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Environmental Restoration and Waste Management Site-Specific Plan for Oak Ridge Operations Office FUSRAP

New Jersey

Formerly Utilized Sites
Remedial Action Program

U.S. Department of Energy

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ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
SITE-SPECIFIC PLAN FOR
OAK RIDGE OPERATIONS OFFICE
FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM

NEW JERSEY

JANUARY 1990

Prepared for:

U.S. DEPARTMENT OF ENERGY

OAK RIDGE OPERATIONS OFFICE

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ACRONYMS

AEA	Atomic Energy Act
AEC	Atomic Energy Commission
ANL	Argonne National Laboratory
ARARs	applicable or relevant and appropriate requirements
BA	budget authority
BNI	Bechtel National, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	Department of Energy
EPA	Environmental Protection Agency
FUSRAP	Formerly Utilized Sites Remedial Action Program
FY	fiscal year
IVC	independent verification contractor
MED	Manhattan Engineer District
NPL	National Priorities List
NEPA	National Environmental Policy Act
PMC	project management contractor
QA	quality assurance
QAPmP	quality assurance program plan
RI/FS-EIS	remedial investigation/feasibility study-environmental impact study
ROD	record of decision
SARA	Superfund Amendments and Reauthorization Act
SSP	site-specific plan
TSD	Technical Services Division

1.0 INTRODUCTION

1.1 DESCRIPTION OF PROGRAM

The U.S. government initiated the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to identify, clean up, or otherwise control sites where low levels of radioactive contamination (exceeding current guidelines) remain from the early years of the nation's atomic energy program or from commercial operations causing conditions that Congress has mandated the U.S. Department of Energy (DOE) to remedy. The objectives of FUSRAP are to:

- Identify and assess all sites formerly utilized to support early Manhattan Engineer District (MED) and Atomic Energy Commission (AEC) nuclear work or other sites as designated by Congress to determine whether further decontamination and/or control is needed
- Decontaminate and/or apply controls to these sites to permit conformance with current applicable guidelines
- Dispose of and/or stabilize all generated residues in a radiologically and environmentally acceptable manner
- Accomplish all work in accordance with appropriate land-owner agreements, local and state environmental and land-use requirements to the extent permitted by federal law, applicable DOE orders, regulations, standards, policies, and procedures
- Certify the sites for appropriate future use

FUSRAP was authorized by:

1. The Atomic Energy Act of 1954 (AEA), as amended, which requires DOE (and its predecessors) to conduct its research, development, and production activities in such a manner as to protect public health and safety;
2. The Congressional Committee Reports accompanying the FY 1984 and FY 1985 Energy and Water Development Appropriations Acts, Public Laws 98-50 and 98-360, respectively, and subsequent reauthorizations that direct DOE to conduct decontamination research and development projects for four specific sites and authorize the DOE to use the former St. Louis Airport Site to stabilize waste existing thereon and for disposal of the waste from the cleanup of vicinity properties and the Latty Avenue Properties, Missouri, site.

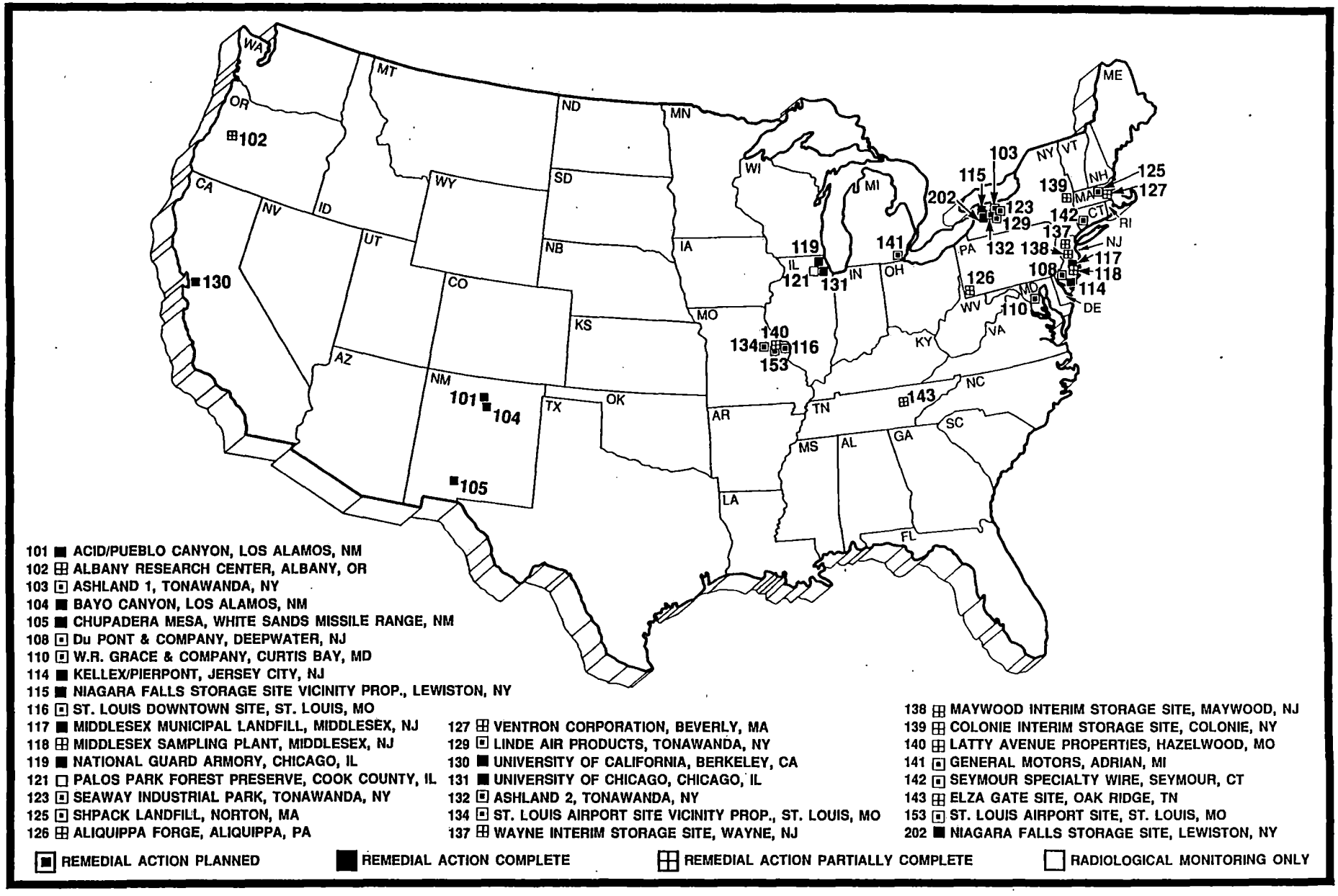
Since the inception of FUSRAP in 1974, DOE has identified over 400 privately and government-owned and operated sites that were used from the early 1940s through the early 1960s in support of the nation's atomic energy program. Most are known to have been involved in some way with processing and handling of radioactive material owned by the government. Through review of operational records from that period and analysis of information from other sources, over 350 of these sites have been eliminated from consideration under FUSRAP. As of September 1989, 30 sites at which DOE has authority to proceed have been identified as requiring some form of remedial action, and one other site has been identified as requiring radiological surveillance to monitor the effectiveness of past remedial actions conducted by DOE's predecessor agencies. Sites may be added to FUSRAP based on (1) the results of ongoing radiological surveys, health and safety evaluations, and review of authority being conducted by DOE and (2) legislative actions.

FUSRAP activities have been under way since 1974, with remedial action beginning on a limited basis in 1979. Remedial action has been completed at 9 of the 30 currently authorized sites and has been initiated at 8 other sites. Preliminary engineering has been partially completed for 3 of the remaining 13 authorized sites.

The FUSRAP and SFMP sites are categorized into four groups: New York sites, New Jersey sites, Missouri sites, and other sites. Figure 1 shows the locations of all the sites.

Figure 2 is provided to show the overall costs for FUSRAP sites, including costs for DOE Headquarters and Argonne National Laboratory (ANL) activities--which pertain to all four site groups.

This site-specific plan (SSP) pertains to the FUSRAP sites in New Jersey; the locations of which are shown in Figure 3. An overview of these sites is provided in Subsection 1.2.



101 ■ ACID/PUEBLO CANYON, LOS ALAMOS, NM
102 ⊞ ALBANY RESEARCH CENTER, ALBANY, OR
103 ⊡ ASHLAND 1, TONAWANDA, NY
104 ■ BAYO CANYON, LOS ALAMOS, NM
105 ■ CHUPADERA MESA, WHITE SANDS MISSILE RANGE, NM
108 ⊡ Du PONT & COMPANY, DEEPWATER, NJ
110 ⊡ W.R. GRACE & COMPANY, CURTIS BAY, MD
114 ■ KELLEX/PIERPONT, JERSEY CITY, NJ
115 ■ NIAGARA FALLS STORAGE SITE VICINITY PROP., LEWISTON, NY
116 ⊡ ST. LOUIS DOWNTOWN SITE, ST. LOUIS, MO
117 ■ MIDDLESEX MUNICIPAL LANDFILL, MIDDLESEX, NJ
118 ⊞ MIDDLESEX SAMPLING PLANT, MIDDLESEX, NJ
119 ■ NATIONAL GUARD ARMORY, CHICAGO, IL
121 □ PALOS PARK FOREST PRESERVE, COOK COUNTY, IL
123 ⊡ SEAWAY INDUSTRIAL PARK, TONAWANDA, NY
125 ⊡ SHPACK LANDFILL, NORTON, MA
126 ⊞ ALIQUIPPA FORGE, ALIQUIPPA, PA
127 ⊞ VENTRON CORPORATION, BEVERLY, MA
129 ⊡ LINDE AIR PRODUCTS, TONAWANDA, NY
130 ■ UNIVERSITY OF CALIFORNIA, BERKELEY, CA
131 ■ UNIVERSITY OF CHICAGO, CHICAGO, IL
132 ⊡ ASHLAND 2, TONAWANDA, NY
134 ⊡ ST. LOUIS AIRPORT SITE VICINITY PROP., ST. LOUIS, MO
137 ⊞ WAYNE INTERIM STORAGE SITE, WAYNE, NJ
138 ⊞ MAYWOOD INTERIM STORAGE SITE, MAYWOOD, NJ
139 ⊞ COLONIE INTERIM STORAGE SITE, COLONIE, NY
140 ⊞ LATTY AVENUE PROPERTIES, HAZELWOOD, MO
141 ⊡ GENERAL MOTORS, ADRIAN, MI
142 ⊡ SEYMOUR SPECIALTY WIRE, SEYMOUR, CT
143 ⊞ ELZA GATE SITE, OAK RIDGE, TN
153 ⊡ ST. LOUIS AIRPORT SITE, ST. LOUIS, MO
202 ■ NIAGARA FALLS STORAGE SITE, LEWISTON, NY

