for onsite populations, no ingestion for chemicals) Direct Radiation	• Public within 50-mile radius (atmospheric only) • Onsite employees, evenly distributed within installation borders (atmospheric only) • Onsite most exposed individual (atmospheric only) • Offsite most exposed individual (atmospheric only) • Treatment, storage, and disposal worker
Disposal • Routine emissions	Atmospheric • Inhalation • Ingestion of crops and animals (no ingestion for onsite populations, no ingestion for chemicals) Groundwater • Ingestion of drinking water • Irrigation of crops • Watering of livestock • Bathing Direct Radiation	• Hypothetical onsite farm family (groundwater only) • Treatment, storage, and disposal worker (atmospheric and direct radiation only)
Transportation • Routine emissions • Accidents	Atmospheric (accident only) • Inhalation • Ingestion of crops and animals Direct Radiation	• Population living and traveling along the route and present at rest stops • Crew



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The EM PEIS assesses how strategies for locating new or expanded treatment, storage, or disposal facilities will affect the Department of Energy complex in the areas of environmental impacts, human health risks, and cost. A six-step process is used to estimate the national and site-level costs of the treatment, storage, disposal, and transportation of Department of Energy high-level, low-level, low-level mixed, transuranic, and hazardous wastes.

Step 1: Define and Identify Cost Elements

First, the cost elements and expenses encompassed in the EM PEIS alternatives comparison are defined and identified. Major cost elements for the EM PEIS alternatives include the following:

- Preoperations costs, including site adaptation, statutory and regulatory permitting, plant startup, and related conceptual design, project management, and contingencies
- Facility construction costs, including building, equipment, and related design, and construction management, project management, and contingencies
- Operations and maintenance costs, including annual operations, maintenance, utilities, contractor supervision and overhead, and related project management and contingencies
- Decontamination and decommissioning costs
- Transportation costs, including intersite road and rail transportation for the configurations established

The cost elements include direct labor, equipment, and materials; indirect technical labor and facilities; overhead and profit; government administration and management; and reserve/contingencies. When all costs are considered, they are referred to as "program life-cycle costs."

Step 2: Determine Treatment, Storage, and Disposal Requirements

Next, the treatment, storage, and disposal requirements for each alternative are determined. Data are gathered for varying capacities for each process necessary to appropriately handle the Department's wastes. Each process is assigned to what the EM PEIS calls a technology module. A particular waste may require treatment by only one, or several, such modules during the treatment, storage, and disposal process. The EM PEIS technology modules are grouped by function as follows:

- Common functions, including front-end support; receiving and inspection; open, dump, and sort; maintenance; certification and shipping
- Pretreatment, including shredding and compaction
- Primary treatment, including incineration, special processing, neutralization, deactivation, aqueous waste treatment, lead recovery, mercury separation
- Secondary treatment and stabilization, including polymer stabilization, grout stabilization, packaging, vitrification
- Storage, including storage administration, receiving and inspection, contact-handled storage, remote-handled silo storage
- Disposal, including disposal administration, receiving and inspection, shallow land disposal, engineered vault disposal, borehole disposal

The costs for each technology module analyzed are applied to calculate costs at any site, assuming a particular capacity.

Step 3: Estimate Process Costs

Process costs are computed to provide a reference point that serves as the basis for cost comparisons. Curves showing cost versus capacity for each technology are developed by combining life cycle costs for the various module sizes. The curves developed reflect the total module cost for a range of treatment requirements and ultimately help define the price of treatment for a unit of waste.

Step 4: Develop a Treatment System for Each Alternative

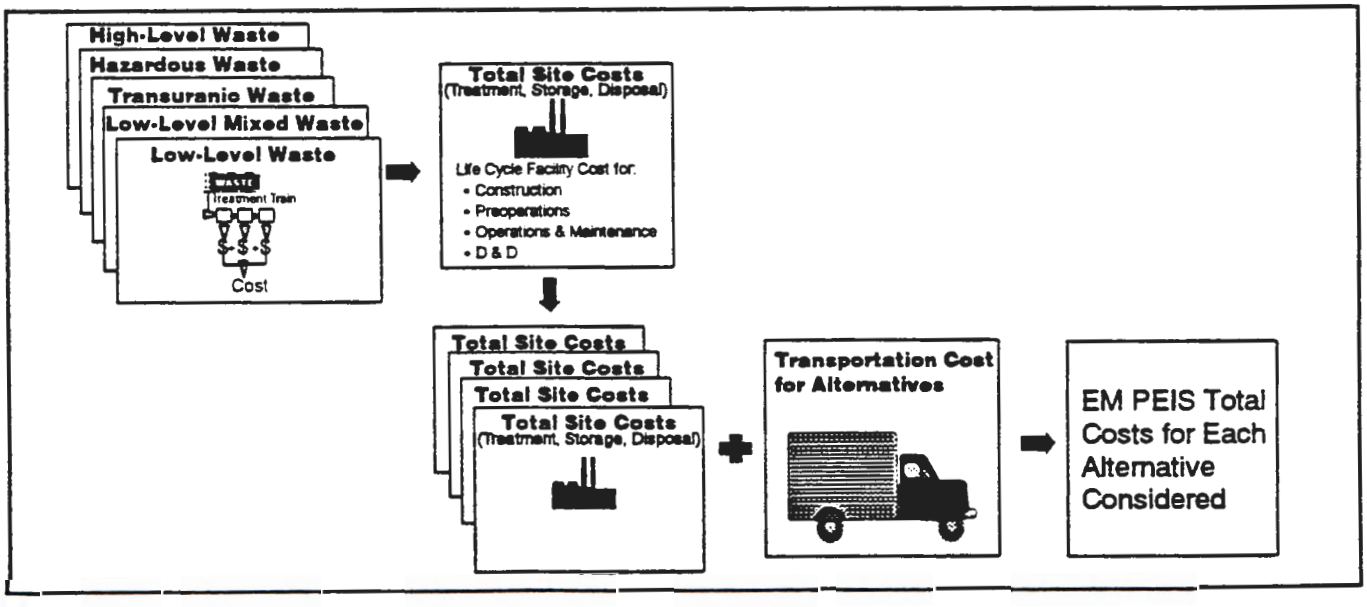
Costs are computed for each alternative by establishing the type and size of treatment, storage, and disposal modules required to treat the expected waste at each site through a generic, yet comprehensive, treatment system called a treatment train. Each alternative specifies the treatment required for each waste type located at each facility. For each site and for each EM PEIS scenario, wastes are routed through the treatment train, and the technology modules are individually sized to handle the processing requirements. The analysis also accounts for existing facilities to minimize unnecessary building requirements.

Step 5: Estimate the Costs for Each Alternative

In estimating the costs for each EM PEIS alternative, the design capacity required for each technology module at each site is determined, then totaled for all waste at a given site. Site infrastructure costs are not included in the alternative costs. Finally, all site costs are added for a given alternative. Transportation costs are also calculated for road transportation for all alternatives and for rail transportation for most alternatives.

Step 6: Compare Alternatives

Significant cost factors are used to uniformly compare the EM PEIS Decentralized, Regionalized, and Centralized treatment, storage, and disposal alternatives. The site costs and total costs for each alternative are derived as shown below.



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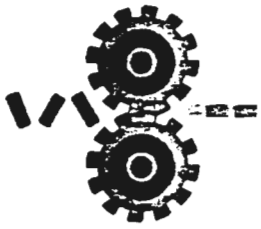
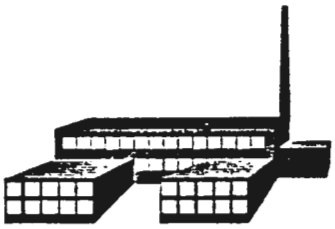
Consideration and Evaluation of Emerging Technologies and Future Technology Developments as Treatment Options

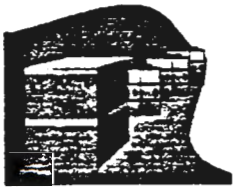
Characterization



Pretreatment



Treatment



Storage

Disposal

Schedules proposed in the Site Treatment Plan address the timelines associated with the construction of new waste management capacity for wastes for which technologies exist and for the development of new technologies where the technology does not exist. Emerging technologies and technology developments which are not yet in the conceptual phase will be important considerations as the waste management options for new facilities evolve. New technologies may provide opportunities to manage waste more safely, effectively, and at lower cost than current technologies. In some cases a new or adapted technology is the only waste management option. It is anticipated that the Site Treatment Plan and the resulting consent orders will have the flexibility to evolve with time to include new waste management options offered by advances in technology.

Schedules for the creation of new capacity for some wastes may be of sufficient duration to allow the inclusion of newly developed technology by alteration of the evolving facility design. A new technology, in order to be substituted for a baseline technology, will have to exhibit a significant advantage when judged by selection guides which include public acceptance, risk abatement, performance, and life cycle cost. The Mixed Waste Focus Area of the Environmental Management Program provides technology development support and coordination to address mixed waste management technology needs. New technologies will be developed, evaluated, and publicized through the activities of the Mixed Waste Focus Area. These new technologies will be evaluated as waste management options when appropriate.

The Waste Management Automated Technology Catalog

Objective: The Waste Management Automated Technology Catalog (WMATC) has been developed to assist US Department of Energy (DOE) sites in carrying out the treatment system and technology assessments necessary to prepare their Site Treatment Plans as mandated by the Federal Facility Compliance Act of 1992.

Catalog Description: There are several versions of the catalog. The Waste Management Automated Technology Catalog (WMATC) is in a portable electronic format supported on a Macintosh PC and operates under the 4D Runtime™ software. DOS based versions are available either through Internet access to the LANL server using the MOSAIC utility or a local version that uses the MOSAIC utility on a DOS based PC.

The WMATC's utility is based on its ability to carry out searches for technologies that match specific waste management functions such as front-end handling, pretreatment, treatment, etc. A unique feature of the WMATC is that the technologies in the database have been tied to specific unit operations in toplevel flowsheets. These flowsheets are suggestive of the flowsheets developed by the Mixed Waste Treatment Project (EM-33) during the analysis of the Complex-wide mixed low level waste treatment system requirements. The graphically oriented search strategy (available in the Macintosh version) directs the development of flow sheets by providing technology choices from the catalog for five waste matrices—organic liquids, aqueous liquids, process solids, soils, and debris—and the required unit operations.

Audience: Access to the WMATC is available to the DOE and its DOE contractors who are involved in Site Treatment Plan Development and other FFCAct activities.

Sponsoring Organization: The EM Mixed Waste Focus Area, funded by the Office of Technology Development (EM-50) and the Office of Waste Management (EM-30).

Developed and Managed By: William McCulla, Program Development Mgr.,
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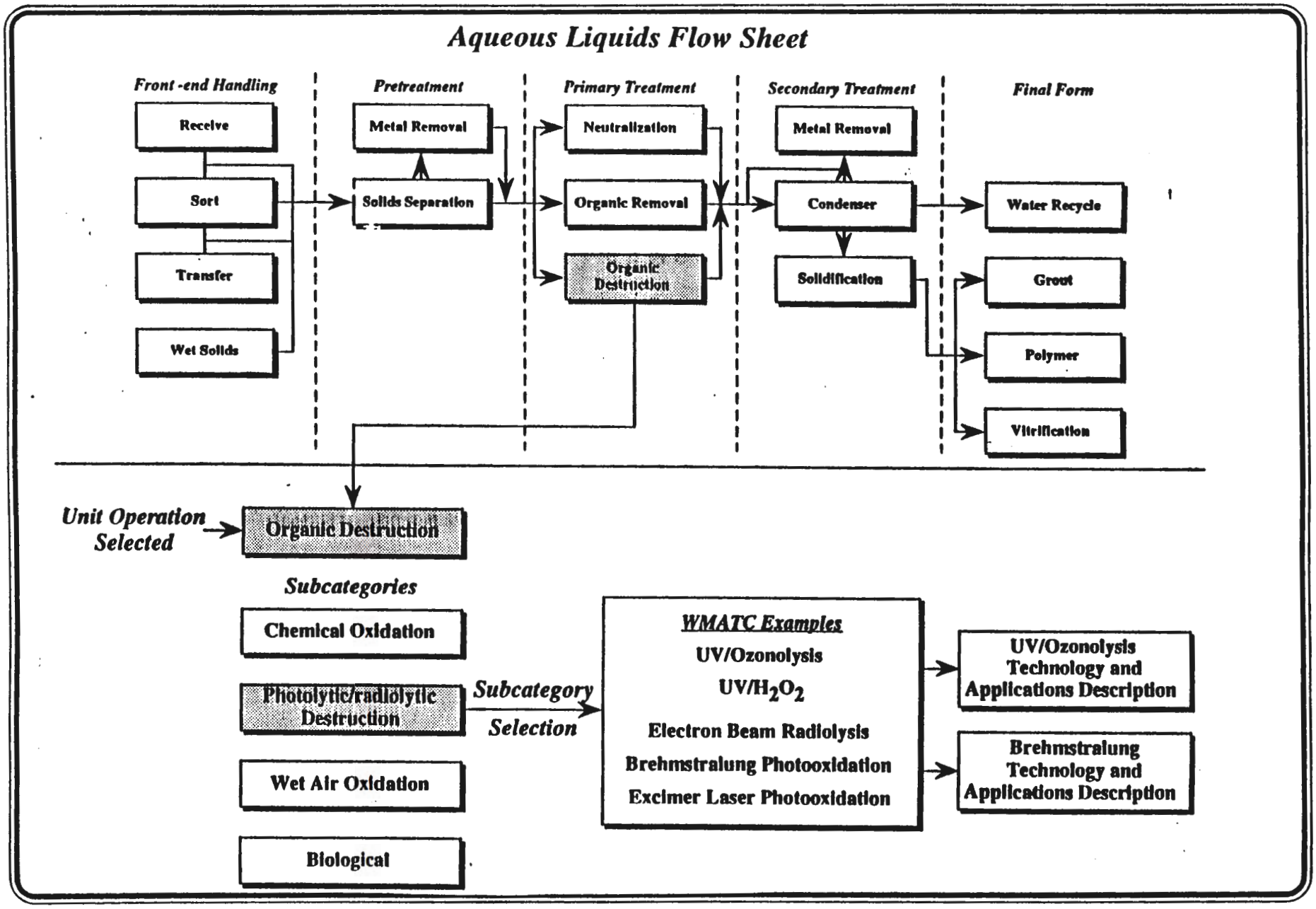
Chemical Science and Technology Division,
Phone (505) 667-3528

The Waste Management Automated Technology Catalog



Primary Contact: Peter Castle, WINCO/EM-332,
Phone (301) 903-1293,
FAX (301) 903-1308

DOE-HQ Contact: Stephen Domotor, Applied Technology Program Manager,
Mixed Waste Focus Area Co-Chair, EM-332,
Phone (301) 903-5053,
FAX (301) 903-7451

Technology Selection Access

The Technology Selection Catalog can be accessed four ways:

Mosaic-Internet: Mosaic is a World Wide Web (WWW) Client developed by the National Center for SuperComputing Activities NCSA and is available in versions for the Macintosh, for Windows, and for X-Windows systems. The software is free and can be obtained from NCSA via FTP, Gopher, and Mosaic. To use Mosaic you will need access to internet.

Mosaic-Local: The same Mosaic described above can also open the files locally with much of the same capabilities. To obtain the files for Mosaic, contact Bill McCulla at (505)667-2148, Byron Palmer (505)667-3528 or Billie Mauro (505)667-6060. You can fax your request to (505)665-0621. Please indicate the medium, either Macintosh 1.4MB or DOS Hi-Density. (Note: Mosaic requires Windows 3.1.)

4D Runtime: 4D is a product by ACI that runs on a Macintosh. 4D Runtime will allow complete access to the data, but does not provide any development capabilities.

4D First: 4D First is a small version of 4D that includes limited design capabilities. It runs on the Macintosh, but future versions will operate on other systems.

Operation

Below are the descriptions for starting up your Technology Selection Catalog.

Mosaic-Internet Startup: Assuming that you have appropriate internet access, start up your Mosaic client. You can then open a URL, the Uniform Resource Locator, for the server. The address you should put into the URL is:
http://mwir.lanl.gov/treat/treat.html
You should be into the selection process at this time.

Mosaic-Local: You must have installed Mosaic but internet access is not needed. Instead you will use the capabilities of Mosaic to open a file locally. Make sure all of the files are located in the same directory, then use the open local command under the file menu to open up treat.html. You will almost have the same capabilities as the internet version except for being able to click in the flowsheets to select the process of interest.

4D Runtine: For use on a Macintosh: After installing 4D Runtime, you can open the Technology selection catalog and operate it.

4D First: 4D First operates the same as 4D Runtime except that you call modify the structure of the files, add or change layouts, add or change procedures, etc.

Site Specific Factsheets

A

Ames Laboratory, Ames . . . . . Iowa
Argonne National Laboratory - East, Argonne . . . . . Illinois
Argonne National Laboratory - West, Idaho Falls . . . . . Idaho

B

Battelle Columbus Laboratories Decommissioning Project, Columbus . . . . . Ohio
Bettis Atomic Power Laboratory, West Mifflin . . . . . Pennsylvania
Brookhaven National Laboratory, Upton . . . . . New York

C

California Factsheet includes:
- Energy Technology Engineering Center, Canoga Park . . . . . California
- General Atomics, San Diego . . . . . California
- General Electric Vallecitos Nuclear Center, Vallecitos . . . . . California
- Laboratory for Energy-Related Health Research, Davis . . . . . California
- Lawrence Berkeley Laboratory, Berkeley . . . . . California
- Lawrence Livermore National Laboratory, Livermore . . . . . California
- Mare Island Naval Shipyard, Vallejo . . . . . California
- Sandia National Laboratory-California, Livermore . . . . . California

Charleston Naval Shipyard, Charleston . . . . . South Carolina
Colonie International Storage Site, Colonie . . . . . New York

F

Fernald Environmental Management Project, Fernald . . . . . Ohio

G

Grand Junction Project Office, Grand Junction . . . . . Colorado

H

Hanford Site, Richland . . . . . Washington

I

Idaho National Engineering Laboratory, Idaho Falls . . . . . Idaho
Inhalation Toxicology Research Institute, Albuquerque . . . . . New Mexico

K

K-25 Site, Oak Ridge Reservation, Oak Ridge . . . . . Tennessee
Kansas City Plant, Kansas City . . . . . Missouri
Knolls Atomic Power Laboratory, Kesselring . . . . . New York
Knolls Atomic Power Laboratory, Schenectady . . . . . New York
Knolls Atomic Power Laboratory, Windsor . . . . . Connecticut

L

Los Alamos National Laboratory, Los Alamos . . . . . New Mexico

M

Middlesex Sampling Plant, Middlesex . . . . . New Jersey
Mound Plant, Miamisburg . . . . . Ohio

N

Nevada Test Site, Mercury . . . . . Nevada
Norfolk Naval Shipyard, Norforlk . . . . . Virginia

O

Oak Ridge National Laboratory, Oak Ridge . . . . . Tennessee

P

Paducah Gaseous Diffusion Plant, Paducah . . . . . Kentucky
Pantex Plant, Amarillo . . . . . Texas
Pearl Harbor Naval Shipyard, Honolulu . . . . . Hawaii
Pinellas Plant, Largo . . . . . Florida
Portsmouth Gaseous Diffusion Plant, Portsmouth . . . . . Ohio
Portsmouth Naval Shipyard, Kittery . . . . . Maine
Princeton Plasma Physics Laboratory, Princeton . . . . . New Jersey
Puget Sound Naval Shipyard, Bremerton . . . . . Washington

R

RMI Titanium Company, Ashtabula . . . . . Ohio
Rocky Flats Environmental Technology Site, Golden . . . . . Colorado

S

Sandia National Laboratory-New Mexico, Albuquerque . . . . . New Mexico
Savannah River Site, Aiken . . . . . South Carolina
Site A/Plot M Palos Forest Preserve, Cook County . . . . . Illinois

U

University of Missouri, Columbia . . . . . Missouri

W

Weldon Spring Site Remedial Action Project, St. Charles County . . . . . Missouri
West Valley Demonstration Project, West Valley . . . . . New York

Y

Y-12 Plant, Oak Ridge Reservation, Oak Ridge . . . . . Tennessee

FEDERAL FACILITY COMPLIANCE ACT AMES, IOWA

FFCAct ACTIVITIES

CHICAGO
OPERATIONS OFFICE

SEPTEMBER 1994

What's Inside?

Information on:

- **Purpose**
- **Ames Laboratory**
- **FFCAct process**
- **Ames Laboratory's Draft Plan**

Comments on Ames Laboratory's Draft Plan can be submitted from September 1, 1994 through October 31, 1994.

Introduction

Ames Laboratory, the U.S. Department of Energy (DOE), and the U.S. Environmental Protection Agency want to inform and involve the public, state, and any other interested parties in Federal Facility Compliance Act (FFCAct) activities taking place and planned for the Ames Laboratory. This factsheet explains the FFCAct as it relates to Ames Laboratory and provides information on public involvement opportunities.

Ames Laboratory activities generate wastes that contain both hazardous and radioactive components (**mixed waste**) and source, special nuclear, or by-product materials. Mixed waste generation and storage activities require Ames Laboratory to comply with the FFCAct requirements that are presented in this factsheet.

Information on the Ames Laboratory

Ames Laboratory is a DOE-owned, contractor-operated national research and development laboratory. It occupies approximately 10 acres of land on Iowa State University's campus in Ames, Iowa. Iowa State University is the operating contractor.

The primary mission of Ames Laboratory is to conduct basic and intermediate research in chemical engineering, materials, math, and physical sciences as they relate to the energy industry. Ames Laboratory is also involved in training new scientists and engineers. Although past research activities have produced mixed waste, only one of four site wastes is still generated.

Mixed waste contains both hazardous and radioactive components

How Can I Be Involved?

The public is encouraged to read and comment on the Draft Site Treatment Plan for the Ames Laboratory. Active public participation on the Draft Site Treatment Plan can lead to a more complete identification and consideration of issues and alternatives. Addressing comments and concerns on the Draft Site Treatment Plan will also help the DOE and regulators develop a Final Site Treatment Plan that reflects public interests.

Waste management decisions that may be of interest to the Ames Laboratory community include treatment facility location, preferred treatment technologies, and mixed waste transportation.

FFCAct issues have been previously discussed at Ames Laboratory public meetings for remediation of the Chemical Disposal Site.

See page 4 of this factsheet for information on where you can review the Site Treatment Plans.

Understanding the FFCAct Process

The FFCAct is associated with the law that defines how hazardous waste is managed - the Resource Conservation and Recovery Act. This law helps to ensure that waste is handled and disposed of properly. The FFCAct focuses on the handling and disposal of mixed waste. It requires that sites generating or storing DOE mixed waste, inventory their waste and prepare a plan for developing treatment capacities and technologies. Information on mixed waste, the inventory, the Draft Site Treatment Plan required by FFCAct, and public comment opportunities are described in this factsheet.

Mixed Waste

Historically, mixed wastes were generated as part of DOE's defense-related mission in nuclear research and production. Today and in the future, generation of this type of waste is expected to increase as DOE cleanup activities continue and DOE facilities are decommissioned.

Mixed waste must be treated, primarily, because U.S. Environmental Protection Agency land disposal restrictions do not allow waste with certain characteristics to be disposed of without prior treatment. Treatment of mixed waste may include:

- changing the waste into a form that is easier to dispose of or store, or
- removing waste components to reduce the volume of waste requiring permanent disposal.

Mixed Waste Inventory

The FFCAct requires all DOE sites that generate or store mixed wastes to inventory their wastes. The inventory includes current and anticipated waste volumes, waste characteristics, available treatment technologies and capacities. DOE has completed the required FFCAct mixed waste inventory. The information is available in the document: *Interim National Inventory of DOE Mixed Wastes and Treatment Technologies and Capabilities* (Inventory) which can be reviewed at the information repository listed on page 4 of this factsheet.

Site Treatment Plan

FFCAct requires all sites generating or storing mixed waste to develop a Site Treatment Plan. The Site Treatment Plan documents how mixed waste will be treated. Final Site Treatment Plans must be submitted to either the state regulatory agency having Resource Conservation and Recovery Act approval authority, or to the U.S. Environmental Protection Agency.

The development of a Final Site Treatment Plan takes place in three phases: Conceptual Site Treatment Plan, Draft Site Treatment Plan (which this factsheet addresses), and the Final Site Treatment Plan. This three-phase approach helps to identify and address technical, equity, and public issues.

The first phase, the Conceptual Site Treatment Plan, is a starting point for discussions with the public, state, and interested parties. It provides as much information as possible about the treatment technology needs, treatment capacity, and optional treatment technologies for the site's mixed waste. It is meant to present information for consideration rather than propose optional handling and treatment technologies.

For the Ames Laboratory, the Conceptual Site Treatment Plan is submitted to the Iowa Department of Natural Resources (the state

Ames Laboratory Waste Matrix

Waste	Preferred Treatment Technology and Location	Alternative Treatment Technology and Location	Inventory	
			Current (m^3)	Estimated 5-Year (m^3)
Analytical Reference Standards	Off-Site Stabilization--Hanford Site Mixed Waste Treatment Facility in Washington	No Alternative	.01	.00
Contaminated Lead	Off-Site Decontamination--Scientific Ecology Group in Tennessee	No Alternative	<0.01	.01
Uranium Sulfate	On-Site Neutralization - Oak Ridge Central Network Facility in Tennessee	Neutralization/Stabilization--Hanford Site Mixed Waste Treatment Facility in Washington	.01	.00
Acidic Liquids	On-Site Neutralization - Oak Ridge Central Network Facility in Tennessee	Off-Site Neutralization--Hanford Site Mixed Waste Treatment Facility in Washington	.04	.1
Transuranic/Uranium Glove Box Waste	Off-Site Neutralization/Stabilization--Waste Isolation Pilot Project in New Mexico	No Alternative	.00	< .1

agency with authority) for comment. Comments on the Conceptual Site Treatment Plan are incorporated into the Draft Site Treatment Plan.

The second phase, issuance of the Draft Site Treatment Plan, presents a preferred treatment technology for treating each mixed waste at the site. Included in the Draft Site Treatment Plan is information on each waste, preferred treatment technology, treatment facility location, and volume of waste to be treated. Schedules of when technologies will be available are also listed in the Draft Site Treatment Plan.

DOE will submit the Draft Site Treatment Plan to regulatory agencies for review. The public, state, and any other interested parties are encouraged to comment on the Draft Site Treatment Plan.

The third phase, issuance of the Final Site Treatment Plan, states the treatment technologies preferred by the site for each waste. The Final Site Treatment Plan incorporates comments made on the Draft Site Treatment Plan. Once the Final Site Treatment Plan is submitted to the Iowa Department of Natural Resources, they will make it available for public review and comment before moving to the final action, which is drafting of the Compliance Order. The Compliance Order documents compliance conditions and milestones for treatment of mixed waste at the site.

Ames Laboratory Draft Site Treatment Plan

In response to the FFCAct, a Draft Site Treatment Plan has been developed for Ames Laboratory. The Draft Site Treatment Plan identifies currently preferred technologies for treating the mixed waste at Ames Laboratory. In this Draft Site Treatment Plan, Ames Laboratory included the preferred treatment technologies. See the Ames Laboratory Waste Matrix for a listing of wastes and treatment technologies. These technologies resulted from Ames Laboratory's review of various alternative treatment approaches and discussion with technical staff at other DOE and commercial treatment

facilities. This approach is referred to as "bottom-up." This Draft Site Treatment Plan was prepared using the "bottom-up" approach and has not been evaluated for potential impacts associated with other DOE sites and the overall DOE Program.

Details on waste stream types, waste volumes, and mixed waste treatment technologies are included in the Draft Site Treatment Plan.

Mixed waste at Ames Laboratory falls into two categories:

- low-level mixed waste - which is generated primarily from contaminated sink and drain lines, and
- transuranic (TRU) waste - which is generated in association with defense-related activities.

The table on page 3 provides information on wastes within the two categories. Information includes waste name, preferred treatment technology and location, alternative treatment technology and location, and current and estimated future waste volumes. Volumes are stated in cubic meters (m^3). One m^3 is equal to approximately five 55-gallon drums.

Ames Laboratory anticipates generation of additional known mixed waste from environmental restoration activities in the next five years. Those materials are not included in the Draft Site Treatment Plan.

Where Can I Get a Copy of the Plans?

The Draft Site Treatment Plan and the Conceptual Site Treatment Plan are located at the DOE Information Repository in the Reference Section at the Ames Public Library, 515 Douglas Avenue, Ames, Iowa. Additional copies of the Draft Site Treatment Plan will be available upon request to Ms. Acke, Public Participation Coordinator, who can be reached at the address and telephone number below.

Comments can be submitted from September 1, 1994 through October 31, 1994 and should be directed to:

Ms. Mary Jo Acke
Public Participation Coordinator
U.S. Department of Energy
Chicago Operations Office
Office of Public Accountability
9800 South Cass Avenue
Argonne, IL 60439
(708) 252-8796

Additional Information on the FFCAct?

DOE has the following additional FFCAct information available:

- *General Information on Mixed Wastes and Types of Treatment Technology*
- *Site Treatment Plan Process*
- *How Mixed Waste Disposal is Involved in the Site Treatment Plan Process*
- *Relationships Between the EM (Office of Environmental Management) Programmatic Environmental Impact Statement and the FFCAct*
- *Technical Evaluation Process to Determine Preferred Treatment Options Identified in the Conceptual Site Treatment Plan.*

Please call 1-800-736-3282 to request copies of any of these publications.

Request for Public Comments on the U.S. Department of Energy's Site Treatment Plan

September 1994

The 60-day public comment period for Federal Facilities Compliance Act Draft Site Treatment Plans will end October 31, 1994. The U.S. Department of Energy (DOE) encourages you to comment on the Draft Site Treatment Plan located in the Information Repository listed below.

Your comments will be considered before the Site Treatment Plan is finalized. DOE will review and provide a response to all written comments. Please use the space below or use your own paper to write your comments on the draft Plan. When finished, fold this sheet in half and staple.

Ames Laboratory

Reference Section
Ames Public Library
515 Douglas Ave.
Ames, IA 50011
(515) 233-2229

Comments: _____

_____

_____

_____

_____

_____

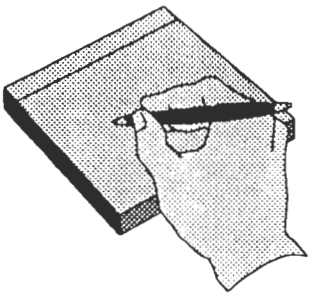
Optional:

Name _____

Address _____

City _____ State _____

Zip _____



Staple

Postage Required

Mary Jo Acke
Public Participation Coordinator
U.S. Department of Energy
Chicago Operations Office
Office of Public Accountability
9800 South Cass Ave
Argonne, IL 60439

U.S. Department of Energy Chicago Operations Office

Federal Facility Compliance Act Activities

Argonne National Laboratory - East

September 1994

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Understanding the Process

Argonne National Laboratory - East Draft Plan Activities

Argonne National Laboratory - East's Mixed Waste

How Can I Be Involved?

Where Can I Get Copies?

Introduction to FFCAct Activities

This factsheet provides local regulators, elected officials, interest groups, and members of the public with information on how to participate in Federal Facility Compliance Act (FFCAct) activities taking place and planned at Argonne National Laboratory - East.

Argonne National Laboratory - East includes a research and development laboratory that conducts applied research on the development of nuclear and non-nuclear energy technologies and in physical, life, and environmental sciences. It is located approximately 22 miles southwest of Chicago, west of State Highway 83 and south of Interstate 55 in Argonne, Illinois. It occupies 1,700 acres of DuPage County and is surrounded by the Waterfall Glen Forest Preserve.

Understanding the Federal Facility Compliance Act Process

The FFCAct requires DOE to prepare Site Treatment Plans to develop treatment capacity and treat mixed waste for DOE sites that generate or store waste that includes both radioactive and hazardous components: **mixed waste**.

The Final Site Treatment Plan for Argonne National Laboratory - East will be submitted to the Illinois Department of Nuclear Safety and the Illinois Environmental Protection Agency for review and approval. DOE is preparing this Site Treatment Plan in phases to help identify and address issues before Final Site Treatment Plan is submitted. The Conceptual Site Treatment Plan was completed in October 1993; a Draft Site Treatment Plan was completed in August 1994; and a Final Site Treatment Plan will be submitted in February 1995.

The Conceptual Site Treatment Plan was submitted to the Illinois Department of Nuclear Safety and the Illinois Environmental Protection Agency for review. See the Site Treatment Plan Development Process graphic on page 2. The Draft Site Treatment Plan is available for public review and the public, state, and other interested parties are encouraged to provide comments.

The Final Site Treatment Plan will incorporate the comments of the public, state, and any other interested parties. The regulators will make the Final Site Treatment Plan available for public review and comment. The Illinois Department of Nuclear Safety and the Illinois Environmental Protection Agency will approve or disapprove the Plan. DOE's implementation of the approved Plan will be directed through formal Compliance Orders.

Argonne National Laboratory - East Draft Plan Activities

Optional technologies for treating mixed waste are addressed in the Argonne National Laboratory - East Draft Site Treatment Plan. The Draft Site Treatment Plan describes the development of mixed waste treatment capacities and technologies for site wastes. The Argonne National Laboratory - East Draft Site Treatment Plan was submitted to the Illinois Department of Nuclear and Illinois Environmental Protection Agency for review in August 1994 and is available for public review. The previous version of this plan, the Conceptual Site Treatment Plan, is also available for review.

The Draft Site Treatment Plan identifies currently preferred technologies for treating the mixed waste at Argonne National Laboratory - East. In this Draft Site Treatment Plan, Argonne National Laboratory - East included the preferred treatment technologies. The technologies resulted from Argonne National Laboratory - East's review of various alternative treatment approaches and discussion with technical staff at other DOE and commercial treatment facilities. This approach is referred to as "bottom-up". This Draft Plan was prepared using the "bottom-up" approach and has not been evaluated for potential impacts associated with other DOE sites and the overall DOE Program.

Your Participation

Active public participation on the Draft Site Treatment Plan can lead to a more complete consideration of issues and treatment options.

Argonne National Laboratory - East's Draft Site Treatment Plan identifies eight possible on-site treatment technologies and six possible off-site treatment technologies for the site's 22 mixed wastes. The Waste Matrix on page 3 summarizes information found in the Draft Plan. The matrix identifies each mixed waste at the site, the preferred on-site and off-site treatment technologies, and current and five-year estimated waste volumes in cubic meters (m^3) which is equal to approximately five 55-gallon drums. More detailed information on each waste and treatment technology can be found in the Draft Site Treatment Plan that is available at the DOE Information Repositories located at the Lemont Public Library and the University of Illinois - Circle Campus..

Two wastes, mixed low-level radioactive wastewater with organics, and glass with organics, will be characterized in Fall 1994. Argonne National Laboratory - East anticipates that five additional wastes will be generated by on-site restoration or cleanup activities by 1997. They include: environmental restoration soils, soil test samples, piping material with lead, inorganic solids with cadmium, and personal protective equipment contaminated with lead.

DOE will continue to work with the Illinois Department of Nuclear Safety and the Illinois Environmental Protection Agency, the public, state, and any other interested parties to prepare Argonne National Laboratory's Final Site Treatment Plan.

Public Comment Period

September 1 through October 31

Site Treatment Plan Development Process

	OCTOBER 1993	AUGUST 1994	FEBRUARY 1995	NO DEADLINE
Plan Status	Conceptual Site Treatment Plan	Draft Site Treatment Plan	Final Site Treatment Plan	Compliance Order
Review Process	Submitted to Illinois Department of Nuclear Safety and Illinois Environmental Protection Agency for comment	Submitted to Illinois Department of Nuclear Safety and Illinois Environmental Protection Agency for comment Public comment requested	Submitted to Illinois Department of Nuclear Safety and Illinois Environmental Protection Agency for approval Public review and comment period	Sites must be in compliance with approved Site Treatment Plans by October 1995

Argonne National Laboratory - East's Waste Matrix

Waste	Preferred On-Site Treatment Technology	Preferred Off-Site Treatment Technology	Inventory (m^3)	
			Current	5-Year
Acidic Wastewater with Metals	Precipitation/ Filtration Unit	No Off-Site Option	5.29	6.41
Acidic Wastewater without Metals			.18	.97
MLLW Uncharacterized Wastewater with Metals			.02	0
Glass with Metals Rinse Water			.04	.21
Organic Solvents	Vial Crushing/ Blending/Wet Oxidation	• Diversified Scientific Services Inc. Incineration • Hanford Thermal Treatment Facility	6.79	0
Scintillation Vials			29.52	0
Evaporator/ Contractor Sludges	Vitrification	• EnviroCare Solidification • Hanford WRAP IIA	4.1	7.5
Retention Tank Sludges			0	7.5
Soil with Metals			.05	1.5
Paint Chips	Macroencapsulation/ Solidification	• EnviroCare Solidification • Hanford WRAP IIA	.1	3.82
Inorganic Solids with Chromium	Macroencapsulation/ Solidification		0	1.81
Metals with RCRA Metals and Stainless Steel with Metals (Stainless with RCRA Metals)	• Mobilize Los Alamos Decontamination Trailer • Construct CO_2 Decontamination Trailer	Hanford WRAP IIA	.62	3.10
Lead Shielding	• Mobilize Los Alamos Decontamination Trailer • Construct CO_2 Decontamination Trailer	Hanford WRAP IIA	7.93	77.94
Stored Lead Waste			5.00	0
MTRU Acidic Water	MTRU Precipitation/ Filtration Unit	No Off-site Option	1.64	1.07
Combustible Solids with Metals	No On-Site Option	• Oak Ridge Incinerator • Hanford Thermal Treatment Facility	.28	1.4
Combustible Solids with Organics			.51	2.57
MTRU Organic Resins	No On-Site Option	Waste Isolation Pilot Plant	.01	.07
MTRU Wastewater Treatment Sludges			.4	0
MTRU Elemental Lead			0	.71
MTRU Metal Debris with Cadmium			.21	0
Reactive Alkali Metals	Reactive Metal Passivation Booth	No Off-Site Option	.06	0

KEY:
MLLW = Mixed Low-Level Radioactive Waste
WRAP IIA = Waste Receiving And Processing IIA
RCRA = Resource Conservation and Recovery Act
MTRU = Mixed Transuranic Waste

How Can I Be Involved?

The DOE encourages you to read and comment on the Argonne National Laboratory - East Draft Site Treatment Plan. Active public participation on the Draft Site Treatment Plan can lead to a more complete consideration of issues and treatment options. Addressing public comments and concerns on the Draft Site Treatment Plan will also help the DOE and regulators develop a Final Site Treatment Plan that reflects public interests.

In addition to offering the Draft Site Treatment Plan for general public comment, DOE is sending information packages to individuals with known interest in Argonne National Laboratory - East. Comments offered will be reviewed for possible incorporation into the Final Plan.

The Draft Site Treatment Plan and Conceptual Site Treatment Plan are available for review and comment from September 1, 1994 through October 31, 1994.

Additional copies of the Draft Site Treatment Plan will be available upon request to Ms. Acke, Public Participation Coordinator, who can be reached at the address and telephone number below.

If you would like to offer comments on the Draft Plan, please direct them to:

Ms. Mary Jo Acke
Public Participation Coordinator
U.S. Department of Energy
Chicago Operations Office
Office of Public Accountability
9800 South Cass Avenue
Argonne, IL 60439
(708) 252-8796

Where Can I Get A Copy of FFCAct Plans?

Copies of the Draft and Conceptual Site Treatment Plans are available at the University of Illinois - Circle Campus and the Lemont Public Library which are located at:

University Library Documents Department
Third Floor Center
801 South Morgan Street
Chicago, Illinois
(312) 413-2594

Lemont Public Library
810 Porter St.
Lemont, Illinois
(708) 257-6541

As of August 1994, Lemont Public Library hours are:

Monday - Thursday	9:00 am - 8:00 pm
Friday	9:00 am - 6:00 pm
Saturday	9:00 am - 4:00 pm
Sunday	1:00 pm - 5:00 pm

More Detailed FFCAct Information Available

DOE has the following additional FFCAct information available:

- *General Information on Mixed Wastes and Types of Treatment Technology*
- *Site Treatment Plan Process*
- *How Mixed Waste Disposal is Involved in the Site Treatment Plan Process*
- *Relationships Between the EM (Office of Environmental Management) Programmatic Environmental Impact Statement and the FFCAct*
- *Technical Evaluation Process to Determine Preferred Treatment Options Identified in the Conceptual Site Treatment Plan.*

Please call 1-800-736-3282 to request copies of any of these publications.

Request for Public Comments on the U.S. Department of Energy's Site Treatment Plan

September 1994

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Argonne National Laboratory

Lemont Public Library
New Books Section
810 Porter Street
Lemont, IL 60439
(708) 257-6541

Documents Department
University Library
3rd Floor Center
The University of Illinois
801 S. Morgan Street
Chicago, IL 60680
(312) 413-2594

Comments: _____

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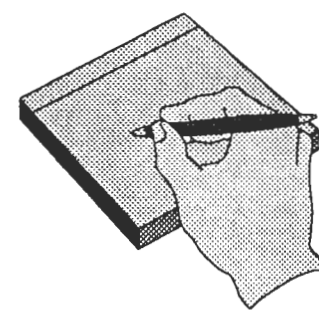
Optional:

Name _____

Address _____

City _____ State _____

Zip _____



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Public Participation Coordinator
U.S. Department of Energy
Chicago Operations Office
Office of Public Accountability
9800 South Cass Ave
Argonne, IL 60439

Battelle
Putting Technology To Work

Battelle Columbus Laboratories Decommissioning Project (BCLDP)

Mixed Waste Site Treatment Plan

Background. The Federal Facilities Compliance Act (FFCAct), which was enacted by the U.S. Congress on October 6, 1992, contains requirements that affect the Battelle Columbus Laboratories Decommissioning Project (BCLDP). The FFCAct requires that all federal facilities--including facilities owned by the U.S. Department of Energy (DOE)--be brought into full compliance with all federal hazardous waste laws.