■ REMEDIAL ACTION PLANNED
■ REMEDIAL ACTION COMPLETE
⊞ REMEDIAL ACTION PARTIALLY COMPLETE
□ RADIOLOGICAL MONITORING ONLY

FIGURE 1 LOCATIONS OF FUSRAP SITES

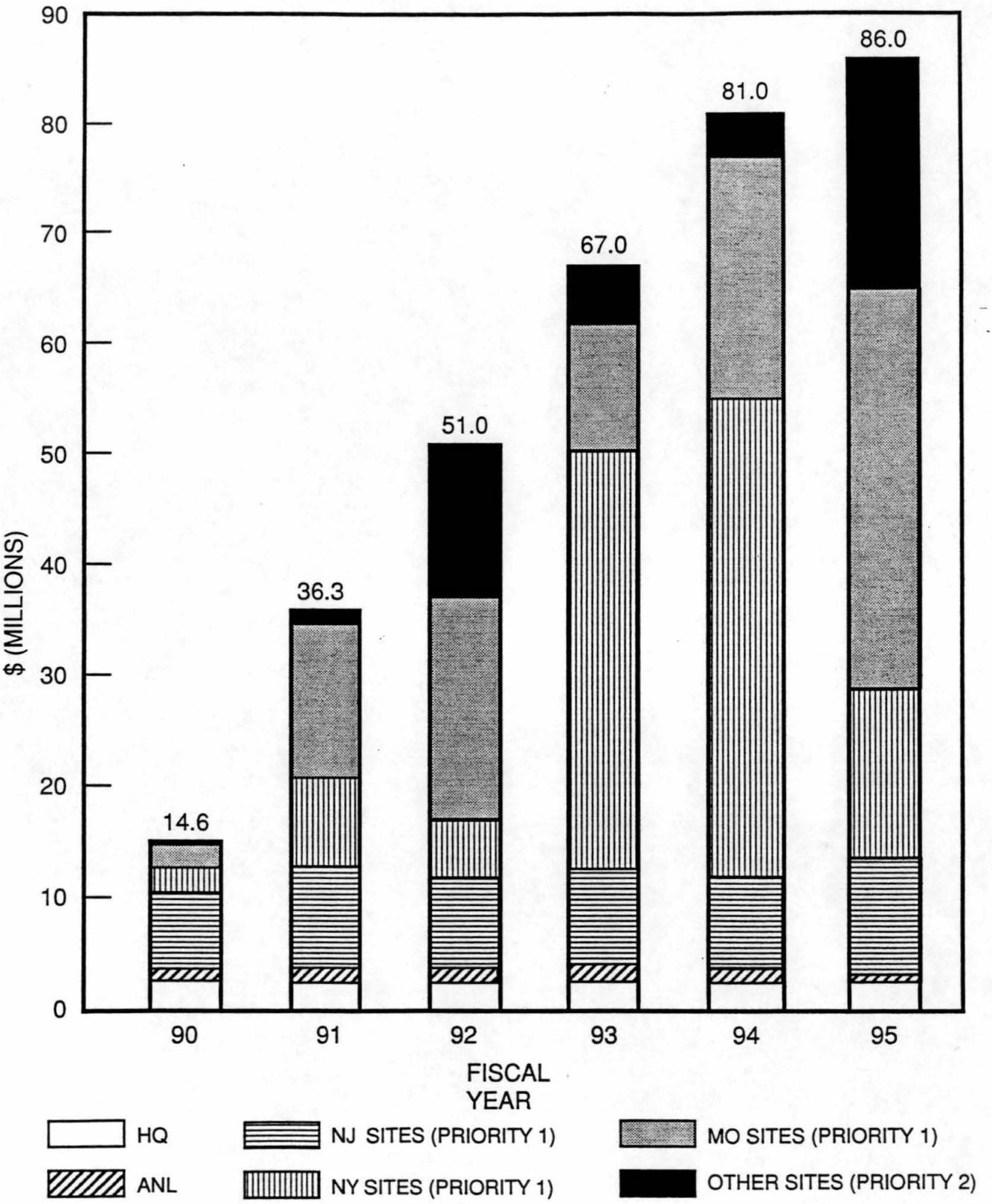


FIGURE 5 BUDGET (BA) BY FISCAL YEAR

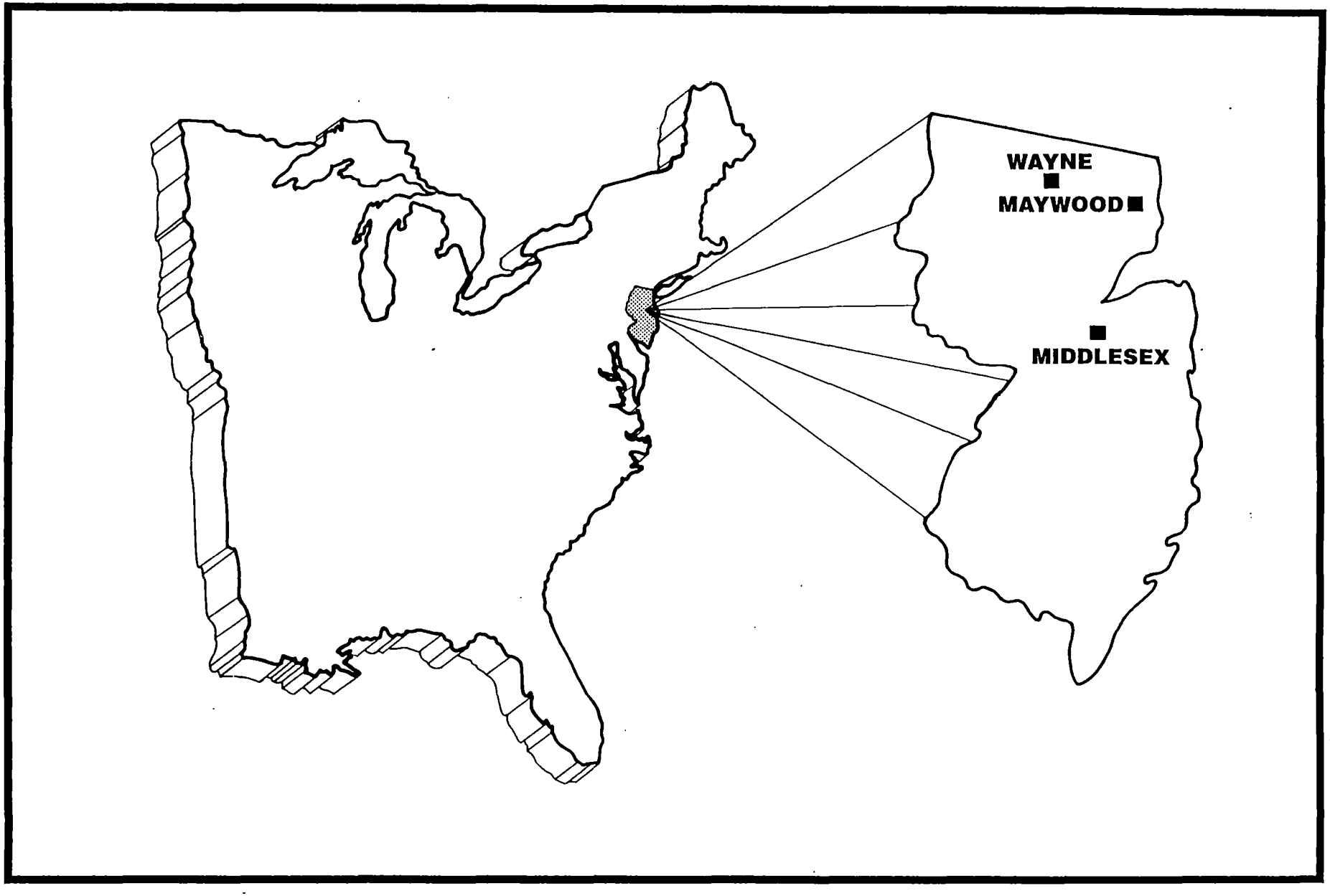


FIGURE 3 LOCATIONS OF NEW JERSEY SITES

1.2 ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT OVERVIEW

This SSP addresses the assessment and cleanup activities to be conducted at FUSRAP sites in the State of New Jersey. These include:

- o Wayne
- o Maywood
- o Middlesex

The DuPont & Company site in Deepwater, New Jersey, has also been designated as a FUSRAP site. However, no FUSRAP activities presently are planned at this site over the next five-year period; it is therefore not discussed in this SSP. The sites covered by this SSP are described in detail in site plans, provided as Appendices A, B, and C.

Also included as part of the SSP is the plan for the disposition of New Jersey FUSRAP wastes. A site plan for waste disposition is also included in this document as Appendix D.

The Wayne, Maywood, and Middlesex sites have been radiologically surveyed, and results have shown that they are radioactively contaminated above DOE guidelines. In some areas, removal actions have also occurred. For specifics regarding the present condition and past actions at each site, please refer to the site plans.

Radioactive contamination at these sites consists primarily of low concentrations of uranium, radium, and thorium mixed in soil. Contamination varies in extent and depth but is often present on the ground surface. Concentrations range from DOE guidelines to over 1,500 times the guidelines. Since all these sites are located in urban areas, the general public has uncontrolled access to properties adjacent to the contaminated areas; in many cases, the contaminated areas themselves are not controlled. Since the areas

are accessible, the public can be exposed to radiation by direct exposure, inhalation of suspended radionuclides, inhalation of radon isotopes, or ingestion of radionuclides. Pathways of exposure may include inhalation of dust resuspended by wind or mechanical disturbances, ingestion of food after uptake of radionuclides via the root system or direct deposition, direct ingestion of soil, ingestion of contaminated water, inhalation of inert gases, or direct exposure to beta and/or gamma radiation.

The major FUSRAP objectives for the New Jersey sites are to assess levels of contamination and to clean up the sites as quickly as possible. Specific objectives are described in this plan in Section 5.0, Environmental Restoration.

2.0 REQUIREMENTS FOR IMPLEMENTATION

DOE has authority under AEA, as amended, to undertake radiological surveys and other research work, including radiological monitoring, at sites formerly utilized to support the nuclear activities of DOE's predecessor agencies. DOE also has authority under that act to conduct remedial actions at 25 of the sites identified to date as requiring some form of remedial action. Public Law 98-50, the FY 1984 Energy and Water Development Appropriations Act, authorized DOE to conduct a decontamination research and development project at four sites: Wayne/Pequannock, New Jersey; Maywood, New Jersey; Colonie, New York; and Latty Avenue Properties, Missouri.

Public Law 98-360, the FY 1985 Energy and Water Development Appropriations Act, authorized DOE to acquire title to the St. Louis Airport Site, Missouri, and to perform necessary remedial action and develop the property as a disposal site for the waste already there, waste from vicinity properties, and the waste from Latty Avenue Properties, consistent with appropriate regulatory requirements and in a manner satisfactory to the City of St. Louis. Continued authorization has been provided each year in the passage of the subsequent Energy and Water Development Appropriations Act.

Latty Avenue Properties, the St. Louis Airport Site, and their vicinity properties were added to the National Priorities List (NPL) as one site by the Environmental Protection Agency (EPA) in October 1989. The Wayne/Pequannock and Maywood, New Jersey, sites and their vicinity properties were added to the NPL as two sites by the EPA in December 1982 and September 1983, respectively.

Since FUSRAP manages sites on the NPL, sites on the federal facilities docket, and inactive sites with hazardous substances, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) also acts as a regulatory driver. Conducting remedial investigations and feasibility studies, selecting remedial action alternatives in records of decisions (ROD), and implementing the ROD

through remedial design and remedial action is mandated under CERCLA. Subsection 3.2.5, Section 7.0, and the site plans in the appendices describe the CERCLA process.

3.0 ORGANIZATION/MANAGEMENT

3.1 ORGANIZATION

FUSRAP falls under the purview of DOE's Special Assistant to the Secretary for Coordination of DOE Waste Management. The Deputy Assistant Secretary for Environmental Restoration is responsible for formulating policy, program implementation, and budget formulation for FUSRAP. Technical, administrative, and financial management of FUSRAP field activities is the responsibility of the Technical Services Division (TSD) of the DOE Oak Ridge Operations Office (ORO).

ANL assists DOE in preparing environmental compliance documentation required by the National Environmental Policy Act (NEPA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA). As part of its role, ANL provides independent analyses of the environmental impacts of remedial action alternatives proposed for a site.

Bechtel National, Inc. (BNI), the FUSRAP project management contractor (PMC), is responsible to TSD for planning and implementing FUSRAP activities. BNI analyzes site conditions and plans, analyzes, engineers, and recommends to TSD remedial actions for FUSRAP sites. Upon approval from TSD, BNI executes remedial action as required in accordance with DOE guidance. Technical support is provided by ANL, which also performs radiological surveillance and monitoring activities at the Palos Park, Illinois, site. ANL was also assigned the task of performing remedial action at the University of Chicago site. Oak Ridge National Laboratory also provides technical and scientific assistance to FUSRAP, including completion of site designation surveys. Oak Ridge Associated Universities performs independent verification surveys.