The FFCAct also requires that federal facilities work with the U.S. Environmental Protection Agency (EPA), state environmental agencies, and other stakeholders to provide comprehensive information on mixed waste inventories, treatment technologies, and treatment plans for each site. Mixed waste, which contains both radioactive and other hazardous components, represents a difficult management issue because of the dual regulatory requirements and limited treatment facilities.

Minimal quantities of mixed waste are expected to result from BCLDP activities. This project is decommissioning areas in 15 Battelle buildings located in Central Ohio where nuclear research and development work was conducted. These facilities are not a DOE site but are privately owned by Battelle. However, the BCLDP has been determined to be included under FFCAct requirements because DOE is the owner of any radioactive waste generated during the cleanup.

The cleanup work at the Battelle sites is being co-funded by DOE and Battelle (90-10 percent, respectively) because most of the nuclear work was performed for federal agencies as part of the national defense effort. The accompanying fact sheet provides additional information about the BCLDP work, progress, and schedule.

DOE Compliance. In April 1993, DOE fulfilled the first FFCAct milestone by publishing the Interim Mixed Waste Inventory Report containing preliminary estimates of volumes of mixed waste at each site. All DOE sites are now developing Site Treatment Plans that will specify current mixed waste streams and estimated volumes, identify existing treatment technologies and options, and provide a schedule for developing any needed new technologies. The BCLDP is included in this process, as indicated earlier. These plans are to be prepared with the involvement of stakeholders on the following schedule:

- **Conceptual Plan--October 1993: provided an initial evaluation of treatment capacities, needs, and options.**
- **Draft Plan--August 1994: identifies the current preferred options, treatment locations, and schedule, reflecting comments from stakeholders, including the public.**
- **Final Plan--February 1995: will describe the selected options, locations, and schedule.**

BCLDP Plan. No BCLDP mixed waste is currently being treated, stored, or disposed of at Battelle's facilities in Central Ohio and there are no plans to do so. In the draft BCLDP Site Treatment Plan, Battelle estimates that only small quantities of mixed waste will result through completion of the work in 2001. During 1993, for example, a total of five fifty-five gallon drums of mixed waste was shipped offsite. The mixed waste will continue to be shipped to either DOE-managed or NRC-licensed facilities. Currently all low-level radioactive-mixed waste and low-level radioactive waste are shipped to the DOE facilities at Hanford, Washington. Plans

are also being developed to send certain types of mixed waste to commercial treatment and disposal facilities. Hazardous wastes that have no radioactivity above established release limits are being disposed of by Battelle at licensed facilities in accordance with applicable regulations.

The draft BCLDP Site Treatment Plan presents current estimates of the types and amounts of mixed waste that may result throughout the project. The final edition of the plan will present updated information on waste types or volumes, new technologies, or other possible treatment methods. The draft plan discusses several options to the current mixed waste treatment method, including sending specific mixed wastes to an off-site treatment facility or combining BCLDP mixed wastes with similar waste streams at larger DOE facilities in Ohio.

The small quantities of mixed wastes that may be produced by the BCLDP include:

- **Mercury-contaminated particulate/debris**
- **Lab packs (inorganic)--lab reagents in original containers (flammable metal powders)**
- **Lab packs (organics)--paint, oil with solvent, cleaning compounds**
- **Elemental lead--shielding blocks, weights, lead shielding contained in walls, casks, and lead shot.**

The draft plan identifies the preferred option, off-site treatment of these mixed wastes--including technologies such as thermal destruction, vitrification, encapsulation, and incineration. Similar waste streams are being generated at a number of DOE-owned facilities. The plan concludes that (1) no new technologies will be required to accommodate the BCLDP mixed waste and (2) it will be possible to send all BCLDP mixed waste to DOE-owned sites for treatment.

Stakeholder Involvement. The FFCAct provides little guidance concerning public participation or stakeholder involvement in the process to complete the Site Treatment Plans. However, DOE has made a commitment that the public and other stakeholders will have opportunities to become involved as the plans are developed. Copies of the BCLDP Conceptual Site Treatment Plan were provided to area public libraries and this fact sheet was made available to the public. Plans to involve stakeholders in the draft BCLDP Site Treatment Plan include providing background briefings for Battelle staff, interested community groups, governmental officials; providing copies of the draft plan for review and comment; offering media briefings about the process; and distributing information about the project, such as this fact sheet.

Further Information. Further information about the BCLDP or Site Treatment Plans can be obtained from:

Battelle
505 King Avenue
Columbus, OH 43201

Tom McClain, Director, Office of Communications, 614-424-7728
Helen Latham, BCLDP Institutional Relations Manager, 614-424-4062

Or: U.S. Department of Energy
BCLDP Site Office
505 King Avenue
Columbus, OH 43201

Tom Baillieul, Acting Project Manager, 614-424-7226

The August 1994 Draft Site Treatment Plan identifies the currently preferred options for disposing of the small quantities for mixed waste from the BCLDP. The Draft Plan was prepared using the "bottoms up" approach and has not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. These preferred options may change as evaluation of DOE-wide impacts and state-to-state discussions progress. 8/94

BETTIS ATOMIC POWER LABORATORY
DRAFT SITE TREATMENT PLAN FACT SHEET

The Federal Facility Compliance Act of 1992 (FFCA) requires the U.S. Department of Energy (DOE) to prepare Site Treatment Plans (STPs) to address treatment of mixed radioactive and hazardous waste for each DOE site which generates and stores mixed waste. These plans will be submitted to the states (or the U.S. Environmental Protection Agency (EPA) in cases where the state has not been delegated authority to regulate mixed waste at federal facilities) for approval. Owing to the joint Navy/DOE nature of the Naval Nuclear Propulsion Program (NNPP) and pursuant to the legislative history of the FFCA, NNPP facilities which generate and store mixed waste, including Bettis Atomic Power Laboratory (Bettis), are included in the FFCA process and are preparing STPs.

Bettis generates very small amounts of mixed waste as a result of Naval nuclear propulsion plant development and testing operations. Bettis currently has approximately 11.05 cubic meter of mixed waste in storage, and projects to generate approximately 5.25 cubic meters over the next five years. These amounts represent less than 0.01 percent of the total amounts of mixed waste stored and generated at DOE facilities. No mixed waste treatment facilities currently exist at Bettis.

As outlined in an April 6, 1993 Federal Register notice (58 FR 17875), DOE is developing STPs in three stages. Conceptual STPs, which identified the range of potentially feasible treatment options for each mixed waste stream, were completed in October 1993. Draft STPs, being issued in August 1994, will discuss the evaluation of treatment options and identify the site's preferred treatment option for each waste stream. Final Proposed STPs will be submitted to state and EPA regulators in February 1995. This three step process is intended to facilitate early interaction with the regulators and other stakeholders to ensure the plans will ultimately be approved by October 1995 as required by the FFCA.

Bettis determined preferred treatment options for each waste stream by comparing all feasible treatment options (including on-site treatment, use of mobile treatment systems, commercial treatment, and treatment at other DOE facilities) in several fundamental areas (including regulatory compliance, treatment effectiveness, environment/health/safety concerns, cost, and implementability). This approach was used by all sites preparing Draft STPs. Based on the very small volumes of Bettis waste streams, these evaluations indicated that off-site treatment at other DOE facilities (or on-site RCRA simple treatment in the accumulation container where feasible) are economically and technically preferable to other options. Bettis identified potentially technically capable DOE facilities for each waste stream based on an evaluation of available treatment facility information, then coordinated with the other DOE sites to confirm treatment capability and select preferred options based on facility status, location, and to consolidate shipments to one or two DOE treatment sites. The following table contains a listing of the mixed waste streams and preferred treatment options identified in the Bettis Draft STP:

Waste ID#	Waste Stream Name	Inventory (M^3)	5 Year Proj (M^3)	Preferred Option
BT-W001	Oil Containing Heavy Metals #1	0.00	0.21	Off-Site Treatment at the Savannah River CIF Incinerator
BT-W002	Spent Solvent Rags	0.21	0.00	Off-Site Treatment at the Savannah River CIF Incinerator
BT-W003	Oil Containing Heavy Metals #2	0.00	0.21	Off-Site Treatment at the Savannah River CIF Incinerator
BT-W005	Lead and Chromium Based Paint Chips	0.10	0.00	RCRA On-Site Simple Treatment (Cement Based Stabilization) in the Accumulation Container
BT-W007	Solids with Solvents	0.42	0.00	Off-Site Treatment at the Savannah River CIF Incinerator
BT-W008	Mercury Containing Waste	0.00	0.21	Off-Site Treatment at the Idaho National Engineering Laboratory (INEL)-Mercury Retort Facility
BT-W009	VOC Contaminated Soil	0.42	0.00	Off-Site Treatment at the Hanford Site-Thermanl Treatment Facility
BT-W010	Waste Oil with Heavy Metals and PCBs	0.21	0.00	Off-Site Treatment at the Hanford Site-Thermanl Treatment Facility
BT-W012	VOC & PCB Contaminated Debris	6.42	2.10	Off-Site Treatment at the Hanford Site-Thermanl Treatment Facility
BT-W013	VOC & PCB Contaminated Soil	1.97	0.00	Off-Site Treatment at the Hanford Site-Thermanl Treatment Facility
BT-W017	Ion Exchange Resin	0.001	0.00	Off-Site Treatment at the Savannah River CIF Incinerator
BT-W018	TCLP Extraction Fluid	0.00	0.001	Off-Site Treatment at the Savannah River CIF Incinerator
BT-W019	Lead	1.3	2.52	Off-Site Treatment at Hanford Site-WRAP IIA Macroencapsulation Facility

These Bettis preferred options were determined using the "bottoms up" approach in which each DOE site evaluated treatment options for its mixed waste, in conjunction with its state and others. It is noted that the Draft STP and preferred options have not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. Thus, these preferred options may change as evaluation of DOE-wide impacts and state-to-state discussions progress.

The next steps in the FFCA process will include finalization of the preferred treatment options, determination of waste shipment and treatment schedules, and preparation of the Final Proposed STPs. Regulator feedback on the Draft STPs (including the results of equity discussions between the states) and public comments will be considered as these efforts move forward. It is also noted that DOE, in conjunction with the states, is evaluating options for disposal of mixed waste treatment residuals in parallel with the STP process to address mixed waste treatment. The process for addressing disposal is described in the Draft STPs and will proceed in parallel with the preparation of the Final Proposed STPs.

The point of contact for questions or comments concerning the Bettis Draft STP is Mr. E. Shollenberger (Chief, Pittsburgh Naval Reactors, West Mifflin, PA 15122-0109). In addition, the NNPP headquarters point of contact for FFCA and STP matters is Mr. E. Naples (Department of the Navy, Director Nuclear Propulsion, Office of the Chief of Naval Operations, Washington, D.C. 20350).

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FFCAct Activities

FEDERAL FACILITY COMPLIANCE ACT AT BROOKHAVEN NATIONAL LABORATORY

U.S. DEPARTMENT OF ENERGY - CHICAGO OPERATIONS OFFICE SEPTEMBER 1994

The FFCAct and Brookhaven National Laboratory

This factsheet provides the local community, local regulators, elected officials, interest groups, and members of the public with information concerning the Federal Facility Compliance Act (FFCAct), how it applies to Brookhaven National Laboratory, and how it affects interested parties. Brookhaven National Laboratory is located in Upton, New York east of the William Floyd Parkway and north of the Long Island Expressway. It is near the center of Suffolk County on Long Island about 60 miles east of New York City. The site consists of 8.2 square miles, 2.6 square miles of which is developed.

Understanding the FFCAct Process

The FFCAct is associated with the law that defines how hazardous waste is managed - the Resource Conservation and Recovery Act. This law helps to ensure that waste is handled and disposed of properly. The FFCAct focuses on the handling and disposal of mixed waste. It requires that sites generating or storing DOE mixed waste, inventory their waste and prepare a plan for developing treatment capacities and technologies.

The FFCAct focuses on the handling and disposal of waste that contains both hazardous and radioactive components: mixed waste.

Information on mixed waste, the inventory, the Draft Site Treatment Plan required by FFCAct, and public comment opportunities are described in this factsheet.

Mixed Waste

Historically, mixed wastes were generated as part of DOE's defense-related mission in nuclear research and production. Today and in the future, generation of this type of waste is expected to increase as DOE cleanup activities continue and DOE facilities are decommissioned.

Mixed waste must be treated, primarily, because U.S. Environmental Protection Agency land disposal restrictions do not allow waste with certain characteristics to be disposed of without prior treatment. Treatment of mixed waste may include:

- changing the waste into a form that is easier to dispose of or store, or
- removing waste components to reduce the volume of waste requiring permanent disposal.

Mixed Waste Inventory

The FFCAct requires all DOE sites that generate or store mixed wastes to inventory their wastes. The inventory includes current and anticipated waste volumes, waste characteristics, available treatment technologies and capacities. DOE has completed the required FFCAct mixed waste inventory. The information

(continued from page 1)

is available in the document: *Interim National Inventory of DOE Mixed Wastes and Treatment Technologies and Capabilities* which can be reviewed at the information repository listed on page 4 of this factsheet.

Site Treatment Plan

FFCAct requires all sites generating or storing mixed waste to develop a Site Treatment Plan. The Site Treatment Plan documents how mixed waste will be treated. Final Site Treatment Plans must be submitted to either the state regulatory agency having Resource Conservation and Recovery Act approval authority, or to the U.S. Environmental Protection Agency.

The development of a Final Site Treatment Plan takes place in three phases: Conceptual Site Treatment Plan, Draft Site Treatment Plan (which this factsheet addresses), and the Final Site Treatment Plan. This three-phase approach helps to identify and address technical, equity, and public issues.

The first phase, the Conceptual Site Treatment Plan, is a starting point for discussions with the public, state, and interested parties. It provides as much information as possible about the treatment technology needs, treatment capacity, and optional treatment technologies for the site's mixed waste. It is meant to present information for consideration rather than propose optional handling and treatment technologies.

For Brookhaven National Laboratory, the Conceptual Site Treatment Plan is submitted to the New York State Department of Environmental Conservation (the state agency with authority) for comment. Comments on the Conceptual Site Treatment Plan are incorporated into the Draft Site Treatment Plan.

The second phase, issuance of the Draft Site Treatment Plan, presents a preferred treatment technology for treating each mixed waste at the site. Included in the Draft Site Treatment Plan is information on each waste, preferred treatment technology, treatment facility location, and volume of waste to be treated. Schedules of when technologies will be available are also listed in the Draft Site Treatment Plan.

Site Treatment Plan Development Process

Conceptual Site Treatment Plan
October 1993

↓

Draft Site Treatment Plan
August 1994

↓

Final Site Treatment Plan
February 1995

DOE will submit the Draft Site Treatment Plan to regulatory agencies for review. The public, state, and any other interested parties are encouraged to comment on the Draft Site Treatment Plan.

The third phase, issuance of the Final Site Treatment Plan, states the treatment technologies preferred by the site for each waste. The Final Site Treatment Plan incorporates comments made on the Draft Site Treatment Plan. Once the Final Site Treatment Plan is submitted to the New York State Department of Environmental Conservation, they will make it available for public review and comment before moving to the final action, which is drafting of the Compliance Order. The Compliance Order documents compliance conditions and milestones for treatment of mixed waste at the site.

What is in Brookhaven's Draft Site Treatment Plan?

The Draft Site Treatment Plan identifies currently preferred technologies for treating the mixed waste at Brookhaven National Laboratory. In this Draft Site Treatment Plan, Brookhaven National Laboratory included the preferred treatment technologies. The technologies resulted from Brookhaven National Laboratory's review of various alternative treatment approaches and discussion with technical staff at other DOE and commercial treatment facilities. This approach is referred to as "bottom-up." This Draft Site Treatment Plan was prepared using the "bottom-up" approach and has not been evaluated for potential impacts associated with other DOE sites and the overall DOE Program.

To the extent possible, the Draft Site Treatment Plan also identifies specific treatment facilities and treatment schedules.

What are the Mixed Wastes at Brookhaven National Laboratory?

Ongoing research at Brookhaven National Laboratory generates hazardous waste, some of which is mixed waste. FFCAct applies to Brookhaven National Laboratory because of their generation and storage activities.

As of June 1994, past and current activities at Brookhaven National Laboratory generated eight mixed wastes, including: corrosive organic liquid, solvent, reactive waste, chromium, ignitable liquid, elemental lead, mercury, and acutely hazardous. The total volume of these wastes is 8.684 cubic meters (m^3), or approximately forty 55-gallon drums (one m^3 is approximately five 55-gallon drums). Information on those wastes, including waste name, preferred and alternative treatment technologies, and mixed waste volumes are summarized in the Brookhaven Mixed Waste Matrix.

Two waste streams at Brookhaven National Laboratory require further characterization to determine if they meet the definition of a mixed waste.

Ongoing environmental restoration and cleanup activities may generate mixed waste at Brookhaven National Laboratory in the future.

Brookhaven National Laboratory's on-site mixed waste falls into the eight categories summarized in the matrix below.

How Can I Be Involved?

Decisions concerning mixed waste treatment location, technology, shipment, and disposal may affect the community. DOE wants to inform and involve the public in decisions concerning these issues.

DOE encourages the public, state, and any other interested parties to read and comment on the Draft Site Treatment Plan because this will lead to a more complete identification and consideration of issues and options. Receiving and addressing public comments and concerns will also help to develop a Final Site Treatment Plan that reflects the concerns of those who are interested.

All relevant documents, including the Conceptual and Draft Site Treatment Plans, can be reviewed in the Research Room at Brookhaven National Laboratory and in reading rooms and libraries throughout the community.

(continued)

Brookhaven Mixed Waste Matrix

Waste	TREATMENT TECHNOLOGIES		VOLUME (m^3)	
	Preferred	Alternative	As of June 1994	June 1994 through June 1999
Corrosive Liquids	On-Site Neutralization	Off-Site Oak Ridge TSCA Incinerator - Tennessee	.59	.51
Spent Solvents	Off-Site Oak Ridge TSCA Incinerator - Tennessee	Off-Site Commercial Incinerator - Tennessee	.55	.11
Reactive	On-Site Bench Polymeric Encapsulation	Off-Site Commercial Stabilization - Utah	.003	.1
Chromium	Off-Site Commercial Stabilization - Utah	On-Site Bench Scale Stabilization	5.6	.1
Ignitable Liquids	Off-Site Commercial Incinerator - Tennessee	Off-Site Oak Ridge TSCA Incinerator - Tennessee	1.9	.45
Elemental Lead	On-Site Polymeric Encapsulation	Off-Site Commercial Treatment - Tennessee	.00	.73
Mercury	On-Site Polymeric Encapsulation	Off-Site Amalgamation Process - Idaho (INEL)	.04	.1
Acutely Hazardous	On-Site Bench Scale Cyanide Destruction	None at this time	<.001	.1

Comments on the Draft Site Treatment Plan will be accepted from September 1, 1994 through October 31, 1994 and should be directed to:

Ms. Mary Jo Acke
Public Participation Coordinator
U.S. Department of Energy
Chicago Operations Office
Office of Public Accountability
9800 South Cass Avenue
Argonne, IL 60439
(708) 252-8796

Individuals and groups with previous interest in Brookhaven National Laboratory were sent a letter summarizing the Draft Plan's purpose. The letter provided information on how to obtain copies of the Draft Site Treatment Plan. Comments from all interested parties will be considered for inclusion in the Final Site Treatment Plan. DOE will forward written responses to all commenters.

Additional FFCAct Information

DOE has the following additional FFCAct information available:

- *General Information on Mixed Wastes and Types of Treatment Technology*
- *Site Treatment Plan Process*
- *How Mixed Waste Disposal is Involved in the Site Treatment Plan Process*
- *Relationships Between the EM (Office of Environmental Management) Programmatic Environmental Impact Statement and the FFCAct*
- *Technical Evaluation Process to Determine Preferred Treatment Options Identified in the Conceptual Site Treatment Plan.*

Please call 1-800-736-3282 to request copies of any of these publications.

Comments on the Draft Site Treatment Plan will be accepted from September 1, 1994 through October 31, 1994.

Where Can I Get a Copy of the FFCAct Plans?

Information repositories are located at:

Longwood Public Library
Reference Department
800 Middle County Rd.
Middle Island, NY 11953
(516) 924-6400

Records Center
26 Federal Plaza
29th Floor, Rm. 2900
New York, NY 10278
(212) 264-8770

Mastics-Moriches-Shirley
Community Library
425 William Floyd Parkway
Shirley, NY 11967
(516) 399-1511

Brookhaven National Laboratory
Research Library
Building 477A
Upton, NY 11973
(516) 282-3489

Brookhaven Town Library
Public Information Office
3333 Route 112
Medford, NY 11763
(516) 451-6260

We Need Your Input

Public comment leads to a more complete identification of treatment issues.

Request for Public Comments on the U.S. Department of Energy's Site Treatment Plan

September 1994

The 60-day public comment period for Federal Facilities Compliance Act Draft Site Treatment Plans will end October 31, 1994. The U.S. Department of Energy (DOE) encourages you to comment on the Draft Site Treatment Plan located in the Information Repository listed below.

Your comments will be considered before the Site Treatment Plan is finalized. DOE will review and provide a response to all written comments. Please use the space below or use your own paper to write your comments on the draft Plan. When finished, fold this sheet in half and staple.

Brookhaven National Laboratories

Longwood Public Library
Reference Department
800 Middle County Rd.
Middle Island, NY 11953
(516) 924-6400

Mastics-Moriches-Shirley
Community Library
425 William Floyd Parkway
Shirley, NY 11967
(516) 399-1511

Brookhaven Town Library
Public Information Office
3333 Route 112
Medford, NY 11763
(516) 451-6260

Records Center
26 Federal Plaza
29th Floor, Rm. 2900
New York, NY 10278
(212) 264-8770

Brookhaven National Laboratory
Research Library
Building 477A
Upton, NY 11973
(516) 282-3489

Comments: _____

_____

_____

_____

_____

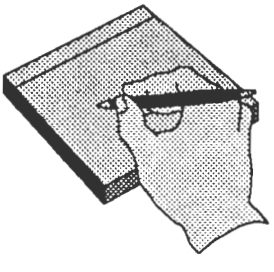
Optional:

Name _____

Address _____

City _____ State _____

Zip _____



Staple

Postage Required

Mary Jo Acke
Public Participation Coordinator
U.S. Department of Energy
Chicago Operations Office
Office of Public Accountability
9800 South Cass Ave
Argonne, IL 60439

The Federal Facility Compliance Act of 1992 (the Act) provides an unprecedented opportunity for the Department of Energy (DOE) to work with the public and regulators to resolve a long-standing issue - finding a solution to the treatment and disposal of mixed radioactive and hazardous waste now being stored or generated at DOE sites. Treatment may involve both simple and complex physical and chemical processes. The Act directs DOE to prepare a plan for developing mixed waste treatment capacities and technologies for each site where DOE generates or stores mixed waste. For California sites, the DOE Oakland Operations Office will submit Site Treatment Plans to the State of California Department of Toxic Substances Control (DTSC) for approval. If not in compliance with an approved plan, DOE facilities could face fines and penalties from the DTSC after October, 1995 for violations of the Resource Conservation and Recovery Act Land Disposal Restrictions. The Draft Plans identify site preferred options for treating mixed waste at DOE sites in California. The Draft Plans were prepared using the "bottom-up" approach focusing on each site's waste and have been evaluated for potential impacts associated with other DOE sites and the overall DOE program. This Fact Sheet, like the earlier one issued in January 1994, has been developed by DOE for members of the public who may be affected by, or interested in participating in, DOE's upcoming decisions relating to mixed waste.

FFCA FACT SHEET 2

Federal Facility Compliance Act

Questions and Answers

What is the Federal Facility Compliance Act?

The Federal Facility Compliance Act (the Act) makes Federal facilities subject to potential fines and penalties for violations of the Resource Conservation and Recovery Act (RCRA), the law that sets requirements for the management of hazardous waste. It also requires the Department of Energy (DOE) to:

(1)prepare and submit a national inventory report to the regulators identifying its mixed waste volume, characteristics, treatment capacity and available technologies; and

(2)prepare Site Treatment Plans for developing the needed treatment capacity and treating the mixed waste to meet Resource Conservation and Recovery Act Land Disposal Restrictions. These plans will be developed for each site at which DOE generates or stores mixed waste.

In California, DOE will submit the treatment plans to the DTSC for approval. The DTSC may approve, approve with modifications, or disapprove a Site Treatment Plan. Once DOE has an approved plan for each site, the DTSC will issue an order requiring DOE and the site to comply with the plan.

Who develops the Site Treatment Plans?

The Department of Energy's (DOE's) main California office, the DOE Oakland Operations Office, has the lead responsibility to work with each site, the regulatory agencies, and the local public in developing the Site Treatment Plan for each site. DOE Headquarters in Washington, D.C. will be closely involved in the development of the plans to ensure that they are consistent with DOE-wide requirements. While DOE will have the lead role, active participation from regulators, the public, and other stakeholders is vitally important for DOE to develop the best plans.

Where are the DOE sites in California?

Site Treatment Plans are being developed for five Department of Energy (DOE) facilities in California (see map):

(1)Lawrence Livermore National Laboratory (LLNL) located in Livermore,

(2)Sandia National Laboratory/California (SNL/California) located in Livermore,

(3)Lawrence Berkeley Laboratory (LBL) located in Berkeley,

(4)The Energy Technology Engineering Center (ETEC) located in Canoga Park, and

(5)The Laboratory for Energy-Related Health Research (LEHR) located in Davis.

DOE submitted Conceptual Site Treatment Plans to the DTSC in October 1993. A Fact Sheet was published in January 1994 to notify the public of the availability of the Conceptual Plans for review, and public comments were solicited to assist DOE with the preparation of the Draft Site Treatment Plans. In August 1994, DOE submitted Draft Site Treatment Plans to the DTSC for each of the sites mentioned above. The Draft Plans identify the sites' proposed preferred options for treating mixed waste (see table on page 2). DOE is now seeking public input on each site's Draft Plan, and that input will be considered by DOE in preparing each site's Proposed Final Site Treatment Plan due to the DTSC in February 1995.

What is mixed waste and where did it come from?

Mixed waste includes both radioactive and hazardous waste components. Mixed waste currently in storage was generated by past Department of Energy (DOE) activities or DOE-funded operations, including the research, production, and storage of nuclear materials for the U.S. Defense Program. DOE will continue to generate mixed waste resulting from both its existing Defense and non-Defense operations. In addition, mixed waste will be generated as more DOE facilities are decontaminated and dismantled and as old burial and storage sites are cleaned up.

How much mixed waste is there and what is in it?

The Department of Energy (DOE) currently is working to identify and characterize the

types of mixed waste at each of its sites. Some sites have very small amounts (a few pounds) from specific research activities and others have large amounts (several tons) that have accumulated from decades of defense production activities. Detailed information about DOE's mixed waste can be found in the National Inventory of DOE Mixed Wastes and Treatment Technologies and Capacities published by DOE initially on April 21, 1993 and revised in May, 1994. This report provides information on over 1,600 mixed waste streams at 50 sites in 22 states, including DOE's sites in California. The information includes current and anticipated waste volumes, waste characteristics, available treatment technologies and capacities, volume of waste that is subject to land disposal restrictions, and waste minimization efforts. A summary of some of this information is shown in the table on this page. More information can also be found as part of both the Conceptual Site Treatment Plan and Draft Site Treatment Plan for each facility, which are available for review at specified locations listed on page 4 of this Fact Sheet.

Why does waste need to be treated?

Waste treatment is used to protect the environment and the public's health and safety. To accomplish this, wastes are changed into a form that is more suitable for storage or disposal, reduced in volume, and/or prepared so that they will meet RCRA Land Disposal Restriction requirements and the waste acceptance criteria of a specific storage or disposal facility. Treatment may involve both simple and complex physical and chemical processes.

Will an Environmental Impact Statement be prepared for the Site Treatment Plans?

Currently, the Department of Energy (DOE) is preparing a Programmatic Environmental Impact Statement that assesses the effects of DOE's environmental program operations nationwide, including the preparation of the Site Treatment Plans. The public will have an opportunity to comment on program-wide topics during the development of the Site Treatment Plans. Details on public participation associated with the Programmatic Environmental Impact Statement are being announced and handled separately. In addition, once final Site Treatment Plans are approved for each facility, DOE will determine whether the implementation of those plans will require further, site-specific documentation under the National Environmental Policy Act. The DTSC will determine its site-specific requirements for environmental impact evaluation.

What is the DTSC's role and will it be involved in DOE's public participation activities?

The DTSC is the lead State agency for the approval of the FFCA Site Treatment Plans for the DOE California sites. Upon receipt of the Proposed Final Site Treatment Plans from DOE in February 1995, the DTSC will conduct a public participation program as part of its approval process. However, during the initial phases of treatment plan development, the DTSC will limit its involvement to advising and assisting the Department of Energy (DOE) on ways to involve the public in DOE's decision-making process. These activities will include:

- Reviewing and commenting on DOE Fact Sheets developed to inform the public of the site treatment plans;
- Providing DTSC mailing lists associated with the sites involved;
- Speaking at or facilitating public meetings, and
- Reviewing and commenting on DOE's community assessment analysis.

How will the DTSC rev DOE's treatment plans?

When DOE submits its Proposed Final Site Treatment Plan to the DTSC, in February 1995, the DTSC will use, as part of its approval process, its regulatory authority to formally notify the public of the availability of the plans for public review before making a final decision. The DTSC is the State agency that has overall responsibility to ensure that the treatment plans for California sites address the appropriate environmental regulatory concerns. The DTSC will consider the technical components of each plan along with public comments and approve, modify, or disapprove the plan. If approved, the DTSC will issue an order requiring DOE to comply with the approved plan.

When will decisions be made and who will make them?

To provide multiple opportunities for the public (and other stakeholders) to comment on and discuss the Plans, the Department of Energy (DOE) will issue the Site Treatment Plans for public review at three levels of development. A Conceptual, Draft, and Final Site Treatment Plan will be prepared for each site.

- Conceptual Site Treatment Plans we issued October 1993.
- Draft Site Treatment Plans were issued August 1994.
- The Proposed Final Site Treatment Plans will be issued February 1995.

DOE and the sites will prepare each plan, but the final decision regarding the acceptability of DOE's plans will be made by the DTSC. Within six months after receiving the Proposed Final Site Treatment Plans, the DTSC will either approve, approve with modifications, or disapprove the final version of each plan.

Summary of Waste Volumes and Proposed Preferred Treatment Options for DOE California Sites

Site Name	Approximate Current Volumes Requiring Treatment (cubic meters)	Proposed Preferred Treatment Options (treatment distribution determined by percent of total current volume)
Energy Technology Engineering Center (ETEC)	3.5	On-site (4%); Off-site DOE - Waste Isolation Pilot Plant (WIPP) Carlsbad, NM (less than1%); Off-site Commercial - Envirocare, Clive, UT (96%); Further Characterization Required (volume to be determined)
Lawrence Berkeley Laboratory(LBL)	6.0	On-site (30%); Off-site DOE - Hanford, WA(70%); Off-site Commercial - Envirocare (less than 0.1%)
Laboratory for Energy-Related Health Research (LEHR)	3.5	Further Characterization Required (100%)
Lawrence Livermore National Laboratory (LLNL)	216.0	On-site (81%); Off-site DOE - Hanford and WIPP (19%)
Sandia National Laboratory -California (SNLC)	6.0	Off-site DOE - Grand Junction,CO, Los Alamos, NM, Mou OH, Pantex, TX, and Pinellas, FA (100%)

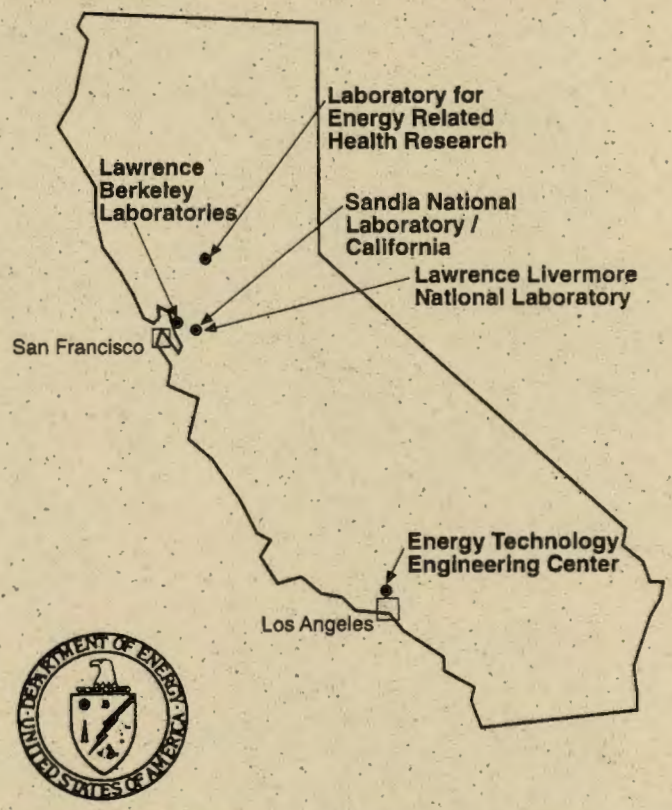
How can you get involved?

The Draft Site Treatment Plans (along with the Conceptual Plans) are available for public review at various repositories listed on the following page. The Department of Energy (DOE) will be accepting public comments on the Draft Plans until November 15, 1994. Comments should be sent to the DOE address listed below. In addition, you will continue to receive specific mailings from the DOE regarding the Federal Facility Compliance Act and the development of the Site Treatment Plans, unless you ask to be removed from our mailing list. Failure to respond to this Fact Sheet will not result in the deletion of your name from the current mailing list. Finally, let us know if you belong to a community group that would like to have a presentation on the plans.

If you would like further information, fill in the coupon below and send it to :

Dave Christy
U.S. Department of Energy
Oakland Operations Office
1301 Clay Street, Suite 825N
Oakland, CA 94612 - 5208
(510) 637-1809

DOE Oakland Operations Office Site Locations



RESPONSE COUPON

Please complete, clip, and send this coupon to the above address:

NAME _____

ADDRESS _____

☐ **Please remove my name from the mailing list to receive future information on the FFCA plans and sites.**

☐ **I am interested in receiving information on the following FFCA site(s) in California:**

☐ LLNL, ☐ SNL/California, ☐ LBL, ☐ ETEC, ☐ LEHR.

☐ **I am interested in receiving the following information/notices regarding FFCA activities for each site indicated above:**

☐ Future Fact Sheets ☐ Open Houses
☐ Public Meetings ☐ Community Interviews
☐ Workshops ☐ Group Speakers

COMMENTS: _____

Department of Energy Fact Sheet No.2 - 9/94

Treatment Plan Repositories

All the plans for DOE's California facilities are available for public review at two locations:

- The DOE Reading Room (510-637-1762) in the North Tower of the Federal Building at 1301 Clay Street in Oakland, and
- The State (DTSC) Library (916-324-5898) on the 4th Floor of the Lincoln Plaza Building at 4th and P Street in Sacramento.

Individual plans can be found at the following four locations:

- Lawrence Livermore National Eastgate Visitors Center (510-422-6408) on Greenville Road in Livermore : Site Treatment Plans for Lawrence Livermore National Laboratory, Sandia National Laboratory/California, and Lawrence Berkeley Laboratory
- Berkeley Public Library (510-644-6648) at Kittredge and Shattuck in Berkeley: Plans for Lawrence Berkeley Laboratory, Lawrence Livermore National Laboratory, and Sandia National Laboratory/California,
- Davis / Yolo County Library (916-757-6776) on 14th Street in Davis: Plan for the Laboratory for Energy-Related Health Research
- Simi Valley Public Library (805-526-1735) on Tapo Canyon Road in Simi Valley: Plan for the Energy Technology and Engineering Center

U.S. Department of Energy
Oakland Operations Office
1301 Clay Street, Suite 825N
Oakland, CA 94612

The Federal Facility Compliance Act of 1992 (the Act) provides an unprecedented opportunity for the Department of Energy (DOE) to work with the public and regulators to resolve a long-standing issue - finding a solution to the treatment and disposal of mixed radioactive and hazardous waste now being stored or generated at DOE sites. Treatment may involve both simple and complex physical and chemical processes. The Act directs DOE to prepare a plan for developing mixed waste treatment capacities and technologies for each site where DOE generates or stores mixed waste. For California sites, the DOE Oakland Operations Office will submit Site Treatment Plans to the State of California Department of Toxic Substances Control (DTSC) for approval. If not in compliance with an approved plan, DOE facilities could face fines and penalties from the DTSC after October, 1995 for violations of the Resource Conservation and Recovery Act Land Disposal Restrictions. The Draft Plans identify site preferred options for treating mixed waste at DOE sites in California. The Draft Plans were prepared using the "bottom-up" approach and have not been evaluated for potential impacts associated with other DOE sites and the overall DOE program.

FECA FACT SHEET

Federal Facility Compliance Act

Questions and Answers

What is the Federal Facility Compliance Act?

The Federal Facility Compliance Act (the Act) makes Federal facilities subject to potential fines and penalties for violations of the Resource Conservation and Recovery Act, the law that sets requirements for the management of hazardous waste. It also requires the Department of Energy (DOE) to:

(1) prepare and submit a national inventory report to the regulators identifying its mixed waste volume, characteristics, treatment capacity and available technologies; and

(2) prepare Site Treatment Plans for developing the needed treatment capacity and treating the mixed waste to meet Resource Conservation and Recovery Act Land Disposal Restrictions. These plans will be developed for each site at which DOE generates or stores mixed waste.

In California, DOE will submit the treatment plans to the California Department of Toxic Substances Control (DTSC) for approval. The DTSC may approve, approve with modifications, or disapprove a Site Treatment Plan. Once DOE has an approved plan for each site, the DTSC will issue an order requiring DOE and the site to comply with the plan.

Who develops the Site Treatment Plans?

The Department of Energy's (DOE's) main California office, the DOE Oakland Operations Office, has the lead responsibility to work with each site, the regulatory agencies, and the local public in developing the Site Treatment Plan for each site. DOE Headquarters in Washington, D.C. will be closely involved in the development of the plans to ensure that they are consistent with DOE-wide requirements. While DOE will have the lead role, active participation from regulators, the public, and other stakeholders is vitally important for DOE to develop the best plans.

Where is the General Atomics (GA) site?

General Atomics is located in the San Diego, CA area (see map). DOE funded research at this privately held company. DOE submitted a Conceptual Site Treatment Plan to the DTSC in October 1993. In August 1994, DOE submitted a Draft Site Treatment Plan to the DTSC. The Draft Plan identifies the proposed preferred options for treating mixed waste (see table on page 2). DOE is now seeking public input on the sites' Draft Plan, and that input will be considered by DOE in preparing the sites' Proposed Final Site Treatment Plan due to the DTSC in February 1995.

What is mixed waste and where did it come from?

Mixed waste includes both radioactive and hazardous waste components. Mixed waste currently in storage was generated by past Department of Energy (DOE) activities or DOE- funded operations, including the research, production, and storage of nuclear materials for the U.S. Defense Program. DOE will continue to generate mixed waste resulting from both its existing Defense and non-Defense operations. In addition, mixed waste will be generated as more DOE facilities are decontaminated and dismantled and as old burial and storage sites are cleaned up.

How much mixed waste is there and what is in it?

The Department of Energy (DOE) currently is working to identify and characterize the types of mixed waste at each of its sites. Some sites have very small amounts (a few pounds) from specific research activities and others have large amounts (several tons) that have accumulated from decades of defense production activities. Detailed information about DOE's mixed waste can be found in the National Inventory of DOE Mixed Wastes And Treatment Technologies and Capacities published by DOE initially on April 21, 1993 and revised in May, 1994. This report provides information on over 1,600 mixed waste streams at 50 sites in 22 states, including DOE's sites in California. The information includes current and anticipated waste volumes, waste characteristics, available treat-

ment technologies and capacities, volume of waste that is subject to land disposal restrictions, and waste minimization efforts. A summary of some of this information is shown in the table on this page.

Why does waste need to be treated?

Waste treatment is used to protect the environment and the public's health and safety. To accomplish this, wastes are changed into a form that is more suitable for storage or disposal, reduced in volume, and/or prepared so that they will meet land disposal restriction requirements and the waste acceptance criteria of a specific storage or disposal facility. Treatment may involve both simple and complex physical and chemical processes.

Will an Environmental Impact Statement be prepared for the Site Treatment Plans?

Currently, the Department of Energy (DOE) is preparing a Programmatic Environmental Impact Statement that assesses the effects of DOE's environmental program operations nationwide, including the preparation of the Site Treatment Plan. The public will have an opportunity to comment on program-wide topics during the development of the Site Treatment Plan. Details on public participation associated with the Programmatic Environmental Impact Statement are being announced and handled separately. In addition, once the final Site Treatment Plan is approved for the facility, DOE will determine whether the implementation of the plan will require further, site-specific documentation under the National Environmental Policy Act. The DTSC will determine its site-specific requirements for environmental impact evaluation.

What is the DTSC's role and will they be involved in DOE's public participation activities?

The DTSC is the lead State agency for the approval of the FFCAct Site Treatment Plans for the General Atomic site. Upon receipt of the Proposed Final Site Treatment Plan from DOE in February 1995, the DTSC will conduct a public participation program as part of its approval process. However, during the initial phases of treatment plan development, the DTSC will limit their involvement to advising and assisting the Department of Energy (DOE) on ways to involve the public in DOE's decision-making process. These activities will include:

- Reviewing and commenting on DOE Fact Sheets developed to inform the public of the site treatment plan;
- Providing DTSC mailing lists associated with the GA site;
- Speaking at or facilitating public meetings, and
- Reviewing and commenting on DOE's community assessment analysis.

How will the DTSC review DOE's treatment plans?

When DOE submits its Proposed Final Site Treatment Plan to the DTSC, in February 1995, the DTSC will use, as part of its approval process, its regulatory authority to formally notify the public of the availability of the plans for public review before making a final decision.