A FUSRAP organization chart is included as Figure 4. The relationships and interfaces of the various organizations and their

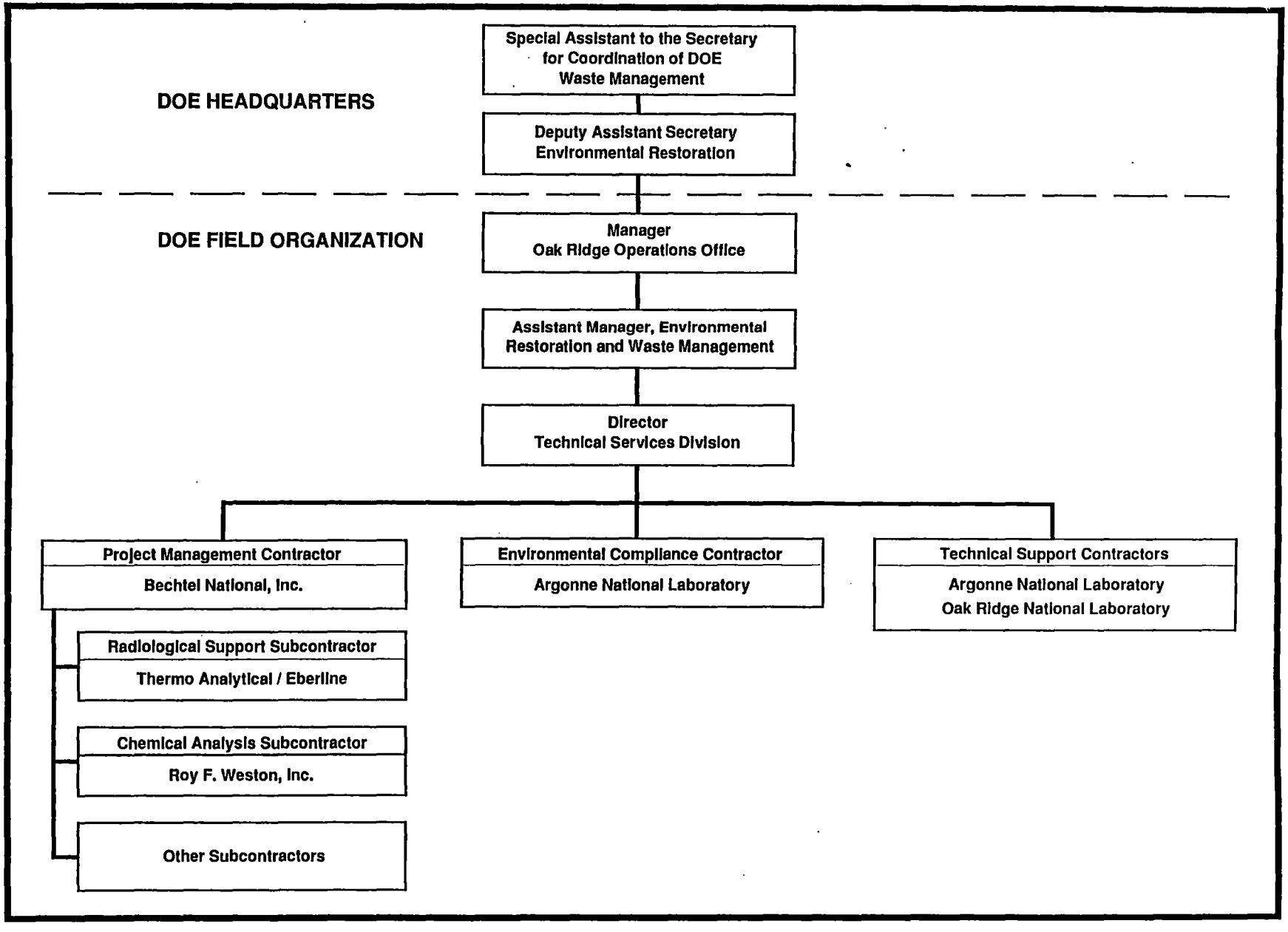


FIGURE 4 PROJECT ORGANIZATION

roles in coordinating the activities to be performed under this SSP are described in Subsection 3.2, Management.

3.2 MANAGEMENT

Although each FUSRAP site has different characteristics, there is a general sequence of events to be accomplished to perform the activities required for environmental restoration. These steps, and the roles and responsibilities of management in coordinating the activities to be performed, are described below. Figure 5 illustrates the various steps and the management organization responsible for each. In addition, management monitors cost, schedule, and technical performance through reporting relationships, as outlined in Section 8.0.

3.2.1 Step 1: Identify Site and Determine Authority for Remedial Action

The objective of this step is to identify and locate potentially contaminated sites used in the MED and AEC programs prior to 1974 (sponsoring programs are responsible after that date) and to determine, on a site-by-site basis, whether DOE has authority to proceed with remedial action. The identification and location of sites are accomplished by researching records and reviewing information submitted by the public or industry in response to specific requests. Records such as contract files and title transfer documents are reviewed to determine whether or not sufficient AEA authority exists for DOE to conduct remedial action on the site. Sites under DOE authority will receive further review in Step 3 to determine whether or not there is a need to conduct remedial action to protect public health and safety. If no authority exists for the site, the process moves to Step 2 where the site is removed from further consideration under FUSRAP. DOE Headquarters is responsible for determining FUSRAP authority and the potential need to conduct remedial action at the site.

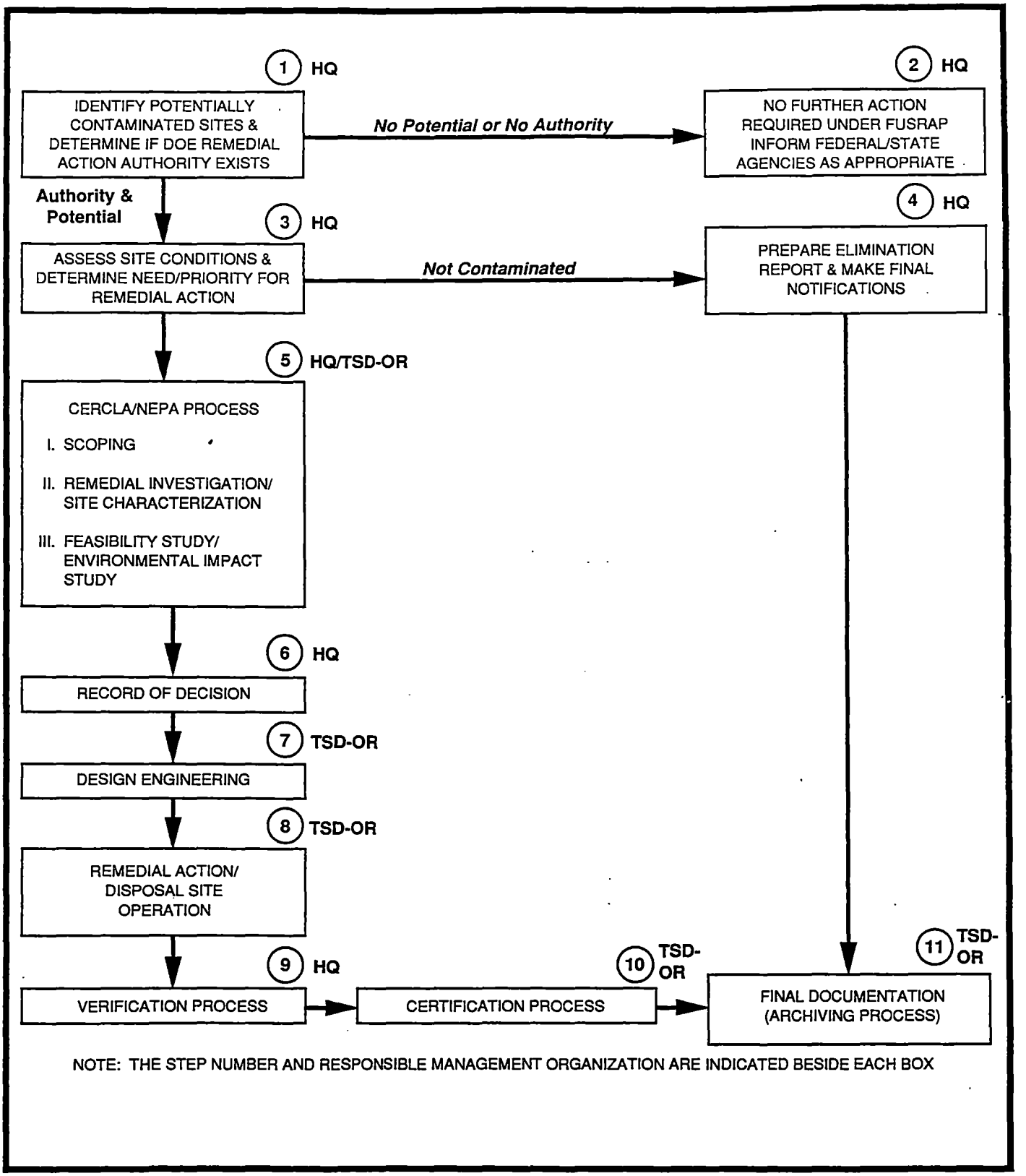


FIGURE 5 BASIC STEPS IN THE DOE REMEDIAL ACTION PROCESS

3.2.2 Step 2: If No Further Action Required Under FUSRAP, Inform Federal/State Agencies As Appropriate

If authority does not exist, if there is no potential for radiological contamination, or if the site is being addressed by another remedial action program or is under the regulatory authority of another agency, these findings are documented and the site is not considered further for inclusion in FUSRAP. When no DOE authority under FUSRAP exists for a site that has been reviewed and at which there is an indication of radioactive contamination exceeding current guidelines, the site will be referred by DOE Headquarters to the EPA, Nuclear Regulatory Commission, or other federal or state agencies as appropriate, and all pertinent DOE information on the site will be provided.

3.2.3 Step 3: Assess Radiological Condition and Determine Need/Priority for Remedial Action

If existing documentation or radiological data are inadequate for DOE Headquarters to determine the possible need for remedial action at a site for which DOE has authority, DOE Headquarters will direct that a radiological survey of the site be performed, taking into account the past and current activities at the site and potential contamination. When the field work is completed, a radiological survey report will be prepared that characterizes the radiological condition of the site and compares this condition to current guidelines. The past documentation and the radiological survey report are evaluated and provide the basis for determination by DOE Headquarters as to whether there is a potential need for remedial action to remove or reduce residual radioactive materials to levels that conform to applicable guidelines. Data on the current use of the site and its surroundings are considered together with the radiological condition of the site to assess the relative risk to public health and to establish a potential need and priority for remedial action. If the assessment of the site concludes that remedial action is required, DOE Headquarters designates the site and the process moves to Step 5 for implementation of the

environmental compliance process. If the assessment of the site concludes that remedial action is not required, the process moves to Step 4 where the elimination procedure is implemented.

3.2.4 Step 4: Prepare Elimination Report and Make Final Notifications

When the DOE Headquarters assessment of the site conditions in Step 3 determines that no remedial action is required, DOE Headquarters directs that a report be prepared that documents this finding. This report is forwarded by DOE Headquarters to the site owner and appropriate state and federal agencies, and DOE Headquarters eliminates the site from further FUSRAP activities.

3.2.5 Step 5: CERCLA/NEPA Process

DOE established a policy to integrate CERCLA and NEPA because both had similar requirements. The NEPA requirements are outlined in the Council on Environmental Quality regulations, implementing DOE guidelines (52 FR 47667) and DOE Order 5480.14. CERCLA is outlined in 40 CFR 300.68. With the enactment of SARA, specific responsibilities of federal agencies for cleanup activities were clarified. Subsequently, DOE developed a strategy to comply with the requirements of both CERCLA and NEPA. DOE Notice 5400.4 (Integration of Environmental Compliance Processes) is the primary directive for integrating planning and environmental review requirements for remedial action projects under both CERCLA and NEPA. Where DOE remedial actions under CERCLA trigger the procedures set forth in NEPA, it is DOE policy to integrate the procedural and documentation requirements of NEPA into the CERCLA process wherever practical.

The CERCLA/NEPA compliance process is generally separated into three phases for sites on EPA's NPL: Phase I, Scoping, is the planning for characterization and public participation. Phase II, Remedial Investigation/Site Characterization, is the collection of necessary

data to identify the type of contamination, extent and/or boundaries of the contamination, and effects on the environment. Phase III, Feasibility Study/Environmental Impact Study, is the development and analysis of remedial action alternatives. Cost estimates will be developed for the alternatives. Applicable or relevant and appropriate requirements (ARARs) will be identified, and extensive public participation will occur throughout the CERCLA/NEPA process. The culmination of the CERCLA/NEPA process is documented in the remedial investigation/feasibility study-environmental impact study (RI/FS-EIS). For sites not on the NPL, less extensive document development is required. The basic process, however, is the same in that planning, site characterization, and development and analysis of remedial action alternatives are completed.

TSD primarily manages these steps of the process. DOE Headquarters provides oversight of the process and review of the documents for compliance with CERCLA and NEPA.

3.2.6 Step 6: Record of Decision

The ROD is a formal selection of the preferred remedial action alternative by DOE Headquarters, in consultation with EPA and state authorities. For sites on the NPL, the remedy is selected by EPA. The selection is based on all factors described in the National Contingency Plan, including cost, health risks, environmental impact, benefits, and public and state acceptance. The preferred alternative selected in the ROD is based largely on the analyses documented in the RI/FS-EIS that is prepared by TSD. If the "no action" alternative is selected, the process will proceed directly to Step 10 to begin certification.

3.2.7 Step 7: Design Engineering

Design engineering to implement the selected remedial action is performed by TSD. Detailed cost estimates, work plans, drawings,

specifications, and schedules for the remedial action are developed. The design engineering will comply with ARARs to the degree possible and will implement the ROD.

3.2.8 Step 8: Remedial Action/Disposal Site Operation

Remedial action is performed by TSD in accordance with the engineering design (Step 7). In some cases, a disposal site will be developed, operated, and closed for waste from single or multiple sites. Step 8 includes the surveillance and maintenance of such storage or disposal sites, if not provided for under other DOE programs. During and upon completion of the remedial action, radiological measurements are taken and documented to guide and verify the effectiveness of the remedial action. Upon completion of the remedial action, a post-remedial action report is prepared by TSD documenting the entire remedial action effort and the final radiological condition of the site. The results presented in this report and from the verification process (Step 9) are the primary basis for certification that the remedial action is complete.

3.2.9 Step 9: Verification Process

DOE Headquarters contracts an independent verification contractor (IVC) to review the measurements taken at the site, the measurement procedures, and the associated quality assurance data. The IVC may take separate sets of samples and/or measurements. If the IVC determines that the measurements taken verify that the levels of residual radioactive materials meet the established guidelines for release for use without radiological restrictions, and DOE Headquarters review of the certification data determines that the remedial action was successful, the site is certified by DOE Headquarters for such release. If not, either further remedial action measures will be taken by TSD, including further cleanup or stabilization, or the use of active or passive controls will be specified as appropriate.

3.2.10 Step 10: Certification Process

Certification by DOE Headquarters includes publication for the public record of all pertinent documentation that describes the process from initial review through verification. This documents the successful completion of remedial action and any continued limitations on use of the site in the state and local land records.

For sites on the NPL, EPA uses the results of the certification process to delist the site from the NPL.

Ownership by the federal government will be required to ensure control, continued monitoring, and enforcement of restrictions on remedial action disposal sites.

3.2.11 Step 11: Final Documentation

The completed record and files of activities are archived by TSD. This step completes the remedial action process for a given site.

4.0 CORRECTIVE ACTIVITIES

Corrective activities, by definition, are those activities needed to bring active and standby facilities currently out of compliance with applicable local, state, and federal requirements and internal DOE requirements into compliance in an expeditious manner. Because FUSRAP is mandated to deal with formerly utilized (no longer active) sites, corrective activities are not applicable to FUSRAP sites.

5.0 ENVIRONMENTAL RESTORATION

5.1 TASK DESCRIPTION

The general sequence of events to accomplish environmental restoration at FUSRAP sites is described in Subsection 3.2 This section of this SSP pertains specifically to the New Jersey sites and the actions to be taken there over the next five years.

There are two overall activities to be performed: assessment and cleanup. Assessment activities are ongoing and critical for determining the final remedy and its associated environmental impact. They will also aid in determining the final disposition of this material. Cleanup activities are also ongoing at the three New Jersey sites in the form of removal actions and interim waste management.

Assessment activities address the three FUSRAP sites that are radioactively contaminated in New Jersey and include all actions necessary to reach one or more RODs that formally select the cleanup alternative(s) to be implemented at these contaminated sites. For the New Jersey sites, these activities include preparation of planning/scoping documents as required by CERCLA/SARA and NEPA, performance of field investigations to characterize site conditions and the extent of the contamination, documentation of the investigation findings, evaluation of the potential cleanup alternatives via a feasibility study or engineering evaluation/cost analysis, and selection of a preferred response action.

These assessment activities are the first steps in the overall process of waste cleanup at these three sites. Without completion of these activities, the preferred alternatives cannot be selected and final cleanup activities cannot start. Therefore, the driving force behind this work is the need to initiate the process of understanding site conditions so that eventual final cleanup can begin.

Cleanup activities cover planning, design, and removal or remedial action activities related to the removal of contaminated material from the properties. Also included are surveillance and maintenance activities required to monitor and maintain the sites where contaminated material has been placed in interim storage.

The driving force behind this activity is the fact that the material is radioactively contaminated and, for the most part, is surface contamination around residences, commercial properties, and on some community recreational parks. This material represents a potential health hazard to the general public because it is not contained and controlled and can therefore be ingested, spread and/or directly expose an individual. DOE maintains an ongoing community relations program to ensure the public is aware of the status of the contaminated properties; Section 10.0 provides more detail on community relations.

The Wayne and Maywood sites are on the NPL, and CERCLA requires that DOE initiate an RI/FS for all NPL sites.

At the New Jersey sites, numerous radiological characterization and extensive cleanup activities have been performed. Some contaminated wastes have been placed in interim storage, and these interim storage areas are routinely monitored and maintained. For details on actions taken to date at each site, please refer to the appendices.

Milestones and schedules are provided in Subsection 5.3, and cost is discussed in Subsection 5.4.

5.2 RESOURCES

Standard industrial equipment and supplies are generally sufficient for accomplishment of activities at the New Jersey sites. Labor intensive efforts are generally subcontracted to qualified local or regional contractors. Any need for special equipment or uniquely trained personnel will be identified as activities progress.

Sections III and IV of the site plans (appendices to this SSP) describe activities required at each site.

5.3 SCHEDULED MILESTONES

The key milestones for the New Jersey sites that fall within the five-year planning period are listed below.

Site	Task/Activity Description	Milestone Level	Date
Wayne	Publish Off-site Certification Docket	HQ	02/90
	Issue Draft Scoping/Planning Documents to EPA	ORO	09/90
	Issue Final Draft Scoping/Planning Documents to Public	HQ	03/91
	Issue Record of Decision and Proposed Plan for Remedial Action	HQ	06/93
Maywood	Issue Draft Scoping/Planning Documents to EPA	ORO	12/89
	Issue Draft Stepan Field Investigation Plan to EPA	ORO	05/90
	Issue Final Draft Scoping/Planning Documents to Public	HQ	07/90
	Issue Final Draft Stepan Field Investigation Plan to Public	ORO	08/90
	Issue Record of Decision and Proposed Plan for Remedial Action	HQ	06/92
New Jersey Waste Disposition	Issue Site Selection Report for New Jersey Waste Disposition	ORO	03/94
	Start Field Investigation of Selected Site	Site	01/95

The detailed schedules for each New Jersey site are provided in the appropriate appendices.

5.4 COST

Specific dollar amounts for the New Jersey sites, excluding DOE Headquarters and ANL costs, by activity and year are provided in Table 1. The site plans are attached as appendices and provide more detail on planned costs for each site.

TABLE 1

NEW JERSEY SITES

(Budget Authority [$000's])

Activity	FY 1990 Amended Presid. Budget	FY 1991	FY 1992	FY 1993	FY 1994	FY 1995
Assessment	3878	1800	775	660	390	2550
Cleanup	1627	7300	7300	8020	7770	7970
TOTAL	5505	9100	8075	8680	8160	10520

References: ADS OR-0103 and OR-0104

6.0 WASTE MANAGEMENT OPERATIONS

Waste management operations embrace primarily ongoing activities throughout DOE. Because FUSRAP is mandated to deal with formerly utilized, no longer active sites, the specific requirements of waste management operations are not applicable to FUSRAP.

7.0 COMPLIANCE WITH NEPA

7.1 NEPA AND CERCLA

Since FUSRAP is a remedial action program for inactive sites, CERCLA is the primary vehicle for environmental compliance. CERCLA required documentation may include an environmental evaluation/cost analysis (EE/CA) and/or a RI/FS. DOE is also required to comply with NEPA; therefore, where DOE's remedial actions trigger the procedures mandated by NEPA, it is DOE policy to integrate CERCLA and NEPA requirements. Consistent with this approach, field actions for FUSRAP sites will typically be supported by: (1) an EE/CA with appropriate NEPA analysis and documentation, and concluded with an action memoranda or a finding of no significant impact; or (2) a RI/FS augmented with a NEPA environmental assessment or environmental impact statement leading to an ROD.

7.2 OTHER ACTIONS RELATIVE TO NEPA

Since FUSRAP is exclusively a remedial action project, substantive program field activities are typically performed pursuant to CERCLA authorities. Accordingly, there will be very few, if any, activities supported exclusively by NEPA documentation. One possible exception may be the siting, building, and operating of an off-site disposal facility.

8.0 REPORTING AND DATA MANAGEMENT

8.1 REQUIRED REPORTS

The following is a listing of FUSRAP documents routinely submitted to DOE management and state and federal regulatory agencies.

DOCUMENT DESCRIPTION	SUBMITTAL FREQUENCY	SUBMITTED TO		
		DOE	STATE	FEDERAL
Energy Systems Acquisition Plan	As required	X		X
Site Specific Plan	As required	X	X	X
Annual Fiscal Year Budget Submittal	Annually	X		X
Annual Fiscal Year Cost Proposal	Annually	X		
Fiscal Year Work Plan	Monthly	X		
Monthly Fiscal Year Baseline Milestone Status Report	Monthly	X		
Weekly Activities Report	Weekly	X		
Monthly Cost Performance Report	Monthly	X		
Monthly Cost Management Report	Monthly	X		
Monthly Progress Report	Monthly	X		
Mid-Year Accountability Report	Annually	X		
Year-End Accountability Report	Annually	X		
Annual Program Validation Report	Annually	X		X
Annual Contractor Self-Appraisal	Annually	X		
Change Control Board Meeting Minutes	Monthly	X		
Overtime Utilization Report	Monthly	X		
FUSRAP Project Procedures	As required	X		
Quarterly Report on BNI Staffing Level	Quarterly	X		
Technical Report Activity Computer System Status Report	Monthly	X		
Commitment Status Report	Biweekly	X		
Health and Safety Plans	As required	X	X	X
Accident/Incident Reports	As required	X		
Subcontract Plan for Small Business Concerns	Annually	X		
DOE Social Economic Procurement Goals	Quarterly	X		
Summary of Competition Report	Monthly	X		
Monthly Property Equipment Report	Monthly	X		
Semi-Annual Property Report	Semiannually	X		
Annual Vehicle Utilization Report	Annually	X		
Annual Vehicle Status Report	Annually	X		
Annual Space Utilization Report	Annually	X		

DOCUMENT DESCRIPTION	SUBMITTAL FREQUENCY	SUBMITTED TO DOE	STATE	FEDERAL
Monthly Transportation Report	Monthly	X		
Annual Environmental Monitoring Reports	Annually	X	X	X
RI/FS Work Plans	As required	X	X	X
Engineering Evaluation/Cost Analysis	As required	X	X	X
Quarterly Groundwater Monitoring Results to NJDEP	Quarterly	X	X	
Monthly Progress Reports to NJDEP	Monthly	X	X	
Site Characterization Reports	As required	X		
RI/FS Reports	As required	X	X	X
Annual RCRA Generator Report	Annually	X	X	X
Annual RCRA Treatment Storage and Disposal Facility Report	Annually	X	X	X
Monthly Environmental Compliance Report	Monthly	X		
Environmental Protection Appraisals	As required	X		
EPA Documentation				
o Action Description Memoranda	As required	X		
o Environmental Impact Statements	As required	X		
o Environmental Assessments	As required	X		
QA Mgt. Review Meeting Report	Monthly	X		
QA Program Procedures	As required	X		
QA Program Plan	As required	X		
Management Meeting Minutes	Biweekly	X		

8.2 MAINTENANCE OF RECORDS

FUSRAP records are maintained in an integrated document control/records management system, as specified in FUSRAP Procedure 2.1, Communications. The document control center collects, registers, reproduces, distributes, files, microfilms, and retains program records in accordance with an overall records plan. The records plan provides for microfilming of most records within six months of their issuance and distribution.

Also, a communication control register is maintained, including monitoring of open response items. Other document control registers maintained include a technical data register, design document register, subcontractor document register, and controlled distribution register. Records related to environmental compliance

and waste management are included in this system and are microfilmed. FUSRAP meets CERCLA requirements for administrative records available to the public near applicable sites; Section 10.0 of this SSP provides more detail on community relations. Indexing, updating, and maintenance of these administrative records is performed in accordance with EPA regulations and guidance.