The DTSC is the State agency that has overall responsibility to ensure that the treatment plans for California sites address the appropriate environmental regulatory concerns. The DTSC will consider the technical components of the GA plan along with public comments and approve, modify, or disapprove the plans. If approved, the DTSC will issue an order requiring DOE to comply with the approved plan.

When will decisions be made and who will make them?

To provide multiple opportunities for the public (and other stakeholders) to comment on and discuss the Plan, the Department of Energy (DOE) will issue the Site Treatment Plans for public review at three levels of development. A Conceptual, Draft, and Final Site Treatment Plan will be prepared for the site.

- A Conceptual Site Treatment Plan was issued October 1993.
- A Draft Site Treatment Plan was issued August 1994.
- The Proposed Final Site Treatment Plan will be issued February 1995.

DOE and the site will prepare each plan, but the final decision regarding the acceptability of DOE's plans will be made by the DTSC. Within six months after receiving the Proposed Final Site Treatment Plan, the DTSC will either approve, approve with modifications, or disapprove the final version of each plan.

Summary of Waste Voumes and Proposed Preferred Treatment for General Atomics Site

Site Name	Approximate Current Volume (cubic meters)	Proposed Preferred Treatment Options (treatment distribution determined by percent of total volume)
General Atomics (GA)	40.0	On-site (4%); Off-site DOE - Hanford (17%) Further Characterization Required (79%)

General Atomics Site Location

The Federal Facility Compliance Act of 1992 (the Act) provides an unprecedented opportunity for the Department of Energy (DOE) to work with the public and regulators to resolve a long-standing issue - finding a solution to the treatment and disposal of mixed radioactive and hazardous waste now being stored or generated at DOE sites. Treatment may involve both simple and complex physical and chemical processes. The Act directs DOE to prepare a plan for developing mixed waste treatment capacities and technologies for each site where DOE generates or stores mixed waste. For California sites, the DOE Oakland Operations Office will submit Site Treatment Plans to the State of California Department of Toxic Substances Control (DTSC) for approval. If not in compliance with an approved plan, DOE facilities could face fines and penalties from the DTSC after October, 1995 for violations of the Resource Conservation and Recovery Act Land Disposal Restrictions. The Draft Plans identify site preferred options for treating mixed waste at DOE sites in California. The Draft Plans were prepared using the "bottom-up" approach and have not been evaluated for potential impacts associated with other DOE sites and the overall DOE program.

Federal Facility Compliance Act

Questions and Answers

What is the Federal Facility Compliance Act?

The Federal Facility Compliance Act (the Act) makes Federal facilities subject to potential fines and penalties for violations of the Resource Conservation and Recovery Act (RCRA), the law that sets requirements for the management of hazardous waste. It also requires the Department of Energy (DOE) to:

(1) prepare and submit a national inventory report to the regulators identifying its mixed waste volume, characteristics, treatment capacity and available technologies; and

(2) prepare Site Treatment Plans for developing the needed treatment capacity and treating the mixed waste to meet Resource Conservation and Recovery Act Land Disposal Restrictions. These plans will be developed for each site at which DOE generates or stores mixed waste.

In California, DOE will submit the treatment plans to the California Department of Toxic Substances Control (DTSC) for approval. The DTSC may approve, approve with modifications, or disapprove a Site Treatment Plan. Once DOE has an approved plan for each site, the DTSC will issue an order requiring DOE and the site to comply with the plan.

Who develops the Site Treatment Plans?

The Department of Energy's (DOE's) main California office, the DOE Oakland Operations Office (DOE OAK), has the lead responsibility to work with each site, the regulatory agencies, and the local public in developing the Site Treatment Plan for each site. DOE Headquarters in Washington, D.C. will be closely involved in the development of the plans to ensure that they are consistent with DOE-wide requirements. While DOE will have the lead role, active participation from regulators, the public, and other stakeholders is vitally important for DOE to develop the best plans.

Where is the General Electric-Vallecitos Nuclear Center (GE-VNC) site?

GE-VNC is a privately owned and operated nuclear facility located approximately 8 miles south of Pleasanton, CA. DOE submitted a Conceptual Site Treatment Plan to the DTSC in October 1993. In August 1994, DOE submitted a Draft Site Treatment Plan to the DTSC. The Draft Plan identifies the site's proposed preferred options for treating mixed waste. DOE is now seeking public input on the site's Draft Plan, and that input will be considered by DOE in preparing the site's Proposed Final Site Treatment Plan due to the DTSC in February 1995.

What is mixed waste and where did it come from?

Mixed waste includes both radioactive and hazardous waste components. Mixed waste currently in storage was generated by past Department of Energy (DOE) activities or DOE-funded operations, including the research, production, and storage of nuclear materials for the U.S. Defense Program. DOE will continue to generate mixed waste resulting from both its existing Defense and non-Defense operations. In addition, mixed waste will be generated as more DOE facilities are decontaminated and dismantled and as old burial and storage sites are cleaned up.

How much mixed waste is there and what is in it?

The Department of Energy (DOE) currently is working to identify and characterize the types of mixed waste at each of its sites. Some sites have very small amounts (a few pounds) from specific research activities and others have large amounts (several tons) that have accumulated from decades of defense production activities. Two work locations at GE-VNC, a High-level Hot Cell (Hot Cell No.4), located in the Radioactive Materials Laboratory, and an Emission Spectrograph Enclosure (also known as a "Glovebox"), located in a chemistry laboratory, require decontamination. Decontamination, restoration and disposal (DR&D) activities for Hot Cell No. 4

and the Glovebox are being planned using processes that are not expected to result in the generation of Mixed Low - Level Waste or Mixed Transuranic Waste. Further, based on process knowledge, the likelihood of any hazardous components being found in either of these work locations is very small. However, at this time the two work locations and their associated wastes have not been fully characterized for RCRA-regulated hazardous components. The potential volume of mixed waste thatcould be generated, if any, is unknown. Following characterization, if it is determined that mixed waste which is not in compliance with RCRA Land Disposal Restrictions storage prohibition will be generated through DR&D activities at GE-VNC, DOE/OAK will develop a schedule to conduct treatment technology assessments and treatment option evaluations.

Why does waste need to be treated?

Waste treatment is used to protect the environment and the public's health and safety. To accomplish this, wastes are changed into a form that is more suitable for storage or disposal, reduced in volume, and/or prepared so that they will meet land disposal restriction requirements and the waste acceptance criteria of a specific storage or disposal facility. Treatment may involve both simple and complex physical and chemical processes.

Will an Environmental Impact Statement be prepared for the Site Treatment Plans?

Currently, the Department of Energy (DOE) is preparing a Programmatic Environmental Impact Statement that assesses the effects of DOE's environmental program operations nationwide, including the preparation of the Site Treatment Plan. The public will have an opportunity to comment on program-wide topics during the development of the Site Treatment Plan. Details on public participation associated with the Programmatic Environmental Impact Statement are being announced and handled separately. In addition, once the Final Site Treatment Plans are approved for the facility, DOE will determine whether the implementation of the plan will require further, site-specific documentation under the National Environmental Policy Act. The DTSC will determine its site-specific requirements for environmental impact evaluation.

What is the DTSC's role and will they be involved in DOE's public participation activities?

The DTSC is the lead State agency for the approval of the FFCAct Site Treatment Plans for the DOE California sites. Upon receipt of the Proposed Final Site Treatment Plans from DOE in February 1995, the DTSC will conduct a public participation program as part of its approval process. However, during the initial phases of treatment plan development, the DTSC will limit its involvement to advising and assisting the Department of Energy (DOE) on ways to involve the public in DOE's decision-making process. These activities will include:

- Reviewing and commenting on DOE Fact Sheets developed to inform the public of the site treatment plans;
- Providing DTSC mailing lists associated with the sites involved;
- Speaking at or facilitating public meetings, and
- Reviewing and commenting on DOE's community assessment analysis.

When DOE submits its Proposed Final Site Treatment Plan to the DTSC, in February 1995, the DTSC will use, as part of its approval process, its regulatory authority to formally notify the public of the availability of the plans for public review before making a final decision.

How will the DTSC review DOE's treatment plans?

The DTSC is the State agency that has overall responsibility to ensure that the treatment plans for California sites address the appropriate environmental regulatory concerns. The DTSC will consider the technical components of the GE-VNC plan along with public comments and approve, modify, or disapprove the plan. If approved, the DTSC will issue an order requiring DOE to comply with the approved plan.

When will decisions be made and who will make them?

To provide multiple opportunities for the public (and other stakeholders) to comment on and discuss the Plans, the Department of Energy (DOE) will issue the Site Treatment Plans for public review at three levels of development. A Conceptual, Draft, and Final Site Treatment Plan will be prepared for the site.

- A Conceptual Site Treatment Plan was issued October 1993.
- A Draft Site Treatment Plan was issued August 1994.
- The Proposed Final Site Treatment Plan will be issued February 1995.

DOE and the site will prepare each plan, but the final decision regarding the acceptability of DOE's plans will be made by the DTSC. Within six months after receiving the Proposed Final Site Treatment Plan, the DTSC will either approve, approve with modifications, or disapprove the final version of each plan.

General Electric Site Location

MARE ISLAND NAVAL SHIPYARD
DRAFT SITE TREATMENT PLAN FACT SHEET

The Federal Facility Compliance Act of 1992 (FFCA) requires the U.S. Department of Energy (DOE) to prepare Site Treatment Plans (STPs) to address treatment of mixed radioactive and hazardous waste for each DOE site which generates and stores mixed waste. These plans will be submitted to the states (or the U.S. Environmental Protection Agency (EPA) in cases where the state has not been delegated authority to regulate mixed waste at federal facilities) for approval. Owing to the joint Navy/DOE nature of the Naval Nuclear Propulsion Program (NNPP) and pursuant to the legislative history of the FFCA, NNPP facilities which generate and store mixed waste, including Mare Island Naval Shipyard (MINS), are included in the FFCA process and are preparing STPs.

MINS generates very small amounts of mixed waste as a result of maintenance and repair work performed on Naval nuclear propulsion plants, and from ongoing base closure operations. MINS currently has approximately 18.83 cubic meters of mixed waste in storage, and projects to generate approximately 56.70 cubic meters prior to base closure scheduled for April 1996. These amounts represent less than 0.01 percent of the total amounts of mixed waste stored and generated at DOE facilities. No mixed waste treatment facilities currently exist at MINS.

As outlined in an April 6, 1993 Federal Register notice (58 FR 17875), DOE is developing STPs in three stages. Conceptual STPs, which identified the range of potentially feasible treatment options for each mixed waste stream, were completed in October 1993. Draft STPs, being issued in August 1994, will discuss the evaluation of treatment options and identify the site's preferred treatment option for each waste stream. Final Proposed STPs will be submitted to state and EPA regulators in February 1995. This three step process is intended to facilitate early interaction with the regulators and other stakeholders to ensure the plans will ultimately be approved by October 1995 as required by the FFCA.

MINS determined preferred treatment options for each waste stream by comparing all feasible treatment options (including on-site treatment, use of mobile treatment systems, commercial treatment, and treatment at other DOE facilities) in several fundamental areas (including regulatory compliance, treatment effectiveness, environment/health/safety concerns, cost, and implementability). This approach was used by all sites preparing Draft STPs. Based on the very small volumes of MINS waste streams, these evaluations indicated that off-site treatment at other DOE facilities (or on-site Permit-By-Rule treatment in the accumulation container where feasible) are economically and technically preferable to other options. MINS identified potentially technically capable DOE facilities for each waste stream based on an evaluation of available treatment facility information, then coordinated with the other DOE sites to confirm treatment capability and select preferred options based on facility status, location, and to consolidate shipments to one or two DOE treatment sites. The following table contains a listing of the mixed waste streams and preferred treatment options identified in the MINS Draft STP:

Waste ID#	Waste Stream Name	Inventory (M^3)	5 Year Proj (M^3)	Preferred Option
MI-W001	Solid Waste with Heavy Metals	3.2	8.30	Off-Site Treatment at Idaho National Engineering Laboratory (INEL)-WERF Incinerator
MI-W002	Solidified Solution with Heavy Metals	0.85	0.00	Off-Site Treatment at INEL-WEDF Stabilization Facility
MI-W003	Paint Chips Containing Lead	0.32	10.39	California Permit by Rule Treatment in the Accumulation Container
MI-W004	Equipment Containing Thallium	0.40	0.00	Off-Site Treatment at INEL-WEDF Macroencapsulation Unit
MI-W005	Solid Waste with Petroleum Products	8.63	1.73	Off-Site Treatment at INEL-WERF Incinerator
MI-W006	Materials Containing Asbestos	0.85	19.60	No Treatment Required-Stored Pending, Availability of Disposal Facility
MI-W007	Lead Bricks, Sheets, Wool	2.61	7.60	Off-Site Treatment at INEL-WEDF Macroencapsulation Unit
MI-W008	Brass and Bronze	1.74	8.18	Off-Site Treatment at INEL-WEDF Macroencapsulation Unit
MI-W009	Solid Waste with Nitric Acid	0.08	0.24	Off-Site Treatment at INEL-WEDF Deactivation/ Neutralization Unit
MI-W010	Batteries and Film Packs with Mercury	0.04	0.14	Off-Site Treatment at INEL-WEDF Macroencapsulation Unit
MI-W011	Materials Containing PCBs	0.11	0.52	Off-Site Treatment at INEL-WERF Incinerator

These MINS preferred options were determined using the "bottoms up" approach in which each DOE site evaluated treatment options for its mixed waste, in conjunction with its state and others. It is noted that the Draft STP and preferred options have not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. Thus, these preferred options may change as evaluation of DOE-wide impacts and state-to-state discussions progress.

The next steps in the FFCA process will include finalization of the preferred treatment options, determination of waste shipment and treatment schedules, and preparation of the Final Proposed STPs. Regulator feedback on the Draft STPs (including the results of equity discussions between the states) and public comments will be considered as these efforts move forward. It is also noted that DOE, in conjunction with the states, is evaluating options for disposal of mixed waste treatment residuals in parallel with the STP process to address mixed waste treatment. The process for addressing disposal is described in the Draft STPs and will proceed in parallel with the preparation of the Final Proposed STPs.

The MINS point of contact for questions or comments concerning the Draft STP is Mr. R. O'Brien (Code 105, Mare Island Naval Shipyard, Vallejo, CA 94592). In addition, the NNPP headquarters point of contact for FFCA and STP matters is Mr. E. Naples (Department of the Navy, Director Nuclear Propulsion, Office of the Chief of Naval Operations, Washington, D.C. 20350).

Fact Sheet for the
Sandia National Laboratories, California
Draft Site Treatment Plan for Mixed Waste
August 1994

Why develop Site Treatment Plans?

For each facility at which the Department of Energy (DOE) generates or stores mixed waste, i.e., waste that is both radioactive and hazardous (as defined by the Resource Conservation and Recovery Act (RCRA)), the **Federal Facility Compliance Act** (the Act) of October 6, 1992, requires DOE to prepare a plan for developing treatment capacities and technologies to treat the mixed waste to the standards of RCRA, known as the Land Disposal Restrictions (LDRs) before the waste can be disposed of in or on the land, or stored for more than one year. Upon submission of a plan by DOE and Sandia National Laboratories, California, to the California Department of Toxic Substance Control (DTSC), the Act requires the recipient agency to solicit and consider public comments, and approve, approve with modification, or disapprove the plan within six months. Upon approval of the Plan,, the agency shall issue a Compliance Order requiring compliance with the approved plan.

DOE and SNL/CA have prepared a Draft Site Treatment Plan for mixed waste at SNL/CA, in accordance with the April 6, 1993, Federal Register notice, in which DOE published a schedule for submitting the site treatment plans. The Draft Plan identifies currently preferred options for treating the site's mixed waste.

When finalized, the Site Treatment Plan will satisfy DOE's obligation under the Act to develop and submit a treatment plan for SNL/CA. This will provide protection from further civil enforcement action for violations of the LDRs arising from storage of mixed waste covered by the approved Plan for as long as DOE is in compliance with the requirements of the approved Plan. This will include all mixed waste and suspect mixed waste in storage at SNL/CA and identified in the approved Plan, as well as future mixed waste generated and incorporated into the Plan in accordance with the provisions of the Plan.

What information is in the DSTP?

The Draft Site Treatment Plan comprises two volumes: a Compliance Plan Volume and a Background Volume. The Compliance Plan Volume proposes overall schedules with target dates for achieving compliance with the LDRs, and procedures for converting these target dates into milestones to be enforced under the Compliance

Order. The more detailed discussion of the waste streams and the preferred treatment options contained in the Background Volume is provided for informational purposes only.

What is the Mixed Waste Inventory at SNL/CA?

Mixed waste at SNL/CA is mostly generated as low volumes of organic, aqueous and metal wastes that are produced by unique tests and experimental programs. Approximately 4 waste streams have been divided into 7 treatment types based on common physical matrix characteristics. These are listed below with their preferred treatment options. This inventory is based on the Mixed Waste Inventory Report, Phase I, April 1994.

What are the Preferred Treatment Options for SNL/CA Mixed Waste?

Summary of SNL/CA Mixed Waste Preferred Treatment Options

Waste Stream # and Volume	Treatability Group Description	Preferred Treatment Option	Treatment Site and Facility
1 0 m^3	Scintillation cocktail with Tritium (H-3) and Carbon-14 (C-14)	Incineration	Off-site at Quadrex
2 (Sub-1) 0.2 m^3	Organic Liquids: Clear solvents with H-3 and C-14	Incineration	Off-site at DSSI
2 (Sub-2) 0.2 m^3	Organic Liquids: Mixed solvents with H-3 and C-14	DETOX Catalytic Oxidation	Off-site at LANL (treatability study)
3 (Sub-1) 0.6 m^3	Clay absorbed aqueous liquids with metals and H-3 and Uranium	Chemical Stabilization/ Solidification	Off-site at Pantex (treatability study)
3 (Sub-2) 0.02 m^3	Elemental Mercury with H-3 and Uranium	Triple Distillation	Off-site at LANL (treatability study)
4 (Sub-1) 2.4 m^3	Clay absorbed oil with H-3 and trace metals, and equipment.	Thermal Desorption	Off-site at GJPO (treatability study)
4 (Sub-2) 2.4 m^3	Liquid oil with H-3	DETOX Catalytic Oxidation	Off-site at LANL (treatability study)

What are the uncertainties of this plan?

The mixed waste treatment plan at SNL/CA is heavily integrated with the work at other DOE sites. Much of this work is new scope for waste management programs and is now becoming part of the long-term forecasting for budget allocations. The DOE budget is approved by congressional action each year and the DOE sites must remain flexible in response to changing national priorities.

The development of the mobile treatment units involves technology that is currently available but will require testing through treatability studies allowed by the RCRA regulations for proving-in new applications of a technology and assuring that health and safety measures protect the workers and the environment.

The use of mobile treatment units is a first time step in the management of mixed waste. It is planned that these units will be used at sites in different states to be cost and time effective. The permitting process for waste treatment facilities is usually the responsibility of the state that houses the facility, but in this case there will be many states relying on an individual unit. The DOE and the National Governors' Association are working together to develop a new process for permitting mobile units to allow a broader use of the funds available.

What can be expected in the near future?

The Draft Site Treatment Plan will be the forerunner to the Final Proposed Site Treatment Plan which will be issued to the states in February 1995. That Plan will be the basis for negotiation of a Compliance Plan and the Consent Order that will be issued for enforcement purposes by the DTSC.

The Draft Site Treatment Plan and the Final Proposed Site Treatment Plan will both be available for public review and comment. Presently, the Conceptual Site Treatment Plan is available at the DOE Public Reading Room in Building 901 at 7011 East Avenue in Livermore, California. The Draft Site Treatment Plan will be available at this location after it is issued to the states in late August, 1994.

Who to contact for more information:

The coordinators of the STPs are: Mona Williams at the DOE Albuquerque Field Office, 505-845-5405; Ted Pietrok at the DOE Kirtland Area Office, 505-845-5649; and Sarah O'Connor at Sandia National Labs, 510-294-3738.

CHARLESTON NAVAL SHIPYARD
DRAFT SITE TREATMENT PLAN FACT SHEET

The Federal Facility Compliance Act of 1992 (FFCA) requires the U.S. Department of Energy (DOE) to prepare Site Treatment Plans (STPs) to address treatment of mixed radioactive and hazardous waste for each DOE site which generates and stores mixed waste. These plans will be submitted to the states (or the U.S. Environmental Protection Agency (EPA) in cases where the state has not been delegated authority to regulate mixed waste at federal facilities) for approval. Owing to the joint Navy/DOE nature of the Naval Nuclear Propulsion Program (NNPP) and pursuant to the legislative history of the FFCA, NNPP facilities which generate and store mixed waste, including Charleston Naval Shipyard (CNS), are included in the FFCA process and are preparing STPs.

CNS generates very small amounts of mixed waste as a result of maintenance and repair work performed on Naval nuclear propulsion plants, and from ongoing base closure operations. CNS currently has approximately 0.78 cubic meter of mixed waste in storage, and projects to generate approximately 4.60 cubic meters prior to base closure scheduled for April 1996. These amounts represent less than 0.001 percent of the total amounts of mixed waste stored and generated at DOE facilities. No mixed waste treatment facilities currently exist at CNS.

As outlined in an April 6, 1993 Federal Register notice (58 FR 17875), DOE is developing STPs in three stages. Conceptual STPs, which identified the range of potentially feasible treatment options for each mixed waste stream, were completed in October 1993. Draft STPs, being issued in August 1994, will discuss the evaluation of treatment options and identify the site's preferred treatment option for each waste stream. Final Proposed STPs will be submitted to state and EPA regulators in February 1995. This three step process is intended to facilitate early interaction with the regulators and other stakeholders to ensure the plans will ultimately be approved by October 1995 as required by the FFCA.

CNS determined preferred treatment options for each waste stream by comparing all feasible treatment options (including on-site treatment, use of mobile treatment systems, commercial treatment, and treatment at other DOE facilities) in several fundamental areas (including regulatory compliance, treatment effectiveness, environment/health/safety concerns, cost, and implementability). This approach was used by all sites preparing Draft STPs. Based on the very small volumes of CNS waste streams, these evaluations indicated that off-site treatment at other DOE facilities (or on-site RCRA simple treatment in the accumulation container where feasible) are economically and technically preferable to other options. CNS identified potentially technically capable DOE facilities for each waste stream based on an evaluation of available treatment facility information, then coordinated with the other DOE sites to confirm treatment capability and select preferred options based on facility status, location, and to consolidate shipments to one or two DOE treatment sites. The following table contains a listing of the mixed waste streams and preferred treatment options identified in the CNS Draft STP:

Waste ID#	Waste Stream Name	Inventory (M^3)	5 Year Proj (M^3)	Preferred Option
CN-W001	Solids Containing Potassium Chromate	0.50	0.00	Off-Site Treatment at the Savannah River CIF Incinerator-Solid Feed System
CN-W002	Lead and Lead Bearing Materials	0.25	3.50	Off-Site Treatment at the Idaho National Engineering Laboratory (INEL)-WEDF Macroencapsulation Unit
CN-W003	Lead and/or Chromium Based Paint Chips	0.00	0.20	RCRA On-Site Simple Treatment (Cement Based Stabilization) in the Accumulation Container
CN-W004	Organic Debris Contaminated with Lead and or Chromium	0.03	0.10	Off-Site Treatment at the Savannah River CIF Incinerator-Solid Feed System
CN-W005	Cadmium-Plated Metals	0.00	0.50	Off-Site Treatment at the INEL-WEDF Macroencapsulation Unit
CN-W006	Brass and Bronze	0.00	0.10	Off-Site Treatment at the INEL-WEDF Macroencapsulation Unit
CN-W007	Flammable Organic Debris	0.00	0.20	Off-Site Treatment at the Savannah River CIF Incinerator-Solid Feed System

These CNS preferred options were determined using the "bottoms up" approach in which each DOE site evaluated treatment options for its mixed waste, in conjunction with its state and others. It is noted that the Draft STP and preferred options have not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. Thus, these preferred options may change as evaluation of DOE-wide impacts and state-to-state discussions progress.

The next steps in the FFCA process will include finalization of the preferred treatment options, determination of waste shipment and treatment schedules, and preparation of the Final Proposed STPs. Regulator feedback on the Draft STPs (including the results of equity discussions between the states) and public comments will be considered as these efforts move forward. It is also noted that DOE, in conjunction with the states, is evaluating options for disposal of mixed waste treatment residuals in parallel with the STP process to address mixed waste treatment. The process for addressing disposal is described in the Draft STPs and will proceed in parallel with the preparation of the Final Proposed STPs.

The CNS point of contact for questions or comments concerning the Draft STP is Mr. J. McNeil (Code 105, Charleston Naval Shipyard, Charleston, SC 29408-6100). In addition, the NNPP headquarters point of contact for FFCA and STP matters is Mr. E. Naples (Department of the Navy, Director Nuclear Propulsion, Office of the Chief of Naval Operations, Washington, D.C. 20350).

FUSRAP

FactSheet

FUSRAP Activities at the Colonie Interim Storage Site

U.S. Department of Energy • Formerly Utilized Sites Remedial Action Program • September 1994

This fact sheet discusses the Federal Facility Compliance Act of 1992 (FFCA) and its impact on mixed wastes that may be generated at the Colonie Interim Storage Site (CISS). Mixed waste contains both radioactive and hazardous components.

What does the FFCA require?

The FFCA requires DOE to develop and submit a plan for identifying and applying technologies and capacities to treat mixed waste generated as a result of cleaning up DOE sites.

Typically, the plan is divided into two volumes, the background volume and the compliance plan volume. The background volume provides a detailed discussion of the preferred option or options, identifies the sources of the waste (commonly called waste streams) and explains information that supports the compliance plan volume. The compliance plan volume identifies planned or anticipated volumes and associated schedules as required by the FFCA.

The CISS plan will be developed in three phases: (1) a "Conceptual Site Treatment Plan"—completed in October 1993, (2) a "Draft Site Treatment Plan," which is available as of September 1, 1994, and (3) a "Final Site Treatment Plan"—to be completed and submitted to the State of New York for review no later than February 1995.

Because CISS is a former industrial facility that is no longer actively producing waste byproducts, and is being prepared for remediation under the Comprehensive Environmental Response, Compensation Liability Act (CERCLA), the FFCA compliance plan volume is not appropriate for CISS at this time. The compliance plan volume will be developed after a final remedy is selected in accordance with the CERCLA process.

Loading of hazardous waste for shipment.

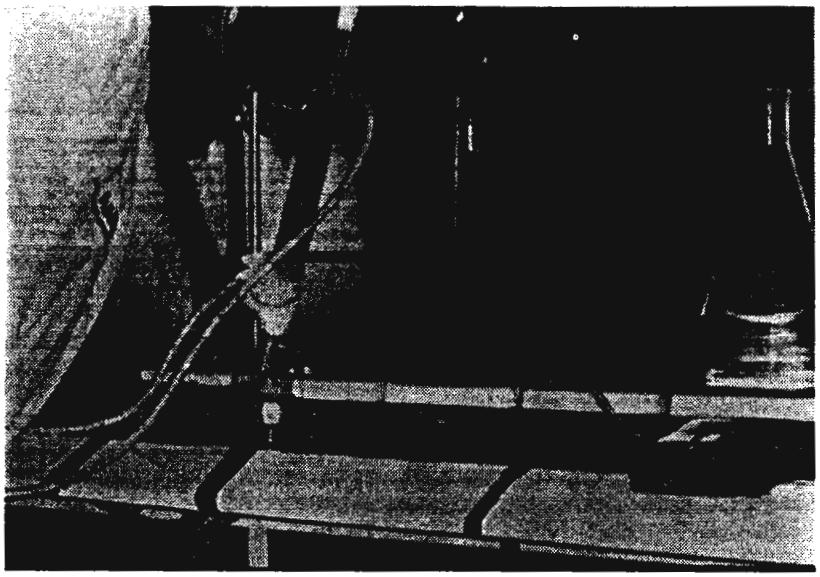
The Colonie Interim Storage Site

Site History

Since the cessation of commercial industrial operations and its transfer to the DOE in 1984, CISS has been used for interim storage of waste materials contaminated with low-level radioactivity that were generated by it's former industrial activities. Some of the waste stored at CISS included mixed waste generated by past industrial processes such as electroplating and solvent cleaning. Before DOE obtained ownership in February 1984, RCRA regulated waste was stored at the site under a Part A RCRA Interim Status Permit application filed with the State of New York. In November 1992, New York State Department of Environment Conservation (NYSDEC) terminated interim status, and the CISS interim storage facility was scheduled for closure under RCRA. A RCRA Closure Plan was developed by DOE and approved by NYSDEC that defined methods and schedules for the removal of all waste identified on the Part A permit application and remediation of the associated RCRA storage areas.

What is the status of mixed waste at CISS?

Mixed waste currently stored at CISS are governed by the RCRA closure plan, and are therefore, not considered as waste inventory under the site treatment plan. This waste is currently being treated in preparation for offsite disposal before the scheduled November 14, 1994 closure date.



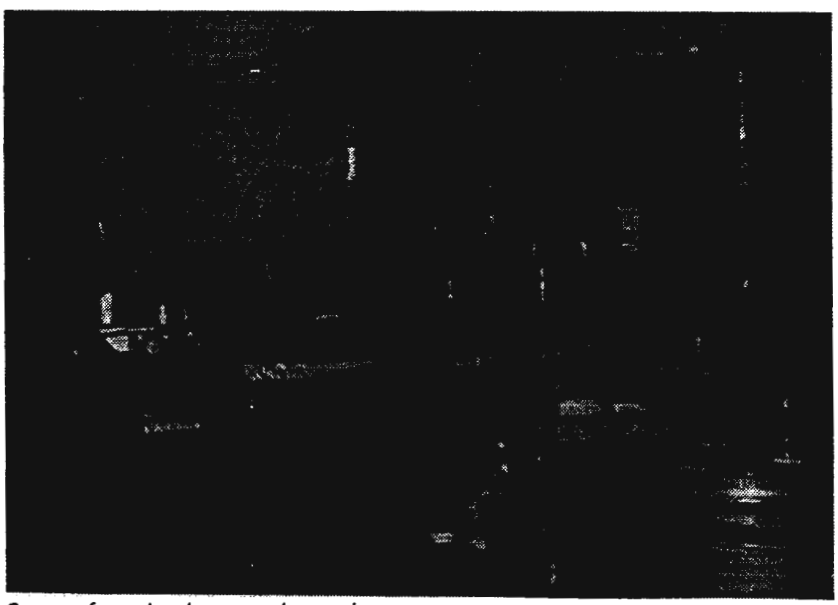
Bench scale treatability study

After formal closure of the CISS RCRA Part A permit application, further building and site remediation will be governed by CERCLA and described in applicable CERCLA documentation. Additional mixed waste that may be generated in the future from the continued cleanup operations will be addressed by the CERCLA documents. The FFCA compliance plan volume, as discussed above, will be developed after completion of the CERCLA documents.

Because CERCLA remedial activities are being conducted at CISS, characterization of wastes is an ongoing process. It is anticipated that new waste streams will continually be identified. Possible sources of mixed wastes include onsite soil, fluorescent light bulbs, chlorinated fluorocarbon containers, lead materials, groundwater containing greater than 1 percent organic material, painted wood debris, liquids from treatment of mixed low level waste materials, processing equipment, and unknown laboratory chemical materials yet to be characterized.

Why should the public be interested?

Major waste management decisions facing DOE and the states may affect local communities. Future decisions include the type of treatment to be used, where the waste will be treated, and how treated waste will be disposed. Opportunities for the public to participate early in decision-making can lead to accurate identification and timely consideration of issues, alternatives, and actions.



Set-up for mixed waste thermal treatment.

We encourage you to read the FFCA draft site treatment plan. A public comment period will be available through 10/31/94. All comments should be directed to Mr. Ronald E. Kirk, Site Manager, Former Sites Restoration Division, U.S. Department of Energy, P.O. Box 2001, Oak Ridge, TN 37831-8650. Additional information/key contacts concerning CISS's Draft Site Treatment Plan may be directed to agency coordinators Mr. Ronald E. Kirk or Mr. Scott Menrath, Environmental Engineer, New York State Department of Environmental Conservation, 50 Wolf Road, Albany, New York 12233-7251. Information will also be available by calling DOE's toll free number at (800) 253-9759.

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FERNALD

Environmental Management Project

DRAFT SITE TREATMENT PLAN
FACT SHEET

Site Treatment Plans are required by the Federal Facilities Compliance Act for all Department of Energy (DOE) facilities that generate or store mixed waste, including the Fernald Environmental Management Project (FEMP). Mixed waste is defined by the Federal Facilities Compliance Act as waste containing hazardous waste subject to Resource Conservation and Recovery Act (RCRA) and a source, special nuclear or by-product material subject to the Atomic Energy Act of 1954 (42 U.S.C. 2011 *et seq.*). On April 6, 1993, the DOE published a Federal Register notice (58 FR 17875) describing its proposed process for developing Site Treatment Plans in three phases, including a Conceptual Site Treatment Plan (completed October 1993), a Draft Site Treatment Plan (the current document), and a Final Site Treatment Plan. The Draft Site Treatment Plan identifies the current preferred options for treating the mixed waste at the FEMP.

The process of reviewing the options for the treatment of mixed low level waste stored at the FEMP is covered in the Draft Site Treatment Plan. The review of facilities for treatment included but was not limited to: On-site existing or planned facilities, off-site existing or planned DOE facilities, mobile vendors and off-site commercial facilities was performed to determine the preferred option and the location of treatment.

The FEMP Draft Site Treatment Plan has identified a preferred option for the treatment of each containerized, characterized mixed low level waste stream (primarily "legacy waste") in inventory. The "legacy waste" largely consists of wastes generated as part of the former production operations maintenance activities, utility operation, etc. Current and future (5 year) volumes are shown in the Draft Site Treatment Plan. Sources of generation of these future wastes in the next five years include on-going maintenance operations, safe shutdown activities, and laboratory activities. As generated, these wastes will be incorporated into one of the preferred options and/or evaluated for a more appropriate treatment option.

Site remediation wastes will be managed according to the remedial alternatives selected by the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) process during the Remedial Investigation/Feasibility Study (RI/FS) according to the milestones in the Amended Consent Agreement established in 1991 with the United States Environmental Protection Agency (USEPA). The Draft Site Treatment Plan discusses the sources and projected volumes of mixed wastes to be generated during the remedial actions. For the most part, these wastes have not yet been generated and are not included in the lists of current/future mixed low level waste in the Draft Site Treatment Plan. When these wastes are generated the Final Site Treatment Plan will be revised to reflect waste volumes and the remediation processes and schedules.

The Draft Site Treatment Plan was prepared using the "bottoms-up" (each DOE mixed waste facility developed its own plan) approach and has not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. These preferred options may change as evaluation of DOE-wide impacts and State-to-State discussions progress. The FEMP Draft Site Treatment Plan may also change based on regulatory agency and public comments.

Attached is a table listing the FEMP preferred treatment options and associated projects. This table summarizes the FEMP Draft Site Treatment Plan including treatment location, current volume in inventory, projected schedule, and costs estimated. All of the legacy waste currently at the FEMP is included in one of the preferred options listed. Several of the options are on-going projects (UNH, Incineration, Envirocare). These waste management projects are being completed as CERCLA removal actions and in accordance with the Amended Consent Agreement.

The Draft Site Treatment Plan is available for public review and comment at the Public Environmental Information Center (PEIC), located at 10845 Hamilton-Cleeves Highway, Harrison, Ohio 45030, telephone number (513) 738-0164. PEIC hours are Monday and Thursday 9:00 a.m. - 8:00 p.m., Tuesday, Wednesday and Friday 9:00 a.m. - 4:30 p.m. and Saturday 9:00 a.m. - 1:00 p.m. The comment period will end October 30, 1994.

Comments received on the Draft Plan will be addressed in the Final Site Treatment Plan. The Final Site Treatment Plan will be available for public review and comment in February 1995.

FEMP MIXED WASTE TREATMENT PREFERRED OPTIONS AS IDENTIFIED IN THE DSTP

PREFERRED OPTION	TREATMENT LOCATION	CURRENT VOLUME m^3	PROJECTED SCHEDULE	ESTIMATED COST
Hydrofluoric Acid (HF) Neutralization System	ON-SITE Existing Facilities	6.6	10/94 - 1/95	$0.5 million
UNH Treatment System	ON-SITE Existing Facilities	1,062.0	8/94 - 12/95	To Be Determined
Waste Water Treatment	ON-SITE Existing Facilities	6.2	9/93 - 10/95	Included in the TSCA Incinerator Costs
Mobile Stabilization	ON-SITE Mobile Vendor	417.9	9/94 - 9/95	$3.1 million
Mobile Chemical Treatment	ON-SITE Mobile Vendor	761.6	10/94 - 11/97	$16.1 million
TSCA Incinerator	OFF-SITE Existing DOE Facility	331.9	9/93 - 10/95	$0.65 million
Envirocare	OFF-SITE Existing Commercial Facility	443.7	ongoing - 5/95	$2.5 million

m^3 = Cubic Meters

Revision No. 1 0994

U.S. Department of Energy
Grand Junction Projects Office

Fact Sheet

Site Treatment Plans for Mixed Waste

FEDERAL FACILITY COMPLIANCE ACT

On October 6, 1992, the Federal Facility Compliance Act was signed into law. The Act directs the U.S. Department of Energy (DOE) to prepare a site treatment plan for each DOE site generating or storing mixed waste (waste containing both hazardous and radioactive constituents).

All the DOE sites are developing plans in three phases: a **Conceptual Site Treatment Plan**, completed in October 1993; followed by the **Draft Site Treatment Plan** by August 1994; and concluding with the **Final Proposed Site Treatment Plan** by February 1995. The Final Proposed Site Treatment Plan for the DOE Grand Junction Projects Office (GJPO) is subject to approval, approval with comments, or disapproval by the Colorado Department of Public Health and the Environment (CDPHE). Upon approval, CDPHE will issue an order requiring DOE to comply with the Site Treatment Plan.

The **Conceptual Site Treatment Plan (CSTP)** for GJPO was completed in October and made available for public review and comment. The CSTP was the preliminary approach to identifying treatment options that potentially apply to specific mixed wastes at the Grand Junction Projects Office. The **Draft Site Treatment Plan (DSTP)** was also completed and is available for review and comment. It is intended as a starting point for discussions with the States and the general public.

This Draft Plan reflects the GJPO's preferred options and was developed based on preliminary discussions with State representatives and existing available information. The options reflect a "bottoms-up" approach and a coordinated effort between the DOE Albuquerque Operations Office laboratories and facilities. These options have not been coordinated nationally with overall DOE wide plans for treating mixed waste. Therefore, changes in the preferred options and associated schedules between the Draft Plan and the Final Plan are possible as evaluation from the DOE-wide perspective progresses and as a result of state-to-state discussion prior to submittal and approval of the Final Plan and issuance of a Compliance Order.

DOCUMENT LOCATIONS

Both plans are available at the following locations:

Mesa County Public Library
Government References Section
530 Grand Avenue
Grand Junction, CO 81501

Technical Resource Center
U.S. DOE Grand Junction Projects Office
2567 B 3/4 Road, P.O. Box 2567
Grand Junction, CO 81502

PUBLIC PARTICIPATION OPPORTUNITIES

To assure that the plan is addressing community concerns, public comments are invited throughout all stages of plan development. Throughout this development period, the Grand Junction Projects Office will review any comments received in writing and will respond individually to those providing comments. A formal **60-day comment period** follows issuance of the DSTP in August 1994. A public **information meeting/workshop** will be advertised and held by the DOE to explain key elements of the DSTP. All written comments received during the 60-day comment period will be considered by both the State of Colorado and DOE for inclusion in the final plan, and will be included in a **responsiveness summary** which will also will be made available to the public.

For More Information:

If you have questions or comments on the Draft Site Treatment Plan, please write or call:

Audrey Berry, Public Affairs Specialist
U.S. DOE Grand Junction Projects Office
P.O. Box 2567
Grand Junction, CO 81502
(303) 248-7727

CONTENTS OF DRAFT SITE TREATMENT PLAN

The Draft Plan is organized in two separate but integrated volumes. The *Background Volume* provides a detailed discussion of the GJPO's waste streams and treatability groups and the treatment options that address those wastes, as well as the estimated cost of those options, and regulator and stakeholder comments. The *Compliance Volume* contains the preferred options and the mechanisms to implement the Final Plan and establish milestones that will be enforced by the eventual Colorado Department of Public Health and the Environment Compliance Order.

GJPO SITE HISTORY AND MISSION

The Grand Junction Projects Office is located in Mesa County, Colorado, immediately south and west of the Grand Junction city limits. The facility occupies a 56.4-acre tract of land bounded on the west and south by the Gunnison River and on the north and east by county, city, and private property.

The GJPO site was acquired by the U.S. War Department in 1943 in support of the Manhattan Engineer District. By 1945 a uranium and vanadium concentrate refinery was constructed and in operation. In 1947 the U.S. Atomic Energy Commission (AEC) established the Colorado Raw Materials Office at the GJPO to manage domestic uranium procurement and exploration functions. Between 1947 and 1971, the AEC was responsible for the receipt, sampling, and analysis of uranium and vanadium concentrates, during which time several pilot-plant milling and amenability testing programs were conducted. All known on-site contamination is believed to be a result of these past activities.

According to historical records, approximately 32,000 tons of ore were processed between 1943 and 1958, resulting in the distribution of 178,000 cubic yards of tailings material throughout the site. These materials are being removed under the Grand Junction Projects Office Remedial Action Program (GJPORAP) and are being disposed of with the mill tailings from the Climax Mill Site in the permanent disposal facility at the Cheney repository. The AEC's uranium concentrate program ended in 1970.

In 1971, the National Uranium Resource Evaluation (NURE) Program was established to assess all available uranium resources in the United States. The program lasted a little more than a decade, with a final assessment report submitted to the Federal Government in 1983. In 1984, the GJPO was named the lead office for the Uranium Mill Tailings Remedial Action Vicinity Properties Program. This program involves removal of uranium mill tailings at residential and commercial properties in Grand Junction, Colorado and Edgemont, South Dakota. The GJPO has cleaned up more than 3,900 properties to date.