8.3 MAINTENANCE OF SAMPLES

The radiological samples collected during FUSRAP field activities are currently being stored in a variety of locations. The main reason for sample archival, as specified in the FUSRAP summary protocol, is that the IVC is required to reanalyze a percentage of samples collected. This is performed as part of the verification process to determine the adequacy of a remedial action. Most of the radiological samples are stored at the Niagara Falls Storage Site, Middlesex Sampling Plant, and the Thermo Analytical/Eberline (TMA/E) Laboratory in Albuquerque, New Mexico. Radiological samples are segregated according to the site from which they were collected, the activity that generated them, and the groups in which they arrived at the laboratory for analysis. It is anticipated that in FY 90, archived radiological samples will be sent from their current locations to a central archive and organized accordingly. Radiological samples will be maintained in the central archive to facilitate their retrieval. A facility will be required to store samples currently in the system and those that will be collected from future activities.

Chemical samples collected during FUSRAP field activities are not archived due to degradation of sample quality, which occurs during sample storage. Samples that are radioactively contaminated are returned from the laboratory. The samples that are not radioactively contaminated are disposed of through a private licensed waste hauler.

9.0 QUALITY ASSURANCE

DOE Order 5700.6B delineates the quality assurance requirements for FUSRAP. The FUSRAP DOE Management Requirements and Policy Manual specifies in greater detail how 5700.6B (i.e., NQA-1 and EPA regulations) is to be implemented.

The FUSRAP BNI Quality Assurance Program Plan (QAPmP) provides the overall policy and guidance for meeting DOE's quality assurance (QA) program requirements (e.g., NQA-1 and DOE Order 5700.6B).

The implementing procedures for the QAPmP are contained in the following project manuals:

- Project Instructions Manual - contains procedures applicable to all project discipline groups
- Project Procurement Procedures Manual - contains applicable project procurement procedures
- Engineering Department Procedures Manual - contains procedures relating to the development, review, and approval of engineering documents
- Environmental, Safety & Health Project Instruction Manual - contains procedures for the development, review, and approval of environmental, health and safety documents
- Project Safety and Health Manual - contains procedures relating to safety and health activities
- Field Construction Manual - contains procedures relating to construction activities (e.g., field inspection, subcontractor control)
- Field Operations Manual - contains procedures that address maintenance, operation, and security activities at the project sites
- Project Procedures Manual - contains procedures that address the interaction between BNI and DOE
- Quality Assurance Department Standards - contains standards relating to QA personnel activities (e.g., QA program control, qualification of QA personnel, audits, etc.)

The procedures in the above manuals address the following:

- o documenting and approving technical procedures
- o documenting and approving test results and designs
- o conducting audits of activities
- o addressing nonconformances identified in the audits
- o reviews of procedures, plans, designs, and reports
- o acceptance criteria (i.e., a technically-acceptable indicator that an objective of a particular plan has been met)
- o control of purchased items and services
- o inspection
- o calibration and testing of instrumentation
- o control of processes
- o change authority of elements of the QAPmP and implementing plans/procedures
- o control of records

DOE conducts an annual formal audit to evaluate the PMC's implementation of the FUSRAP QAPmP. In addition, BNI's corporate management conducts an annual formal audit of the project QA program implementation. The project QA supervisor conducts an annual audit of active project sites (i.e., construction activities are in progress) and a minimum of ten surveillances of the project office activities. The project QA supervisor also conducts an annual audit of TMA/E and the Roy F. Weston, Inc., laboratories.

10.0 FEDERAL, STATE, AND LOCAL INTERACTIONS

The following list gives the status of formal agreements or consent orders currently in existence or in development between DOE and local, state, and federal regulatory agencies for the FUSRAP program in New Jersey.

Wayne, New Jersey:

- Federal facilities agreement (FFA) in negotiation with EPA. Agreements expected to be finalized by end of calendar year 1989. Agreements will set schedules and protocols for the RI/FS process and will formalize methods of interaction between DOE and EPA. FFA is enforceable with stipulated penalties.
- Ongoing community relations program as part of CERCLA/NEPA remedial action process

Maywood, New Jersey:

- FFA in negotiation with EPA. Agreements expected to be finalized by end of calendar year 1989. Agreements will set schedules and protocols for the RI/FS process and will formalize methods of interaction between DOE and EPA. FFA is enforceable with stipulated penalties.
- Memorandum of understanding in place with Borough of Maywood outlining DOE responsibilities
- Memorandum of understanding in place with Stepan Company outlining DOE and Stepan responsibilities
- Ongoing community relations program as part of CERCLA/NEPA remedial action process

Middlesex, New Jersey:

- Memorandum of understanding in place with Borough of Middlesex and the State of New Jersey outlining DOE responsibilities
- Ongoing community relations program as part of CERCLA/NEPA remedial action process

A community relations plan is developed for each active FUSRAP site, consistent with the CERCLA requirements as delineated in EPA's guidance document, "Community Relations in Superfund: A Handbook."

The community relations program includes conducting community interviews to identify local concerns and determine the information needs of the community, writing community relations plans with community input, holding public meetings and hearings, providing briefings to local officials, working with citizen interest groups, issuing news releases, conducting media briefings, and maintaining information repositories. The information repositories will include the administrative record, a CERCLA requirement to provide a wide range of documents related to the site and remedial action analysis. DOE encourages local or state officials to form citizen review boards to facilitate open communications with the public. DOE can also provide independent technical assistance to local communities.

Appendix A

Site Plan for Middlesex Sampling Plant

SITE PLAN FOR MIDDLESEX SAMPLING PLANT
MIDDLESEX, NEW JERSEY

DECEMBER 1989

Prepared for

UNITED STATES DEPARTMENT OF ENERGY

OAK RIDGE OPERATIONS OFFICE

Under Contract No. DE-AC05-81OR20722

By

Bechtel National, Inc.

Oak Ridge, Tennessee

Bechtel Job No. 14501

FOREWORD

This document is one of a series of plans, each prepared for a specific site requiring stabilization, decontamination, and/or disposal of low-level radioactive contamination under the U.S. Department of Energy (DOE) Formerly Utilized Sites Remedial Action Program. The objective of this site plan is to describe remedial action objectives and discuss how they will be accomplished in accordance with the project summary work breakdown structure. In addition to background information, each phase of the remedial action project is described, including what has been accomplished. This site plan serves as a working reference document for the project management contractor and DOE. It will be reviewed and updated annually to reflect progress, changes, and new information regarding the scope of work at the site.

CONTENTS

*The subsection letter descriptors A through J correspond with the Level 3 work breakdown structure for FUSRAP (E is reserved).

FIGURES

TABLES

ACRONYMS

AEC	Atomic Energy Commission
BNI	Bechtel National, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	Department of Energy
EE/CA	engineering evaluation/cost analysis
FBDU	Ford, Bacon & Davis, Utah
FUSRAP	Formerly Utilized Sites Remedial Action Program
MED	Manhattan Engineer District
MML	Middlesex Municipal Landfill
MSP	Middlesex Sampling Plant
ORNL	Oak Ridge National Laboratory
NEPA	National Environmental Policy Act
NJDEP	New Jersey Department of Environmental Protection
ORNL	Oak Ridge National Laboratory
PMC	project management contractor
PRAR	post-remedial action report

Site: Middlesex Sampling Plant
WBS: 118
Date: 12/08/89

I. NAME AND LOCATION OF SITE

The Middlesex Sampling Plant (MSP) site is located in the Borough of Middlesex, Middlesex County, New Jersey, as shown in Figure I-1. It lies 0.5 mi south-southeast of the Middlesex Municipal Landfill (MML), west of Mountain Avenue, north of William Street, and south of Lehigh Valley Railroad. Figure I-2 is an aerial photograph of the MSP site.

The 9.6-acre site is owned by the Department of Energy (DOE) and is being remediated as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP). It is surrounded by a 7-ft-high chain-link fence and consists of the former sampling plant building, an office building, a garage, and a boiler house. It also includes an asphalt pad where approximately 66,000 yd^3 of contaminated soil is contained in engineered interim storage. This soil was excavated during the cleanup of vicinity properties, including MML (another FUSRAP site formerly used as a landfill).

Land use in the vicinity of MSP is primarily residential and industrial, with an expanse of vacant land bordering the southern end of the site. Approximately 15 million people reside within 50 mi of Middlesex. The 1980 population for Middlesex was 13,480, and that for Middlesex County was 595,893; neighboring Piscataway had a population of 42,223 in 1980 (Ref. 1).