Today's mission of the GJPO is to apply its project management, engineering, and scientific capabilities to the direct support of the DOE's Office of Environmental Management and the DOE's Operations Offices; to provide technical and management support of decontamination and decommissioning programs; and performance of environmental clean-up projects. The GJPO maintains fully equipped laboratories for analytical chemistry, mineralogy-petrology, radon, and electronics.

CONDITIONALLY-EXEMPT, SMALL-QUANTITY GENERATOR

Historically, the GJPO has operated as a conditionally-exempt, small-quantity generator (CESQG) of hazardous and mixed waste. The GJPO's *CESQG Management Plan* establishes the process whereby the wastes generated on-site do not exceed 100 kg of hazardous/mixed waste or 1 kg of acutely hazardous/mixed waste. The management plan has been formulated to minimize the generation of regulated wastes.

In 1991, the Grand Junction Projects Office Remedial Action Program identified and managed a quantity of mixed waste exceeding the CESQG status. As a result, the DOE-GJPO submitted a Resource Conservation and Recovery Act (RCRA) Part A permit application to the Colorado Department of Public Health and the Environment and U.S. Environmental Protection Agency Region VIII in January 1992, officially beginning operations within the hazardous and mixed waste storage area as a RCRA interim-status container storage facility. Since that time the GJPO has reestablished its CESQG status with the Colorado Department of Public Health and the Environment and maintains that status today.

Hanford Advisory for the Federal Facility Compliance Act

U.S. Department of Energy • Richland Operations Office

BACKGROUND

The Federal Facilities Compliance Act of 1992 makes federal facilities subject to potential fines and penalties for violations of the Resource Conservation and Recovery Act (RCRA). RCRA is the law that sets requirements for the management of hazardous waste.

The 1992 Act allows a three-year sovereign immunity delay on the imposition of fines and penalties for certain violations related to the Department of Energy's (DOE) storage of mixed waste. The Act requires DOE to prepare plans for treatment of mixed waste by February 1995.

During this three-year timeframe, DOE is required to:

1) prepare and submit a national inventory report to the regulators identifying its mixed waste volume, characteristics, treatment capacity and available technologies; and
2) prepare Site Treatment Plans for developing the needed treatment processes and capacity for the mixed waste.

Plans will be developed for each site where DOE generates or stores mixed waste.

Hanford, unlike the other DOE sites in the nation, is not required to develop such a plan. The "Report on Hanford Site Land Disposal Restrictions for Mixed Waste" (M-26-01), as required under the Tri-Party Agreement governing Hanford cleanup, already meets this requirement. Thus, DOE has already waived sovereign immunity at Hanford.

Therefore, the Hanford Site is participating in the complex-wide Act activities, but is not preparing a Site Treatment Plan.

SITE TREATMENT PLANS

Site Treatment Plans identify how, when, and where suitable treatment capacity for the mixed waste will be developed and constructed. Hanford's Land Disposal Restriction Report also addresses these issues.

On August 31, 1994, 48 DOE sites in 22 states that generate or store mixed waste released their Draft Site Treatment Plans. These plans were developed to narrow the range of options available to treat DOE's mixed waste. They also present each site's proposed treatment options for mixed waste.

The National Governors' Association has established a cooperative agreement with DOE to coordinate representatives from the 22 states and the U.S. Environmental Protection Agency. This coordinated group will assist the DOE sites in evaluating their candidate treatment options and developing mixed waste treatment plans.

The Draft Site Treatment Plans were prepared using a site-by-site approach and have not been evaluated for impacts to other DOE sites and the overall DOE mixed waste program.

STATUS

Since passage of the Federal Facilities Compliance Act, the DOE Richland Operations Office, which guides cleanup at the Hanford Site, has participated in the complex-wide effort by providing required data to the Mixed Waste Inventory Report. This report identifies all mixed waste streams currently managed within the DOE.

Hanford's data was combined with information from the other DOE sites to create a complex-wide inventory of high-level, transuranic, and low-level mixed waste. Hanford, along with all other DOE sites, also provided information on existing and future mixed waste treatment technologies and facilities.

Other activities to date include frequent communications and meetings with the National Governor's Association and members of state regulatory agencies, including the Washington State Department of Ecology.

During some of the earlier meetings, several states requested that the Federal Facilities Compliance Act address mixed waste disposal, as well as treatment requirements. Since disposal of the mixed waste residues is not a part of the Act, DOE agreed to address mixed waste disposal to the extent possible.

MIXED WASTE DISPOSAL

Both DOE and the states recognize that disposal issues are an integral part of treatment discussions. As a result, a Disposal Working Group was established to focus on disposal

issues. The primary focus of the group has been evaluating the capability of sites to dispose of the low-level mixed waste residues remaining after treatment.

Criteria have been established and some DOE sites have been eliminated as potential disposal sites for treated mixed wastes. Hanford is identified as one of 16 sites for DOE treated mix waste disposal. More analysis and stakeholder involvement is required before decisions are made on the final candidate disposal site(s) for treated mixed waste within the DOE complex.

Ultimately, a number of sites will remain that will be technically able to dispose of some types of mixed waste. DOE, through public input and evaluation, will determine which of these sites should be proposed as disposal sites and initiate the permitting process with the appropriate state and federal regulators.

NEXT STEPS

On October 24, 1994 DOE will release an Executive Summary explaining all of the proposed options. The summary will describe what wastes are proposed for treatment in existing facilities, what new facilities are proposed and what wastes are proposed for treatment at other DOE and commercial facilities. The summary will also discuss the development of new technologies for treating mixed waste.

Many issues must be discussed and resolved prior to presenting DOE's selected option for mixed waste treatment in the final Site Treatment Plans in February 1995. These issues include:

- Discussion among states that may ship or receive mixed waste;
- Other equity concerns;
- The states' preference for on-site treatment of wastes, which reduces transport among sites and the need to treat off-site wastes;
- The complexities of scheduling and implementation of large construction projects;
- How disposal issues will be addressed; and
- How DOE can meet its commitment to fund Federal Facilities Compliance Act activities while considering budgetary constraints and other priority activities.

EPA/State Role

Although DOE is developing the Site Treatment Plans, DOE does not have final word. State and Environmental Protection Agency regulators have authority to approve or disapprove the plans and enforce them through compliance orders such as Hanford's Tri-Party Agreement.

In order for these decisions to reflect public opinions, concerns, and recommendations, it is very important that DOE and the regulators discuss these proposals with the public.

Cooperative efforts will increase during the period from August 1994 through February 1995 when the draft Site Treatment Plans will be discussed and compared with Hanford's Land Disposal Restriction Report. Issues of equity will be discussed among DOE, the regulators, and the public. In addition,a public review and comment period will be provided after the Final Site Treatment Plans are issued in February 1995.

PUBLIC INVOLVEMENT

Efforts to involve the public in the development of the draft Site Treatment Plans have been primarily focused at the DOE site level. As statutorily authorized by the Federal Facilities Compliance Act, Hanford is not required to develop a Site Treatment Plan because the Tri-Party Agreement (M-26-01) already meets this requirement.

Public involvement to date has been through Tri-Party Agreement activities for mixed waste treatment, storage, and disposal facilities. Now that each site has developed a draft Site Treatment Plan, a national picture of treatment options is beginning to emerge based on the draft plans.

From August 1994 through February 1995, numerous issues will be discussed that may influence the options presented in the final Site Treatment Plans. DOE will provide opportunities for interested parties to get information, express their opinion or discuss these plans and associated mixed waste issues with DOE and state representatives.

Additional workshops may be offered at Hanford if there is sufficient interest in the Site Treatment Plan process and how it relates to the Hanford Site.

For more information, contact:

Ed MacAlister S7-55
Hanford Federal Facilities Compliance Act Rep.
Department of Energy
P.O. Box 550
Richland, WA 99352
(509) 373-0462

Idaho National Engineering Laboratory

Treating Mixed Waste at the INEL

An INEL Waste Management Fact Sheet

August 1994

This fact sheet discusses the Federal Facility Compliance Act of 1992 (Act) and its impact on mixed wastes stored at the Idaho National Engineering Laboratory. Mixed waste contains both radioactive and hazardous components. Passage of the Act provides an opportunity for the Department of Energy and the State of Idaho to resolve the treatment of mixed waste stored or generated at the INEL. The Act requires DOE to develop and submit a plan for developing technologies and capacities to treat its mixed waste. The Act also requires DOE to obtain a consent order from the State requiring compliance with the approved site treatment plan by October 1995, or become subject to fines and penalties for continuing storage of DOE's mixed wastes.

What does the Act require?

Mixed waste stored at the INEL until treatment technologies and options are developed.

The Act requires DOE to prepare a site treatment plan describing INEL mixed waste streams. The plan will include schedules for treating wastes and bringing needed treatment technologies online.

The plan is developed in three phases: (1) a "Conceptual Site Treatment Plan"— completed in October 1993, (2) a "Draft Site Treatment Plan"— to be completed by August 1994, and (3) a "Final Site Treatment Plan"— to be completed and submitted to the State of Idaho for review no later than February 1995. The final plan will form the basis of a consent order between DOE and the State of Idaho. The Act requires the State to approve, approve with modifications, or disapprove, INEL's final plan after considering public comments and consulting with affected states, Indian Tribes, and the Environmental Protection Agency.

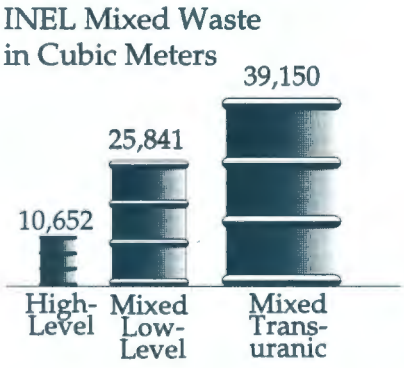
Where does mixed waste come from?

Cross-section of a mixed waste drum containing contaminated rags, plastic bottles, clothing, and gloves.

INEL's mixed waste was generated by past operations related to research, production, and storage of nuclear materials. The majority of mixed waste was generated at the Rocky Flats Plant in Colorado and transported to the INEL.

Additional mixed waste may also be generated in the future from continued facility operations, research and development activities, and as a result of environmental restoration cleanup operations.

What kinds of mixed waste are being stored?



There are approximately 332 specific combinations of mixed waste— called waste streams— that are currently in storage or that will be generated in the next five years at the INEL. These wastes are generally categorized into three classes for treatment and handling purposes. The categories are: (1) mixed low-level waste, (2) mixed transuranic waste, and (3) high-level waste. (See Figure 1 for a summary of the volume of mixed waste being stored at the INEL.)

Mixed waste is stored at five major locations at the INEL. They are Test Area North, Power Burst Facility, Argonne National Laboratory-West, Radioactive Waste Management Complex, and the Idaho Chemical Processing Plant. A combined total of approximately 75,643 cubic meters of waste are in storage at the INEL.

	Mixed Low-Level	Mixed Transuranic	High-Level	PROPOSED Offsite Waste (considered for shipment to INEL)
Number of Specific Waste Streams	212	118	2	84
Volume- in Cubic Meters	25,841	39,150	10,652	2,410
% Onsite Treatment	99%	100%	100%	100%
% Offsite Treatment	1%	0%	0%	N/A
Existing INEL Treatment Systems/Facilities*	• Waste Experimental Reduction Facility • Waste Engineering Development Facility • Test Area North Treatment Unit • New Waste Calcining Facility Debris Treatment • High Efficiency Particulate Air Filter Leach System • Cask Dismantlement • Portable Water Treatment Unit • Sodium Process Facility	• New Waste Calcining Debris Treatment and Containment Building • High Efficiency Particulate Air Filter Leach System	• New Waste Calcining Facility • Debris Treatment and Containment Storage Building • High Efficiency Particulate Air Filter Leach System	• Waste Experimental Reduction Facility • New Waste Calcining Debris Treatment and Containment Building • Waste Engineering Development Facility • Cask Dismantlement Facility
Proposed Treatment Systems/Facilities*	• Remote Mixed Waste Treatment Facility • Idaho Waste Processing Facility	• Remote Mixed Waste Treatment Facility • Idaho Waste Processing Facility	• Waste Immobilization Facility	• Idaho Waste Processing Facility

* For additional details refer to the Draft Site Treatment Plan available at INEL Information Locations. Rev. 1. 8/25/94

Figure 1. Mixed Waste and Preferred Treatment Facilities at the INEL.

Why does the waste need to be treated?

To be in compliance with regulations regarding land disposal, the hazardous components of mixed waste must meet specific treatment requirements identified in the regulations. Treatment processes are used to change the waste into a form that is more suitable for storage or disposal and to meet the waste acceptance criteria of a specific storage or disposal facility.

What was the basis for selecting mixed waste treatment options?

Identified options were evaluated using the following criteria:

- Treatment effectiveness
- Environmental, health, and safety considerations
- State of Idaho concerns
- Ease of implementation
- Public concerns
- Costs

Options were identified using a formal selection process and considered both onsite and offsite facilities. Onsite treatment options included existing and planned facilities. Offsite options included commercial and government-operated facilities. In those cases where onsite treatment was available or could be modified to treat INEL waste, that treatment was chosen as the preferred option.

Additionally, onsite storage of high-level radioactive waste and large-volume waste streams were also considered to be a major factor for constructing onsite treatment facilities.

A treatment option must be considered for each of the 332 waste steams. The variety of treatment methods being considered are generally categorized as follows:

The incinerator at the Waste Experimental Reduction Facility is an example of a treatment option for mixed low-level waste.

- **Thermal treatment**— includes incineration or destruction of the hazardous component by the application of high temperatures
- **Stabilization**— includes solidification by adding cement, grouting the waste, or melting the waste into a glass-like material.
- **Decontamination**— includes removing the hazardous or radioactive component from the waste by water washing, pellet blasting, or grinding
- **Chemical treatment**— includes the neutralization of the waste or chemical oxidation or reduction
- **Separation**—includes the removal of metals, suspended solids or organic materials from liquid waste streams by ion exchange, evaporation, or filtering
- **Encapsulation**— includes the containment of individual waste particles in a polymer or asphalt-like matrix.

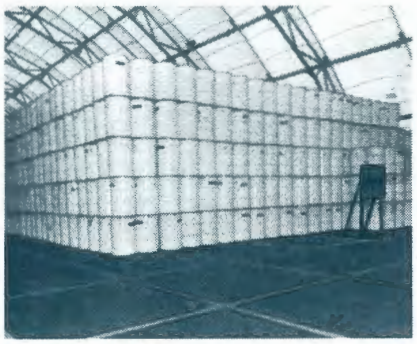
What new facilities are being proposed to support treatment options?

Artist's rendering of the proposed Idaho Waste Processing Facility that would treat alpha mixed low-level and mixed transuranic waste.

DOE Idaho has identified four new facilities necessary to fully meet the treatment needs for mixed waste at the INEL. The new facilities are:

- **Remote Mixed Waste Treatment Facility**— would supply treatments for reactive metals that are categorized as mixed low-level and mixed transuranic waste
- **Waste Engineering Development Facility**— would supply treatments for small volume mixed low-level waste generated from INEL operations
- **Waste Immobilization Facility**— would process high-level waste and convert waste into a stabilized form suitable for permanent geologic disposal.
- **Idaho Waste Processing Facility**— would repackage and/or treat alpha mixed low-level and transuranic waste to meet the waste acceptance criteria for the Waste Isolation Pilot Plant in New Mexico.

Implications of INEL's Draft Site Treatment Plan



Transuranic waste expected to be shipped to the Waste Isolation Pilot Plant for disposal.

A major implication of the INEL's Draft Site Treatment Plan is that identified treatment options will meet state and federal requirements, and that proposed treatment support facilities must be permitted, funded, and constructed in a timely manner. Specific concerns related to each waste classification are highlighted below.

- **Mixed Low-Level Waste**: Existing and proposed facilities could treat all of INEL's mixed low-level waste. The option to involve the private sector in treating some wastes is open.
- **Mixed Transuranic Waste**: Transuranic waste stored at the INEL is expected to be disposed of at the Waste Isolation Pilot Plant in New Mexico pending the approval of the "No Migration Variance Petition" by the U.S. EPA. Some of this waste may require treatment to meet the requirements of the Waste Isolation Pilot Plant's waste acceptance criteria before disposal can take place. This treatment is expected to take place at the INEL.
- **High-Level Waste**: Highly radioactive materials and liquid waste streams were considered too difficult to transport and will be completely treated by planned onsite facilities.

Why should the public be interested?

Major waste management decisions facing DOE and the states may affect local communities. Future decisions include the location of new facilities, the type of treatment to be used, where the waste will be shipped for treatment, and how treated waste will be disposed. Opportunities for the public to participate early in decision-making can lead to accurate identification and timely consideration of issues, alternatives, and actions.

Additional information/key contacts— Questions and comments concerning INEL's Draft Site Treatment Plan may be directed to agency coordinators: Connie Nash, DOE Idaho at (208) 526-5922, and Rensay Owen, Idaho Department of Health and Welfare, (208) 528-2650. Copies of the plan and other materials will be available at INEL information locations around the State.

Information will also be available by calling INEL's toll free number at (800) 708-2680, or regional INEL Offices in Pocatello—(208) 233-4731, Twin Falls—(208) 734-0463, and Boise—(208) 334-9572.

The INEL Site Treatment Plan development is a project of the Department of Energy's Idaho Operations Office.

For More Information, Call: 1-800-708-2680

IDAHO DEPARTMENT OF HEALTH AND WELFARE, DIVISION OF ENVIRONMENTAL QUALITY

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FEDERAL FACILITIES COMPLIANCE ACT (FFCA) FACTSHEET

INHALATION TOXICOLOGY RESEARCH INSTITUTE

ALBUQUERQUE, NEW MEXICO

I. Purpose and Development of the Draft Site Treatment Plan

The U.S. Department of Energy (DOE) is required by section 302(b) of the Resource Conservation and Recovery Act (RCRA), as amended by the Federal Facility Compliance Act of 1992 (the Act), to prepare site treatment plans (STP or Plan) describing the development of treatment capacities and technologies for treating mixed waste, which is waste that contains both radioactive and hazardous components. The plans will be submitted to the State of New Mexico for approval or approval with modification. The Inhalation Toxicology Research Institute (ITRI) Draft Site Treatment Plan (DSTP or Draft Plan) is the intermediate version of the STP and is being provided to the State of New Mexico, the U.S. Environmental Protection Agency (EPA) Region 6, and others for review.

ITRI has prepared this Draft Plan in accordance with the April 6, 1993 Federal Register notice, in which DOE published a schedule for submitting the STPs for facilities at which DOE generates or stores mixed waste (58 FR 17875). The purpose of this Draft Plan is to identify the currently preferred options for treating the facility's mixed waste, defined by the Act as waste containing both a hazardous waste subject to RCRA, and source, special nuclear or by-product material subject to the Atomic Energy Act of 1954 (42 U.S.C. 2011 *et seq.*). To the extent feasible, this Plan proposes specific treatment facilities for treating the mixed waste and proposes schedules as set forth in the Act. Due to the complexity of the task of defining a single option for each waste stream, there may be more than one option described for some of the waste streams at the site. Where a waste stream is not sufficiently characterized to propose a treatment plan, the Draft Plan proposes a plan and schedule for characterizing the waste.

The Draft Plan reflects the results of discussion among New Mexico and other states, EPA, and others based on the Conceptual Site Treatment Plan (CSTP or Conceptual Plan) submitted to the State of New Mexico in October 1993. The Conceptual Plan presented all known treatment needs, capabilities, and preliminary options for treating the mixed waste. The Conceptual Plan is available at the National Atomic Museum, Kirtland Air Force Base, Albuquerque, New Mexico, and the Technical/Vocational Institute Library, Albuquerque, New Mexico.

This document, the *Background Volume*, is one of two volumes that constitute the DSTP. It provides a detailed discussion of the preferred option or options, identifies the waste streams the option addresses, and gives explanatory information. For ITRI, a letter describing the preferred options and schedules for treatment will be submitted in lieu of the *Plan Volume*.

II. Summary of the Site-Specific Inventory

ITRI currently has three mixed waste streams. These are ^{14}C/Tritium Scintillation Cocktail Waste; Actinide Scintillation Cocktail Waste; and ^{63}Ni Scintillation Cocktail waste.

ITRI generates ^{14}C/tritium scintillation cocktail waste when researchers measure the level of radioactivity in tissue samples during the course of laboratory experiments. This waste is a current and future waste stream. This waste is ignitable, with D001 and F003 (xylene) waste code classification, although a non-RCRA scintillation fluid is replacing the hazardous components when possible. The waste contains small amounts of ^{14}C and tritium and it is classified as a beta/gamma-emitting (< 10 nCi/g) radioactive waste. The projected generation of this waste stream is 3,300 kg for the 5-year period of 1993 to 1997.

ITRI currently sends its ^{14}C/tritium waste to Quadrex, a permitted commercial facility in Florida. There, the waste is Fuel Substituted (FSUBS) or incinerated in an industrial furnace, which satisfies the Land Disposal Restrictions (LDR) concentration-based standard associated with the waste stream. No pretreatment is required prior to incineration.

ITRI generated actinide and ^{63}Ni scintillation cocktail wastes when researchers measured the level of radioactivity in tissue samples during the course of laboratory experiments. When possible, these two scintillation cocktail mixtures have been replaced with products that do not contain RCRA-regulated solvent constituents. ITRI, however, anticipates producing small amounts of these two wastes in the future. As of early 1994, all actinide and ^{63}Ni cocktail wastes currently generated have been bulk-packaged together into 55-gallon drums.

The actinide cocktail waste is ignitable, with a D001 waste code classification. Due to small amounts of toluene and xylene, the waste stream is also classified as an F005 (toluene) and F003 (xylene) hazardous waste. The actinide waste contains small amounts of ^{239}Pu, ^{238}Pu, ^{241}Am, ^{228}Th, ^{232}U, and ^{244}Cm. It is classified as an alpha-emitting (less than 10 nCi/g) radioactive waste. The ^{63}Ni cocktail waste is ignitable, with a D001 waste code classification. The ^{63}Ni waste contains small amounts of ^{65}Ni, and it is classified as a beta/gamma-emitting (less than 10 nCi/g) radioactive waste. For the period of 1993 to 1997, the projected generation of the actinide waste stream is approximately 450 kg, and the projected generation of the ^{63}Ni waste stream is

approximately 700 kg.

The LDR specified technology-based standard is incineration. Additionally, LDR concentration-based standards for toluene and xylene must be met. The treatment standard for both constituents is 28 mg/L, which can be met through incineration. However, the waste contains radionuclides that no commercial incinerators are currently permitted to handle. The Diversified Scientific Services, Inc. (DSSI) incinerator in Tennessee recently received a permit modification to allow for the destruction of Mixed Low Level Waste containing these radionuclides.

The remaining two mixed waste streams which may be generated at the ITRI facility are future generated waste streams. The waste streams are lead debris and nitric acid digest samples.

As various experiments are concluded within ITRI's laboratories, radioactive lead shielding debris may be generated when decontaminating the various laboratory rooms. If generated, the lead debris would be designated as a hazardous waste, with a D008 waste code classification, and may contain small amounts of various radionuclides. It is anticipated that as much as 14,000 kg could be generated over a 5 year period. To date, ITRI has not generated any lead debris.

ITRI has identified a stream of biological samples stored in nitric acid digest bottles as a possible future mixed waste stream. The waste stream would be classified as corrosive, with a D002 waste code classification. It could contain small amounts of ^{239}Pu and other radionuclides, and would, therefore, be classified as an alpha-emitting (less than 10 nCi/g) radioactive waste. ITRI anticipates generation of this waste could occur as early as FY 1995. The total quantity generated could be as much as 40,000 kg. ITRI currently has no nitric acid digest waste on site.

III. Options Proposed

As stated in Section II, the options proposed for the ^{14}C/tritium waste are fuel substitution or incineration. ITRI believes that identifying other treatment options for this waste stream is not necessary because of the viability of the existing treatment path. All of the anticipated ^{14}C/tritium waste is expected to be treated off-site at the Quadrex facility in Florida. Shipments are ongoing and expected to occur approximately twice a year.

Also, as stated in Section II, the option proposed for the actinide/^{63}Ni waste is incineration. ITRI believes that identifying other treatment options for this waste stream is not necessary because of the viability of the existing treatment path. All of the anticipated actinide/^{63}Ni waste is expected to be treated off-site at the DSSI facility in Tennessee. Shipment of the existing inventory is expected to occur in CY94. Since

DSSI has already received its permit modification to receive the radionuclides present in ITRI's waste, there are no anticipated uncertainties regarding this disposal, other than the exact time at which it may occur. In the event that treatment cannot occur at DSSI in a timely manner, two other treatment options exist. First, the waste could be transported to Los Alamos National Laboratory (LANL) for a treatability study in the DETOX catalytic wet oxidation bench-scale unit. Another possible option would be to transport the waste to Mound for a treatability study in the packed bed reactor bench-scale unit.

According to ITRI's research, there are no existing facilities that can treat radioactive lead debris to meet the specified treatment standard of macroencapsulation. An alternative technology for treating lead debris contaminated with radionuclides is decontamination followed by recycling of the lead debris. This alternative has two advantages over macroencapsulation. First, there are existing recycling units, and second, the method reduces the mixed waste stream by recycling the treated lead debris. Therefore, ITRI plans to decontaminate and recycle the lead debris. LANL has developed a decontamination process specifically for lead bricks and shielding materials. The lead is decontaminated with an abrasive alumina slurry spray followed by a clean water wash. The solidified slurry is subjected to the Toxicity Characteristic Leaching Procedure (TCLP), stabilized if necessary, and disposed of as low-level waste at the Nevada Test Site. The waste will be treated and recycled within 180 days of generation, so that ITRI can maintain its Small Quantity Generator status. Although it is anticipated that this generation could start as early as FY 95, there are currently no definite plans to generate this waste.

Three other treatment options also exist. First, the waste could be transported to the commercial facility run by Scientific Ecology Group, Inc., which has an operating decontamination unit. Second, the waste could be transported to LANL for chelating treatment followed by stabilization, once the unit is built and approved. Another possible option would be to transport the waste to Pantex in Texas for macroencapsulation, once the unit is built and approved.

Due to the corrosivity of the biological samples, the material would have a specified-technology treatment standard of deactivation. Utilizing the elementary neutralization unit provision in 40 CFR Part 270 Section 270.1(c)(2)(v), ITRI can adjust the pH of the biological samples on site without a RCRA permit provided that the neutralization process takes place in a container or tank system. Following neutralization, the material would no longer be classified as a RCRA waste, and ITRI would be able to dispose of it as solidified low-level waste at the Nevada Test Site. The waste will be treated and disposed of within 180 days of generation, so that ITRI can maintain its Small Quantity Generator status. Although it is anticipated that this generation could start as early as FY 95, there are currently no

definite plans to generate this waste.

IV. Next Steps

ITRI welcomes and will consider all suggestions received regarding its Draft Site Treatment Plan. Implementation of the Plan will proceed as described above, and as changes are incorporated into the plan.

V. Key Contacts

The key contact at ITRI is:

Dr. Joe L. Mauderly
Director, ITRI
P.O. Box 5890
Albuquerque, New Mexico 87185
505-845-1025

Technical information may be obtained from:

Mary Hall
Environmental Specialist, ITRI
P.O. Box 5890
Albuquerque, New Mexico 87185
505-845-1076

FEDERAL FACILITIES COMPLIANCE ACT (FFCA) FACTSHEET

INHALATION TOXICOLOGY RESEARCH INSTITUTE

ALBUQUERQUE, NEW MEXICO

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Draft Site Treatment Plan
Fact Sheet

The Site Treatment Plan allows the Department of Energy to work with states and the Environmental Protection Agency to determine how to treat mixed wastes. The Missouri Department of Natural Resources has final approval authority for the Site Treatment Plan at the Kansas City Plant. The Department of Energy continues to interact on issues with stakeholders in the communities and with national interest groups.

The Draft plan identifies currently preferred options for treating the mixed waste at the Kansas City Plant. This Draft Plan was prepared using the "bottom-up" approach and has not been evaluated for potential impacts associated with other DOE sites and the overall DOE program.

The Kansas City Plant identified six possible waste streams in the interim mixed waste inventory report and determined action for developing preferred treatment options.

Description of Waste Streams
Two of the waste streams were evaluated against the statutory definition of mixed wastes and will be managed under the Department of Energy's low level waste program. A third waste stream was shipped off-site and was refurbished and recycled. Another two were combined into a single waste stream because of similarities. This waste stream has been segregated into low level and recyclable material streams. The final waste stream consists of three drums of mixed waste which will be segregated into two separate waste streams to be handled appropriately.

Preferred Treatment Options
The Kansas City Plant is not authorized to treat mixed wastes on site. Efforts are in place to send one portion of the waste stream to a commercial mixed waste disposal site and will include macro encapsulation and disposal. The remaining portion of the waste stream will be used off-site for a process prototype to develop technologies for larger waste streams at other sites.

Point of Contact

Primary	Brian Chism AlliedSignal Public Affairs (816) 997-7069
Secondary	Margaret Stockdale, Operations Program Manager, KCAO (816) 997-7289

All questions and comments concerning the Site Treatment Plan will be recorded and given response in a timely manner.

KNOLLS ATOMIC POWER LABORATORY-KESSELRING DRAFT SITE TREATMENT PLAN FACT SHEET

The Federal Facility Compliance Act of 1992 (FFCA) requires the U.S. Department of Energy (DOE) to prepare Site Treatment Plans (STPs) to address treatment of mixed radioactive and hazardous waste for each DOE site which generates and stores mixed waste. These plans will be submitted to the states (or the U.S. Environmental Protection Agency (EPA) in cases where the state has not been delegated authority to regulate mixed waste at federal facilities) for approval. Owing to the joint Navy/DOE nature of the Naval Nuclear Propulsion Program (NNPP) and pursuant to the legislative history of the FFCA, NNPP facilities which generate and store mixed waste, including Knolls Atomic Power Laboratory-Kesselring site (KAPL-Kesselring), are included in the FFCA process and are preparing STPs.

KAPL-Kesselring generates very small amounts of mixed waste as a result of Naval nuclear propulsion plant development, testing, and training operations. KAPL-Kesselring currently has approximately 2.04 cubic meters of mixed waste in storage, and projects to generate approximately 30.75 cubic meters over the next five years. These amounts represent less than 0.01 percent of the total amounts of mixed waste stored and generated at DOE facilities. No mixed waste treatment facilities currently exist at KAPL-Kesselring.

As outlined in an April 6, 1993 Federal Register notice (58 FR 17875), DOE is developing STPs in three stages. Conceptual STPs, which identified the range of potentially feasible treatment options for each mixed waste stream, were completed in October 1993. Draft STPs, being issued in August 1994, will discuss the evaluation of treatment options and identify the site's preferred treatment option for each waste stream. Final Proposed STPs will be submitted to state and EPA regulators in February 1995. This three step process is intended to facilitate early interaction with the regulators and other stakeholders to ensure the plans will ultimately be approved by October 1995 as required by the FFCA.

KAPL-Kesselring determined preferred treatment options for each waste stream by comparing all feasible treatment options (including on-site treatment, use of mobile treatment systems, commercial treatment, and treatment at other DOE facilities) in several fundamental areas (including regulatory compliance, treatment effectiveness, environment/health/safety concerns, cost, and implementability). This approach was used by all sites preparing Draft STP's. Based on the very small volumes of KAPL-Kesselring waste streams, these evaluations indicated that off-site treatment at other DOE facilities is economically and technically preferable to other options. KAPL-Kesselring identified potentially technically capable DOE facilities for each waste stream based on an evaluation of available treatment facility information, then coordinated with the other DOE sites to confirm treatment capability and select preferred options based on facility status, location, and to consolidate shipments to one or two DOE treatment sites. The following table contains a listing of the mixed waste streams and preferred treatment options identified in the KAPL-Kesselring Draft STP:

Waste ID#	Waste Stream Name	Inventory	5 Year Proj (M^3)	Preferred Option
KK-W001	Filters Contaminated with Lead, Silver	0.20	0.00	Off-Site Treatment at the Savannah River CIF Incinerator
KK-W002	Cadmium-Plated Solids	0.02	0.10	Off-Site Treatment at the Hanford Site-WRAP IIA Macroencapsulation Facility
KK-W003	Oils	0.00	1.00	Off-Site Treatment at the Savannah River CIF Incinerator-Liquid Feed System
KK-W004	Miscellaneous Laboratory Chemicals Without Metals	0.00	1.30	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
KK-W005	Organic Debris	1.82	3.50	Off-Site Treatment at the Savannah River CIF Incinerator-Solid Feed System
KK-W006	Inorganic Debris and Equipment	0.00	0.55	Off-Site Treatment at the Hanford Site-WRAP IIA Macroencapsulation Facility
KK-W007	Inorganic Sludge/Particulates	0.00	0.50	Off-Site Treatment at the Savannah River CIF Incinerator-Solid Feed System
KK-W008	Organic Sludge/Particulates	0.00	4.20	Off-Site Treatment at the Savannah River CIF Incinerator-Solid Feed System
KK-W009	Organic Debris Without Metals	0.00	0.40	Off-Site Treatment at the Savannah River CIF Incinerator-Solid Feed System
KK-W010	Lead Bricks, Sheets, or Wool	0.00	1.00	Off-Site Treatment at the Hanford Site-WRAP IIA Macroencapsulation Facility
KK-W011	Cutting Oils and Liquids	0.00	0.40	Off-Site Treatment at the Savannah River CIF Incinerator-Liquid Feed System
KK-W012	Miscellaneous Laboratory Chemicals	0.00	1.00	Off-Site Treatment at the Hanford Site-WRAP IIA Stabilization Facility

Waste ID#	Waste Stream Name	Inventory	5 Year Proj (M^3)	Preferred Option
KK-W013	Soils	0.00	16.80	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility

These KAPL-Kesselring preferred options were determined using the "bottoms up" approach in which each DOE site evaluated treatment options for its mixed waste, in conjunction with its state and others. It is noted that the Draft STP and preferred options have not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. Thus, these preferred options may change as evaluation of DOE-wide impacts and state-to-state discussions progress.

The next steps in the FFCA process will include finalization of the preferred treatment options, determination of waste shipment and treatment schedules, and preparation of the Final Proposed STPs. Regulator feedback on the Draft STPs (including the results of equity discussions between the states) and public comments will be considered as these efforts move forward. It is also noted that DOE, in conjunction with the states, is evaluating options for disposal of mixed waste treatment residuals in parallel with the STP process to address mixed waste treatment. The process for addressing disposal is described in the Draft STPs and will proceed in parallel with the preparation of the Final Proposed STPs.

The point of contact for questions or comments concerning the KAPL-Kesselring Draft STP is Mr. A. Seepo (Chief, Schenectady Naval Reactors Office, Schenectady, NY 12301). In addition, the NNPP headquarters point of contact for FFCA and STP matters is Mr. E. Naples (Department of the Navy, Director Nuclear Propulsion, Office of the Chief of Naval Operations, Washington, D.C. 20350).

KNOLLS ATOMIC POWER LABORATORY
DRAFT SITE TREATMENT PLAN FACT SHEET

The Federal Facility Compliance Act of 1992 (FFCA) requires the U.S. Department of Energy (DOE) to prepare Site Treatment Plans (STPs) to address treatment of mixed radioactive and hazardous waste for each DOE site which generates and stores mixed waste. These plans will be submitted to the states (or the U.S. Environmental Protection Agency (EPA) in cases where the state has not been delegated authority to regulate mixed waste at federal facilities) for approval. Owing to the joint Navy/DOE nature of the Naval Nuclear Propulsion Program (NNPP) and pursuant to the legislative history of the FFCA, NNPP facilities which generate and store mixed waste, including Knolls Atomic Power Laboratory (KAPL), are included in the FFCA process and are preparing STPs.

KAPL generates very small amounts of mixed waste as a result of Naval nuclear propulsion plant devlopment, testing, and facility decommissioning operations. KAPL currently has approximately 1.26 cubic meter of mixed waste in storage, and projects to generate approximately 27.18 cubic meters over the next five years. These amounts represent less than 0.01 percent of the total amounts of mixed waste stored and generated at DOE facilities. No mixed waste treatment facilities currently exist at KAPL.

As outlined in an April 6, 1993 Federal Register notice (58 FR 17875), DOE is developing STPs in three stages. Conceptual STPs, which identified the range of potentially feasible treatment options for each mixed waste stream, were completed in October 1993. Draft STPs, being issued in August 1994, will discuss the evaluation of treatment options and identify the site's preferred treatment option for each waste stream. Final Proposed STPs will be submitted to state and EPA regulators in February 1995. This three step process is intended to facilitate early interaction with the regulators and other stakeholders to ensure the plans will ultimately be approved by October 1995 as required by the FFCA.

KAPL determined preferred treatment options for each waste stream by comparing all feasible treatment options (including on-site treatment, use of mobile treatment systems, commercial treatment, and treatment at other DOE facilities) in several fundamental areas (including regulatory compliance, treatment effectiveness, environment/health/safety concerns, cost, and implementability). This approach was used by all sites preparing Draft STPs. Based on the very small volumes of KAPL waste streams, these evaluations indicated that off-site treatment at other DOE facilities is economically and technically preferable to other options. KAPL identified potentially technically capable DOE facilities for each waste stream based on an evaluation of available treatment facility information, then coordinated with the other DOE sites to confirm treatment capability and select preferred options based on facility status, location, and to consolidate shipments to one or two DOE treatment sites. The following table contains a listing of the mixed waste streams and preferred treatment options identified in the KAPL Draft STP:

Waste ID#	Waste Stream Name	Inventory (M^3)	5 Year Proj (M^3)	Preferred Option
KA-W001	Miscellaneous Laboratory Chemicals without Metals	0	2.0	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
KA-W002	Cutting Oils and Liquids	0	0.1	Off-Site Treatment at the Savannah River Site-CIF Incinerator-Liquid Feed System
KA-W003	Trichloroethylene	0.2	0.1	Off-Site Treatment at the Savannah River Site-CIF Incinerator-Solid Feed System
KA-W004	Mercury Materials	0.01	0.05	Off-Site Treatment at the Hanford Site-WRAP IIA Stabilization Facility
KA-W005	Asbestos Contaminated with Mercury	0.2	0	Off-Site Treatment at the Hanford Site-WRAP IIA Stabilization Facility
KA-W006	Freon 113 on Rags	0.4	0	Off-Site Treatment at the Savannah River Site-CIF Incinerator-Solid Feed System
KA-W007	Oils	0.1	2.0	Off-Site Treatment at the Savannah River Site-CIF Incinerator-Liquid Feed System
KA-W008	Miscellaneous Laboratory Chemicals	0	0.7	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
KA-W009	Organic Debris	0.05	2.55	Off-Site Treatment at the Savannah River Site-CIF Incinerator-Solid Feed System
KA-W010	Inorganic Debris and Equipment	0	0.5	Off-Site Treatment at the Hanford Site-WRAP IIA Macroencapsulation Facility
KA-W011	Lead in Bricks, Sheets, or Wool	0.3	1.0	Off-Site Treatment at the Hanford Site-WRAP IIA Macroencapsulation Facility
KA-W012	Inorganic Sludge/Particulates	0	0.4	Off-Site Treatment at the Savannah River Site-CIF Incinerator-Solid Feed System

Waste ID#	Waste Stream Name	Inventory (M^3)	5 Year Proj (M^3)	Preferred Option
KA-W013	Organic Debris without Metals	0	0.4	Off-Site Treatment at the Savannah River Site-CIF Incinerator-Solid Feed System
KA-W014	Organic Sludge/Particulates	0	0.4	Off-Site Treatment at the Savannah River Site-CIF Incienrator-Solid Feed System
KA-W015	Soils	0	16.8	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
KA-W016	Transuranic Debris	0	0.18	Disposal at the WIPP Facility

These KAPL preferred options were determined using the "bottoms up" approach in which each DOE site evaluated treatment options for its mixed waste, in conjunction with its state and others. It is noted that the Draft STP and preferred options have not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. Thus, these preferred options may change as evaluation of DOE-wide impacts and state-to-state discussions progress.

The next steps in the FFCA process will include finalization of the preferred treatment options, determination of waste shipment and treatment schedules, and preparation of the Final Proposed STPs. Regulator feedback on the Draft STPs (including the results of equity discussions between the states) and public comments will be considered as these efforts move forward. It is also noted that DOE, in conjunction with the states, is evaluating options for disposal of mixed waste treatment residuals in parallel with the STP process to address mixed waste treatment. The process for addressing disposal is described in the Draft STPs and will proceed in parallel with the preparation of the Final Proposed STPs.

The point of contact for questions or comments concerning the KAPL Draft STP is Mr. A. Seepo, (Chief, Schenectady Naval Reactors Office, Schenectady, NY 12301-1069). In addition, the NNPP headquarters point of contact for FFCA and STP matters is Mr. E. Naples (Department of the Navy, Director Nuclear Propulsion, Office of the Chief of Naval Operations, Washington, D.C. 20350).

KNOLLS ATOMIC POWER LABORATORY-WINDSOR SITE
DRAFT SITE TREATMENT PLAN FACT SHEET

The Federal Facility Compliance Act of 1992 (FFCA) requires the U.S. Department of Energy (DOE) to prepare Site Treatment Plans (STPs) to address treatment of mixed radioactive and hazardous waste for each DOE site which generates and stores mixed waste. These plans will be submitted to the states (or the U.S. Environmental Protection Agency (EPA) in cases where the state has not been delegated authority to regulate mixed waste at federal facilities) for approval. Owing to the joint Navy/DOE nature of the Naval Nuclear Propulsion Program (NNPP) and pursuant to the legislative history of the FFCA, NNPP facilities which generate and store mixed waste, including Knolls Atomic Power Laboratory-Windsor Site (KAPL-Windsor), are included in the FFCA process and are preparing STPs.

KAPL-Windsor projects to generate very small amounts of mixed waste as a result of Naval nuclear prototype propulsion plant decommissioning operations. KAPL-Windsor currently has no mixed waste in storage, and projects to generate approximately 14.25 cubic meters over the next five years. This amount represent less than 0.01 percent of the total amount of mixed waste stored and generated at DOE facilities. No mixed waste treatment facilities currently exist at KAPL-Windsor.

As outlined in an April 6, 1993 Federal Register notice (58 FR 17875), DOE is developing STPs in three stages. Conceptual STPs, which identified the range of potentially feasible treatment options for each mixed waste stream, were completed in October 1993. Draft STPs, being issued in August 1994, will discuss the evaluation of treatment options and identify the site's preferred treatment option for each waste stream. Final Proposed STPs will be submitted to state and EPA regulators in February 1995. This three step process is intended to facilitate early interaction with the regulators and other stakeholders to ensure the plans will ultimately be approved by October 1995 as required by the FFCA.

KAPL-Windsor determined preferred treatment options for each waste stream by comparing all feasible treatment options (including on-site treatment, use of mobile treatment systems, commercial treatment, and treatment at other DOE facilities) in several fundamental areas (including regulatory compliance, treatment effectiveness, environment/health/safety concerns, cost, and implementability). This approach was used by all sites preparing Draft STPs. Based on the very small volumes of KAPL-Windsor waste streams, these evaluations indicated that off-site treatment at other DOE facilities is economically and technically preferable to other options. KAPL-Windsor identified potentially technically capable DOE facilities for each waste stream based on an evaluation of available treatment facility information, then coordinated with the other DOE sites to confirm treatment capability and select preferred options based on facility status, location, and to consolidate shipments to one or two DOE treatment sites. The following table contains a listing of the mixed waste streams and preferred treatment options identified in the KAPL-Windsor Draft STP:

Waste ID#	Waste Stream Name	Inventory (M^3)	5 Year Proj (M^3)	Preferred Option
KW-W001	Oils	0	0.45	Off-Site Treatment at the Savannah River Site-CIF Incinerator-Liquid Feed System
KW-W002	Miscellaneous Laboratory Chemicals	0	0.1	Off-Site Treatment at the Hanford Site Thermal Treatment Facility
KW-W003	Organic Debris	0	1.5	Off-Site Treatment at the Savannah River Site-CIF Incinerator-Solid Feed System
KW-W004	Inorganic Debris and Equipment	0	3.4	Off-Site Treatment at the Savannah River Site-CIF Incinerator-Solid Feed System
KW-W005	Inorganic Sludge/Particulates	0	0.2	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
KW-W006	Organic Sludge/Particulates	0	1.6	Off-Site Treatment at the Savannah River Site-CIF Incinerator-Solid Feed System
KW-W007	Lead Bricks, Sheets, Wool	0	2.5	Off-Site Treatment at the Hanford Site-WRAP IIA Macroencapsulation System
KW-W008	Miscellaneous Laboratory Chemicals without Metals	0	0.3	Off-Site Treatment at the Hanford Site -Thermal Treatment Facility
KW-W009	Soils	0	4.2	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility

These KAPL-Windsor preferred options were determined using the "bottoms up" approach in which each DOE site evaluated treatment options for its mixed waste, in conjunction with its state and others. It is noted that the Draft STP and preferred options have not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. Thus, these preferred options may change as evaluation of DOE-wide impacts and state-to-state discussions progress.

The next steps in the FFCA process will include finalization of the preferred treatment options, determination of waste shipment and treatment schedules, and preparation of the Final Proposed STPs. Regulator feedback on the Draft STPs (including the results of equity discussions between the states) and public comments will be considered as these efforts move

forward. It is also noted that DOE, in conjunction with the states, is evaluating options for disposal of mixed waste treatment residuals in parallel with the STP process to address mixed waste treatment. The process for addressing disposal is described in the Draft STPs and will proceed in parallel with the preparation of the Final Proposed STPs.

The point of contact for questions or comments concerning the KAPL-Windsor Draft STP is Mr. A. Seepo (Chief, Schenectady Naval Reactors Office, Schenectady, NY 12301-1069). In addition, the NNPP headquarters point of contact for FFCA and STP matters is Mr. E. Naples (Department of the Navy, Director Nuclear Propulsion, Office of the Chief of Naval Operations, Washington, D.C. 20350).

Los Alamos
NATIONAL LABORATORY

The Federal Facility Compliance Act and Los Alamos National Laboratory

What does the Federal Facility Compliance Act require the Laboratory to do?

Congress passed the Federal Facility Compliance Act (FFCAct) in 1992. It was passed to require the US Department of Energy (DOE) to develop better strategies for treating and disposing of mixed waste. The FFCAct requires each DOE facility–including Los Alamos National Laboratory–to negotiate a site treatment plan with the state in which the site is located. The plan must specify how and when mixed waste will be treated.

The DOE, the US Environmental Protection Agency (EPA), the State of New Mexico, the Laboratory, and the public, will work to develop the Site Treatment Plan for the Laboratory.

What is mixed waste?

Mixed wastes are those wastes that are both hazardous (as defined by federal law) and radioactive. Los Alamos National Laboratory generates two kinds of mixed waste: low-level mixed waste and transuranic (TRU) mixed waste. As specified in DOE rules, these two waste types are stored and disposed of differently.

Low-level mixed waste can be in gas, liquid, or solid form. It includes rags and paper towels used to wipe radioactive surfaces and protective clothing worn in radioactive work areas. Other examples of low-level mixed waste are solvents, acids and bases, and oil with mercury. It can contain metals that will burn if exposed to the air or chemicals that react violently with water.

TRU mixed waste is all solid–solidified sludge, room trash, and cut up gloveboxes. Radioactive contamination usually comes from plutonium, americium, and uranium. The hazardous components of this waste are usually solvents used for cleaning or heavy metals, such as lead that was used for shielding.

How much mixed waste does the Laboratory have?

Los Alamos National Laboratory has the equivalent of 4,500 55-gallon drums of low-level mixed waste in storage, and about 300 55-gallon drums are added each year. This waste results from a variety of Laboratory research projects, with each individual project contributing a relatively small amount of waste. This means that the Laboratory inventory of low-level mixed waste is made up of small amounts of diverse waste types.

The Laboratory stores the equivalent of 30,000 55-gallon drums of TRU waste, 60-70% of which is TRU mixed waste. The TRU mixed waste inventory is growing by 500 to 600 drums annually.

Why does the Laboratory have to treat the mixed waste?

The federal law that governs the management of hazardous waste [the Resource Conservation and Recovery Act (RCRA)] does not allow facilities like the Laboratory to indefinitely store waste because of its potential to harm human health and the environment. Facilities must treat it so that it is no longer hazardous.

Currently there is not adequate mixed waste treatment capability, either at the Laboratory or at other DOE facilities. Treatment technologies are available for the hazardous component of mixed waste, but the presence of radioactive waste complicates the use of these methods. Adequate treatment for mixed waste must include ways of destroying the hazardous portion and stabilizing or containing the radioactive portion.

What does the Laboratory want to do with its low-level mixed waste?

For low-level mixed waste, the Laboratory hopes to use three treatment options: commercial off-site treatment facilities; the controlled air incinerator, which was built at the Laboratory in the early 1970's, but which has been used only for short-term tests (trial burns); and the proposed Hazardous Waste Treatment Facility. All these options are fully described in the Laboratory's Draft Site Treatment Plan.

Some of the low-level waste can be sent to **commercial facilities** licensed to treat mixed waste. Currently there are a limited number of these facilities in the country and they are not equipped to receive our entire inventory.

The **controlled-air incinerator** can treat all of the combustible low-level mixed waste in the Laboratory's current and anticipated inventory. It treats the waste by incinerating it at extremely high temperatures, filtering the air emissions resulting from the incineration, and solidifying and disposing the remaining ash. Since the early 1970s the Laboratory has conducted 24 test burns on various radioactive and nonradioactive materials. The incinerator has undergone a number of upgrades to enhance its efficiency and ability to treat different wastes. It is not currently operating because the Laboratory is still completing upgrades and documentation.

The planned **Hazardous Waste Treatment Facility** is being designed, and the Laboratory hopes to complete construction in 1998. If approved, this facility will house several portable treatment systems mounted on frames called skids. These skids will be moved into specially designed treatment rooms to treat stored waste. Once treatment is complete, the skid will be decontaminated and moved into storage, and another skid can then be moved into the room to treat a different waste.

The skids are also being designed so that they can be moved to other DOE sites that need to treat the same waste type. A plan called the AL Mixed Waste

Treatment Plan calls for skids to be built and shared among nine other DOE sites that report to the DOE Albuquerque Operations Office.

What does the Laboratory want to do with its TRU mixed waste?

TRU mixed waste poses a bigger challenge. The current DOE policy is that TRU mixed waste will go to the Waste Isolation Pilot Plant (WIPP) in southern New Mexico. TRU mixed waste would be treated to meet certain requirements established specifically for WIPP (WIPP Waste Acceptance Criteria). The Laboratory's Site Treatment Plan reflects this policy. The State of New Mexico has taken the position that TRU mixed waste must be treated to meet more stringent standards listed in existing hazardous waste regulations. These differences must be reconciled before the Laboratory's Site Treatment Plan can be written.

The controlled-air incinerator is the only existing treatment facility at the Laboratory that can treat TRU waste.

When will the decisions made?

National deadlines were imposed on all of the DOE facilities. All site treatment plans (including the one for the Laboratory) follow this schedule:
Conceptual Plan completed in October 1993;
Draft Plan completed in August 1994; and
Final Proposed Plan completed no later than February 1995

All plans are sent to the State and EPA for comment.

Do you want to be involved in developing the Laboratory's Site Treatment Plan?

The Laboratory expects that the public will be interested in many of its ideas for treating mixed waste. Hazardous and radioactive waste transportation, incineration, and the safety of skid technologies may be issues of interest to stakeholders.

Your participation in Plan development can lead to a more thorough identification and consideration of alternatives and issues. Addressing your concerns and comments early will help the Laboratory and DOE develop a site treatment plan that reflects stakeholder interests. The Laboratory is planning to hold additional public meetings on such issues as the incinerator and the treatment skids. If you are interested in receiving information about these upcoming meetings, call Sheila Molony at the number listed below.

Information about the Laboratory's Site Treatment Plan and the plans generated by other DOE sites is in the Laboratory's Community Reading Room on Central Avenue in Los Alamos (505-665-2127). Stakeholders can also call Sheila Molony at 505-665-1585. Comments on the Laboratory's Site Treatment Plan should be sent to the Stakeholder Involvement Office, Los Alamos National Laboratory, MS A117, Los Alamos New Mexico, 87545 no later than January 31, 1995.

FUSRAP

Fact Sheet

Treating Mixed Waste at the Middlesex Sampling Plant

U.S. Department of Energy • Formerly Utilized Sites Remedial Action Program • September 1994

This fact sheet discusses the Federal Facility Compliance Act of 1992 and its impact on any mixed waste at the Middlesex Sampling Plant (MSP) that will require land burial. MSP is an inactive Department of Energy (DOE) owned facility in Middlesex County, New Jersey, that is part of DOE's Formerly Utilized Sites Remedial Action Program.

Mixed waste refers to waste that contains both radioactive and chemical components. Federal regulations require that the chemical component of mixed waste be treated to reduce its hazard prior to land disposal.

What does the Federal Facility Compliance Act require?

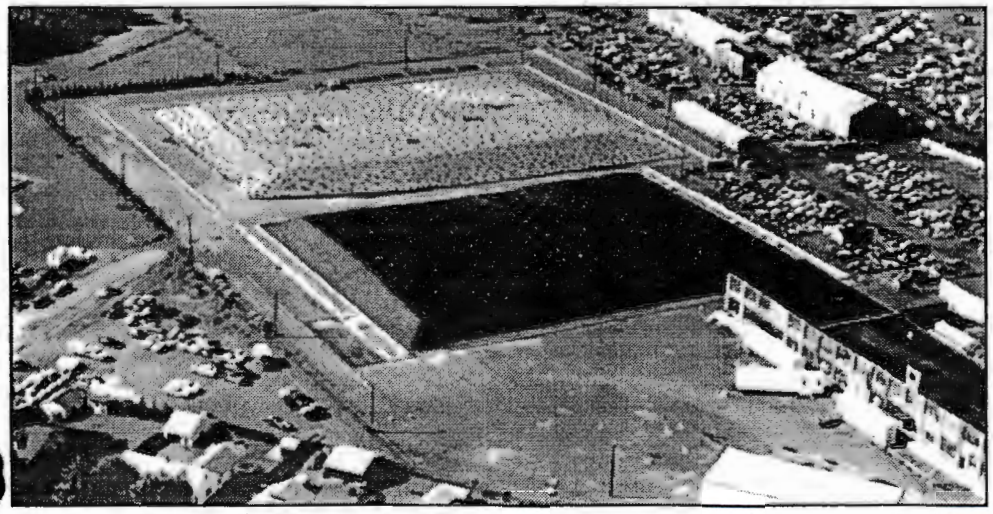
The Act requires DOE to develop and submit a Site Treatment Plan (STP) for treating any mixed waste at MSP that will be land disposed as a result of cleanup activities at the site. The plan is developed in three phases:

(1) a Conceptual Site Treatment Plan—completed in October 1993,
(2) a Draft Site Treatment Plan completed in August 1994, and
(3) a Final Site Treatment Plan—to be completed and submitted to the U.S. Environmental Protection Agency and State of New Jersey for review no later than February 1995.

The STP generally consists of two volumes, the Background Volume and a Compliance Plan Volume. The Background Volume is to identify a site's preferred options for treatment of the mixed waste; the Compliance Plan Volume is to propose overall schedules for achieving compliance with land disposal.

The requirements for land disposal of mixed waste at MSP would generally apply if the materials were to be disposed offsite. However, a decision on the remedy for the site has not yet been made.

The types and quantities of mixed waste requiring treatment will vary with each cleanup alternative considered for MSP. Therefore, only the Background Volume of the STP is available for review at this time. The Compliance Plan Volume will be developed after a final cleanup decision has been selected for MSP. The public will be involved in selecting the remedy for MSP which will begin in 1996.



Aerial view of the Middlesex Sampling Plant

Where does the waste come from?

MSP is storing approximately 32,000 cubic yards of mixed waste in a fully contained storage pile. The mixed waste is from cleanup activities at the former Middlesex Municipal Landfill and consists of low levels of radioactive uranium and the chemical lead. Extensive studies of the lead show it is from the landfill and was not generated at MSP. Whether the lead in the pile will require treatment will depend on the cleanup decision selected for MSP.

Will other mixed wastes be generated during cleanup activities at MSP?

Because the mixed waste is from cleanup at the former Middlesex Municipal Landfill, no further lead-contaminated waste is expected to be generated at the site. Environmental sampling at MSP supports this expectation.

Will it be necessary to treat the waste?

If the environmental remedy selected for MSP requires offsite land disposal of the mixed waste, treatment will be required. Whether onsite disposal will require treatment will depend on the nature of the remedy selected.

What is the basis for selecting mixed waste treatment options?

Treatability studies of the mixed waste pile will begin in 1995 to determine what treatment options exist for the mixed waste, if it will be land disposed. Both on- and offsite treatment options will be considered.

Why should the public be interested?

Future decisions at MSP include whether the waste will be disposed of onsite or offsite, what type of treatment may be effective for this type of waste, and if required, where the waste would be treated. Opportunities for the public to participate early in DOE's decision making process can lead to accurate identification and timely consideration of issues of concern to the community. In addition, early public participation will provide valuable information on the development and evaluation of cleanup alternatives.

How can the public get involved?

Through a series of meetings and workshops and distribution of documents for comment, DOE will work with the local community and regulators to identify and address issues concerning the management of mixed waste. To receive copies of the Site Treatment Plan, please call DOE's Formerly Utilized Sites Remedial Action Program toll-free number 1-800-253-9759. Leave a message and your call will be promptly returned. Other documents related to the selection of the remedy will also be available as the evaluation process progresses.

Questions and comments concerning the MSP Site Treatment Plan may be directed to agency coordinators:

Ms. Susan Cange, DOE Site Manager,
Former Sites Restoration Division
U.S. Department of Energy
P.O. Box 2001
Oak Ridge, TN 37831-8723
(1)(800)-253-9759

Mr. Robert Hargrove, Chief
Environmental Impacts Branch
U.S. EPA
26 Federal Plaza, Rm 1116
New York, NY 10278
(212) 264-1840

Mr. Nicholas Marton, Case Manager
Bureau of Federal Case Management
New Jersey Department of Environmental Protection
401 E. State Street, CN-028
Trenton, NJ 08625
(609) 633-1495

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Mound Facility
Draft Site Treatment Plan
Fact Sheet

Mound Facility, located in Miamisburg, Ohio, about 16 km. southwest of Dayton, is operated by EG&G Mound Applied Technologies for DOE. Mound's mission since 1947 has centered around the development of processes and the production and testing of components for nuclear weapons, as well as recovery and purification of tritium from scrap materials. Under the Consolidation Plan of DOE's Nuclear Weapons Reconfiguration Program, these activities will be essentially completed by the end of FY94. FY95 employment at the site is estimated at approximately 1285 salaried and hourly personnel; there are 120 buildings on 1.24 square km of land.

Mission assignments for the development and fabrication of satellite heat sources fueled by plutonium 238 and the manufacture of stable isotopes will continue for the next several years; activities associated with the decontamination and decommissioning of facilities and the environmental restoration of contaminated areas will continue well past the year 2000. As Mound ceases nuclear weapons production activities at the site, commercial economic development is being actively pursued to utilize the existing facility, equipment, and personnel resources in order to maintain the established technological base and minimize the economic impact of DOE consolidation activities on the Miamisburg community.

The Ohio EPA, as the Federal Facility Compliance Act (FFCAct) regulatory oversight body for Mound, has stated the hierarchy for treatment technology evaluation: (1) modify or build on-site treatment units, (2) on-site portable/mobile treatment units, (3) Ohio option (off-site, in state treatment), and lastly, (4) off-site out-of-state treatment. The evaluation of treatment technologies consisted of listing feasible alternatives, screening the selected technologies, and performing a detailed evaluation of the remaining technologies. The evaluation is based on the Treatment Selection Guides developed by the FFCAct Task Force. The details and scores of each treatment are given in the Mound Facility Draft Site Treatment Plan Background Volume Appendix A. This ranking is for the DSTP only and is subject to change based on negotiations with the Ohio EPA, stakeholder concerns, and cost. Treatments as indicated below are expected to meet RCRA and State treatment standards that will enable disposal.

Scintillation Cocktail

Scintillation cocktail waste was generated during routine radioactivity counting operations on samples containing tritium or plutonium-238. The RCRA hazardous materials present are well defined but records of the radionuclide content are inadequate. The RCRA hazardous constituent is xylene, pseudocumene or dioxane. Plastic or glass scintillation vials of approximately 15 ml volume were packaged in plastic bags in 190 drums. Treatment will begin with separation and repackaging of the vials. The vials will be emptied and the fluid will be bulked and analyzed for RCRA material and radionuclide content. Bulking of the scintillation cocktail waste is expected to reduce the waste volume by over 50%.

The Mound Glass Melter is the preferred treatment option for this waste stream. The Glass Melter is a thermal destruction treatment unit which utilizes the thermal mass of a pool of molten glass to destroy organic compounds, trapping solids in the glass matrix. The secondary wastes from the Glass Melter are radionuclide contaminated glass, scrubber salts, and filters which will be packaged and stabilized if necessary and then placed in interim storage. The Glass Melter has received no unfavorable written comments from stakeholders after being presented in a public meeting on March 10, 1994. Funding for the Glass Melter has been included in the DOE/AL Budget Plan.

Waste Oils

This waste stream consists of approximately 120 drums of vacuum pump oil, hydraulic oil, and lubricating oil, collected as free liquid from various sources plant wide. This material is believed to be

radioactively contaminated and has not been characterized for RCRA constituents; therefore analysis of the material is required for both RCRA and radioactive constituents before treatment.

Treatment requirements for this waste stream are the same as those specified for bulked scintillation cocktail. The preferred option is the Mound Glass Melter. Secondary wastes produced by treatment will be low-level radioactive waste if the mixed waste oils being treated are RCRA characteristic due to ignitablity (D001A).

Lead Loaded Gloves

Lead loaded gloves have been used on certain glove boxes in plutonium areas. The gloves contain an inner layer of rubber that is compounded with approximately 8% by weight powdered lead oxide. Gloves were removed from service after a specified period of time or if they were damaged in use.

Macroencapsulation, the preferred treatment option, makes use of surface coating materials such as polymer resins or a jacket of inert inorganic material such as concrete. The small volume of waste (about 15 lbs.) would allow treatment in an on-site bench scale or treatment unit.

Lead-Acid Batteries

Large lead-acid batteries are used in electric fork lifts in radiation control areas. The two batteries comprising this waste stream are assumed to be contaminated but the plutonium contamination level of this waste is not known. The extent of contamination of the acid drained from the batteries will be measured which will indicate the amount of internal contamination present. If the interior is shown to be free of contamination the outside of the battery case will be wiped and decontaminated if needed. If the interior is found to be contaminated, each battery will be disassembled to remove all noncontaminated parts to reduce the amount of mixed waste as much as possible. All lead that is not contaminated will be prepared for recycle or disposal. The preferred treatment for radioactively contaminated lead is macroencapsulation. Treatment will be done on-site in a bench scale unit or skid mounted unit.

Lead Shapes

Waste lead, in the form of bricks or other shapes, was removed from glove boxes and equipment. This waste is contaminated with tritium, cobalt-60, uranium, or plutonium-238 and totals 9,057 pounds. The radionuclide contamination has not been well characterized. All contamination is on the surface of the lead. The treatment strategy involves surface removal of the lead shapes, recycling of the clean lead, and further treatment of the removed material. If the lead brick waste stream meets the requirements of the Los Alamos National Laboratory (LANL) lead decontamination trailer for radionuclide containment, the trailer will be scheduled to be used at Mound. This treatment unit uses a sand blasting process for the surface removal. The surface layer of lead which is removed and the blast grit used for its removal require further treatment as mixed waste; the treatment for this is macroencapsulation as described in the lead-acid batteries and lead shapes waste streams. The cleaned bulk lead will be recycled. Lead decontamination received no unfavorable written comments from stakeholders after being presented in a public meeting on May 12, 1994.

Liquid Mercury

Mercury metal has been used in various applications in tritium areas; this waste stream totals 60 pounds. Tritium contamination has not been well characterized and thus must be further defined to determine containment requirements before treatment by amalgamation can proceed.

The preferred treatment option for this waste is amalgamation; this consists of mixing the mercury with another element to form a stable, non leaching compound. Amalgamation received no unfavorable written comments from stakeholders after being presented in a public meeting on March 10, 1994.

Kerosene, with PCBs

This waste stream consists of hydraulic fluid and rinsate from a tritium contaminated hydraulic press. All drums of this material have been sampled and analyzed for RCRA and radionuclide constituents. This waste stream generation was a one time event; the total volume is approximately 240 gallons.

Treatment involves destruction of the PCBs to meet TSCA requirements and simultaneous removal of the RCRA ignitability characteristic. TSCA regulations require 99.9999% PCB destruction removal efficiency. The preferred treatment is the Packed Bed Reactor/Silent Discharge Plasma (PBR/SDP) technology developed by LANL. Secondary waste streams are salts, filters, charcoal and tritiated water. All secondary wastes will be low-level radioactive. The PBR/SDP received no unfavorable written comments from stakeholders after being presented in a public meeting on March 10, 1994.

Absorbed Oil with PCBs

This absorbed oil, contained in one 55 gallon drum, was drained from a hydraulic press used in a plutonium area. The oil is known to be mixed with absorbent but has not been sampled and analyzed for RCRA, PCB or radionuclide content. There is a potential for the waste stream to contain a rinse agent which would be classified as RCRA waste due to ignitability. The treatment plan is formulated from the information available and could change if results of the analysis are different than expected. This waste is presumed to contain PCBs and thus must be managed as such.

Treatment consists of a physical separation step, thermal desorption to remove the organic materials from the absorbant, followed by PCB destruction. Thermal desorption uses an indirectly heated chamber containing the waste through which a stream of nitrogen is passed. The gas stream exiting the chamber is chilled to condense the volatilized compounds, which are treated in the same manner as PCB liquids (PBR/SDP). The waste from the chamber will be low-level radioactive waste. A bench top or trailer mounted unit could be used. Thermal desorption received no unfavorable written comments from stakeholders after being presented in a public meeting on May 12, 1994.

Miscellaneous Lab Packs

Lab packs are small containers of chemicals ranging from a few grams to a few kilograms in weight packed in absorbant in larger buckets or drums. These are usually generated during laboratory clean-outs in radiation areas. Similar compatible materials are packed together. This waste stream totals approximately 40 pounds.

Sort, Survey and Decontamination is the technique used to deal with these materials. The drums are opened in an appropriate facility, the material is removed from the drum, inner package labels are visually examined, surveyed for radioactive contamination and sorted according to the results of the survey. Material which is visually identified as mixed waste is documented as such and repackaged. The preferred treatment option for each of these wastes will be determined upon analysis of the waste. Radioactive materials that are not mixed waste are packaged separately.

Newly Discovered Potentially Mixed Waste

Orphan radioactive sources have been collected for a number of years to facilitate disposal. Recently information became available which indicated some concern that a portion of the sources may contain RCRA hazardous waste.

Sort, Survey and Decontamination is the technique used to deal with these materials. The drums are opened in an appropriate facility, the material is removed from the drum, inner package labels are visually examined, surveyed for radioactive contamination and sorted according to the results of the survey. Material which is visually identified as mixed waste is documented as such and repackaged. The preferred treatment option for each of these wastes will be determined upon analysis of the waste.

Waste Management

U.S. Department of Energy
Nevada Operations Office

Site-Specific Draft Site Treatment Plan for the Nevada Test Site

The U.S. Department of Energy's (DOE) Nevada Operations Office has prepared a Draft Site Treatment Plan which describes an approach to treating mixed (combination of radioactive and hazardous chemical) waste now being stored or generated on the Nevada Test Site. The Federal Facility Compliance Act (FFCA) of 1992, an amendment to the Resource Conservation and Recovery Act (RCRA), directed DOE to prepare a plan for developing mixed waste treatment capacities and technologies for each site which generates or stores mixed waste.

The Nevada Test Site Draft Site Treatment Plan, prepared by a working group assembled by the Office of Environmental Restoration and Waste Management, identifies the currently preferred options for treating the site's mixed waste. The draft plan also discusses the study of insufficiently characterized waste and the generation of future mixed waste streams, mostly from environmental restoration activities. Whenever possible, preference was given to on-site treatment of mixed waste.

The draft plan, the second step of an iterative three-plan process, is a starting point for discussions leading to the development of the Final Proposed Site Treatment Plan, scheduled for completion in February 1995. The draft plan reflects the results of discussions among the State of Nevada and other states, the U.S. Environmental Protection Agency (EPA), and others, based on the Conceptual Site Treatment Plan completed in October 1993. That plan presented all known treatment needs, capabilities, and preliminary options for treating mixed waste at the Nevada Test Site. The draft plan for the Nevada Test Site requires the approval of the State of Nevada and review by EPA officials and other stakeholders.

Background Information

Hazardous wastes are non-radioactive materials such as paints, chemicals, fuels and other items which have one or more of the following characteristics: ignitable, corrosive, reactive, or toxic. These include materials that are harmful to human health or may damage the environment. Radioactive wastes are materials that contain radionuclides which are not practical to recover. The hazardous component of mixed waste is subject to RCRA, which requires cradle-to grave management of hazardous waste. The radioactive component of mixed waste is subject to the Atomic Energy Act of 1954.

The State of Nevada currently is reviewing a DOE permit application that would allow the Nevada Test Site to accept and dispose of mixed waste from a limited number of other DOE defense-related facilities. Pending approval of the permit application, it is projected that about 1,524,000 cubic meters (1,993,199 cubic yards) of mixed waste may be disposed of at the Nevada Test Site in the next five to 10 years.

Summary of the Site-Specific Inventory and Preferred Options if Determined

Characterizing waste is the key step for developing and implementing treatment processes. In order to design a treatment process, the contents of the waste must be understood well enough to design a safe, effective treatment system. In addition, waste shipments to a disposal facility cannot begin until certain waste acceptance criteria are satisfied.

Mixed waste at the Nevada Test Site is characterized in accordance with the requirements of the Nevada Test Site Defense Waste Acceptance Criteria, Certification and Transfer Requirements (NVO-325). NVO-325 encompasses the requirements found in RCRA, State of Nevada hazardous waste regulations, the Atomic Energy Act, U.S. Department of Transportation regulations, and DOE Orders. This document specifies that process knowledge be adequately documented and that certain laboratory analyses be performed.

The following is a listing of current or future mixed waste streams at the Nevada Test Site and their preferred treatment option/s if determined.

Existing Waste or Potential Existing Mixed Waste.

Low-level mixed waste is defined by DOE as radioactive waste that is not classified as high-level waste, transuranic waste, spent nuclear fuel, or byproduct material, and includes hazardous materials.

- A 55-gallon drum of a xylene-based liquid mixture used for tritium migrtion studies is currently being stored on-site. About 15 liters (3.96 gallons) is contaminated with tritium. The preferred option is to send waste to an approved disposal facility in Florida by the end of 1994.

- A 20-gallon drum containing lead-acid batteries is stored on-site. Further characterization is needed to verify any radioactive constituents.

- Two containers of solvent sludge from a Nevada Test Site operation is currently stored on-site. Preliminary characterization shows that the solvent sludge contains chlorinated organics, a hazardous material. Additional studies are planned to verify the presence of organic compounds as well as the potential for radioactive constituents.

- Two containers of soil contaminated with hydrocarbons, a hazardous material, and potentially contaminated with fission products from a fuel spill cleanup are currently stored on-site. Additional characterization and consultation with the State of Nevada is needed before determining the waste stream's regulatory status.

Future generation of mixed waste streams.

As new waste streams are identified, they will be incorporated into the Draft Site Treatment Plan. Future-generated mixed wastes are expected to come primarily from environmental restoration activities. The Nevada Operation Office's Environmental Restoration Project is currently investigating and remediating sites suspected of contamination from past activities. Of those sites currently under investigation, five potential mixed waste streams have been identified. Those waste streams are the following:

- Some uncharacterized soils from the Tonopah Test Range have been identified as a potential mixed waste stream. In addition to RCRA-regulated contaminants, the soils may contain polychlorinated biphenyl's (PCBs), an environmental pollutant, and/or asbestos. These contaminants cannot be verified at this time. Treatment technologies for any mixed waste will be based on characterization after the soil is removed.

- Remediation of some soils at the Nevada Test Site might generate mixed waste containing plutonium and mixed fission products, lead, PCBs and hydrocarbon contamination. The estimated generation rate is 0.23 cubic meters (.30 cubic yards) per year. Treatment will be based on waste characterization data after the waste is generated.

- The remediation of industrial sites could generate mixed waste containing mixed fission products, plutonium, tritium, and PCBs. In 1995, the clean closure of a leachfield is projected to potentially generate 1,223 cubic meters (1,599 cubic yards) of mixed waste. In 1997, cleanup of a decontamination pond facility and a steam cleaning effluent pond is projected to potentially generate 15,766 cubic meters (20,620 cubic yards) of mixed waste. Treatment will be based on waste characterization data after the waste is generated.

- Decontamination and decommissioning activities could generate mixed waste. The projected waste generation is 0.03 cubic meters (.04 cubic yards) in 1994, 1995 and 1996, and 7.6 cubic meters (9.94 cubic yards) in 1997. Further waste characterization is needed before treatment method is determined.

- Groundwater studies are expected to generate contaminated slurries and wastewater from well drilling and sampling. This waste stream may consist of uncharacterized slurries and wastewaters, water and drilling fluid, drilling fluid solids and drilling cuttings, tritium, plutonium, and mixed fission products. In 1997, the projected waste generation is potentially expected to be 4,160 cubic meters (5,441 cubic yards), of which nine percent is expected to be solid mixed waste. Contaminated slurries and wastewater would be treated at the planned Liquid Waste Treatment System.

- 1,244 55-gallon containers of residue from uranium ore processing, called Cotter Concentrate, were sent to the Nevada Test Site for storage in 1987 from the DOE Mound facility in Miamisburg, Ohio. The sludge is known to contain the radioactive elements uranium, thorium, and protactinium. This material requires further characterization. Based on previous sampling data, the material is suspected to contain heavy materials and possibly organic contaminants. Characterization of the material is expected to be completed in 1994.

- A 30-gallon container of a material called Pico fluor, used to analyze tritium in laboratory samples, is currently stored on-site. Except for evaluation by process knowledge, no characterization to determine the presence of hazardous wastes has occurred. The material may contain organic constituents and tritium, although tritium contamination has not been confirmed.

- A 45,000-pound cask built for transporting spent fuel assemblies is currently stored at the Nevada Test Site. The external surface of the cask was contaminated with radioactivity. The surface was decontaminated, but radioactivity still weeps to the surface after several months. The cask contains lead shielding, which is completely housed within the steel shell. The current regulatory status of the cask will be evaluated.

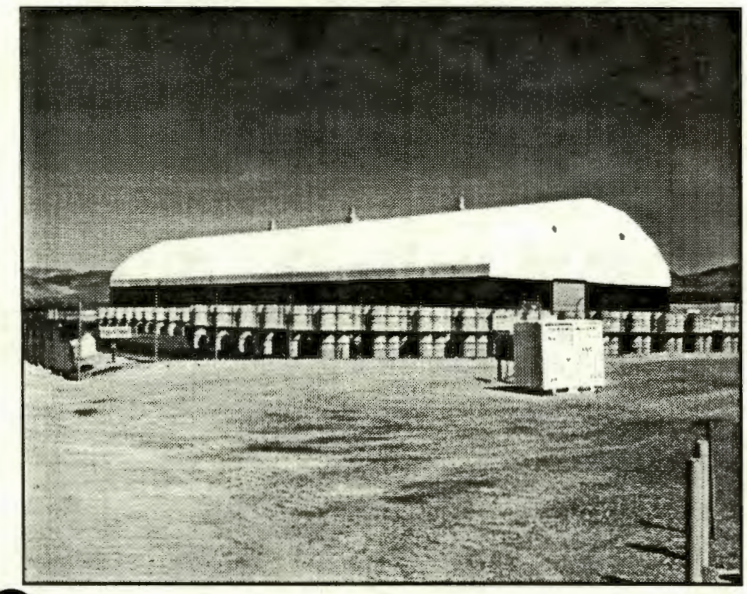
Mixed transuranic waste contains radioactive isotopes heavier than uranium with long half-lives, and includes hazardous materials.

- 612 cubic meters (800 cubic yards) of mixed transuranic waste is stored at the Nevada Test Site in the Area 5 Radioactive Waste Management Site. The mixed waste, shipped between 1974 and 1990, was generated at Lawrence Livermore National Laboratory for eventual transport to the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. The waste, packaged prior to RCRA characterization requirements, was declared to be potentially mixed waste by the generator in April 1991. Currently, none of this waste is certified for disposal at the WIPP site due to some deficiencies in characterization data, oversized packaging, and a lack of adequate sampling. The preferred option is to certify the waste for disposal at WIPP, currently scheduled to open in mid-1998. A waste certification building for certifying and packaging this waste is planned for construction at the Nevada Test Site. However, there are delays due to the lack of a final WIPP Waste Acceptance Criteria. Also, a large portion of this waste will need to be repackaged prior to shipment in order to be transported in a special container called the Transuranic Package Transporter. A Nevada Test Site compliance plan has been developed to identify the requirements and responsibilities for managing these waste shipments while on the Test Site.

- From 1984 through 1989, Nevada Test Site workers placed transuranic waste in Greater Confinement Disposal boreholes, about three meters (10 feet) in diameter and about 37 meters (120 feet) deep. Of the 13 boreholes, three contain nuclear accident residues (classified materials), and one contains transuranic-contaminated material. The waste was placed 21.3 meters (70 feet) down and topped with soil. Decisions to retrieve or leave the waste in the ground will be based on performance and risk assessments.

Existing and Planned Facilities

- DOE continues to operate a transuranic waste storage pad in accordance with the Settlement Agreement for Mixed Transuranic Waste signed by DOE and the State of Nevada. Under that agreement, the DOE Nevada Operations Office must limit the mixed transuranic wastes to the current volume. The current inventory consists of 58 steel boxes and 1,637 steel drums which is distributed over a 8,300 square-meter (10,855 square yards) asphalt storage pad. In January 1994, a mutual consent agreement was established between DOE and the State of Nevada which allowed available storage capacity on the transuranic pad to be used for storage of future, on-site generated low-level mixed waste not meeting RCRA provisions.



ransuranic waste is eing stored at the Nevada Test Site for eventual shipment to the Waste Isolation Pilot Plant in Carlsbad, New Mexico.

- A Mixed Transuranic Waste Certification Building has been proposed to sort, classify, and repackage transuranic waste for disposal at the WIPP in New Mexico. The building is expected to open in 1997 or 1998. However, the project has not been officially funded, nor has it been officially presented to the State of Nevada.

- The construction of an additional mixed waste storage pad is being considered in anticipation of low-level mixed waste generated on-site. A modification to an existing DOE permit application is planned to be submitted to the State of Nevada by December 1994. Future volumes of these wastes are currently unknown. DOE intends to produce as little low-level mixed waste as possible until a treatment option for the waste is available.

- A facility to treat large amounts of low-level mixed waste liquids and slurries is being designed. The facility will include the capability to separate particulate from liquid waste, evaporate the resulting clear liquids, and stabilize the resulting slurries and solids using cement.

Public Involvement

The DOE Nevada Operations Office is working with community representatives, the State of Nevada, and other interested parties to identify and address issues concerning Nevadans. The Draft Site Treatment Plan is available to the public upon request, and a copy is available in the DOE Public Reading Room. The Community Advisory Board for Nevada Test Site Programs is involved in the decision-making process, and the public is invited to attend those meetings.

Summary of Draft Site Treatment Plan

The Draft Site Treatment Plan identifies currently preferred options for treating the mixed waste at the Nevada Test Site. The Draft Plan was prepared using the "bottoms-up" approach and has not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. These preferred options may change as evaluation of DOE-wide impacts and State-to-State discussions progress.

The overriding approach to all mixed waste at the Nevada Test Site is to use readily available technologies for treatment whenever possible to minimize delays. Due to the Nevada Operations Office's relatively small mixed waste stream volumes and typically minimal radioactive contamination, the possibilities for commercial, mobile, and off-site treatment are targeted for evaluation in the near-term. In the long-term, on-site treatment is being planned for larger volume waste streams forecasted from environmental restoration activities.

For more information about the Draft Site Treatment Plan or the Environmental Restoration and Waste Management Program, contact:

U.S. Department of Energy
Nevada Operations Office
Office of External Affairs
P. O. Box 98518
Las Vegas, NV 89193-8518
(702) 295-1379

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NORFOLK NAVAL SHIPYARD
DRAFT SITE TREATMENT PLAN FACT SHEET

The Federal Facility Compliance Act of 1992 (FFCA) requires the U.S. Department of Energy (DOE) to prepare Site Treatment Plans (STPs) to address treatment of mixed radioactive and hazardous waste for each DOE site which generates and stores mixed waste. These plans will be submitted to the states (or the U.S. Environmental Protection Agency (EPA) in cases where the state has not been delegated authority to regulate mixed waste at federal facilities) for approval. Owing to the joint Navy/DOE nature of the Naval Nuclear Propulsion Program (NNPP) and pursuant to the legislative history of the FFCA, NNPP facilities which generate and store mixed waste, including Norfolk Naval Shipyard (NNS), are included in the FFCA process and are preparing STPs.

NNS generates very small amounts of mixed waste as a result of maintenance and repair work performed on Naval nuclear propulsion plants. NNS currently has approximately 0.01 cubic meter of mixed waste in storage, and projects to generate approximately 4.00 cubic meters over the next five years. These amounts represent less than 0.001 percent of the total amounts of mixed waste stored and generated at DOE facilities. No mixed waste treatment facilities currently exist at NNS.

As outlined in an April 6, 1993 Federal Register notice (58 FR 17875), DOE is developing STPs in three stages. Conceptual STPs, which identified the range of potentially feasible treatment options for each mixed waste stream, were completed in October 1993. Draft STPs, being issued in August 1994, will discuss the evaluation of treatment options and identify the site's preferred treatment option for each waste stream. Final Proposed STPs will be submitted to state and EPA regulators in February 1995. This three step process is intended to facilitate early interaction with the regulators and other stakeholders to ensure the plans will ultimately be approved by October 1995 as required by the FFCA.

NNS determined preferred treatment options for each waste stream by comparing all feasible treatment options (including on-site treatment, use of mobile treatment systems, commercial treatment, and treatment at other DOE facilities) in several fundamental areas (including regulatory compliance, treatment effectiveness, environment/health/safety concerns, cost, and implementability). This approach was used by all sites preparing Draft STPs. Based on the very small volumes of NNS waste streams, these evaluations indicated that off-site treatment at other DOE facilities (or on-site RCRA simple treatment in the accumulation container where feasible) are economically and technically preferable to other options. NNS identified potentially technically capable DOE facilities for each waste stream based on an evaluation of available treatment facility information, then coordinated with the other DOE sites to confirm treatment capability and select preferred options based on facility status, location, and to consolidate shipments to one or two DOE treatment sites. The following table contains a listing of the mixed waste streams and preferred treatment options identified in the NNS Draft STP:

Waste ID#	Waste Stream Name	Inventory (M^3)	5 Year Proj (M^3)	Preferred Option
NN-W001	Chromium and Lead Based Paint Chips	0.00	1.00	RCRA On-Site Simple Treatment (Cement Based Stabilization) in the Accumulation Container
NN-W002	Solid Waste Contaminated with Chromate	0.00	0.50	Off-Site Treatment at the Savannah River CIF Incinerator
NN-W003	Brass and Bronze	0.01	2.50	Off-Site Treatment at the Idaho National Engineering Laboratory WEDF Macroencapsulation Unit

These NNS preferred options were determined using the "bottoms up" approach in which each DOE site evaluated treatment options for its mixed waste, in conjunction with its state and others. It is noted that the Draft STP and preferred options have not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. Thus, these preferred options may change as evaluation of DOE-wide impacts and state-to-state discussions progress.