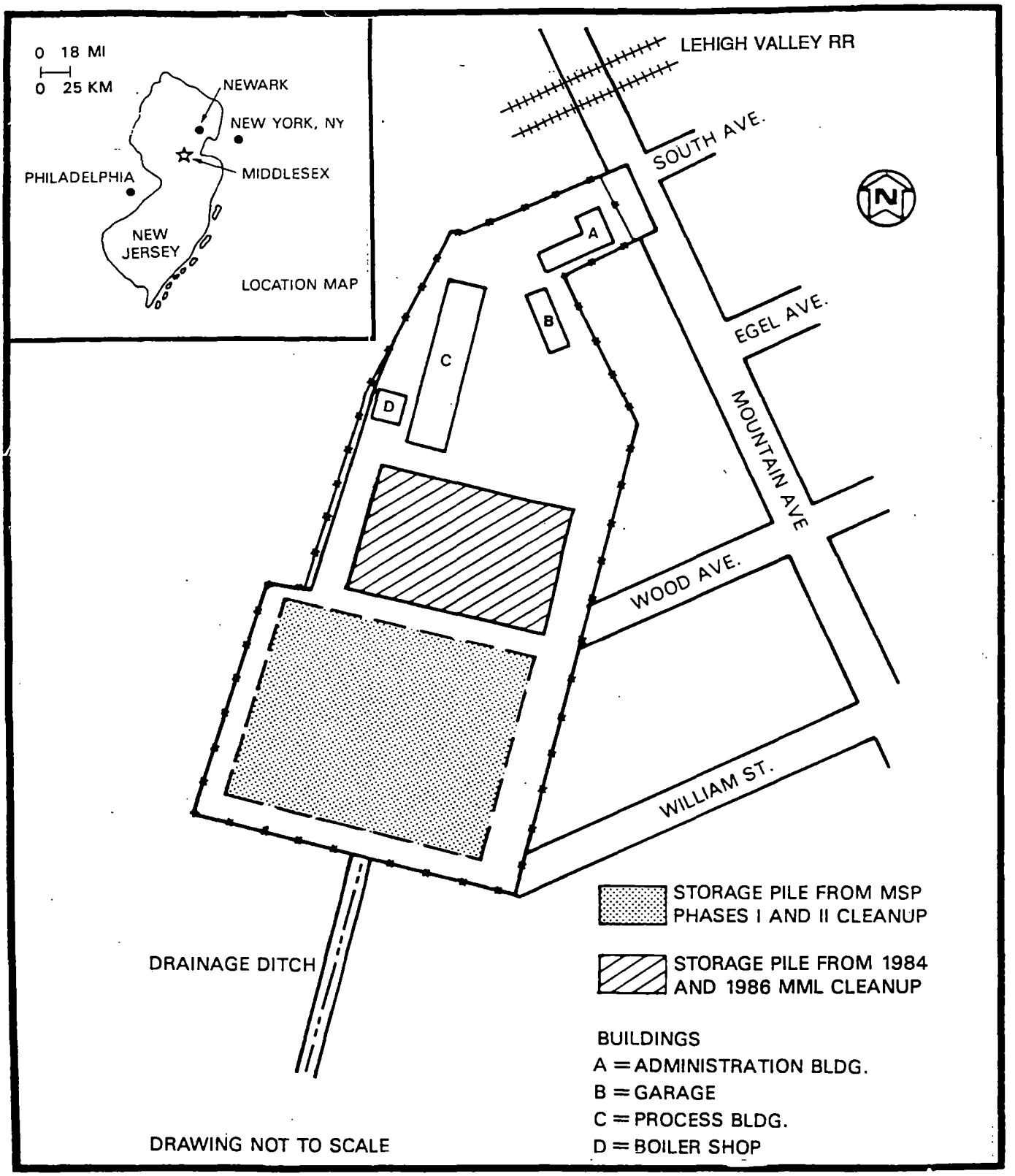


FIGURE I-1 MIDDLESEX SAMPLING PLANT SITE AND VICINITY

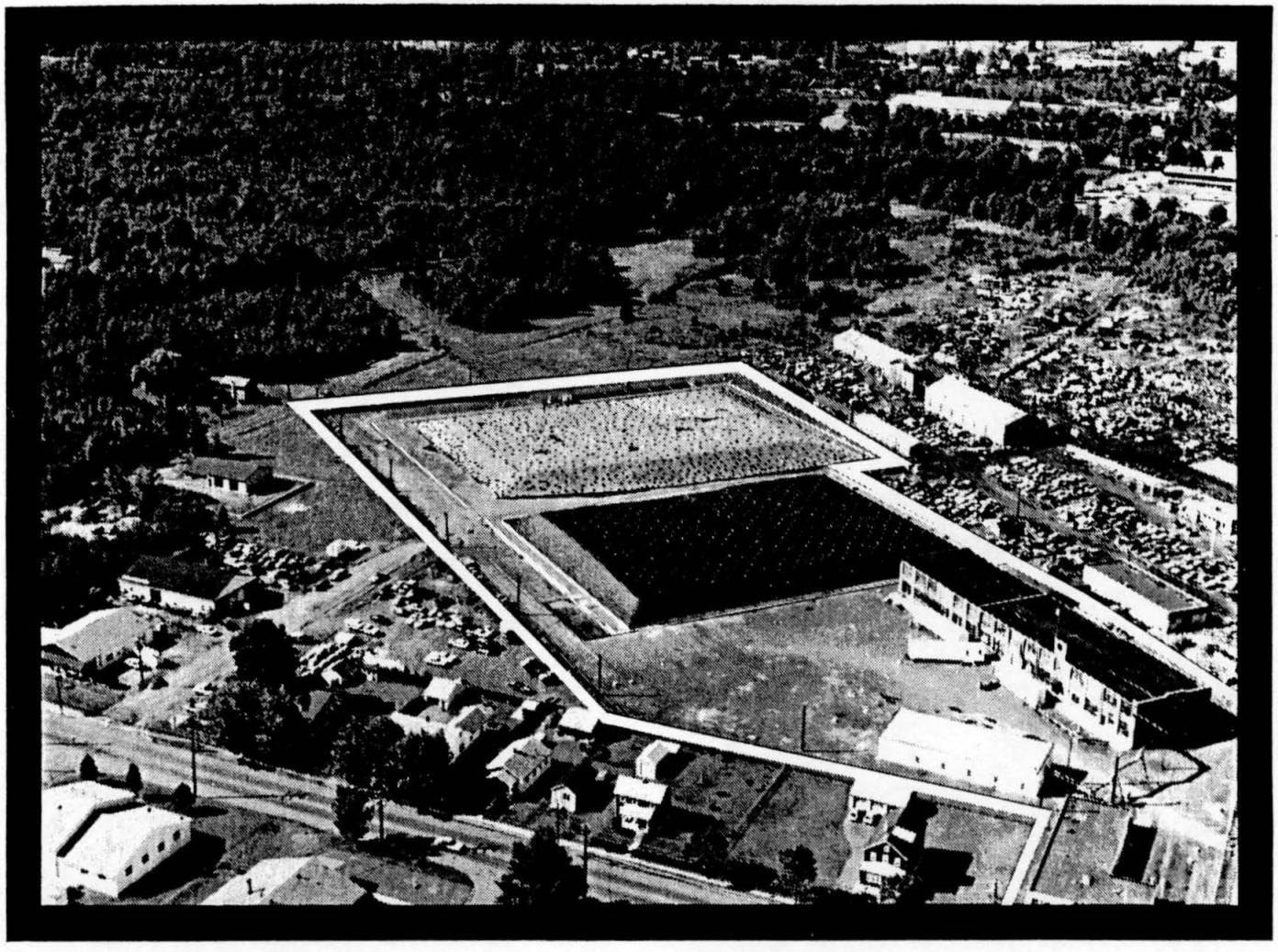


FIGURE 1-2 AERIAL VIEW OF MSP

II. HISTORY

Although MSP and MML are two separate sites designated for remedial action under FUSRAP, their interrelationship dictates that the following brief history address both.

The Manhattan Engineering District (MED) established MSP in 1943. The facility was used for the sampling, storage, and shipment of uranium, thorium, and beryllium ores. All ores received at the facility were handled in a similar manner, including thawing (if necessary), drying, crushing, and screening. Samples were taken for assay from collection hoppers beneath the screens. The ores were subsequently packaged, weighed, and shipped to processing facilities.

Operation of MSP was terminated in 1955 by the Atomic Energy Commission (AEC), successor to MED. Later, AEC used the site for storage and limited sampling of thorium residues. All AEC activities at MSP ended in 1967. On-site structures were decontaminated, and the site was certified for use with no radiological restrictions under the criteria in effect at that time.

In 1968, AEC returned the MSP site to the General Services Administration, which transferred the property to the Department of the Navy. The site served as a reserve training center for the U.S. Marine Corps from 1969 to 1979. MSP was returned to DOE custody in 1980. That same year, the site was designated for cleanup under FUSRAP and DOE initiated actions to clean up properties in the vicinity of MSP, with the cleanup continuing into 1981. Approximately 35,000 yd^3 of contaminated soil from these remedial actions were transported to MSP, where an asphalt pad was constructed as a base for an interim storage area.

MML began operations in the mid-1940s. In 1948, soil contaminated with pitchblende (high-grade uranium ore) was removed from MSP and placed on top of the existing fill at MML. Subsequent landfill operations resulted in varying depths of cover material being placed over the contaminated material. The landfill was not used for solid waste disposal after 1974.

Excavation of radioactively contaminated material from MML began in 1984; approximately 15,000 yd^3 of contaminated soil were transported to MSP for interim storage. This excavation and subsequent investigations indicated that the contaminated area covered approximately 3 acres. The storage pad at MSP was extended in 1984 to accommodate the materials

excavated from MML during that year. During 1985, site preparation work was conducted at MSP (and at MML) in preparation for resuming remedial actions initiated in 1984. After completion of excavation at MML in 1986, the volume of contaminated soil contained in interim storage at the MSP site is estimated at 66,000 yd^3 (including both storage piles).

III. SUMMARY OF REQUIRED ACTIONS

Some required actions have been completed, including removing contamination from residential and commercial properties (accomplished in 1980 and 1981), removing contamination from the former MML (accomplished in 1984 and 1986), storing these materials at MSP, conducting requisite environmental monitoring, and performing surveillance and maintenance at MSP.

Radiological characterization of the site and buildings has also been completed. Chemical characterization is still needed to (1) identify the potential presence of hazardous chemicals on the site, (2) evaluate migration potential for any identified chemicals, and (3) locate boundaries of chemical contaminants that may require corrective actions.

Following completion of the chemical investigations, alternatives for corrective actions will be evaluated and documented in an engineering evaluation/cost analysis (EE/CA) and appropriate National Environmental Policy Act (NEPA) documentation. Following issuance of the EE/CA and NEPA decisions, removal actions can be undertaken to remediate the site.

The major documentation anticipated to be prepared for this site is summarized in Table III-1. Section VII, Bibliography, identifies site reports published since the site was designated.

TABLE III-1
LIST OF DOCUMENTS

	Document Name
1.	Site designation
2.	Characterization plan
3.	Geologic/hydrogeologic report
4.	Characterization report
5.	Engineering evaluation/cost analysis
6.	Action description memorandum
7.	Environmental impact statement
8.	Environmental monitoring report
9.	Post-remedial action report
10.	Verification report
11.	Certification docket

IV. REMEDIAL ACTION

A. Site Characterization and Scoping

For Phases I and II (see Section IV.G., Remedial Action Operations), data from the designation surveys were used as the characterization data for corrective action. Oak Ridge National Laboratory (ORNL) surveyed MSP in April 1976. Off-site areas subject to contamination were surveyed in May 1976. Results of the surveys were published in 1977 in Radiological Survey of the Middlesex Sampling Plant, Middlesex, New Jersey (Ref. 2).

An aerial survey was conducted for DOE by EG&G, Inc., in 1978, and followup ground surveys were performed by ORNL. During these surveys, two additional properties not contiguous with the former MSP were identified as having been contaminated by material handled at the plant: a region in the vicinity of the rectory of the Our Lady of Mount Virgin Catholic Church, 650 Harris Avenue, Middlesex; and the private residence at 432 William Street, Piscataway. It was also confirmed that MML was contaminated with residual radioactive material from the former MSP. The surveys of these properties are addressed in Radiological Surveys of Properties in the Middlesex, New Jersey, Area (Ref. 3), and Radiological Survey of the Middlesex Municipal Landfill, Middlesex, New Jersey (Ref. 4).

A radiological characterization of MSP was performed by Bechtel National, Inc. (BNI), the FUSRAP project management contractor (PMC), from April through June 1983 to provide the detailed information necessary for the Phase III engineering evaluation. Results of the survey were published in March 1985 in the Radiological Survey Report for the Former Middlesex Sampling Plant (Ref. 5). The objectives of the characterization were to determine the boundaries of contamination on the grounds at the site and the extent of contamination in the four buildings remaining there, and to determine the feasibility of decontaminating these structures.

The survey characterized the boundaries and extent of radiological contamination at the former MSP property. It included both horizontal and vertical characterization of the grounds.

The survey also determined the extent of contamination in the four buildings on site. Surface measurements

indicated extensive fixed alpha contamination in the process building and the boiler house. Preliminary assessment indicates that it will be necessary to demolish and remove these structures for the site to comply with remedial action guidelines. Surface measurements obtained in the garage and the administration building identified several areas in each building where contamination exceeds guidelines.

Chemical characterization of the site is still required, as discussed in Section III.

B. Preliminary Engineering

A draft preliminary evaluation of engineering alternatives was written in 1984. This effort will be incorporated into the EE/CA to be prepared.

C. Environmental Compliance

Documentation required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)/NEPA in support of remedial action is prepared by Argonne National Laboratory (ANL). Supporting documentation is provided by the FUSRAP PMC for the preparation of a series of engineering studies and environmental reports to evaluate remedial action alternatives under consideration for the site.

Environmental compliance documentation for the MML removal action was prepared by ANL in 1984 and consisted of an action description memorandum (Ref. 1).

Environmental documentation for the remaining actions to be taken at MSP will include the EE/CA and appropriate NEPA documentation.

D. Design Engineering

Ford, Bacon & Davis, Utah, Inc. (FBDU) provided architect-engineering services for the design of Phases I and II. After October 1, 1981, BNI provided these services.

1. Design

The FBDU design for Phases I and II is described in the Engineering Evaluation of the Former Middlesex Sampling Plant and Associated Properties, Middlesex,

New Jersey (Ref. 6). This design covered storage facilities at MSP and remedial action at vicinity properties.

The PMC will provide the design for the final site cleanup.

2. Permits

At the conclusion of Phase II, tree stumps and other organic materials from the remedial action were incinerated by Blandford Land Clearing Corp. The company operated an air curtain combustion unit with a permit from the New Jersey Department of Environmental Protection (NJDEP).

During 1984, DOE obtained from NJDEP an emergency New Jersey Pollutant Discharge Elimination System permit for the MSP site.

F. Site Access

Before implementation of Phases I and II, it was necessary for DOE to obtain agreements with the individual property owners authorizing work. The agreements granted DOE and its contractors the right to perform remedial action. It also stated the scope of work, DOE responsibilities, and the plan to restore the properties. Several agreements were revised to incorporate owner-requested changes in the restoration plans, and two landowners received compensation for the assessed valuation of personal property removed but not replaced. An amended agreement was prepared for one parcel to include a lessee who was operating a business on the property.

During cleanup actions, several property owners requested changes in the restoration plan. These were implemented if the change was not considered a "betterment" and did not increase the cost to DOE of restoring the property.

G. Remedial Action Operations

This section describes cleanup actions that have already been completed (Phases I and II) and remedial action planned (Phase III).

1. Phase I

Phase I was separated into two stages: construction of the storage pad and remedial action at vicinity properties.

Phase I is described in detail in the Project Report of Phase I Remedial Action of Properties Associated with the Former Middlesex Sampling Plant Site (Ref. 7).

2. Phase II

Phase II remedial action was similar in nature to Phase I, but involved a larger number (34) of private properties. Phase II is described in detail in Final Report on Phase II Remedial Action at the Former Middlesex Sampling Plant and Associated Properties (Ref. 8).

3. Phase III

Phase III will complete the corrective actions at the MSP site. The alternative selected in the EE/CA evaluation will be implemented. For planning purposes, it was assumed that the waste would be excavated and transported to a disposal site to be built within 100 mi of MSP.

H. Waste Transportation

During remedial action at the vicinity properties and MML, waste was transported in covered dump trucks. For planning purposes, it is assumed that waste will be transported from MSP to a permanent disposal site by the same method, unless further engineering evaluations determine that another method is preferable.

I. Site Surveillance and Maintenance

The following surveillance and maintenance will be performed.

1. Environmental Monitoring

Until Phase III is completed, the current DOE environmental monitoring program will continue. The program includes monitoring of radon, direct gamma radiation, surface water, and groundwater. An annual environmental monitoring report will continue to be

published. After Phase III is completed and the site has been released for use with no radiological restrictions, environmental monitoring will cease.

Environmental monitoring is conducted in accordance with DOE Order OR 5480.1A, "Environmental Protection, Safety, and Health Protection Program for Oak Ridge Operations" (Ref. 9); and DOE Order 5484.1, "Environmental Protection, Safety, and Health Protection Information Reporting Requirements" (Ref. 10).

2. Security and Maintenance

The site is fenced and lighted, and a full-time employee is present for security and maintenance. This arrangement will continue until Phase III is completed.

J. Final Report

Documentation of the results of remedial action performed at the site will be contained in the post-remedial action report (PRAR) and the certification docket. The PRAR describes the origin of contamination, methods used to determine the extent of contamination, types of remedial action performed, and data on the current radiological status of the site. The certification docket includes a summary of activities at the site (site history and description, radiological history and status, remedial action summary, and history of selection process); documents, illustrations, and tables supporting certification of the site; and a list of additional documents relevant to certification of the site.

V. COST AND SCHEDULE

Estimated costs associated with the portion of work specifically addressing the MSP site during the time period covered by this plan are listed in Figures V-1 and V-2. The costs shown are in year-of-expenditure dollars. The schedule of work for FY 91 through FY 95 as illustrated in Figure V-3 and the text of this plan are based on current progress and priorities.

($000)

ACTIVITY	FY 90	FY 91	FY 92	FY 93	FY 94	FY 95
BNI						
ASSESSMENT (B&R AH-10-05-01)	-	843	93	-	-	-
CLEANUP* (B&R AH-10-05-02)	505	380	427	493	474	502
SUBTOTAL	505	1,223	520	493	474	502
ANL	-	-	-	-	-	-
HQ	100	90	25	20	15	15
TOTAL	605	1,313	545	513	489	517
NOTE: Dollars are BA						

*Cleanup costs include costs for surveillance and maintenance of the site.
See Section IV-I for a description of surveillance and maintenance activities.

FIGURE V-1 MIDDLESEX SAMPLING PLANT SITE BUDGET

FY90 DETAIL — MIDDLESEX SAMPLING PLANT, NJ

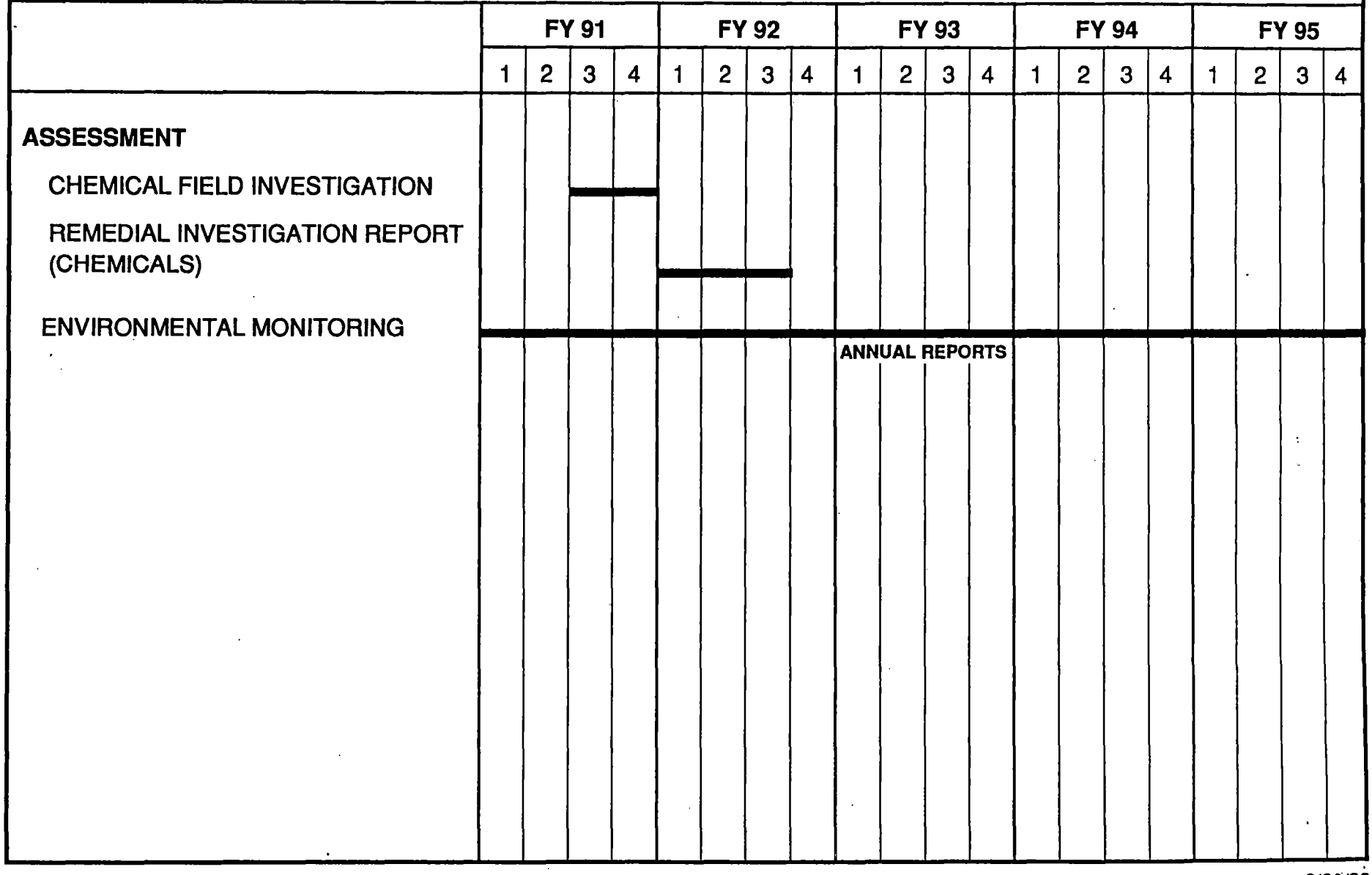
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
118 MIDDLESEX								PUBLISH REPORT ▽				
ENVIRONMENTAL MONITORING												
FUSRAP	65	44	50	44	41	36	41	33	33	40	39	39
ANL	—	—	—	—	—	—	—	—	—	—	—	—
HQ	9	8	9	8	9	8	9	8	9	8	8	7
TOTAL ($000-BA)	74	52	59	52	50	44	50	41	42	48	47	46

PROPOSED MILESTONES CONTROLLED BY ⊽ DOE HQ ▽ ORO TSD ◇ PMC ○ ANL

9/89 1141.6

FIGURE V-2 FY 90 DETAIL

MIDDLESEX SAMPLING PLANT — 5-YEAR PLAN



9/89 1132.20

9/20/89

FIGURE V-6 FY 91 - 95 SCHEDULE

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5. Bechtel National, Inc. Radiological Survey Report for the Former Middlesex Sampling Plant, DOE/OR/20722-20, Oak Ridge, Tenn., March 1985.

6. Ford, Bacon & Davis, Utah, Inc. Engineering Evaluation of the Former Middlesex Sampling Plant and Associated Properties, Middlesex, New Jersey, FBDU 230-001, Salt Lake City, Utah, July 1979.

7. NLO, Inc. Project Report of Phase I Remedial Action of Properties Associated with the Former Middlesex Sampling Plant Site, NLCO-006EV, Cincinnati, Ohio, April 1982.

8. Bechtel National, Inc. Final Report on Phase II Remedial Action at the Former Middlesex Sampling Plant and Associated Properties, DOE/OR/20722-27, Oak Ridge, Tenn., April 1985.

9. DOE Order OR 5480.1A. "Environmental Protection, Safety, and Health Protection Program for Oak Ridge Operations," June 22, 1982.

10. DOE Order 5484.1. "Environmental Protection, Safety, and Health Protection Information Reporting Requirements," February 24, 1981.

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12. DOE Order OR 5480.1A. "Environmental Protection, Safety, and Health Protection Program for Oak Ridge Operations," June 22, 1982.

13. DOE Order 5484.1. "Environmental Protection, Safety, and Health Protection Information Reporting Requirements," February 24, 1981.

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Appendix C

Site Plan for Maywood

SITE PLAN FOR MAYWOOD

MAYWOOD, NEW JERSEY

DECEMBER 1989

Prepared for

UNITED STATES DEPARTMENT OF ENERGY

OAK RIDGE OPERATIONS OFFICE

Under Contract No. DE-AC05-81OR20722

By

Bechtel National, Inc.

Oak Ridge, Tennessee

Bechtel Job No. 14501

FOREWORD

This document is one of a series of plans, each prepared for a specific site requiring stabilization, decontamination, and/or disposal of low-level radioactive contamination under the U.S. Department of Energy (DOE) Formerly Utilized Sites Remedial Action Program. The objective of this site plan is to describe remedial action objectives and discuss how they will be accomplished in accordance with the project summary work breakdown structure. In addition to background information, each phase of the remedial action project is described, including what has been accomplished. This site plan serves as a working reference document for the project management contractor and DOE. It will be reviewed and updated annually to reflect progress, changes, and new information regarding the scope of work at the site.

CONTENTS

*The subsection letter descriptors A through J correspond with the Level 3 work breakdown structure for FUSRAP (E is reserved).

FIGURES

TABLES

ACRONYMS

ADM	action description memorandum
AEC	Atomic Energy Commission
ANL	Argonne National Laboratory
BNI	Bechtel National, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	Department of Energy
EE/CA	engineering evaluation/cost analysis
EPA	Environmental Protection Agency
FUSRAP	Formerly Utilized Sites Remedial Action Program
IVC	independent verification contractor
MCW	Maywood Chemical Works
MISS	Maywood Interim Storage Site
NEPA	National Environmental Policy Act
NJDEP	New Jersey Department of Environmental Protection
NJPDES	New Jersey Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
NYS&W	New York, Susquehanna, and Western Railroad
ORAU	Oak Ridge Associated Universities
ORNL	Oak Ridge National Laboratory
PMC	project management contractor
RI/FS-EIS	remedial investigation/feasibility study-environmental impact study
ROD	record of decision
SC	Stepan Company

I. NAME AND LOCATION OF SITE

The Maywood site lies in a highly developed area in the Borough of Maywood and the Township of Rochelle Park, New Jersey, in the County of Bergen. It is located approximately 12 mi north-northwest of downtown Manhattan (New York City) and 13 mi northeast of Newark, New Jersey (Figure I-1). The population density of this area averages approximately 10,000 people per square mile.

The Maywood site consists of the Maywood Interim Storage Site (MISS), which is owned by the U.S. Department of Energy (DOE), and approximately 80 vicinity properties that are residentially, commercially, and municipally owned. MISS is bounded by New Jersey Route 17 on the west; a New York, Susquehanna, and Western (NYS&W) Railroad line on the north; and commercial/industrial areas on the south and east. In addition, residential areas are located just north of the railroad and within 300 yd to the west along Grove Avenue.

MISS is a fenced lot occupying approximately 11.7 acres previously owned by the Stepan Company (SC) [formerly Maywood Chemical Works (MCW)]. DOE assumed ownership of the site in 1985. The SC property is also enclosed by a fence and is currently used for the processing of chemicals. The SC does not use or manufacture any radioactive materials in its processing activities. Figure I-2 is an aerial photograph of MISS. MISS and the vicinity properties are shown in Figure I-3.