The next steps in the FFCA process will include finalization of the preferred treatment options, determination of waste shipment and treatment schedules, and preparation of the Final Proposed STPs. Regulator feedback on the Draft STPs (including the results of equity discussions between the states) and public comments will be considered as these efforts move forward. It is also noted that DOE, in conjunction with the states, is evaluating options for disposal of mixed waste treatment residuals in parallel with the STP process to address mixed waste treatment. The process for addressing disposal is described in the Draft STPs and will proceed in parallel with the preparation of the Final Proposed STPs.

The NNS point of contact for questions or comments concerning the Draft STP is Mr. R. Perkins (Code 105.1, Norfolk Naval Shipyard, Portsmouth, VA 23709-5000). In addition, the NNPP headquarters point of contact for FFCA and STP matters is Mr. E. Naples (Department of the Navy, Director Nuclear Propulsion, Office of the Chief of Naval Operations, Washington, D.C. 20350).

Mixed Waste Treatment on the Oak Ridge Reservation

FACT SHEET
ERWM

SUMMER 1994 • ENVIRONMENTAL RESTORATION & WASTE MANAGEMENT

Background

In October 1992, Congress passed the Federal Facilities Compliance Act (FFCAct) to bring federal facilities into full compliance with federal hazardous waste laws — namely the Resource Conservation and Recovery Act (RCRA). FFCAct waives the government's sovereign immunity, allowing fines and penalties to be imposed for RCRA violations. In addition, the law requires federal agencies to work with the states and the Environmental Protection Agency (EPA) to provide comprehensive data on mixed waste inventories, treatment capacity and treatment plans. FFCAct also ensures that opportunities exist for the public to be informed about waste treatment options, and it encourages active public participation in the decisions affecting federal facilities.

Under FFCAct, the Department of Energy (DOE) is required to:

- submit a report on the national inventory of all mixed wastes;
- issue a national inventory of mixed waste treatment capacities and technologies; and
- provide a plan for the development of treatment capacities and technologies at each DOE site.

What is Mixed Waste?

Mixed waste contains both hazardous and radioactive components. Mixed waste currently in storage on the Oak Ridge Reservation was generated by past operations related to research, production and storage of nuclear materials for use in the nation's defense. Additional mixed waste is generated by ongoing operations and as DOE facilities are decommissioned and decontaminated and as old burial grounds and disposal sites are cleaned up.

Approximately 136 million pounds of mixed waste is currently stored on the Oak Ridge Reservation with four million pounds generated annually. The majority of mixed waste in inventory is low-level mixed waste with approximately 5 million pounds consisting of mixed transuranic waste.

Why Does Mixed Waste Have to be Treated?

To be in compliance with RCRA's land disposal regulations, the hazardous components of mixed waste must meet specific treatment requirements outlined in the regulations. Treatment processes are used to change the waste into a form more suitable for storage or disposal and to meet the waste acceptance criteria of a specific storage or disposal facility.

Development of Site Treatment Plans

DOE Operations Offices have the lead role in working with the regulatory agencies and the local public in developing site treatment plans, which are to be prepared in three stages.

- A Conceptual Site Treatment Plan for the Oak Ridge Reservation was provided to the State of Tennessee by DOE's Oak Ridge Operations Office in October 1993. It provided preliminary information about treatment capabilities and treatment options.
- A Draft Site Treatment Plan was submitted in late August 1994. It identified preferred treatment options, schedules and costs and included input received from stakeholders.
- A Final Site Treatment Plan is to be submitted to the state no later than February 1995.

The State of Tennessee must approve, approve with modification or disapprove the Final Site Treatment Plan by October 1995. Once it is approved, the state will enter into a consent order that requires DOE to comply with the plan.

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Treatment Options

Wastes generated on the Oak Ridge reservation have been grouped into approximately 400 waste streams for treatment planning purposes. Preferred treatment options include:

- Thermal desorption —Volatilization of mercury and organic constituents by the application of high temperatures
- Stabilization — the solidification of waste by adding cement or grouting the waste (cement-based stabilization) or by immobilizing the waste in a glass-like material (vitrification)
- Wastewater treatment — the neutralization and precipitation of aqueous wastewaters
- Incineration — the destruction of hazardous components by high temperature treatment

Treatment Facilities

Existing treatment facilities on the Oak Ridge Reservation will be used to treat mixed wastes. Two additional mixed waste treatment facilities are proposed for the reservation. All treatment will be conducted on site unless off-site commercial treatment facilities become available. The Draft Site Treatment Plan also identifies preferred treatment facility options for treating mixed waste in storage on the Oak Ridge Reservation. These facility options may change as DOE evaluates the complex-wide impacts, as state-to-state discussions progress, and as new technologies become available.

Primary Existing Treatment Facilities

Toxic Substances Control Act Incinerator (TSCA) — Located at the K-25 Site, the TSCA Incinerator will be used to treat organic liquid mixed waste streams. It also is planned to be used to treat combustible solids.

Central Pollution Control Facility — Located at the Y-12 plant, this facility will be used to treat aqueous mixed wastes.

Central Neutralization Facility — Located at the K-25 Site, this facility will also be used to treat aqueous mixed wastes.

Proposed Treatment Facilities

Mixed Waste Treatment Facility— Plans call for locating this facility at the K-25 Site. It would be used to treat sludges, soils and noncombustible solids by several means including stabilization, thermal desorption and decontamination.

Waste Handling and Packaging Plant — Plans call for locating this facility at Oak Ridge National Laboratory. It would be used to certify and repackage transuranic mixed waste to meet the waste acceptance criteria for the Waste Isolation Pilot Plant in Carlsbad, New Mexico.

Oak Ridge Reservation Mixed Wastes and Preferred Treatment Options

Waste type	% of inventory	Preferred Treatment Option
Sludges and residues	55	Stabilization
Soils and residues	27	Thermal desorption
Aqueous liquids	6	Wastewater treatment and stabilization
Organic liquids	3	Incineration
Combustible debris	4	Incineration
Mixed transuranic and sludges	4	Repackaging at Waste Handling & Packaging Plant
Other (mercury, compressed gas, etc.)	1	Amalgamation and deactivation

New Technologies

Several mixed waste treatment technologies are in development or demonstration stages. These may be available in the near future to provide a more efficient means of treating mixed wastes. For example, the Catalytic Extraction Process, developed by Molten Metal Technology, uses a molten iron bath to break down waste, allowing usable products such as elemental metals and pure gases to be recovered. Molten Salt Oxidation technology uses a molten sodium carbonate and calcium carbonate salt bath to convert contaminants into carbon dioxide and water. Contaminant residues are trapped in the salt bath, which can be regenerated or disposed of.

Why Should the Public be Interested in Mixed Waste Management?

Treatment of mixed waste will be costly. Waste management decisions facing DOE and the states — treatment options, the location of new treatment facilities and disposal options — may affect local communities. Public participation in the early stages of decision-making can help identify issues of concern.

Copies of the Conceptual and Draft Site Treatment Plans are available at DOE's Information Resource Center, 105 Broadway in Oak Ridge, and the Oak Ridge and Kingston public libraries.

Questions and comments concerning these plans may be directed to:

Chuck Estes
Martin Marietta Energy Systems
Waste Management Organization
P.O. Box 2003, MS 7357
Oak Ridge, TN 37831-7357
(615) 576-0127

Harvey Rice
Department of Energy
Oak Ridge Operations
Waste Management &
Technology Development
Division
P.O. Box 2001
Oak Ridge, TN 37831
(615) 241-2157

Draft Site Treatment Plan For Mixed Waste at the Paducah Gaseous Diffusion Plant

FACT SHEET PADUCAH GASEOUS DIFFUSION PLANT AUGUST 1994

This fact sheet provides information on the U. S. Department of Energy's environmental restoration and waste management activities at the Paducah Gaseous Diffusion Plant.

Overview

The Federal Facility Compliance Act (FFC Act) of October 1992, requires federal facilities to work with the Environmental Protection Agency and the states to provide comprehensive data on mixed waste inventories, treatment capacities and treatment plans. Mixed waste is waste that contains both hazardous and radioactive components.

The land disposal restriction program of the Resource Conservation and Recovery Act (RCRA) prohibits the disposal of certain hazardous wastes in a landfill unless the waste has been treated using specified technologies and meets certain standards. Mixed waste has been banned from land disposal since May 1990.

Prior to the law's enactment, the U.S. Department of Energy (DOE) was pursuing the cleanup and management of wastes at many of its sites in accordance with RCRA without being subject to any fines or penalties for violations. The FFC Act waives the government's sovereign immunity, allowing fines and penalties to be imposed for RCRA violations at DOE facilities.

To allow facilities time to prepare for compliance with the FFC Act, the sovereign immunity waiver was delayed until October 6, 1995. The Draft Site Treatment Plan (DSTP), which will identify the current preferred treatment options, locations, and schedules, was due in August 1994. The Final Proposed Site Treatment Plan must be submitted to the Kentucky Cabinet for Natural Resources and Environmental Protection in February 1995.

Waste at the Paducah Gaseous Diffusion Plant

As of February 1994, the Paducah Gaseous Diffusion Plant (PGDP) had approximately 4,000 drums of mixed waste in storage. Except for mixed waste associated with Environmental Restoration (ER), Decontamination and Decommissioning (D&D) activities, and small quantities on an irregular basis, DOE has no plans to generate any additional waste at the PGDP. Treatment of mixed waste generated due to continued plant operations will be the responsibility of the United States Enrichment Corporation.

Draft Site Treatment Plan for Paducah

The DSTP identifies currently preferred options for treating the mixed waste at the PGDP. The DSTP was prepared using the "bottoms-up" approach and has not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. These preferred options may change as evaluation of DOE-wide impacts and State-to-State discussions progress.

PGDP has a relatively small amount of waste compared to other DOE facilities. A technical evaluation on how to treat the waste showed that it was more feasible to send PGDP waste off-site to other DOE or commercial facilities rather than build a treatment facility on-site. A part of this technical evaluation was an "all on-site" versus an "all off-site" cost evaluation which showed that shipping the waste off-site was significantly less expensive. In addition, PGDP is investigating the use of mobile treatment units which could be brought to the site, used to treat waste then the unit could be sent to another site.

PGDP Treatment Options

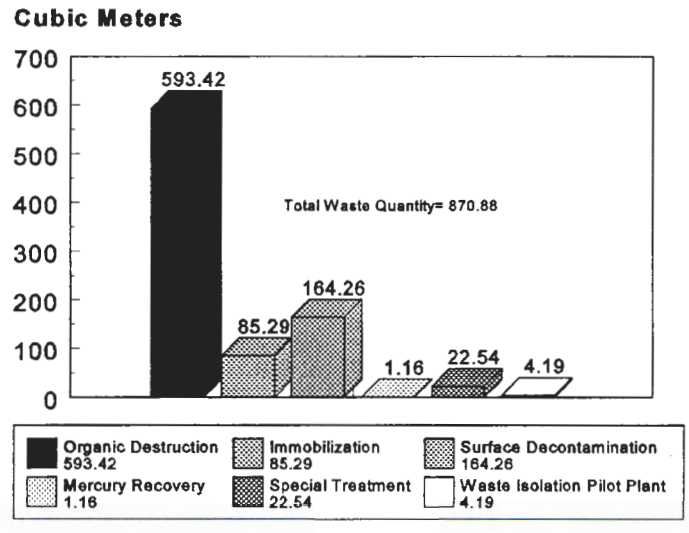
Thirty-seven percent (by volume) of PGDP's mixed waste is planned for incineration in an existing DOE treatment facility in Oak Ridge, Tennessee.

Studies to date indicate that the remainder of the waste currently on-site would be responsive to the following treatment methods:

- An additional 11 percent for incineration in Oak Ridge
- 15 percent treated by commercial vendors
- 15 percent treated in a mixed waste treatment facility planned for construction on the Oak Ridge Reservation
- 7 percent treated at existing on-site facilities
- 15 percent treated at other DOE sites

Treatment of ER and D&D mixed wastes will be determined through the Comprehensive Environmental Response Compensation & Liability Act process on a project basis.

The following graph depicts PGDP's preferred treatment options for its mixed waste. This graph shows treatment methods on a volume basis.



Public Involvement

Waste management decisions facing DOE and the states -- treatment options, the location of new treatment facilities and disposal options -- may affect local communities. Public participation in the early stages of decision-making can help identify issues of concern.

Copies of the *Draft Site Treatment Plan for Mixed Waste at the Paducah Gaseous Diffusion Plant* are available at DOE's Environmental Information Center (EIC), 175 Freedom Blvd., (West Kentucky Technology Park), Kevil, Kentucky.

Members of the public may comment on the plan during a 60-day period running from September 15, through November 14, 1994.

Also, DOE officials will be available to answer questions and discuss the plan with interested parties on October 18, 1994, from 5 to 7 p.m. at the EIC.

DEFINITIONS

RCRA -- The Resource Conservation and Recovery Act sets the standards for managing hazardous waste facilities and for dealing with hazardous waste releases.

Mixed Waste -- Waste that contains both radioactive and hazardous components.

Organic Destruction -- Destruction of organic liquids and solids by thermal and nonthermal technologies including incineration and chemical oxidation

Immobilization -- Cementation, vitrification, encapsulation

Surface Decontamination -- Removal of contaminants from the surface of items

Mercury Recovery -- Techniques to separate mercury for recycling or immobilization

Waste Isolation Pilot Plant -- DOE's proposed site for the disposal of defense-related transuranic waste

Special -- Includes containers of waste which require sorting or other special handling before treating by other methods.

Comments or questions regarding the DSTP or this fact sheet can be addressed to:

Dennis Hill
ERWM Public Affairs
761 Veterans Avenue
Kevil, Kentucky 42053
(502) 462-2870

or

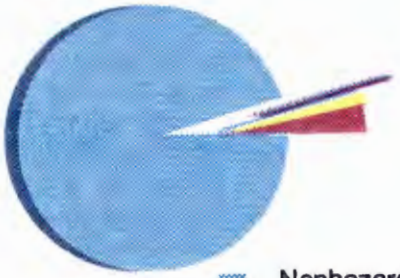
David Tidwell
U.S. Department of Energy
Paducah Site Office
P.O. Box 1410
Paducah, Kentucky 42001
(502) 441-6807

WHAT IS MIXED WASTE?

Contents

- MW contains both radioactive and hazardous constituents.
- MW in storage was generated by past DOE operations related to research, production, and storage of nuclear materials for the U.S. defense program.
- Additional MW will be generated from the decontamination and dismantlement of weapons and from the cleanup of old storage facilities.
- Currently, MW represents 0.3% of all waste generated at Pantex Plant.

Quantity



Nonhazardous 95.3%

Mixed 0.3%

Low-level 1.2%

Hazardous 3.2%

- Pantex Plant's MW inventory represents 0.015 percent of the total amount of MW in the entire DOE Complex.

WHAT ABOUT LOCAL CONCERNS?

- Pantex Plant will continue to work with interested individuals and groups in the community to
  - ✓ Identify stakeholder concerns about the treatment of MW
  - ✓ Invite public participation in the decision-making process by identifying issues of concern about the treatment of MW
  - ✓ Educate citizens about MW generation and treatment at Pantex Plant

WHO IS THE POINT OF CONTACT?

Dr. Gary Baker
Waste Management Dept.
Pantex Plant
Amarillo, TX 79177
(806)477-6476

Pantex Plant is operated for the Department of Energy under U.S. government contract #DE-AC04-91AL-65030.

Draft Site Treatment Plan

Pantex Plant

Waste Management

WHAT IS THE DSTP?

- The Draft Site Treatment Plan (DSTP) is a part of the planning process that will determine the most effective and safe treatment of mixed waste (MW) at Pantex Plant. This is required by the Federal Facility Compliance Act (FFCAct), an amendment to the Resource Conservation & Recovery Act (RCRA).

- The Site Treatment Plan has three phases:

  - ✓ Conceptual. Identified all potential treatment options for MW at Pantex Plant (10/93)

  - ✓ Draft. Identifies the currently preferred treatment options for treating Pantex Plant's MW and proposes schedules for the treatment process (8/94)

  - ✓ Final. Will identify the final treatment options for each waste stream, based on dialogue with all stakeholders (2/95)

- The DSTP provides a basis for discussion of Pantex Plant preferred treatment options with and among all stakeholders, including the public, regulatory agencies, and the states. The result will be the approved Final Site Treatment Plan, developed in consideration of all stakeholder concerns.

ABOUT MIXED WASTE

- Although Pantex Plant generates waste during work processes, the utmost care is taken to handle the waste responsibly.

- Several federal and state regulations provide guidance and monitor how waste is handled on DOE sites.

- Pantex Plant has an excellent safety record concerning the handling of hazardous and radioactive waste.

- MW must be appropriately treated to

  - ✓ Comply with RCRA land disposal restrictions

  - ✓ Meet the waste acceptance criteria of receiving facilities

- Other benefits of MW treatments:

  - ✓ Change the waste into a form more suitable for storage and/or disposal

  - ✓ Reduce the volume of waste needing permanent disposal

WHAT ARE MOBILE TREATMENT UNITS?

- Some waste at Pantex Plant will be treated using Mobile Treatment Units (MTUs). These are treatment technologies that will be shared among the DOE sites. Each of the DOE sites will be responsible for developing one or more technologies.

- The concept is to bring the applicable MTUs to Pantex Plant and treat the appropriate waste stream(s). The treated waste will then be ready for disposal. The MTU will then be sent to another site to treat its waste.

- **The MTU process will allow each site to treat its own waste on site. The MTU will be moved between sites where waste is ready to be treated.**

- Pantex Plant is responsible for developing three types of MTUs:

  - ✓ **Macroencapsulation.** A process that encloses solid waste in an inert envelope to reduce exposure to potential leaching in a landfill

  - ✓ **Solidification/Stabilization.** A process that produces a hard, water-resistant solid suitable for disposal in a landfill

  - ✓ **Barium Sulfate Precipitation.** Treatment of barium-contaminated waste involving chemical mixing to form a nonsoluble barium sulfate in a sludge configuration

PEARL HARBOR NAVAL SHIPYARD
DRAFT SITE TREATMENT PLAN FACT SHEET

The Federal Facility Compliance Act of 1992 (FFCA) requires the U.S. Department of Energy (DOE) to prepare Site Treatment Plans (STPs) to address treatment of mixed radioactive and hazardous waste for each DOE site which generates and stores mixed waste. These plans will be submitted to the states (or the U.S. Environmental Protection Agency (EPA) in cases where the state has not been delegated authority to regulate mixed waste at federal facilities) for approval. Owing to the joint Navy/DOE nature of the Naval Nuclear Propulsion Program (NNPP) and pursuant to the legislative history of the FFCA, NNPP facilities which generate and store mixed waste, including Pearl Harbor Naval Shipyard (PHNS), are included in the FFCA process and are preparing STPs.

PHNS generates very small amounts of mixed waste as a result of maintenance and repair work performed on Naval nuclear propulsion plants. PHNS currently has approximately 1.74 cubic meter of mixed waste in storage, and projects to generate approximately 0.99 cubic meter over the next five years. These amounts represent less than 0.001 percent of the total amounts of mixed waste stored and generated at DOE facilities. No mixed waste treatment facilities currently exist at PHNS.

As outlined in an April 6, 1993 Federal Register notice (58 FR 17875), DOE is developing STPs in three stages. Conceptual STPs, which identified the range of potentially feasible treatment options for each mixed waste stream, were completed in October 1993. Draft STPs, being issued in August 1994, will discuss the evaluation of treatment options and identify the site's preferred treatment option for each waste stream. Final Proposed STPs will be submitted to state and EPA regulators in February 1995. This three step process is intended to facilitate early interaction with the regulators and other stakeholders to ensure the plans will ultimately be approved by October 1995 as required by the FFCA.

PHNS determined preferred treatment options for each waste stream by comparing all feasible treatment options (including on-site treatment, use of mobile treatment systems, commercial treatment, and treatment at other DOE facilities) in several fundamental areas (including regulatory compliance, treatment effectiveness, environment/health/safety concerns, cost, and implementability). This approach was used by all sites preparing Draft STPs. Based on the very small volumes of PHNS waste streams, these evaluations indicated that off-site treatment at other DOE facilities (or on-site RCRA simple treatment in the accumulation container where feasible) are economically and technically preferable to other options. PHNS identified potentially technically capable DOE facilities for each waste stream based on an evaluation of available treatment facility information, then coordinated with the other DOE sites to confirm treatment capability and select preferred options based on facility status, location, and to consolidate shipments to one or two DOE treatment sites. The following table contains a listing of the mixed waste streams and preferred treatment options identified in the PHNS Draft STP:

Waste ID#	Waste Stream Name	Inventory (M^3)	5 Year Proj (M^3)	Preferred Option
PH-W001	Solidified Chromate Solution	1.40	0.00	Off-Site Treatment at the Hanford Site-WRAP IIA Stabilization Facility
PH-W002	Liquid Containing 1,1,1 Trichloroethane	0.02	0.00	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
PH-W003	Chromium and Lead Based Paint Chips	0.00	0.50	RCRA On-Site Simple Treatment (Cement Based Stabilization) in the Accumulation Container
PH-W004	Solid Waste Contaminated with Chromate	0.20	0.25	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
PH-W006	Lead Chips	0.08	0.10	Off-Site Treatment at the Hanford Site-WRAP IIA Macroencapsulation Facility
PH-W007	Lead Contaminated Debris	0.04	0.14	Off-Site Treatment at the Hanford Site-WRAP IIA Stabilization Facility

These PHNS preferred options were determined using the "bottoms up" approach in which each DOE site evaluated treatment options for its mixed waste, in conjunction with its state and others. It is noted that the Draft STP and preferred options have not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. Thus, these preferred options may change as evaluation of DOE-wide impacts and state-to-state discussions progress.

The next steps in the FFCA process will include finalization of the preferred treatment options, determination of waste shipment and treatment schedules, and preparation of the Final Proposed STPs. Regulator feedback on the Draft STPs (including the results of equity discussions between the states) and public comments will be considered as these efforts move forward. It is also noted that DOE, in conjunction with the states, is evaluating options for disposal of mixed waste treatment residuals in parallel with the STP process to address mixed waste treatment. The process for addressing disposal is described in the Draft STPs and will proceed in parallel with the preparation of the Final Proposed STPs.

The PHNS point of contact for questions or comments concerning the Draft STP is Mr. D. Yasutake (Code 105, Pearl Harbor Naval Shipyard, Pearl Harbor, HI 96860-5350). In addition, the NNPP headquarters point of contact for FFCA and STP matters is Mr. E. Naples (Department of the Navy, Director Nuclear Propulsion, Office of the Chief of Naval Operations, Washington, D.C. 20350).

Pinellas Plant Federal Facilities Compliance Act
Fact Sheet

I. Purpose:

The Department of Energy (DOE) is required by section 3021 (b) of the Resource Conservation and Recovery Act (RCRA), as amended by the Federal Facilities Compliance (FFCA), to prepare Site Treatment Plans (STPs) describing the development of treatment capacities and technologies for the treatment and/or disposal of mixed waste. The plans will be submitted to the State of Florida for approval, approval with modification, or disapproval.

The Conceptual Site Treatment Plan (CSTP) for the Pinellas Plant was developed in August 1993 after careful assessment of on-site mixed waste and the potential for generating mixed waste in the future. The Plant had three-and-one half liters of a tritium-contaminated mercury/nitric acid solution, reported in the Conceptual Site Treatment Plan. The Pinellas Plant has since sent this waste to a commercial facility where a treatability study was successfully performed. That waste was rendered low-level and will be disposed of as such. The Draft Site Treatment Plan (DSTP) is currently being reviewed and indicates that the Pinellas Plant presently has no mixed waste inventory.

A future issue will be the disposition of a tritium contaminated F006 sludge generated in the Pinellas Plant's Neutralization Facility. Rinse waters from plating operations pass through the Neutralization Facility creating sludges identified as F006. A Health Physics tank also drains into the Neutralization Facility containing the F006 sludge. Although the activity level is low, added radioactivity as defined in the DOE Performance Objective, renders this material a potential mixed waste.

If any mixed waste is discovered or generated during the Pinellas Plant's transition period, it will be promptly reported and a revised Site Treatment Plan will be developed.

II. Summary of Site-Specific Inventory

At this time, the Pinellas Plant has no mixed waste.

III. Options Proposed

Options for the future treatment of the waste sludge from the Neutralization Facility are currently being investigated. These options include, but are not limited to: (1) dewatering of the sludge. There is potential for the solids left over from this process to fall below the established Decision Limit (DL) for radioactivity, (2) request a one-time exemption from the Moratorium (depending on the activity) and dispose of the sludge as a hazardous waste, and (3) disposal of the sludge at a commercial mixed waste facility.

IV. Next Steps

Decision Points/Milestones

-	June 24, 1994	Site submits revised Site-Specific Draft Public Participation Plan to Waste Manangement Division (WMD).
-	June - July 1994	Site will meet with stakeholders to obtain their input on Draft STP and to identify and resolve issues and concerns.
-	June 1994	Site will submit any FFC related follow-up questions from 4/25/94 Public Meeting.
-	August 1994	Site will submit monthly Public Participation Report to WMD.
-	August 1994	Site will submit Draft STP to Governor of Florida.
-	September 1994	Site will submit monthly Public Participation Report to WMD.
-	September 1994 - November 1994	Site will hold meeting with the public on the final Draft STP. A synopsis of comments and responses will be transmitted to each reading rooms and libraries, and press releases will be issued to media and public providing status report on final Draft STP
-	October 1994	Site will submit monthly Public Participation Report to WMD.
-	November 1994	Site will submit monthly Public Participation Report to WMD.
-	December 1994	Site will submit monthly Public Participation Report to WMD.
-	January 1995	Site will submit monthly Public Participation Report to WMD.
-	February 1995	Site will submit monthly Public Participation Report to WMD.
-	February 1995	Site will provide Governor of Florida the Proposed Final STP for signature and make the Proposed Final STP available to the public comments. Copies will be transmitted to reading rooms and libraries. Press release will be provided to the media and key contacts.

V. Key Contacts for Pinellas Plant

Gary Schmidtke
Waste Management Program Manager
Pinellas Area Office

Delphine Delaneuville
Manager - Waste Management/Minimization
Martin Marietta Specialty Components, Inc.

Fred Ohlweiler
Specialist - Waste Management
Martin Marietta Specialty Components, Inc.

Gene Pressoir
Public Affairs Information Officer
Pinellas Area Office

Shirley Cheatham
Manager - Public Affairs
Martin Marietta Specialty Components, Inc.

ENVIRONMENTAL RESTORATION

DRAFT SITE TREATMENT PLAN PORTSMOUTH GASEOUS DIFFUSION PLANT

Fact Sheet No. PORTS/ER/CR00017 Summer 1994

Fact sheets such as this are part of the U.S. Department of Energy's ongoing program to inform and involve the public in environmental restoration and waste management issues at the Portsmouth Gaseous Diffusion Plant near Piketon, Ohio. Additional information will be provided as it becomes available in accordance with requirements of the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the National Environmental Policy Act (NEPA).

I. Purpose and Development of the Draft Site Treatment Plan

The U.S. Department of Energy is required by Section 3021(b) of the Resource Conservation and Recovery Act (RCRA), as amended by the Federal Facilities Compliance Act (FFCAct) to prepare Site Treatment Plans that describe the development of treatment capabilities and technologies for treating mixed waste (waste containing both hazardous and radioactive material). The FFCAct provides a 3-year postponement of the waiver for storage prohibition violations for DOE mixed waste not meeting Land Disposal Restrictions. The treatment of all stored mixed waste is not required to be completed within that 3-year timeframe; however, within that period DOE must prepare Site Treatment Plans for developing treatment capacity for its mixed waste at each site in which it stores or generates mixed waste.

The Portsmouth Gaseous Diffusion Plant (PORTS) Draft Site Treatment Plan (DSTP) is the intermediate version of the Site Treatment Plan. The Site Treatment Plan is being prepared to describe the development of treatment capacities and technologies for treating mixed waste at PORTS. The PORTS facility has approximately 5 percent of the DOE total mixed low-level waste inventory.

The purpose of the DSTP is to identify the current preferred options for treating the facility's mixed waste. The DSTP lists specific treatment options and includes the location of current and proposed treatment facilities, and proposed treatment schedules. The DSTP reflects the results of discussions between the state, DOE, and others based on the Conceptual Site Treatment Plan (CSTP) submitted to the state of Ohio and Ohio EPA in October 1993. The CSTP presented treatment needs, capabilities, and preliminary options for treating the mixed waste at the Portsmouth plant. The DSTP narrows the range of options presented in the CSTP and identifies a preferred option for the treatment of each waste stream. A final Site Treatment Plan must be submitted to the state by February 1995.

II. Summary of Inventory

Waste Streams

A total of 81 mixed waste streams have been identified as being generated or in storage at PORTS. All current and future mixed waste streams are considered to be potentially contaminated with low-level radioactive components. No transuranic or high-level waste streams as defined by specifications are generated during operations at PORTS. There is enough data available to evaluate treatment options for all the waste streams. These 81 waste streams were divided into 20 treatability groupings on the basis of waste characteristics. These groupings were further divided into eight waste categories (see Figure 1 for waste categories and volumes stored on site).

Technologies were screened and treatment options established for each of these treatability groupings (see Table 1). Options were then evaluated on their ability to meet regulatory compliance, environmental health and safety, treatment effectiveness, implementability, stakeholder concerns, life-cycle costs, and technology development.

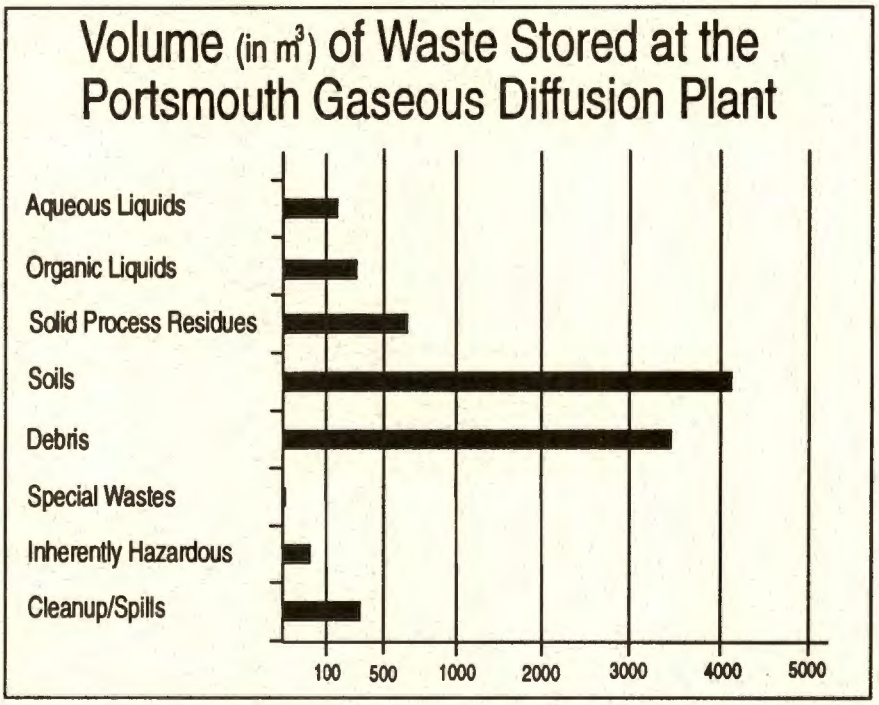


Figure 1. Volume of Mixed Waste Stored at PORTS

Existing Facilities

Currently, PORTS has only wastewater treatment facilities on-site that are used to treat groundwater from remediation activities. In addition, PORTS uses the K-25 Toxic Substances Control Act (TSCA) Incinerator at Oak Ridge, Tenn. for treatment of organic liquids and certain aqueous liquids. The mixed waste treatment strategy proposed in the DSTP includes the use of existing PORTS wastewater treatment facilities; the K-25 TSCA Incinerator; and a series of smaller treatment systems (preferably mobile).

Groundwater is the only waste stream that is being treated on site. There are four groundwater treatment facilities in operation. All other waste streams are being stored on site awaiting treatment. Two waste storage areas, the X-7725 Mixed Waste Storage Facility and the X-326 L Cage, are used to store mixed waste on site. These facilities provide over 245,000 square feet of storage space.

III. Options Proposed

A few of the combustible liquid waste streams are already being shipped from storage to the K-25 TSCA Incinerator. Some shipments of mixed waste have been sent from the Portsmouth plant to the commercially licensed Envirocare mixed waste disposal facility in Clive, Utah.

In addition, PORTS is working with other DOE sites within the state of Ohio to develop an "Ohio Option". In this option, the primary consideration is for treatment of waste at each site; followed by treatment at other sites in Ohio; and lastly, treatment at out-of-state DOE facilities or commercial facilities.

The Ohio Option may include design and construction of new fixed facilities for differing treatment technologies or it may include the use of mobile treatment units that can be decontaminated and transported to other facilities.

One proposal for on-site treatment is the use of mixed waste treatment systems at the Portsmouth site through mobile-type units. These systems would have the capability to treat numerous waste streams with a variety of methods. Proposed treatment capabilities include metals recovery, thermal desorption, soil washing, chemical precipitation, stabilization, and encapsulation.

Key Uncertainties/Implications

Volumes of waste to be treated on-site, off-site, and/or at commercial facilities is dependent on a number of variables including whether or not the treatment units are funded and constructed; what processes are ultimately included in those systems; and what treatment facilities and capacities are available at other Ohio DOE sites.

Recycling (such as spent carbon from water treatment filters, batteries, mercury, and fluorescent and halide lights) and recovery of metals is planned where applicable and practicable.

Currently, all groundwater and much of the aqueous liquids/slurries will be treated at existing on-site groundwater treatment facilities and/or through the proposed treatment units if constructed. Also, most organic liquids will be shipped to the K-25 TSCA Incinerator in Oak Ridge. The FY '94 TSCA Incinerator capacity allocation for PORTS mixed waste is 600,000 pounds.

Off-site treatment options would include the added

Table 1

Portsmouth Gaseous Diffusion Plant
Draft Site Treatment Plan Waste Chart

Waste Category		Accumulated Waste	Estimated Annual Volume	Preferred Treatment Alternative	Projected Treatment Schedule
Aqueous Liquids/Slurries		146 m^3	37 m^3	Existing On-Site Groundwater Treatment Facilities	7+ years
Organic Liquids		281 m^3	42 m^3	DOE TSCA Incinerator, Oak Ridge	6+ years
Solid Process Residue		678 m^3	80 m^3	1) Recovery & Recycling 2) Stabilization & Encapsulation 3) Vitrification	To be determined
Soils	Contaminated w/organics	4,139 m^3	21 m^3	Thermal Desorption/Carbon Adsorption	11+ years
	Contaminated w/metals			Soil Washing/Chromium Reduction	11+ years
Debris	Contaminated w/Mercury	3,494 m^3	1,212 m^3	Recycle/Chem. Precipitation & Stabilize	9+ years
	Combustible			Physical or Chem. Extraction/Stabilization	10.5+ years
	Inorganic			Stabilization/Encapsulation	9+ years
Special Wastes	Lab Packs	8 m^3	1 m^3	Recycle/Incinerate & Stabilize	6.75+ years
	Compressed Gases/Aerosols			Incinerate contents/Dispose of container	7+ years
	Reactive Metals			Reuse/Dillute with water	4+ years
Inherently Hazardous Waste	Elemental Mercury	59 m^3	12 m^3	Recycle	6.5+ years
	Batteries			Recycle	6+ years
Clean-up & Spill Response Residues		167 m^3	Undetermined amount	Requires further characterization	Unknown

potential risk of transporting untreated wastes.

Preferred Treatment Options, Implications, and Applicable Waste Streams

Thermal Desorption:

Thermal Desorption heats soils contaminated with hazardous wastes to relatively low temperatures, ranging from about 200-1000 degrees fahrenheit. Through this process, the contaminants are vaporized, using a thermal "dryer," and then collected and treated by an air emissions treatment system. This vaporization step is usually done with a carbon filter. Once treated, the solidified soils or sludges may be backfilled with concrete, incinerated, or disposed of by other means.

Thermal Desorption is the preferred option for soils contaminated with organic compounds (such as solvents) and solid process residues.

Filtration/Air Stripping/Carbon Adsorption:

This is a process currently being used at the plant to treat groundwater contaminated with trichloroethylene (TCE) and other volatile organic compounds. Groundwater is pumped to a treatment facility where air is forced through a stream of the contaminated groundwater to evaporate the volatile organic contaminants. A filtration system containing activated carbon collects and absorbs the vaporized contaminants. The treated groundwater is discharged to a sanitary sewer line for further treatment through the plant's sanitary sewage treatment facility. It is then properly discharged from the site.

Filtration/Air Stripping/Carbon Adsorption is the preferred option for contaminated groundwater and certain aqueous liquids/slurries.

Current on-site capacity is sufficient to meet all present and projected groundwater treatment needs.

Stabilization/Encapsulation:

Stabilization can be used for several treatment activities. First, it can improve the handling and physical characteristics of the waste. It can also decrease the actual surface area of the waste mass. Thirdly, it can limit the solubility of hazardous constituents of the waste. The technology uses binding agents, such as asphalt, grout or polymers. This technology is used to "detoxify" the contaminants while reducing the mobility of the pollutants or contaminants.

Stabilization/Encapsulation is the preferred option for solid process residues, debris contaminated with mercury, combustible debris, inorganic debris, and elemental mercury (if recycling is infeasible).

Incineration/Organic Destruction:

Incineration uses extremely high levels of controlled heat, or combustion, to actually destroy contaminants. Air pollution control systems are frequently included to capture particulates and other emissions. The benefit of incineration is its maximum volume reduction/destruction of organics, resulting in an easily stabilized waste for disposal.

Incineration is the preferred option for organic liquids, compressed gases, and aerosols.

Debris/Soil Washing:

Soil washing uses liquids and a mechanical process to "scrub" soils. It removes the hazardous contaminants and concentrates them into a smaller volume. The cleaned soil can be reused as backfill. The smaller volume of contaminated soils can be further treated by other methods or disposed of according to state and federal environmental regulations. In gen-

eral, soil washing is most effective on coarse sand and gravel. It can treat a wide range of contaminants such as heavy metals, pesticides, gasoline and fuel oils. Removal of contaminants can often be improved during the soil washing process by adding chemical additives to the washwater. In some cases, soil washing is best applied in combination with other treatment technologies.

Debris/Soil Washing is the preferred option for soils contaminated with metals.

Metals Removal Through Chemical Oxidation/ Reduction:

This treatment technology is widely used to treat both hazardous and nonhazardous wastes. The technology is well established and represents a safe means of waste treatment that is easily monitored and controlled. While it is most suited to treatment of liquids, it can also be used for sludges as well. The process of chemical oxidation/reduction is based on simple chemical reactions. When electrons are removed from an ion, atom, or molecule, the substance becomes "oxidized." When electrons are added to a substance, it is reduced. Therefore, chemical oxidation/reduction occurs when electrons are removed or extracted from waste. This technology is widely used in treatment of metal-bearing wastes and of inorganic toxic wastes.

Chemical oxidation/Reduction is the preferred option for certain aqueous liquids/slurries.

Vitrification:

Vitrification uses heat to destroy any organic content of the treated waste. Inorganic and metallic constituents are captured in a glass matrix. The treated wastes can be in many forms, including liquids, wet or dry sludges, or combustible materials. These waste materials are mixed with glass formers and then put into a glass melter. Then, when the glass matrix hardens, it becomes an acceptable form for shipment, storage, and disposal. Vitrification is an effective treatment technology, although it is still in the development stage.

Vitrification is the preferred option for certain solid process residues.

Neutralization:

Neutralization is a treatment technology process that chemically establishes an acceptable pH balance in wastewater. It is one of the older types of treatment technologies. It chemically works to bring the pH level in wastewater to an acceptable level, where the wastewater may have varying levels of acidic content. The most "acceptable" level is 7 pH (desired levels range from 6-9). Neutralization is accomplished in a couple of ways. If the wastewater is acidic (pH less than 7.0), basic components are added such as sodium hydroxide (caustic), lime, or soda ash to neutralize the waste. If the waste is basic (pH greater than 7.0), it is neutralized with acidic components, such as hydrochloric acid and sulfuric acid.

Neutralization is the preferred option for certain aqueous liquids/slurries.

Chemical Precipitation:

This treatment technology removes soluble contaminants from water and converts them to insoluble compounds. The process works by feeding contaminated wastewater into a rapid mix tank. After precipitation occurs, the wastewater is treated for any solids removal using sedimentation and/or filtration.

Chemical precipitation is the preferred option for certain aqueous liquids/slurries and debris contami-

nated with mercury.

IV. Next Steps

NOTE: The Draft Site Treatment Plan identifies currently preferred options for treating the mixed waste at the Portsmouth Gaseous Diffusion Plant. The Draft Plan was prepared using the "bottoms-up" approach and has not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. These preferred options may change as evaluation of DOE-wide impacts and State-to-State discussions progress.

Opportunities for Involvement/Feedback

Additional stakeholders workshops are being scheduled to obtain public input and to further discuss specifics regarding the available treatment options. Treatment alternatives and the DSTP will be a topic of discussion at the PORTS semi-annual Environmental Restoration and Waste Management public update meeting to be held in November 1994.

A formal public comment period will be announced prior to submittal of the final Site Treatment Plan in February 1995.

Documents relating to the Site Treatment Plan required by the FFCAct are available for public review at the DOE Environmental Information Center, 505 West Emmitt Ave., Suite 3, Waverly, Ohio 45690.

V. Key Contacts

Site contacts for PORTS Site Treatment Plan related issues are: Melda Rafferty, U.S. Department of Energy, Portsmouth Gaseous Diffusion Plant, P.O. Box 700, Piketon, Ohio 45661, (614) 897-5521; Gary Conner, Martin Marietta Energy Systems, Portsmouth Gaseous Diffusion Plant, P.O. Box 628, Piketon, Ohio 45661, (614) 897-6415 and Sandy Childers, Community Relations, SAIC, 11197 U.S. Route 23, Waverly, Ohio 45690, (614) 947-1583.

Mailing List

If you would like to be placed on the mailing list for any future environmental publications on the plant, please fill out the form below (please print legibly):

*Name*_____

*Address*_____

*City*_____

*State*_____ *Zip*_____

Mail completed form to:
Environmental Restoration Editor
11197 U.S. Route 23, Suite 200
Waverly, OH 45690

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PORTSMOUTH NAVAL SHIPYARD
DRAFT SITE TREATMENT PLAN FACT SHEET

The Federal Facility Compliance Act of 1992 (FFCA) requires the U.S. Department of Energy (DOE) to prepare Site Treatment Plans (STPs) to address treatment of mixed radioactive and hazardous waste for each DOE site which generates and stores mixed waste. These plans will be submitted to the states (or the U.S. Environmental Protection Agency (EPA) in cases where the state has not been delegated authority to regulate mixed waste at federal facilities) for approval. Owing to the joint Navy/DOE nature of the Naval Nuclear Propulsion Program (NNPP) and pursuant to the legislative history of the FFCA, NNPP facilities which generate and store mixed waste, including Portsmouth Naval Shipyard (PNS), are included in the FFCA process and are preparing STPs.

PNS generates very small amounts of mixed waste as a result of maintenance and repair work performed on Naval nuclear propulsion plants. PNS currently has approximately 0.39 cubic meter of mixed waste in storage, and projects to generate approximately 0.40 cubic meters over the next five years. These amounts represent less than 0.001 percent of the total amounts of mixed waste stored and generated at DOE facilities. No mixed waste treatment facilities currently exist at PNS.

As outlined in an April 6, 1993 Federal Register notice (58 FR 17875), DOE is developing STPs in three stages. Conceptual STPs, which identified the range of potentially feasible treatment options for each mixed waste stream, were completed in October 1993. Draft STPs, being issued in August 1994, will discuss the evaluation of treatment options and identify the site's preferred treatment option for each waste stream. Final Proposed STPs will be submitted to state and EPA regulators in February 1995. This three step process is intended to facilitate early interaction with the regulators and other stakeholders to ensure the plans will ultimately be approved by October 1995 as required by the FFCA.

PNS determined preferred treatment options for each waste stream by comparing all feasible treatment options (including on-site treatment, use of mobile treatment systems, commercial treatment, and treatment at other DOE facilities) in several fundamental areas (including regulatory compliance, treatment effectiveness, environment/health/safety concerns, cost, and implementability). This approach was used by all sites preparing Draft STPs. Based on the very small volumes of PNS waste streams, these evaluations indicated that off-site treatment at other DOE facilities (or on-site RCRA simple treatment in the accumulation container where feasible) are economically and technically preferable to other options. PNS identified potentially technically capable DOE facilities for each waste stream based on an evaluation of available treatment facility information, then coordinated with the other DOE sites to confirm treatment capability and select preferred options based on facility status, location, and to consolidate shipments to one or two DOE treatment sites. The following table contains a listing of the mixed waste streams and preferred treatment options identified in the PNS Draft STP:

Waste ID#	Waste Stream Name	Inventory (M^3)	5 Year Proj (M^3)	Preferred Option
PN-W001	Lead Contaminated Debris	0.142	0.00	Off-Site Treatment at the Hanford Site-WRAP IIA Stabilization Facility
PN-W002	Paint Chips Containing Lead	0.00	0.20	RCRA On-Site Simple Treatment (Cement Based Stabilization) in the Accumulation Container
PN-W003	Solidified Resin with Chromium	0.21	0.00	Off-Site Treatment at the Hanford Site-WRAP IIA Stabilization Facility
PN-W004	Brass and Bronze	0.04	0.20	Off-Site Treatment at the Hanford Site-WRAP IIA Macroencapsulation Facility

These PNS preferred options were determined using the "bottoms up" approach in which each DOE site evaluated treatment options for its mixed waste, in conjunction with its state and others. It is noted that the Draft STP and preferred options have not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. Thus, these preferred options may change as evaluation of DOE-wide impacts and state-to-state discussions progress.

The next steps in the FFCA process will include finalization of the preferred treatment options, determination of waste shipment and treatment schedules, and preparation of the Final Proposed STPs. Regulator feedback on the Draft STPs (including the results of equity discussions between the states) and public comments will be considered as these efforts move forward. It is also noted that DOE, in conjunction with the states, is evaluating options for disposal of mixed waste treatment residuals in parallel with the STP process to address mixed waste treatment. The process for addressing disposal is described in the Draft STPs and will proceed in parallel with the preparation of the Final Proposed STPs.

The PNS point of contact for questions or comments concerning the Draft STP is Ms. A. Stillman (Code 105, Portsmouth Naval Shipyard, Portsmouth, NH 03804-5000). In addition, the NNPP headquarters point of contact for FFCA and STP matters is Mr. E. Naples (Department of the Navy, Director Nuclear Propulsion, Office of the Chief of Naval Operations, Washington, D.C. 20350).

U.S. Department of Energy
Chicago Operations Office

Information on

Federal Facilities Compliance Act Activities at Princeton Plasma Physics Laboratory

September 1994

From the Desk of the Public Participation Coordinator

Dear Citizen:

My name is Mary Jo Acke and I am the Public Participation Coordinator at the Chicago Operations Office of the U.S. Department of Energy (DOE). DOE is working with Princeton Plasma Physics Laboratory, U.S. Environmental Protection Agency, and the New Jersey Department of Environmental Protection and Energy to address treatment of Princeton Plasma Physics Laboratory mixed wastes.

We have developed this factsheet to explain ongoing waste activities at Princeton Plasma Physics Laboratory. If you have questions regarding information found in this factsheet, please call me at (708)252-8796.

Mary Jo Acke
Public Participation Coordinator
U.S. Department of Energy
Office of Public Accountability
Environmental Restoration and
Waste Management

The FFCAct and Princeton Plasma Physics Laboratory

This factsheet provides the community, regulators, elected officials, interest groups, and members of the public with information concerning the Federal Facility Compliance Act (FFCAct) and how it applies to Princeton Plasma Physics Laboratory. FFCAct applies to waste that contains both hazardous and radioactive components: **mixed waste**. FFCAct mixed waste requirements focus on planning for future treatment and storage of mixed waste.

Princeton Plasma Physics Laboratory is located on Princeton University's James Forrestal Campus in Princeton, New Jersey, 14 miles southwest of New Brunswick and 12 miles northeast of Trenton. Princeton Plasma Physics Laboratory consists of 72 acres which have been leased to DOE for the past 40 years.

Understanding the FFCAct Process

The FFCAct is associated with the law that defines how hazardous waste is managed - the Resource Conservation and Recovery Act. This law helps to ensure that waste is handled and disposed of properly. The FFCAct focuses on the handling and disposal of mixed waste. It requires that sites generating or storing DOE mixed waste, inventory their waste and prepare a plan for developing treatment capacities and technologies. Information on mixed waste, the inventory, the Draft Site Treatment Plan required by FFCAct, and public comment opportunities are described in this factsheet.

Mixed Waste

Historically, mixed wastes were generated as part of DOE's defense-related mission in nuclear research and production. Today and in the future, generation of this type of waste is expected to increase as DOE cleanup activities continue and DOE facilities are decommissioned.

Mixed waste must be treated, primarily, because U.S. Environmental Protection Agency land disposal restrictions do not allow waste with certain characteristics to be disposed of without prior treatment. Treatment of mixed waste may include:

- changing the waste into a form that is easier to dispose of or store, or
- removing waste components to reduce the volume of waste requiring permanent disposal.

Site Treatment Plan Development Process

Conceptual Site Treatment Plan
October 1993

↓

Draft Site Treatment Plan
August 1994

↓

Final Site Treatment Plan
February 1995

Mixed Waste Inventory

The FFCAct requires all DOE sites that generate or store mixed wastes to inventory their wastes. The inventory includes current and anticipated waste volumes, waste characteristics, available treatment technologies and capacities. DOE has completed the required FFCAct mixed waste inventory. The information is available in the document: *Interim National Inventory of DOE Mixed Wastes and Treatment Technologies and Capabilities* which can be reviewed at the information repository listed on the back of this factsheet.

(continued inside)

How Can I Get a Copy of the Plan?

The Conceptual and Draft Site Treatment Plans, can be reviewed and copied at the information repository listed below. Additional copies of the Draft Site Treatment Plan will be available upon request from Ms. Acke at the address and telephone number listed below.

Middlesex County Library
Plainsboro Branch
641 Plainsboro Road
Plainsboro, New York

Library Hours as of August 1994 are:

Monday and Friday ..... 9:00 a.m. - 5:30 p.m.
Tuesday through Thursday .... 9:00 a.m. - 8:30 p.m.
Saturday ..... 9:00 a.m. - 3:00 p.m.
Sunday ..... 1:00 p.m. - 5:00 p.m.

Public Comments

Comments on the Draft Site Treatment Plan will be accepted from September 1, 1994 through October 31, 1994 and should be sent to:

Ms. Mary Jo Acke
Public Participation Coordinator
U.S. Department of Energy
Chicago Operations Office
Office of Public Accountability
9800 South Cass Avenue
Argonne, IL 60439
(708) 252-8796

All comments will be considered for inclusion in the Final Site Treatment Plan.

Site Treatment Plan

FFCAct requires all sites generating or storing mixed waste to develop a Site Treatment Plan. The Site Treatment Plan documents how mixed waste will be treated. Final Site Treatment Plans must be submitted to either the state regulatory agency having Resource Conservation and Recovery Act approval authority, or to the U.S. Environmental Protection Agency.

The development of a Final Site Treatment Plan takes place in three phases: Conceptual Site Treatment Plan, Draft Site Treatment Plan (which this factsheet addresses), and the Final Site Treatment Plan. This three-phase approach helps to identify and address technical, equity, and public issues.

The first phase, the Conceptual Site Treatment Plan, is a starting point for discussions with the public, state, and interested parties. It provides as much information as possible about the treatment technology needs, treatment capacity, and optional treatment technologies for the site's mixed waste. It is meant to present information for consideration rather than propose optional handling and treatment technologies.

For the Princeton Plasma Physics Laboratory, the Conceptual Site Treatment Plan is submitted to the U.S. Environmental Protection Agency Region II (the agency with authority) for comment. Comments on the Conceptual Site Treatment Plan are incorporated into the Draft Site Treatment Plan.

The second phase, issuance of the Draft Site Treatment Plan, presents a preferred treatment technology for treating each mixed waste at the site. Included in the Draft Site Treatment Plan is information on each waste, preferred treatment technology, treatment facility location, and volume of waste to be treated. Schedules of when technologies will be available are also listed in the Draft Site Treatment Plan.

DOE will submit the Draft Site Treatment Plan to regulatory agencies for review. The public, state, and any other interested parties are encouraged to comment on the Draft Site Treatment Plan.

The third phase, issuance of the Final Site Treatment Plan, states the treatment technologies preferred by the site for each waste. The Final Site Treatment Plan incorporates comments made on the Draft Site Treatment Plan.

Once the Final Site Treatment Plan is submitted to the U.S. Environmental Protection Agency Region II, they will make it available for public review and comment before moving to the final action, which is drafting of the Compliance Order. The Compliance Order documents compliance conditions and milestones for treatment of mixed waste at the site.

Why does the FFCAct Apply to Princeton Plasma Physics Laboratory?

As a DOE laboratory, Princeton Plasma Physics Laboratory's role is to research magnetic-confinement plasma physics fusion energy. The goal of the Magnetic Fusion Energy Research Program is to develop and demonstrate the practical application of using fusion power as an alternative energy source. Princeton Plasma Physics Laboratory has been engaged in fusion energy research since 1951. Presently, the program has two large fusion research devices: the Princeton Beta Experimental-Modification and the Tokamak Fusion Test Reactor. A new project, the Tokamak Physics Experiment, is currently in the conceptual design stage.

In 1993, Princeton Plasma Physics Laboratory began new research with the Tokamak Fusion Test Reactor using a new type of fuel. Because this research and future shutdown and removal actions will generate mixed waste, Princeton Plasma Physics Laboratory must comply with the FFCAct and provide a Plan to address the treatment and storage of waste.

What Mixed Waste is Located at Princeton Plasma Physics Laboratory?

Princeton Plasma Physics Laboratory currently generates extremely small quantities (0.1 cubic meters per year [m^3/yr]) of mixed waste. In 1996, when the shutdown and removal of the Tokamak Fusion Test Reactor begins, some mixed waste will be generated as part of dismantling efforts.

What is in Princeton Plasma Physics Laboratory's Draft Site Treatment Plan?

The Draft Site Treatment Plan identifies currently preferred technologies for treating the mixed waste at Princeton Plasma Physics Laboratory. In this Draft Site Treatment Plan, Princeton Plasma Physics Laboratory included the preferred treatment technologies. These technologies resulted from Princeton Plasma Physics Laboratory's review of various alternative treatment approaches and discussion with technical staff at other DOE and commercial treatment facilities. This approach is referred to as "bottom-up." This Draft Site Treatment Plan was prepared using the "bottom-up" approach and has not been evaluated for potential impacts associated with other DOE sites and the overall DOE Program.

Princeton Plasma Physics Laboratory's anticipated mixed waste from the Tokamak Fusion Test Reactor shutdown and removal activities is categorized into eight wastes. The Waste Identification Matrix below summarizes the information in Princeton Plasma Physic Laboratory's Draft Site Treatment Plan concerning these wastes. The Waste Identification Matrix lists the waste name and preferred and alternative treatment technologies. It also identifies the forecasted amount of mixed waste to be generated in the next five years. These amounts are listed in cubic meters (m^3). One m^3 is equal to approximately five 55-gallon drums. The amount of mixed waste expected to be generated in the next five years will be approximately 28.2 m^3, or 141 drums. This does not include the 54.5 tons of lead Princeton Plasma Physics Laboratory expects to generate and recycle for use shielding in future research projects.

The Draft Site Treatment Plan was submitted to U.S. Environmental Protection Agency Region II, the agency with authority for New Jersey Resource Conservation and Recovery Act activities, for comment.

As mixed waste is generated in the next five years, Princeton Plasma Physics Laboratory expects to perform on-site stabilization/solidification within 90 days of generation and immediately ship the treated waste off-site to the final storage location.

How Can I Be Involved?

Decisions concerning treatment technology location, type of treatment, waste shipment, and disposal may affect the Princeton Plasma Physics Laboratory community, and DOE wants to inform and involve the public in these decisions.

DOE encourages the public, state, and any other interested parties to read and comment on the Draft Site Treatment Plan because this will lead to a more complete identification and consideration of issues and treatment technologies. Receiving and addressing comments and concerns will also help to develop a Final Site Treatment Plan that reflects the concerns of all who are interested. Information on locations where the Draft Site Treatment Plan can be reviewed is found on the back of this factsheet.

How Can I Learn More About the FFCAct?

DOE has the following additional information available on the FFCAct:

- *General Information on Mixed Wastes and Types of Treatment Technology*
- *Site Treatment Plan Process*
- *How Mixed Waste Disposal is Involved in the Site Treatment Plan Process*
- *Relationships Between the EM (Office of Environmental Management) Programmatic Environmental Impact Statement and the FFCAct*
- *Technical Evaluation Process to Determine Preferred Treatment Options Identified in the Conceptual Site Treatment Plan.*

Please call 1-800-736-3282 to request copies of any of these publications.

Waste Identification Matrix

Waste	Preferred Treatment Technology	Alternative Treatment Technology (all off-site*)	Forecasted 5-Year Generation (m^3)
Organic Liquids	On-Site Stabilization/ Solidification	• Evaporation • Immobilization	< .2
Lead	On-Site Storage and Reuse	• Storage for Reuse • Decontamination Encapsulation • Immobilization	54.5 tons
Silver	On-Site Stabilization/ Solidification	• Decontamination Encapsulation • Immobilization	15
Waste Oil	On-Site Stabilization/ Solidification	• Immobilization	4
Mercury	On-Site Stabilization/ Solidification	• Encapsulation • Immobilization	1
Cadmium	On-Site Stabilization/ Solidification	• Encapsulation • Immobilization	5
Halogenated Oils	On-Site Stabilization/ Solidification	• Immobilization	1
Aqueous Solutions with Heavy Metals	On-Site Stabilization/ Solidification	None	< 2

*Off-site treatment technologies are located in Idaho, Colorado, New York, and Texas.

Request for Public Comments on the U.S. Department of Energy's Site Treatment Plan

September 1994

The 60-day public comment period for Federal Facilities Compliance Act Draft Site Treatment Plans will end October 31, 1994. The U.S. Department of Energy (DOE) encourages you to comment on the Draft Site Treatment Plan located in the Information Repository listed below.

Your comments will be considered before the Site Treatment Plan is finalized. DOE will review and provide a response to all written comments. Please use the space below or use your own paper to write your comments on the draft Plan. When finished, fold this sheet in half and staple.

Princeton Plasma Physics Laboratory

Middlesex County Library
Plainsboro Branch
P.O. Box 278
Plainsboro, NJ 08536
(609) 275-2897

Comments: _____

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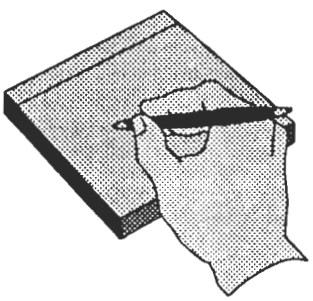
Optional:

Name _____

Address _____

City _____ State _____

Zip _____



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Mary Jo Acke
Public Participation Coordinator
U.S. Department of Energy
Chicago Operations Office
Office of Public Accountability
9800 South Cass Ave
Argonne, IL 60439

PUGET SOUND NAVAL SHIPYARD
DRAFT SITE TREATMENT PLAN FACT SHEET

The Federal Facility Compliance Act of 1992 (FFCA) requires the U.S. Department of Energy (DOE) to prepare Site Treatment Plans (STPs) to address treatment of mixed radioactive and hazardous waste for each DOE site which generates and stores mixed waste. These plans will be submitted to the states (or the U.S. Environmental Protection Agency (EPA) in cases where the state has not been delegated authority to regulate mixed waste at federal facilities) for approval. Owing to the joint Navy/DOE nature of the Naval Nuclear Propulsion Program (NNPP) and pursuant to the legislative history of the FFCA, NNPP facilities which generate and store mixed waste, including Puget Sound Shipyard (PSNS), are included in the FFCA process and are preparing STPs.

PSNS generates very small amounts of mixed waste as a result of maintenance, repair, and decommissioning work performed on Naval nuclear propulsion plants. PSNS currently has approximately 46.35 cubic meters of mixed waste in storage, and projects to generate approximately 32.43 cubic meters over the next five years. These amounts represent less than 0.01 percent of the total amounts of mixed waste stored and generated at DOE facilities. No mixed waste treatment facilities currently exist at PSNS.

As outlined in an April 6, 1993 Federal Register notice (58 FR 17875), DOE is developing STPs in three stages. Conceptual STPs, which identified the range of potentially feasible treatment options for each mixed waste stream, were completed in October 1993. Draft STPs, being issued in August 1994, will discuss the evaluation of treatment options and identify the site's preferred treatment option for each waste stream. Final Proposed STPs will be submitted to state and EPA regulators in February 1995. This three step process is intended to facilitate early interaction with the regulators and other stakeholders to ensure the plans will ultimately be approved by October 1995 as required by the FFCA.

PSNS determined preferred treatment options for each waste stream by comparing all feasible treatment options (including on-site treatment, use of mobile treatment systems, commercial treatment, and treatment at other DOE facilities) in several fundamental areas (including regulatory compliance, treatment effectiveness, environment/health/safety concerns, cost, and implementability). This approach was used by all sites preparing Draft STPs. Based on the very small volumes of PSNS waste streams, these evaluations indicated that off-site treatment at other DOE facilities (or on-site treatment by generator in the accumulation container where feasible) are economically and technically preferable to other options. PSNS identified potentially technically capable DOE facilities for each waste stream based on an evaluation of available treatment facility information, then coordinated with the other DOE sites to confirm treatment capability and select preferred options based on facility status, location, and to consolidate shipments to one or two DOE treatment sites. The following table contains a listing of the mixed waste streams and preferred treatment options identified in the PSNS Draft STP:

Waste ID#	Waste Stream Name	Inventory (M^3)	5 Year Proj (M^3)	Preferred Option
PS-W001	Debris with Heavy Metals	4.81	2.00	Off-Site Treatment at the Hanford Site-WRAP IIA Macroencapsulation Facility
PS-W002	Paint Chips with Heavy Metals	0.65	1.00	Treatment by Generator in the Accumulation Container
PS-W004	Liquid With F-Listed Solvents	0.64	1.00	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
PS-W005	Debris With F-Listed Solvents	3.19	1.10	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
PS-W006	Solidified Liquid with F-Listed Solvents	1.06	0.00	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
PS-W007	Debris with Heavy metals and PCB	3.43	0.50	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
PS-W009	Paint Thinnner with Butyl Alcohol	0.21	0.00	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
PS-W010	Filters/Media with Di-Octyl Phthalate	23.61	21.8	Off-Site Treatment at SEG (Commercial), Oak Ridge, TN
PS-W011	Debris with Heavy Metals and F-Listed Solvents	0.21	0.00	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
PS-W012	Paint Chips with Heavy Metals and PCBS	0.003	0.210	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
PS-W013	Elemental Lead	0.21	1.10	Off-Site Treatment at the Hanford Site-WRAP IIA Macroencapsulation Facility
PS-W014	Particulates with Heavy Metals	0.05	0.30	Off-Site Treatment at the Hanford Site-WRAP IIA Stabilization Facility
PS-W015	Organic Debris with Petroleum Products	0.20	0.21	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility
PS-W016	Organic Debris with Heavy Metals and Diesel Fuel	0.21	0.21	Off-Site Treatment at the Hanford Site-Thermal Treatment Facility

Waste ID#	Waste Stream Name	Inventory (M^3)	5 Year Proj (M^3)	Preferred Option
PS-W017	Inorganic Debris with Heavy Metals	7.87	3.00	Off-Site Treatment at the Hanford Site-WRAP IIA Stabilization Facility

These PSNS preferred options were determined using the "bottoms up" approach in which each DOE site evaluated treatment options for its mixed waste, in conjunction with its state and others. It is noted that the Draft STP and preferred options have not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. Thus, these preferred options may change as evaluation of DOE-wide impacts and state-to-state discussions progress.

The next steps in the FFCA process will include finalization of the preferred treatment options, determination of waste shipment and treatment schedules, and preparation of the Final Proposed STPs. Regulator feedback on the Draft STPs (including the results of equity discussions between the states) and public comments will be considered as these efforts move forward. It is also noted that DOE, in conjunction with the states, is evaluating options for disposal of mixed waste treatment residuals in parallel with the STP process to address mixed waste treatment. The process for addressing disposal is described in the Draft STPs and will proceed in parallel with the preparation of the Final Proposed STPs.

The PSNS point of contact for questions or comments concerning the Draft STP is Mr. S. Anderson (Code 105, Puget Sound Naval Shipyard, Bremerton, WA 98314-5000). In addition, the NNPP headquarters point of contact for FFCA and STP matters is Mr. E. Naples (Department of the Navy, Director Nuclear Propulsion, Office of the Chief of Naval Operations, Washington, D.C. 20350).

FFCActivities

Federal Facility Compliance Act Activities September 1994

U.S. DOE - Chicago Operations Office

RMI Decommissioning Project Office

Dear Citizen:

My name is Mary Jo Acke and I am the Public Participation Coordinator at the Chicago Operations Office of the U.S. Department of Energy (DOE). DOE is working with RMI Titanium Company and the Ohio Environmental Protection Agency to address treatment of RMI Titanium Company mixed wastes.

We have developed this factsheet to explain ongoing mixed waste activities at RMI Titanium Company. If you have questions regarding information found in this factsheet, please call me at (708) 252-7896.

Mary Jo Acke
Public Participation Coordinator
U.S. Department of Energy
Office of Public Accountability
Environmental Restoration and
Waste Management

INSIDE

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Introduction

This factsheet provides regulators, officials, interest groups, and members of the public with information on the Federal Facility Compliance Act (FFCAct) and information on how to participate in present and planned activities for the RMI Titanium Company. FFCAct applies to RMI Titanium Company because they store waste that contains both hazardous and radioactive components (**mixed waste**). FFCAct focuses on treatment of mixed waste and does not address Department of Energy contracts, site management, or mixed waste disposal.

The following information provides background on RMI Titanium Company's association with DOE, a summary of the FFCAct focusing on requirements for a Site Treatment Plan, and information found in RMI Titanium Company's Draft Site Treatment Plan. Also included is information on opportunities for public involvement. The public, state, and any other interested parties are encouraged to participate in FFCAct review activities to help develop a Site Treatment Plan that reflects the interests of the RMI Titanium Company public. This factsheet and other FFCAct documents help to inform the public of upcoming activities.

Understanding the FFCAct Process

The FFCAct is associated with the law that defines how hazardous waste is managed - the Resource Conservation and Recovery Act. This law helps to ensure that waste is handled and disposed of properly. The FFCAct focuses on the handling and disposal of mixed waste. It requires that sites generating or storing DOE mixed waste, inventory their waste and prepare a plan for developing treatment capacities and technologies. Information on mixed waste, the inventory, the Draft Site Treatment Plan required by FFCAct, and public comment opportunities are described in this factsheet.

Mixed Waste

Historically, mixed wastes were generated as part of DOE's defense-related mission in nuclear research and production. Today and in the future, generation of this type of waste is expected to increase as DOE cleanup activities continue and DOE facilities are decommissioned.

Mixed waste must be treated, primarily, because U.S. Environmental Protection Agency land disposal restrictions do not allow waste with certain characteristics to be disposed of without prior treatment. Treatment of mixed waste may include:

- changing the waste into a form that is easier to dispose of or store, or
- removing waste components to reduce the volume of waste requiring permanent disposal.

Mixed Waste Inventory

The FFCAct requires all DOE sites that generate or store mixed wastes to inventory their wastes. The inventory includes current and anticipated waste volumes, waste characteristics, available treatment technologies and capacities. DOE has completed the required FFCAct mixed waste inventory. The information is available in the document: *Interim National Inventory of DOE Mixed Wastes and Treatment Technologies and Capabilities* which can be reviewed at the information repository listed on page 4 of this factsheet.

Site Treatment Plan

FFCAct requires all sites generating or storing mixed waste to develop a Site Treatment Plan. The Site Treatment Plan documents how mixed waste will be treated. Final Site Treatment Plans must be submitted to either the state regulatory agency having Resource Conservation and Recovery Act approval authority, or to the U.S. Environmental Protection Agency.

The development of a Final Site Treatment Plan takes place in three phases: Conceptual Site Treatment Plan, Draft Site Treatment Plan (which this factsheet addresses), and the Final Site Treatment Plan. This three-phase approach helps to identify and address technical, equity, and public issues.

The first phase, the Conceptual Site Treatment Plan, is a starting point for discussions with the public, state, and interested parties. It provides as much information as possible about the treatment technology needs, treatment capacity, and optional treatment technologies for the site's mixed waste. It is meant to present information for consideration rather than propose optional handling and treatment technologies.

For the RMI Titanium Company, the Conceptual Site Treatment Plan is submitted to the Ohio Environmental Protection Agency (the state agency with authority) for comment. Comments on the Conceptual Site Treatmer Plan are incorporated into the Draft Site Treatment Plan.

The second phase, issuance of the Draft Site Treatment Plan, presents a preferred treatment technology for treating each mixed waste at the site. Included in the Draft Site Treatment Plan is information on each waste, preferred treatment technology, treatment facility location, and volume of waste to be treated. Schedules of when technologies will be available are also listed in the Draft Site Treatment Plan.

DOE will submit the Draft Site Treatment Plan to regulatory agencies for review. The public, state, and any other interested parties are encouraged to comment on the Draft Site Treatment Plan.

The third phase, issuance of the Final Site Treatment Plan, states the treatment technologies preferred by the site for each waste. The Final Site Treatment Plan incorporates comments made on the Draft Site Treatment Plan. Once the Final Site Treatment Plan is submitted to the Ohio Environmental Protection Agency, they will make it available for public review and comment before moving to the final action, which is drafting of the Compliance Order. The Compliance Order documents compliance conditions and milestones for treatment of mixed waste at the site.

Background on RMI

RMI Titanium Company, located in Ashtabula, Ohio, provided support operations to DOE from 1962 through 1990. RMI Titanium Company is privately owned. Their primary mission was changing metal ingots and billets pieces into rods and tubes to be used in the production of nuclear fuel for DOE reactors. RMI Titanium Company also shaped depleted uranium and non-radioactive metals for Nuclear Regulatory Commission-licensed facilities and for commercial facilities. Production activities were discontinued in November 1990 due to a decrease in demand for RMI Titanium Company services.

Mixed waste was generated by RMI Titanium Company when it was in operation, and mixed waste is now stored on the property. Cleanup activities at RMI Titanium Company will produce environmental restoration wastes - some of which may be categorized as mixed waste.

RMI Titanium Company
Waste Matrix

Waste Name	Preferred Treatment Technology	Present Inventory (m^3)	5-Year Projected Inventory (m^3)
Aqueous Liquids	Off-Site Oak Ridge TSCA Incinerator in Tennessee		
TCE Contaminated Bail Water		1.3	4.5
Laith Oil-Water Coolant Waste		.5	.23
Organic Liquids	Off-Site Oak Ridge TSCA Incinerator in Tennessee		
Pump Station Accumulator Oil		.5	.23
Chlorinated/Stoddard Solvents		1.4	.23
Floor Stripping Chlorinated Solvents		5.6	.23
Inorganic Debris	Off-Site Stabilization at Envirocare in Utah		
Kaol Wool		0	.23
Salt Bath Brick		0	.23
Salt Bath Floor Sweepings		1.35	.23
Salt Bath Pads and Gloves		.23	.23
Die Head Residue		5.64	.23
Organic Debris	Off-Site Treatment at Oak Ridge TSCA in Tennessee		
Lathe Oil-Water Coolant (solid)		1.2	.23
Pump Station Accumulation Oil (solid)		.23	.23
Chlorinated Stoddard Solvents (solid)		3.5	.23
Inorganic Sludge	Off-Site Stabilization at Envirocare in Utah		
Salt Bath Salt		.0	.23
Salt Bath Sludge		0	.23

Key: TCE = trichloroethylene
TSCA = Toxic Substances Control Act

What is in the RMI Titanium Company Draft Site Treatment Plan?

The Draft Site Treatment Plan identifies currently preferred technologies for treating the mixed waste at RMI Titanium Company. In this Draft Site Treatment Plan, RMI Titanium Company included the preferred treatment technologies. The technologies resulted from RMI Titanium Company's review of various alternative treatment approaches and discussion with technical staff at other DOE and commercial treatment facilities. This approach is referred to as "bottom-up." This Draft Site Treatment Plan was prepared using the "bottom-up" approach and has not been evaluated for potential impacts associated with other DOE sites and the overall DOE Program. To the extent possible, it also proposes specific treatment facilities and treatment schedules. See the Waste Matrix above for a listing of wastes and preferred treatment technologies.

(continued from page 3)

Because RMI Titanium Company does not have the capability to treat this mixed waste, all preferred treatment technologies are located at off-site facilities.

The RMI Titanium Company Waste Matrix presents a summary of the information found in the Draft Site Treatment Plan. The first column identifies the waste, the following three columns identify preferred treatment technology, current inventory, and projected five-year inventory. These inventory amounts are in cubic meters (m^3). One m^3 meter is equal to approximately five 55-gallon drums.

A planned waste not included in the Waste Matrix is contaminated soil. Estimated 5-year inventory is 2,660 m^3. The proposed treatment technology for this wastes is on-site ex-situ vapor stripping.

The preliminary date for off-site shipment of aqueous and organic liquids, is August 1997. The preliminary shipment date for organic/inorganic debris and sludge is August 1998. Any final dates for shipment will depend on approval of the site recovering the waste for shipment.

How Can I Be Involved?

The Draft Site Treatment Plan was submitted to the Ohio Environmental Protection Agency for review. The public is encouraged to read and comment on mixed waste treatment technologies being considered for RMI Titanium Company. Public participation on the Draft Site Treatment Plan can lead to a more complete identification and consideration of issues and treatment technologies.

The RMI Titanium Company Conceptual and Draft Site Treatment Plans are available for review at the following location:

Kent State University
Ashtabula Campus Library
3431 W. 13th Street
Ashtabula, OH

Library hours in September are:

Monday through Wednesday	9 a.m. - 9 p.m.
Thursday	9 a.m. - 5 p.m.
Friday	9 a.m. - 2 p.m.
Saturday	11 a.m. - 3 p.m.

Additional copies of the Draft Site Treatment Plan will be available upon request to Ms. Acke, Public Participation Coordinator, who can be reached at th address and telephone number below.

Comments on the Draft Site Treatment Plan will be accepted from September 1, 1994 through October 31, 1994 and should be directed to:

Ms. Mary Jo Acke
Public Participation Coordinator
U.S. Department of Energy
Chicago Operations Office
Office of Public Accountability
9800 South Cass Avenue
Argonne, IL 60439
(708) 252-8796

Comments will be reviewed and considered in the preparation of the Final Site Treatment Plan.

What Additional Information is Available on the FFCAct?

DOE has the following additional FFCAct information available:

- *General Information on Mixed Wastes and Types of Treatment Technology*
- *Site Treatment Plan Process*
- *How Mixed Waste Disposal is Involved in the Site Treatment Plan Process*
- *Relationships Between the EM (Office of Environmental Management) Programmatic Environmental Impact Statement and the FFCAct*
- *Technical Evaluation Process to Determine Preferred Treatment Options Identified in the Conceptual Site Treatment Plan.*

Please call 1-800-736-3282 to request copies of any of these publications.

Request for Public Comments on the U.S. Department of Energy's Site Treatment Plan

September 1994

The 60-day public comment period for Federal Facilities Compliance Act Draft Site Treatment Plans will end October 31, 1994. The U.S. Department of Energy (DOE) encourages you to comment on the Draft Site Treatment Plan located in the Information Repository listed below.

Your comments will be considered before the Site Treatment Plan is finalized. DOE will review and provide a response to all written comments. Please use the space below or use your own paper to write your comments on the draft Plan. When finished, fold this sheet in half and staple.

RMI

Kent State University
Ashtabula Campus Library
3431 W. 13th Street
Ashtabula, OH 44004
(216) 964-4239

Comments: _____

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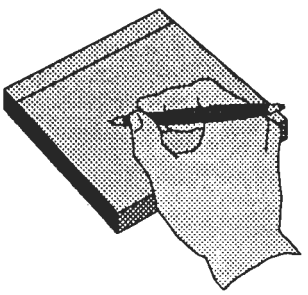
Optional:

Name _____

Address _____

City _____ State _____

Zip _____



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Mary Jo Acke
Public Participation Coordinator
U.S. Department of Energy
Chicago Operations Office
Office of Public Accountability
9800 South Cass Ave
Argonne, IL 60439

DOE Public Affairs 966-5993
EG&G Community Relations 966-5754

Rocky Flats Information

Mixed Waste Management

The Rocky Flats Environmental Technology Site was originally designed and operated as a manufacturing facility for the production of nuclear weapons components. As a result of those activities over the past forty years, the plant has generated a considerable amount of mixed wastes (wastes containing both radioactive and hazardous components) that remains stored at the site. With the change in mission from weapons production to environmental restoration and management, mixed wastes will continue to be generated at the site as cleanup, decontamination and decommissioning activities continue.

Obeying the Law

Rocky Flats is one of many Department of Energy (DOE) sites grappling with the issues of mixed waste management, storage and treatment. The Land Disposal Restriction (LDR) portion of existing Resource Conservation and Recovery Act (RCRA) hazardous waste regulations requires that waste containing certain toxic components be treated to reduce toxicity to specific concentration levels before land disposal. RCRA regulations also restrict the length of time that untreated mixed wastes may be stored. Federal law was further amended in 1992 with the passage of the Federal Facility Compliance Act (FFC Act), which requires each Federal facility which generates or stores mixed waste to prepare and submit: 1) a national inventory report to the regulators identifying the facility's mixed waste volume and characteristics, as well as treatment capacity and technologies available at each site; and 2) Site Treatment Plans which identify specific treatment facilities, technologies and schedules for treating mixed wastes.

Rocky Flats' plan, in accordance with the schedule mandated by DOE Headquarters, is being developed in three phases: (1) a "Conceptual Site Treatment Plan" -- completed in October 1993, (2) a "Draft Site Treatment Plan" -- completed and released in August 1994, and (3) a "Final Site Treatment Plan" -- to be completed and submitted to the State of Colorado for review no later than February 1995. After approval, the state will issue an order requiring compliance with the approved plan.

Draft Site Treatment Plan

The Draft Site Treatment Plan (DSTP) builds upon information generated for the Conceptual Site Treatment Plan and identifies both currently-preferred options for treating mixed wastes at Rocky Flats and appropriate emergent technology development options. The DSTP incorporates guidance from DOE Headquarters and state consultation coordinated through the National Governors Association. This strategy supports DOE's "bottom up" approach and reflects only site-specific preferred options, which have been suggested based on currently available information. The options have not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. These preferred options may change as evaluations of DOE-wide impacts and state-to-state discussions progress.

Mixed Waste at Rocky Flats

Most of the low level and transuranic mixed waste generated at Rocky Flats consists of relatively common items such as rags, coveralls, paper products, shoe covers and a variety of oils, that have been used in the production areas.

These items are considered to be contaminated after exposure to the production environment, even if they exhibit no measurable level of radioactivity. Some of the transuranic mixed wastes at the site are comprised of materials such as aqueous sludges. The preponderance by volume of the mixed waste at the site consists of materials such as water from evaporation ponds, solidified nitrate salts and pond sludges.

Waste Volumes...
The current volume of low-level mixed wastes in storage at Rocky Flats is 13,479.02 cubic meters, and the projected amount to be generated during the next five years is 3,284.02 cubic meters. The current volume of transuranic mixed wastes in storage at Rocky Flats is 775.93 cubic meters, and the projected amount to be generated during the next five years is 195.16 cubic meters.

Treatment Options
Both thermal and non-thermal treatment technologies are being explored, including microwave solidification, polymer encapsulation, incineration and low temperature thermal desorption. Several facilities are already in operation at Rocky Flats to process and package liquid and solid wastes generated at the site, but additional facilities will likely be required to accommodate future waste treatment alternatives. The DSTP also proposes that certain wastes be treated at other DOE sites or at commercial treatment facilities.

Public Input
Public involvement in site treatment plan development assures that stakeholders will have ample opportunities to participate in the decision-making process. To provide community access, public comments are invited throughout all stages of plan development, and site representatives meet regularly with the community members to review and comment on drafts.

Addressing stakeholder concerns and comments early in the planning process will help DOE and its regulators develop final Site Treatment Plans which address public interests and concerns and which can be more readily accepted and approved by the regulators. Opportunities for public involvement will be advertised in local newspapers and announced at regularly-scheduled site public meetings. Upon completion of the Proposed Final Site Treatment Plan in February 1995, a formal 60-day public comment period will be initiated. During this period, an informal public meeting/workshop will be conducted to explain mixed waste issues and treatment options, followed by a formal public comment meeting.

Copies of the current Draft Site Treatment Plan are available for review at the following locations:

- Department of Energy Rocky Flats Public Reading Room
  Front Range Community College Library
  3645 West 112th Avenue
  Westminster, CO 80030

- The U.S. Environmental Protection Agency
  Region VIII Superfund Records Center
  999 - 18th Street - Suite 500
  Denver, CO 80222-1530

- Rocky Flats Citizens Advisory Board
  9035 Wadsworth Parkway - Suite 2250
  Westminster, CO 80021

- The Colorado Department of Public Health & Environment
  4300 Cherry Creek Drive South
  Denver, CO 80222-1530

- Standley Lake Library
  8485 Kipling
  Arvada, CO 80005

For additional information, or to comment on the Draft Site Treatment Plan, please contact:

Carla Sanda
EG&G Rocky Flats Community Relations
PO Box 464, Building T130F
Golden, CO 80402-0464
Telephone (303) 966-2011.

Fact Sheet for the Sandia National Laboratories, New Mexico Draft Site Treatment Plan for Mixed Waste July 1994

Why develop Site Treatment Plans?

For each facility at which the Department of Energy (DOE) generates or stores mixed waste, i.e., waste that is both radioactive and hazardous (as defined by the Resource Conservation and Recovery Act (RCRA)), the **Federal Facility Compliance Act** (the Act) of October 6, 1992, requires DOE to prepare a plan for developing treatment capacities and technologies to treat the mixed waste to the standards of RCRA, known as the Land Disposal Restrictions (LDRs) before the waste can be disposed of in or on the land, or stored for more than one year. Upon submission of a plan by DOE and Sandia National Laboratories, New Mexico, to the New Mexico Environment Department (NMED), the Act requires the recipient agency to solicit and consider public comments, and approve, approve with modification, or disapprove the plan within six months. Upon approval of the Plan,, the agency shall issue a Compliance Order requiring compliance with the approved plan.

DOE and SNL/NM have prepared a Draft Site Treatment Plan for mixed waste at SNL/NM, in accordance with the April 6, 1993, Federal Register notice, in which DOE published a schedule for submitting the site treatment plans. The Draft Plan identifies currently preferred options for treating the site's mixed waste.

When finalized, the Site Treatment Plan will satisfy DOE's obligation under the Act to develop and submit a treatment plan for SNL/NM. This will provide protection from further civil enforcement action for violations of the LDRs arising from storage of mixed waste covered by the approved Plan for as long as DOE is in compliance with the requirements of the approved Plan. This will include all mixed waste and suspect mixed waste in storage at SNL/NM and identified in the approved Plan, as well as future mixed waste generated and incorporated into the Plan in accordance with the provisions of the Plan.

What information is in the DSTP?

The Draft Site Treatment Plan comprises two volumes: a Compliance Plan Volume and a Background Volume. The Compliance Plan Volume proposes overall schedules with target dates for achieving compliance with the LDRs, and procedures for converting these target dates into milestones to be enforced under the Compliance Order. The more detailed discussion of the waste streams and the preferred treatment options contained in the Background Volume is provided for informational purposes only.

What is the Mixed Waste Inventory at SNL/NM?

Mixed waste at SNL/NM is mostly generated as low volumes of a broad variety of wastes that are produced by unique tests and experimental programs. Approximately 150 waste streams have been combined into ten treatability groups, based on common physical matrix characteristics. These are listed below with their preferred treatment options. This inventory is based on the Mixed Waste Inventory Report, Phase I, April 1994, and was adjusted for a shipment of debris to Envirocare of Utah, Inc., in April 1994.

What are the Preferred Treatment Options for SNL/NM Mixed Waste?

Summary of SNL/NM Mixed Waste and Preferred Treatment Options

Treatability Group # and Volume	Treatability Group Description	Preferred Treatment Option	Treatment Site and Facility
TG1 2.4 m^3	Inorganic Debris w Explosive	Chemical Deactivation	On-site
TG2 0.04 m^3	Inorganic Debris w/ Water Reactive	Chemical Deactivation	On-site
TG3 0.02 m^3	Reactive Metals	Chemical Deactivation	On-site
TG4 0.007 m^3	Elemental Lead	Macro-encapsulation	On-site using Pantex Mobile Treatment Unit
TG5 0.01 m^3	Aqueous Liquids	Neutralization and Stabilization	On-site
TG6 30 ml	Elemental Mercury	Amalgamation	On-site using Pinellas Mobile Treatment Unit
TG7 0.01 m^3	Organic Liquids	Incineration	Off-Site Commercial
TG8 28 m^3	Organic Debris	Thermal Desorption	On-site using GJPO Mobile Treatment Unit
TG9 5 m^3	Inorganic Debris w/ TCLP Metals	Macro-encapsulation	On-site using Pantex Mobile Treatment Unit
TG10 26 m^3	Heterogeneous Debris	Sort/Reclassify into TG8 or 9	On-site

What are the uncertainties of this plan?

The mixed waste treatment plan at SNL/NM is heavily integrated with the work at other DOE sites. Much of this work is new scope for waste management programs and is now becoming part of the long-term forecasting for budget allocations. The DOE budget is approved by congressional action each year and

the DOE sites must remain flexible in response to changing national priorities.

The development of the mobile treatment units involves technology that is currently available but will require testing through treatability studies allowed by the RCRA regulations for proving-in new applications of a technology and assuring that health and safety measures protect the workers and the environment.

The use of mobile treatment units is a first time step in the management of mixed waste. It is planned that these units will be used at sites in different states to be cost and time effective. The permitting process for waste treatment facilities is usually the responsibility of the state that houses the facility, but in this case there will be many states relying on an individual unit. The DOE and the National Governors' Association are working together to develop a new process for permitting mobile units to allow a broader use of the funds available.

What can be expected in the near future?

The Draft Site Treatment Plan will be the forerunner to the Final Proposed Site Treatment Plan which will be issued to the states in February 1995. That Plan will be the basis for negotiation of a Compliance Plan and the Consent Order that will be issued for enforcement purposes by the NMED.

The Draft Site Treatment Plan and the Final Proposed Site Treatment Plan will both be available for public review and comment. Presently, the Conceptual Site Treatment Plan is available in Albuquerque at the DOE Public Reading Rooms within the Atomic Museum Library on Kirtland Air Force Base (open weekdays 8 am - 5 pm) and within the TV-I Main Branch Library which has evening and Saturday hours. The Draft Site Treatment Plan will be available at these locations after it is issued to the states in late August, 1994.

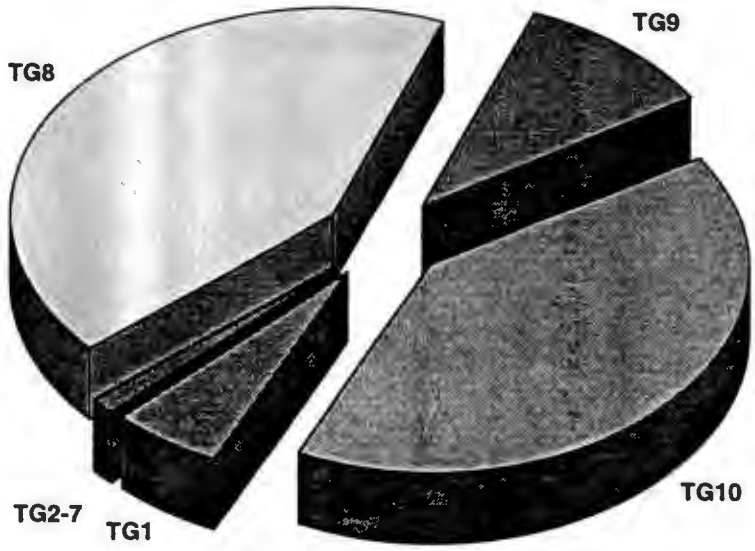
Who to contact for more information:

The coordinators of the STPs are: Mona Williams at the DOE Albuquerque Field Office, 505-845-5405; Ted Pietrok at the DOE Kirtland Area Office, 505-845-5649; and Maureen Lincoln at Sandia National Labs, 505-848-0944.

SNL/NM Treatability Groups

- TG 1 Inorganic Debris w/ Explosives - 2.4 m^3
- TG 2 Inorganic Debris w/ Water Reactives - 0.04 m^3
- TG 3 Reactive Metals -0.02 m^3
- TG 4 Elemental Lead - 0.007m^3
- TG 5 Aqueous Liquids -0.01 m^3
- TG 6 Elemental Mercury - 30 ml
- TG 7 Organic Liquids - 0.01 m^3
- TG 8 Organic Debris -28 m^3
- TG 9 Inorganic Debris w/ TCLP Metals -5 m^3
- TG 10 Heterogeneous Debris - 26 m^3

Treatability Groups by Volume



SRS Draft Site Treatment Plan Fact Sheet

The Federal Facility Compliance Act of 1992 provides an unprecedented opportunity for the U.S. Department of Energy (DOE) to work with its regulators to resolve a long-standing issue - how to treat large amounts of mixed waste now being stored or generated at DOE sites. The Federal Facility Compliance Act requires DOE facilities that generate and store mixed wastes to develop Site Treatment Plans for treating currently stored and future generated mixed waste. DOE sites are developing the plans in three phases: conceptual, draft and final. This fact sheet describes the background and highlights of the Savannah River Site's Draft Site Treatment Plan, which was released August 30, 1994. It also describes how you can get involved.

Mixed waste stored in the Hazardous Waste/ Mixed Waste Storage Building.

What is mixed waste and where did it come from?

Mixed waste includes both radioactive and hazardous components. Mixed waste currently in storage at the Savannah River Site was generated as a result of the site's production operations. Additional mixed waste will be generated as facilities are decontaminated and dismantled, as old burial and storage sites are cleaned up, and as site operations continue.

How much mixed waste does Savannah River Site have?

Savannah River Site's total current mixed waste inventory plus the forecast through 1997 is approximately 156,000 cubic meters. This amounts to approximately 2,000 tractor trailers of mixed waste.

Why treat mixed waste?

To ensure safe disposal and minimal environmental impact, mixed wastes must be treated to meet regulatory land disposal restrictions. Some treatments destroy hazardous components while others immobilize the components. As a result of treatment, the volume of mixed waste needing permanent disposal may be reduced or even increased.

What is the Draft Site Treatment Plan?

Savannah River Site's Draft Site Treatment Plan identifies preferred options for treating its mixed wastes. The Plan lists off-site waste proposed for shipment to Savannah River Site for treatment. It also identifies Savannah River Site mixed wastes proposed for shipment to offsite locations.

The Draft Site Treatment Plan has not been completely evaluated for potential impacts to other DOE sites and the overall DOE program. The preferred options may change as evaluation of DOE-wide impacts and discussions between states that host DOE sites progress.

The Final Site Treatment Plan, the next step in the Plan's development process, will be written considering public input and the results of Draft Site Treatment Plan discussions between DOE and affected states (including South Carolina). The Final Site Treatment Plan will be submitted to the state of South Carolina in February 1995 for review. The State is required by the Federal Facility Compliance Act to approve, approve with modifications, or disapprove the plan within six months of submittal and to issue an order requiring compliance with the approved plan.

Why should you be interested?

The Site Treatment Plan will be the basis for future mixed waste treatment decisions that may have a direct or indirect impact on the environment, surrounding communities and local economy. These decisions include selecting treatment options; planning and designing new treatment facilities; choosing locations for new treatment facilities; and deciding whether some Savannah River Site mixed wastes will be treated on or off site. One of the major decisions is what mixed waste will be shipped to Savannah River Site from other locations. Disposal and transportation issues will also have to be resolved as a result of the Site Treatment Plan.

How were treatment options selected?

The initial screening phase of the Draft Site Treatment Plan development process examined the treatment options available or potentially available to handle Savannah River Site mixed waste streams. Treatment options that met the technical requirements of the initial screening were then subjected to a more in-depth options analysis to aid in ranking options. Finally, an engineering assessment was performed to select a preferred treatment option.

Mixed Waste Categories and Definitions

Mixed waste is classified according to the type of radioactive waste that it contains: low-level, transuranic or high-level.

Low-level waste is all radioactive waste not classified as high-level or transuranic.

Transuranic waste contains transuranic elements (elements with a higher atomic number than uranium such as plutonium) with a radioactivity level greater than 100 nanocuries per gram.

High-level waste, yielded from reprocessing of spent nuclear fuel, is assumed to be mixed waste because it contains hazardous components.

What are the major preferred treatment options proposed for Savannah River Site mixed wastes and where are they proposed to occur?

The Draft Site Treatment Plan proposes to treat most mixed waste by incineration, encapsulation, vitrification (immobilizing waste in a glass-like solid that permanently captures radioactive materials) and stabilization. According to the Plan, 91 percent (mixed high level waste) would be treated by vitrification and stabilization; five percent (mixed transuranic waste) would continue to be stored pending shipment to the Waste Isolation Pilot Plant; and the remaining four percent (mixed low-level waste) would be treated by the various methods mentioned above. The Plan proposes that 98 percent of the waste be treated on site and two percent offsite.

How much offsite waste is proposed for treatment at Savannah River Site?

Savannah River Site has been selected as a preferred treatment option for mixed waste from the Naval Reactors Program. In the next four years, approximately 29 cubic meters — or less than half of a tractor trailer load — of mixed waste would be shipped to the Site for treatment in the Consolidated Incineration Facility.

What happens after the waste is treated?

To ensure the protection of the environment and the safety and health of the public and workers, Savannah River Site will store the treated waste until disposal decisions are made.

Although the Federal Facility Compliance Act does not address disposal of the treated mixed waste, both DOE and the states recognize that disposal issues are an integral part of treatment discussions. Working groups have been established to evaluate the suitability of sites to dispose mixed low-level waste. DOE, through public input and evaluation processes, will then decide which of these sites will be proposed for development as disposal sites..

How will this impact the environment?

Environmental impacts of any new treatment facility proposed in the Site Treatment Plan will be addressed through a National Environmental Policy Act evaluation. An Environmental Impact Statement currently being written for Savannah River Site's waste management activities (including mixed waste) will address the treatment options included in the Site Treatment Plan. The Draft Waste Management Environmental Impact Statement (WMEIS) will be issued in October 1994.

Consolidated Incineration Facility under construction. The WMEIS is evaluating this facility which has been identified as a preferred option in the Draft Site Treatment Plan.

Will the Site Treatment Plan result in additional jobs at Savannah River Site?

At this time, it is anticipated that the current employment level at Savannah River Site will be sufficient to handle the site's proposed and current mixed waste treatment activities.

How can you participate?

In addition to reviewing the Draft Site Treatment Plan, there are several ways for you to learn more about this program and participate in DOE's decision making process.

Briefings

Savannah River Site representatives are available to speak to organizations about the Draft Site Treatment Plan upon request. Call the site's public participation toll-free number **(800-603-0970)** to schedule a briefing.

Public Meeting

Savannah River Site will hold informal, interactive public meetings at the Aiken Municipal Conference Center located at 214 Park Avenue in downtown Aiken on Tuesday, October 4, 1994, from 2 to 4 p.m. and from 6 to 8 p.m. A videotape of the meetings will air on October 11 at 9 a.m., October 12 at noon, and October 13 at 9 p.m. on the following cable channels: 20 in Augusta, 10 in North Augusta, 10 in Columbia and 7 in Savannah.

Focus Group

You may participate in a focus group on the Draft Site Treatment Plan. Focus group members will be asked to review and become familiar with the Plan, and to attend three half-day meetings the week of October 17 and 24 focusing on the Plan's preferred treatment options and key issues. If you would like to participate, call the toll-free number.

Submitting comments

You can also mail your comments to the address listed below or call Savannah River Site's public participation toll-free telephone line. Between 8 a.m. and 4:30 p.m., Monday through Friday, a representative will be available to take your call. You may submit comments by facsimile by calling the toll-free number. You can also be transferred to an answering machine to record your comments or questions. After 4:30 p.m., your call will be recorded for later response. The public comment period for the Draft Site Treatment Plan is from August 31, 1994 to October 31, 1994.

How will SRS respond to your questions or comments?

Draft Site Treatment Plan comments will be considered in the development of the Final Site Treatment Plan and a public comment response document will be made available to the public and placed in DOE's Public Reading Room.

How can you get more information?

Copies of the Draft Site Treatment Plan (a 1,000-page document) and executive summary are available in DOE's Public Reading Room at the University of South Carolina, Aiken Campus library or call the toll-free number to have it mailed to you. For additional information, contact:

Virginia Gardner
Savannah River Operations Office
U.S. Department of Energy
Environmental Restoration Division
P.O. Box A
Aiken, SC 29808
803-725-5752
or toll free (800-603-0970)

Sonya Johnson
Westinghouse Savannah River Company
Solid Waste and
Environmental Restoration Division
1995 South Centennial Avenue
Aiken, SC 29803
803-644-6897
or toll-free (800-603-0970)

FFCAct

September 1994

U.S. Department of Energy - Chicago Operations Office

Federal Facility Compliance Act Activities at

Site - A

Palos Forest Preserve, Cook County, Illinois

Introduction

This factsheet provides an introduction to the Federal Facility Compliance Act (FFCAct) and explains how the FFCAct relates to future activities at Site A/Plot M. The FFCAct focuses on waste with both hazardous and radioactive components (**mixed waste**) and applies to facilities that currently generate or store mixed waste, or plan to in the future.

Site A/Plot M is not currently generating or storing mixed waste, however, the FFCAct applies to Site A/Plot M because environmental investigations and cleanup activities at Site A are expected to generate mixed waste in the future.

U.S. Department of Energy (DOE) and the U.S. Environmental Protection Agency want to inform and involve the public, state, and any other interested parties in FFCAct activities taking place and planned for Site A/Plot M. Public involvement opportunities are described on page 4 of this factsheet.

Information on Site A/ Plot M

Site A is a 19-acre section of the Palos Forest Preserve which is owned by the Forest Preserve District of Cook County. From 1943 to 1956, facilities at this location supported nuclear reactor development activities which were initiated under the Manhattan Engineer District. Plot M, which is located near but separate from Site A, is a one-acre plot which was used for waste disposal from 1944 to 1949. Site A activities began to be transferred to a new laboratory, Argonne National Laboratory - East southeast of Site A, in 1947. Site A facilities were decontaminated, decommissioned, and demolished. Plot M was covered with a reinforced concrete cap.

Understanding the FFCAct Process

The FFCAct is associated with the law that defines how hazardous waste is managed - the Resource Conservation and Recovery Act. This law helps to ensure that waste is handled and disposed of properly.
The FFCAct focuses on the handling and disposal of mixed waste. It requires that sites generating or storing DOE mixed waste, inventory their waste and prepare a

plan for developing treatment capacities and technologies. Information on mixed waste, the inventory, the Draft Site Treatment Plan required by FFCAct, and public comment opportunities are described in this factsheet. See the Site Treatment Plan Development Process graphic below.

Mixed Waste

Historically, mixed wastes were generated as part of DOE's nuclear research mission. Today and in the future, generation of this type of waste is expected to increase as DOE cleanup activities continue and DOE facilities are decommissioned.

Mixed waste must be treated, primarily, because U.S. Environmental Protection Agency land disposal restrictions do not allow waste with certain characteristics to be disposed of without prior treatment. Treatment of mixed waste may include:

- changing the waste into a form that is easier to dispose of or store, or
- removing waste components to reduce the volume of waste requiring permanent disposal.

Mixed Waste Inventory

The FFCAct requires all DOE sites that generate or store mixed wastes to inventory their wastes. The inventory includes current and anticipated waste volumes, waste characteristics, available treatment technologies and capacities. DOE has completed the required FFCAct mixed waste inventory. The information is available in the document: *Interim National Inventory of DOE Mixed Wastes and Treatment Technologies and Capabilities* which can be reviewed at the information repositories listed on page 4 of this factsheet.

Site Treatment Plan

FFCAct requires all sites generating or storing mixed waste to develop a Site Treatment Plan. The Site Treatment Plan documents how mixed waste will be treated. Final Site Treatment Plans must be submitted to either the state regulatory agency having Resource Conservation and Recovery Act approval authority, or to the U.S. Environmental Protection Agency.

The development of a Final Site Treatment Plan takes place in three phases: Conceptual Site Treatment Plan, Draft Site Treatment Plan (which this factsheet addresses), and the Final Site Treatment Plan. This three-phase approach helps to identify and address technical, equity, and public issues.

The first phase, the Conceptual Site Treatment Plan, is a starting point for discussions with the public, state, and interested parties. It provides as much information as possible about the treatment technology needs, treatment capacity, and optional treatment technologies for the site's mixed waste. It is meant to present information for consideration rather than propose optional handling and treatment technologies.

For Site A/Plot M, the Conceptual Site Treatment Plan is submitted to the Illinois Department of Nuclear Safety and the Illinois Environmental Protection Agency (the state agency with authority) for comment. Comments on the Conceptual Site Treatment Plan are incorporated into the Draft Site Treatment Plan.

The second phase, issuance of the Draft Site Treatment Plan, presents a preferred treatment technology for treating each mixed waste at the site. Included in the Draft Site Treatment Plan is information on each waste, preferred treatment technology,

Site Treatment Plan Development Process

	OCTOBER 1993	AUGUST 1994	FEBRUARY 1995	NO DEADLINE
Plan Status	Conceptual Site Treatment Plan	Draft Site Treatment Plan	Final Site Treatment Plan	Compliance Order
Review Process	Submitted to Illinois Department of Nuclear Safety and Illinois Environmental Protection Agency for comment	Submitted to Illinois Department of Nuclear Safety and Illinois Environmental Protection Agency for comment Public comment requested	Submitted to Illinois Department of Nuclear Safety and Illinois Environmental Protection Agency for approval Public review and comment period	Sites must be in compliance with approved Site Treatment Plans by October 1995

treatment facility location, and volume of waste to be treated. Schedules of when technologies will be available are also listed in the Draft Site Treatment Plan.

DOE will submit the Draft Site Treatment Plan to regulatory agencies for review. The public, state, and any other interested parties are encouraged to comment on the Draft Site Treatment Plan.

The third phase, issuance of the Final Site Treatment Plan, states the treatment technologies preferred by the site for each waste. The Final Site Treatment Plan incorporates comments made on the Draft Site Treatment Plan. Once the Final Site Treatment Plan is submitted to the Illinois Department of Nuclear Safety Illinois Environmental Protection Agency, they will make it available for public review and comment before moving to the final action, which is drafting of the Compliance Order. The Compliance Order documents compliance conditions and milestones for treatment of mixed waste at the site.

Public Comment Period

Comments on the Draft Site Treatment Plan will be accepted from September 1, 1994 through October 31, 1994

What is in the Site A/Plot M Draft Site Treatment Plan?

A Draft Site Treatment Plan has been developed for Site A/Plot M. Because no mixed waste is currently stored or generated at Site A/Plot M, the Draft Site Treatment Plan focuses on mixed waste and mixed waste volumes that are expected to be generated as a result of environmental restoration activities. The Draft Site Treatment Plan identifies currently preferred technologies for treating the mixed waste at Site A/Plot M. In this Draft Site Treatment Plan, Site A/Plot M included the preferred treatment technologies. These technologies resulted from Site A/Plot M's review of various alternative treatment approaches and discussion with technical staff at other DOE and commercial treatment facilities. This approach is referred to as "bottom-up." This Draft Site Treatment Plan was prepared using the "bottom-up" approach and has not been evaluated for potential impacts associated with other DOE sites and the overall DOE Program.

Although Draft Plans for other applicable DOE sites identify currently preferred treatment technologies for mixed waste, the Site A/Plot M Draft Site Treatment Plan identifies possible treatment technologies. Until wastes present can be identified, characterized, and the volume determined, preferred technologies can not be identified.

Approximately 500 cubic meters (m^3) of unspecified mixed low-level radioactive waste is expected to be generated during environmental restoration activities. Inorganic debris, and radionuclides and heavy metals in soil are expected mixed waste sources. Treatment technologies for this waste (on- or off-site) may include:

- Soil Washing
- Organic Destruction
- Decontamination by Liquid Abrasion Blasting
- Decontamination by Chemical Methods
- Incineration (off-site only)
- Smelting
- Pretreatment/Packaging by Shredding or Compaction

The Final Site Treatment Plan will be updated to include preferred treatment technologies as additional waste characterization information becomes available.

The Draft Site Treatment Plan was submitted to the Illinois Department of Nuclear Safety and the Illinois Environmental Protection Agency for comment. The public is encouraged to read and comment on mixed waste treatment technologies being considered for Site A/Plot M.

How Can I Be Involved?

Public Participation on the Draft Site Treatment Plan can lead to a more complete identification and consideration of issues and treatment technologies.

The Draft Site Treatment Plan and the Conceptual Site

Reference Materials

(continued from page 3)

Treatment Plan are available at the following locations:

Bridgeview Public Library
7840 W. 79th Street
Bridgeview, IL
(708) 458-2880

Bedford Park Public Library
7816 W. 65th Place
Bedford Park, IL
(708) 458-6826

University of Illinois Library
Documents Department
3rd Floor Center
801 S. Morgan Street
Chicago, IL
(312) 413 2594

Additional copies of the Draft Site Treatment Plan will be available upon request to Ms. Acke, Public Participation Coordinator, who can be reached at the address and telephone number below.

Comments on the Draft Site Treatment Plan will be accepted from September 1, 1994 through October 31, 1994 and should be directed to:

Ms. Mary Jo Acke
Public Participation Coordinator
U.S. Department of Energy
Chicago Operations Office
Office of Public Accountability
9800 South Cass Avenue
Argonne, IL 60439
(708) 252-8796

What Additional Information is Available on the FFCAct?

DOE has the following additional FFCAct information available:

- *General Information on Mixed Wastes and Types of Treatment Technology*
- *Site Treatment Plan Process*
- *How Mixed Waste Disposal is Involved in the Site Treatment Plan Process*
- *Relationships Between the EM (Office of Environmental Management) Programmatic Environmental Impact Statement and the FFCAct*
- *Technical Evaluation Process to Determine Preferred Treatment Options Identified in the Conceptual Site Treatment Plan.*

Please call 1-800-736-3282 to request copies of any of these publications.

Request for Public Comments on the U.S. Department of Energy's Site Treatment Plan

September 1994

The 60-day public comment period for Federal Facilities Compliance Act Draft Site Treatment Plans will end October 31, 1994. The U.S. Department of Energy (DOE) encourages you to comment on the Draft Site Treatment Plan located in the Information Repository listed below.

Your comments will be considered before the Site Treatment Plan is finalized. DOE will review and provide a response to all written comments. Please use the space below or use your own paper to write your comments on the draft Plan. When finished, fold this sheet in half and staple.

Site A/Plot M

Bedford Park Public Library
7816 West 65th Place
Bedford Park, IL 60510
(708) 458-6826

Bridgeview Public Library
7840 West 79th Street
Bridgeview, IL 60455
(708) 458-2880

Comments: _____

_____

_____

_____

_____

_____

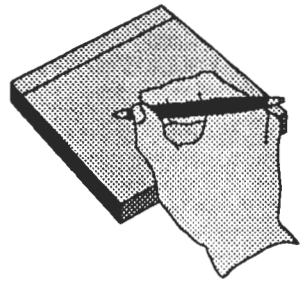
Optional:

Name _____

Address _____

City _____ State _____

Zip _____



Staple

Postage Required

Mary Jo Acke
Public Participation Coordinator
U.S. Department of Energy
Chicago Operations Office
Office of Public Accountability
9800 South Cass Ave
Argonne, IL 60439

The Federal Facility Compliance Act of 1992 (the Act) provides an unprecedented opportunity for the Department of Energy (DOE) to work with the public and regulators to resolve a long-standing issue - finding a solution to the treatment and disposal of mixed radioactive and hazardous waste now being stored or generated at DOE sites. Treatment may involve both simple and complex physical and chemical processes. The Act directs DOE to prepare a plan for developing mixed waste treatment capacities and technologies for each site where DOE generates or stores mixed waste. The DOE Oakland Operations Office is responsible for preparing a Treatment Plan for a small amount of DOE mixed waste at the University of Missouri. The Treatment Plan for this site will be submitted to the Missouri Department of Natural Resources (MDNR). If not in compliance with an approved plan, DOE facilities could face fines and penalties from the MDNR after October, 1995 for violations of the Resource Conservation and Recovery Act Land Disposal Restrictions. The Draft Plans identify site preferred options for treating mixed waste. The Draft Plans were prepared using the "bottom-up" approach and have not been evaluated for potential impacts associated with other DOE sites and the overall DOE program. This Fact Sheet has been developed by DOE for members of the public who may be affected by, or interested in participating in, DOE's upcoming decisions relating to mixed waste.

EFCA FACT SHEET 1

Federal Facility Compliance Act

Questions and Answers

What is the Federal Facility Compliance Act?

The Federal Facility Compliance Act (the Act) makes Federal facilities subject to potential fines and penalties for violations of the Resource Conservation and Recovery Act, the law that sets requirements for the management of hazardous waste. It also requires the Department of Energy (DOE) to:

(1) prepare and submit a national inventory report to the regulators identifying its mixed waste volume, characteristics, treatment capacity and available technologies; and

(2) prepare Site Treatment Plans for developing the needed treatment capacity and treating the mixed waste to meet the Resource Conservation and Recovery Act Land Disposal Restrictions.

These plans will be developed for each site at which DOE generates or stores mixed waste. The Missouri Department of Natural Resources (MDNR) will review and approve the Plan for the University of Missouri Research Reactor. The MDNR may approve, approve with modifications, or disapprove a Site Treatment Plan. Once DOE has an approved plan for each site, the MDNR will issue an order requiring DOE and the site to comply with the plan.

Who develops the Site Treatment Plans?

The Department of Energy's (DOE's) main California office, the DOE Oakland Operations Office, has the lead responsibility to work with each site, the regulatory agencies, and the local public in developing the Site Treatment Plan for each site. DOE Headquarters in Washington, D.C. will be closely involved in the development of the plans to ensure that they are consistent with DOE-wide requirements. While DOE will have the lead role, active participation from regulators, the public, and other stakeholders is vitally important for DOE to develop the best plans.

Where are the sites in Missouri?

Site Treatment Plans are being developed for one facility in Missouri (see map): University of Missouri Research Reactor (MURR) in Columbia, Missouri. DOE submitted a Conceptual Plan to the Missouri Department of Natural Resources (MDNR) for the DOE mixed waste at the MURR in October 1993. In August 1994, DOE submitted a Draft Site Treatment Plan to the MDNR. The Draft Plan identifies the preferred options for treating mixed waste (see table on page 2). DOE is now seeking public input on the site's Draft Plan, and that input will be considered by DOE in preparing the site's Proposed Final Site Treatment Plan due to the MDNR in February 1995.

What is mixed waste and where did it come from?

Mixed waste includes both radioactive and hazardous waste components. Mixed waste currently in storage was generated by past Department of Energy (DOE) activities or DOE-funded operations, including the research, production, and storage of nuclear materials for the U.S. Defense Program. DOE will continue to generate mixed waste resulting from both its existing Defense and non-Defense operations. In addition, mixed waste will be generated as more DOE facilities are decontaminated and dismantled and as old burial and storage sites are cleaned up.

How much mixed waste is ther and what is in it?

The Department of Energy (DOE) currently is working to identify and characterize the types of mixed waste at each of its sites. Some sites have very small amounts (a few pounds) from specific research activities and others have large amounts (several tons) that have accumulated from decades of defense production activities. Detailed information about DOE's mixed waste can be found in the National Inventory of DOE Mixed Wastes And Treatment Technologies and Capacities published by DOE initially on April 21, 1993 and revised

in May, 1994. This report provides information on over 1,600 mixed waste streams at 50 sites in 22 states. The information includes current and anticipated waste volumes, waste characteristics, available treatment technologies and capacities, volume of waste that is subject to land disposal restrictions, and waste minimization efforts. A summary of some of this information is shown in the table on this page. More information can also be found as part of both the Conceptual Site Treatment Plan and Draft Site Treatment Plan for each facility, which are available for review at specified locations listed on page 4 of this Fact Sheet.

Why does waste need to be treated?

Waste treatment is used to protect the environment and the public's health and safety. To accomplish this, wastes are changed into a form that is more suitable for storage or disposal, reduced in volume, and/or prepared so that they will meet land disposal restriction requirements and the waste acceptance criteria of a specific storage or disposal facility. Treatment may involve both simple and complex physical and chemical processes.

Will an Environmental Impact Statement be prepared for the Site Treatment Plans?

Currently, the Department of Energy (DOE) is preparing a Programmatic Environmental Impact Statement that assesses the effects of DOE's environmental program operations nationwide, including the preparation of the Site Treatment Plans. The public will have an opportunity to comment on program-wide topics during the development of the Site Treatment Plans. Details on public participation associated with the Programmatic Environmental Impact Statement are being announced and handled separately. In addition, once final Site Treatment Plans are approved for each facility, DOE will determine whether the implementation of those plans will require further, site-specific documentation under the National Environmental Policy Act. The MDNR will determine its site-specific requirements for environmental impact evaluation.

What is MDNR's role and will they be involved in DOE's public participation activities?

The MDNR is the lead agency for the approval of the FFCA Site Treatment Plan for the DOE University of Missouri Research Reactor (MURR). Upon receipt of the Proposed Final Site Treatment Plans from DOE in February 1995, the MDNR will conduct a public participation program as part of its approval process. However, during the initial phases of treatment plan development, the MDNR will limit its involvement to advising and assisting the Department of Energy (DOE) on ways to involve the public in DOE's decision-making process. These activities will include:

- Reviewing and commenting on DOE Fact Sheets developed to inform the public of the site treatment plans;
- Providing MDNR mailing lists associated with the sites involved;
- Speaking at or facilitating public meetings; and
- Reviewing and commenting on DOE's community assessment analysis.

When DOE submits its Proposed Final Site Treatment Plan to the MDNR in February 1995, MDNR will use, as part of its approval process, their regulatory authority to formally notify the public of the availability of the plans for public review before making a final decision.

How will the MDNR review DOE's treatment plans?

The MDNR is the State agency that has overall responsibility to ensure that the treatment plans for the University of Missouri Research Reactor site addresses the appropriate environmental regulatory concerns. Upon receipt of the Proposed Final Treatment Plans from the Department of Energy (DOE), the MDNR will consider the technical components of the plan along with public comments and approve, modify, or disapprove the plans. If approved, the MDNR will issue an order requiring DOE to comply with the approved plans.

When will decisions be made and who will make them?

To provide multiple opportunities for the public (and other stakeholders) to comment on and discuss the Plans, the Department of Energy (DOE) will issue the Site Treatment Plans for public review at three levels of development. A Conceptual, Draft, and Final Site Treatment Plan will be prepared for each site.

- A Conceptual Site Treatment Plan was issued October 1993.
- A Draft Site Treatment Plan was issued August 1994.
- The Proposed Final Site Treatment Plan will be issued February 1995.

DOE and the sites will prepare each plan, but the final decision regarding the acceptability of DOE's plans will be made by the MDNR. Within six months after receiving the Proposed Final Site Treatment Plans, the MDNR will either approve, approve with modifications, or disapprove the final version of each plan.

How can you get involved?

The Draft Site Treatment Plan (along with the Conceptual Plans) is available for public review at the repository listed on page 4. The Department of Energy (DOE) will be accepting public comments on the Draft Plans until November 15, 1994. Comments should be sent to the DOE address listed below. In addition, you will continue to receive specific mailings from the DOE regarding the Federal Facility Compliance Act (the Act) and the development of the Site Treatment Plans, unless you ask to be removed from our mailing list. Failure to respond to this Fact Sheet will not result in the deletion of your name from the current mailing list. Finally, let us know if you belong to a community group that would like to have a presentation on the plan.

Summary of Waste Volumes and Proposed Preferred Treatment Optionsfor the University of Missouri Research Reactor

Site Name	ApproximateCurrent Volume (cubic meters)	PROPOSED PREFERRED TREATMENT OPTIONS (treatment distribution determined by percent of total current volume)
Missouri University Research Reactor (MURR)	0.5	Off-site DOE - Hanford and Waste Isolation PilotPlant (100%)

If you would like further information, fill in the coupon below and send it to :

Dave Christy
U.S. Department of Energy
Oakland Operations Office
1301 Clay Street, Suite 825N
Oakland, CA 94612 - 5208
(510) 637-1809

University of Missouri Research Reactor

RESPONSE COUPON

Please complete, clip, and send this coupon to the above address:

NAME _____

ADDRESS _____

- ☐ **Please remove my name from the mailing list to receive future information on the FFCA plans and sites.**
- ☐ **I am interested in receiving information on the FFCA site(s) in Missouri**
- ☐ **I am interested in receiving the following information/notices regarding FFCA activities for each site indicated above:**
  - ☐ Future Fact Sheets
  - ☐ Public Meetings
  - ☐ Workshops
  - ☐ Open Houses
  - ☐ Community Interviews
  - ☐ Group Speakers

COMMENTS: _____

U.S. Department of Energy Fact Sheet No.1 - September 1994

Treatment Plan Repositories

- Columbia Public Library (314-443-3161) on West Broadway in Columbia, Missouri: Plan for University of Missouri Research Reactor

U.S. Department of Energy
Oakland Operations Office
1301 Clay Street, Suite 825N
Oakland, CA 94612

Department of Energy
Oak Ridge Operations
Weldon Spring Site
Remedial Action Project Office
7295 Highway 94 South
St. Charles, Missouri 63304

WELDON SPRING SITE REMEDIAL ACTION PROJECT

DRAFT SITE TREATMENT PLAN

FACT SHEET

The Weldon Spring Department of Energy site is located in St. Charles County, Missouri, about 30 miles west of St. Louis. The site consists of two geographically distinct areas: the 217-acre chemical plant area and a 9-acre limestone quarry, which is about 4 miles south-southwest of the chemical plant area.

Chemical Plant features include about 40 buildings (most now dismantled), four raffinate pits, two ponds (Ash Pond and Frog Pond), and two former dump areas (North Dump and South Dump). The raffinate pits constitute the most heavily contaminated area and contain about 150,000 m^3 of sludge and a combined average 216,000 m^3 of water. In addition, some drums and rubble were disposed of primarily in the fourth pit.

The U.S. Environmental Protection Agency (EPA) listed the quarry on the National Priorities List (NPL) in 1987, and the chemical plant area was added to this listing in 1989. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Record of Decision (ROD) for the quarry was signed by the EPA in September 1990 and by the DOE in March 1991. The ROD for remediation of the chemical plant area was signed in September 1993.

The inventory of mixed low-level waste (MLLW) at the Weldon Spring site is composed almost entirely of containerized materials resulting from consolidation and containerization of waste chemicals abandoned at the facility. Mixed waste is waste that contains both radioactive and hazardous components. Wastes in this current inventory have been characterized by a combination of process knowledge and sampling and analysis. Additional waste will be generated over the next 5 years from operations of the 2 on-site water treatment plants, excavation of wastes from the quarry, and from other waste cleanup and consolidation activities.

The Federal Facility Compliance Act (FFCA) requires DOE sites prepare site treatment plans describing the development of treatment capacities and technologies for treating mixed waste. The plan is developed in three phases: (1) a "Conceptual Site Treatment Plan" - completed in October 1993,

(2) a "Draft Site Treatment Plan" - completed in August 1994, and (3) a "Final Site Treatment Plan" - to be completed in February 1994. The FFCA requires the State to approve, approve with modification, or dissaprove the Weldon Spring site's final plan after considering public comments and consulting with affected states and the EPA.

The Chemical Plant ROD addresses remedial action of the chemical plant wastes. A major component of this remedy includes on-site treatment of contaminated sludge, soils and sediment, structural material, vegetation, and the residuals from the water treatment plant in a chemical stabilization/solidification facility on site. Treated waste, which no longer exhibits a hazardous characteristic, will be disposed in an engineered disposal cell facility on site.

A large quantity of the mixed wastes included in the WSS mixed waste inventory are amenable to treatment by the chemical stabilization/solidification process. Several mixed waste streams are amenable to treatment in the site water treatment plant with pretreatment by the mobile water treatment plant. The remainder of the mixed wastes are either organics requiring thermal destruction or miscellaneous wastes requiring other types of treatment. The following table summarizes the mixed waste treatability groupings and quantities with the proposed treatment option(s):

Water Treatment Plant	**Chemical Stabilization/ Solidification**	**Oxidation On-site or Incineration Offsite**	**Other**
Aqueous Liquids ($19.4\ m^3$)	Inorganic Sludges/ Particulates ($358.9\ m^3$) Inorganic Debris/Metal/ Batteries ($1360.2\ m^3$) Contaminated Debris ($14\ m^3$)	Organic Liquids ($54.2\ m^3$) Organic Sludges ($3.7\ m^3$)	Liquid Mercury (Amalgamation) ($.4\ m^3$) Reactives/ Oxidizers (Deactivation) ($21.5\ m^3$)

These treatment remedies follow from the site's CERCLA ROD. On-site treatment is preferred if it is cost effective compared to off-site alternatives. Details on any of the treatment options or probable treatment schedules are available from the site. The DOE contact is Tom Pauling at 314-441-8978.

West Valley Demonstration Project

Addressing Management/Treatment of Mixed Waste

What is the WVDP?

The WVDP is a federal Department of Energy (DOE) environmental and waste management project being conducted at a New York State owned site near West Valley, New York. The goal of the Project is to solidify liquid high-level radioactive waste stored at the site into a durable, solid glass form suitable for shipment to a federal repository, and clean up and close the facilities used.

Currently the WVDP is storing all radioactive wastes generated by cleanup, site maintenance or waste processing activities. This includes mixed wastes which contain both radioactive and hazardous components. The Federal Facilities Compliance Act (Act) was passed in 1992 specifically to address the management and treatment of mixed wastes.

What does the Act require?

The Act requires all Department of Energy facilities storing mixed wastes to develop treatment plans for these materials. The DOE is developing site plans in three steps: (1) a "Conceptual Site Treatment Plan" - completed in October 1993 and distributed for public review, (2) a "Draft Site Treatment Plan" - to be completed and distributed for public review in September 1994, and (3) a "Final Site Treatment Plan" - scheduled for release in February 1995.

The WVDP Draft Site Treatment Plan will identify currently preferred options for treating the mixed wastes at the site. The DOE will review the Draft Site Treatment Plans from all sites storing mixed wastes to evaluate potential impacts to individual sites and the overall DOE program. Therefore the preferred options identified in the WVDP Draft Site Treatment Plan may change based on the DOE-wide review.

How much mixed waste is stored at the WVDP?

Below are listed the mixed waste volumes currently stored at the WVDP. The wastes are identified by radioactive waste category.

High-Level Waste	10,206 cubic feet
Low-Level Waste	581 cubic feet
Transuranic Waste	4 cubic feet

P.O. Box 191 West Valley, New York 14171-0191 716-942-4610

Where does the mixed waste come from?

All of the high-level mixed waste and the majority of the low-level and transuranic mixed wastes are the result of spent nuclear fuel reprocessing conducted at the site in the 1960s and 1970s. Current project cleanup, site maintenance and waste processing activities generate a small amount of mixed waste.

Why must the mixed wastes be treated?

To comply with regulations for land disposal of hazardous materials, the hazardous components of the mixed wastes must meet specific treatment requirements. These requirements are in addition to requirements for radioactive wastes.

Treatment processes are used to change the waste into a form that is more suitable for storage and disposal and to meet the criteria of a specific storage or disposal facility.

What are the plans for treatment of WVDP mixed wastes?

The high-level waste is stored in underground steel tanks contained in concrete vaults. Solidification of the high-level waste into a durable, solid glass form is scheduled to begin at the WVDP in January 1996 and be completed in 1998.

The low-level and transuranic mixed wastes are primarily: (1) lead that has been used for shielding purposes, (2) materials used in laboratory sample analysis, and (3) radiologically contaminated oils and lubricants. The proposed methods for treating the majority of these wastes involve either removal of the radioactive materials and treatment at hazardous waste facilities or transportation to off-site commercial mixed waste treatment facilities.

How can interested organizations or individuals take part in the development of the WVDP Site Treatment Plan?

The Conceptual and Draft Site Treatment Plans are available for public review in the WVDP reading files at the libraries listed below. Copies and/or further information can be requested by contacting Ms. Elizabeth Matthews by mail at the Department of Energy, West Valley Project Office, P.O. Box 191, West Valley, New York 14171-0191 or by phone at 716/942-4930.

The Central Buffalo Public Library, Buffalo, New York

Town of Concord Hulbert Library, Springville, New York

West Valley Central School Library, West Valley, New York