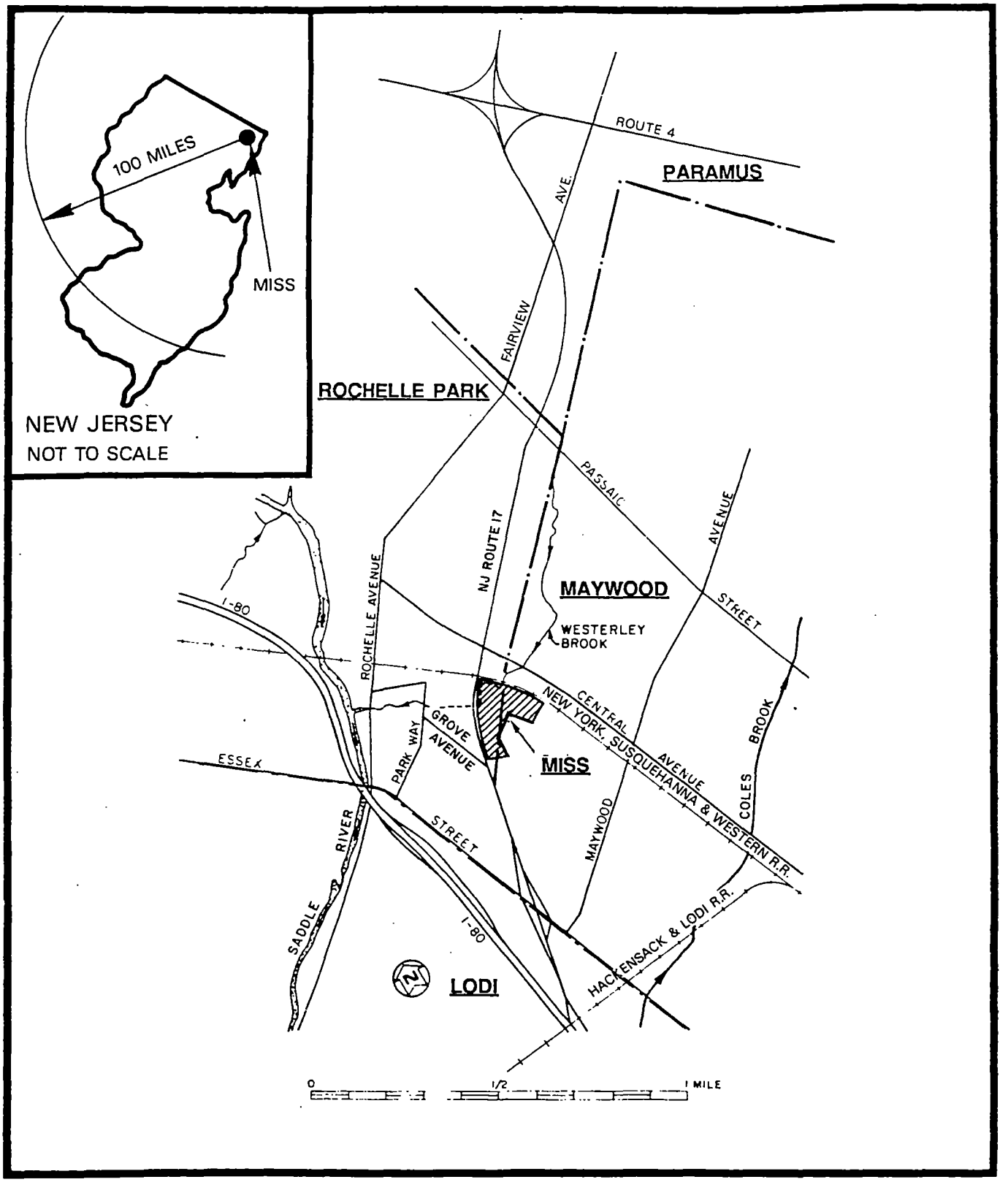


FIGURE I-1 LOCATION OF MAYWOOD, NEW JERSEY

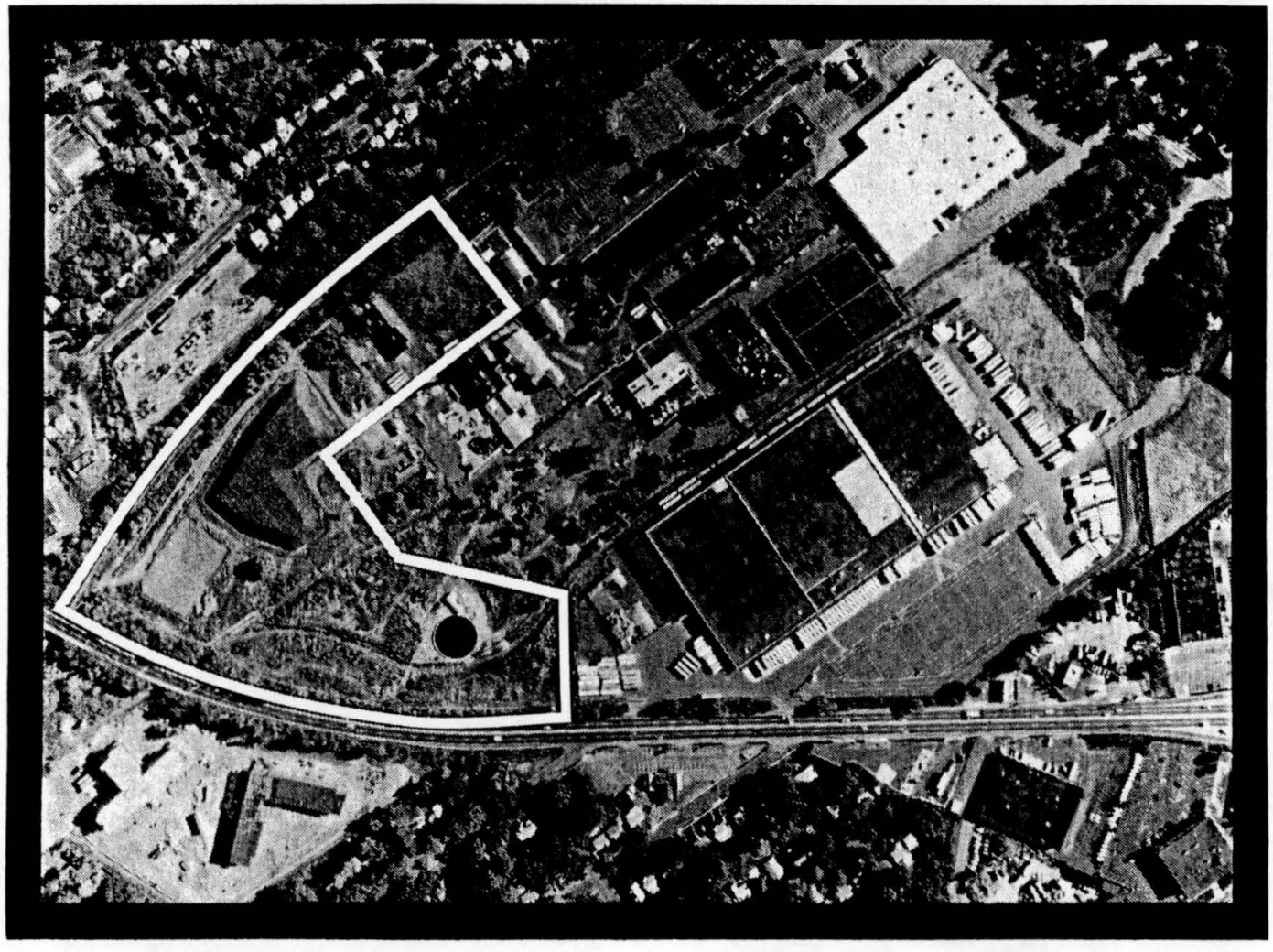


FIGURE 1-2 AERIAL VIEW OF MISS

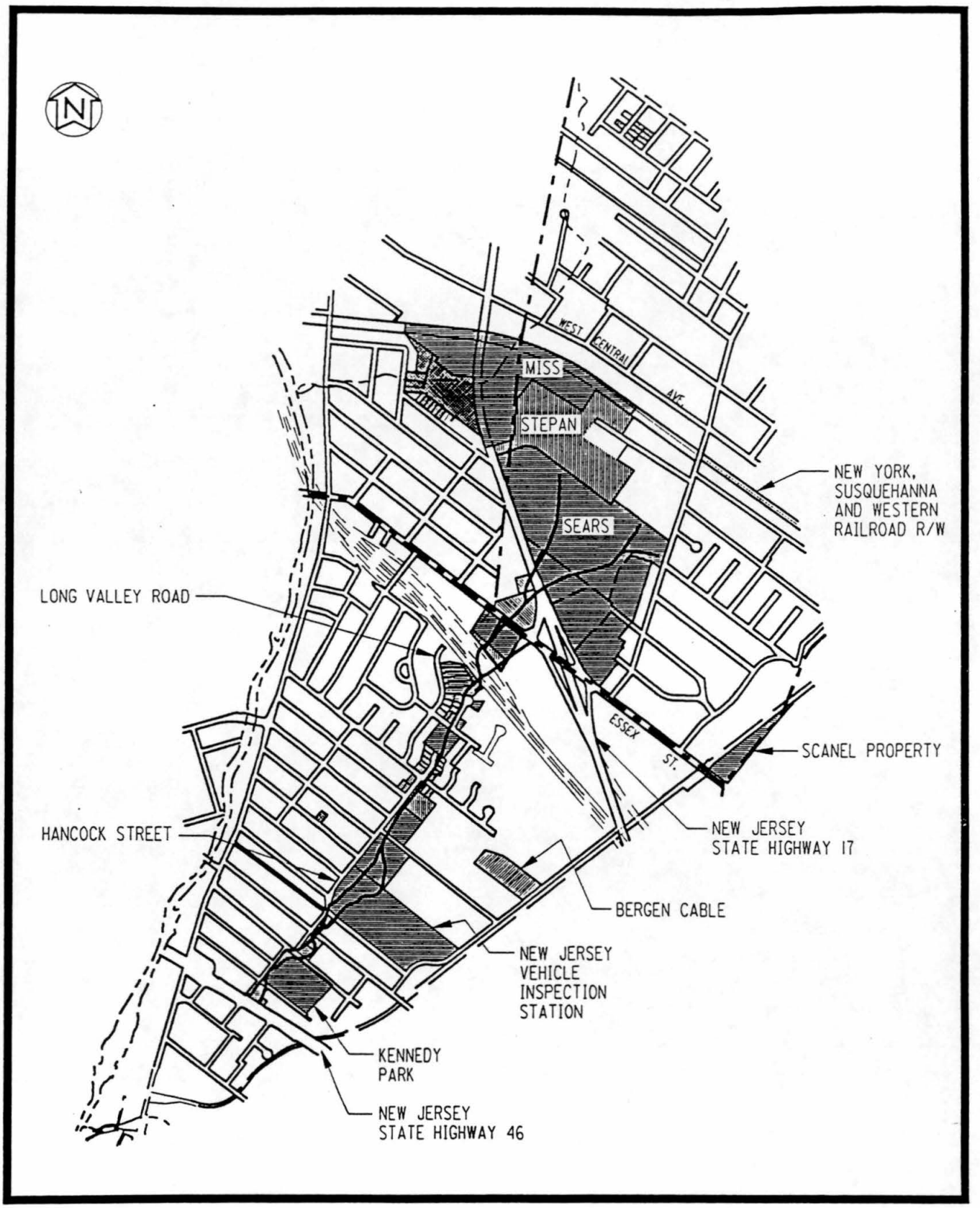


FIGURE I-3 LOCATION OF THE MISS AND VICINITY PROPERTIES

II. HISTORY

From 1916 through 1956, MCW processed monazite sand (thorium ore) for use in the manufacture of gas mantles for various lighting devices. During this time, slurry that contained process wastes from the thorium operations was pumped to diked areas west of the plant. Some of these process wastes were removed for use as mulch and fill on nearby properties, thereby contaminating them with radioactive thorium. In 1932, New Jersey Route 17 was built through this disposal area.

In 1954, the Atomic Energy Commission (AEC) issued License R-103 to MCW, thereby allowing it to continue to possess, process, manufacture, and distribute radioactive materials (Ref. 1) under the auspices of the Atomic Energy Act of 1954. MCW stopped processing thorium in 1956 after approximately 40 years of production and was sold to SC in 1959.

In 1961, SC was issued an AEC radioactive materials license (STC-130) (Ref. 1). Based on AEC inspections and information regarding the property on the west side of New Jersey State Route 17 (the Ballod property), SC agreed to take certain remedial actions. The cleanup began in 1963. In 1966, 8,360 yd^3 of waste was removed from the area west of Route 17 and buried on site at Burial Site No. 1, which is now overlain by grass. In 1967, 2,050 yd^3 of waste was removed from the same general area and buried on site at Burial Site No. 2, which is now a parking lot. In 1968, SC obtained permission from AEC to transfer an additional 8,600 yd^3 of waste from the south end of the Ballod property and bury it on site at Burial Site No. 3, an area where a warehouse was later built (Ref. 1). At the request of SC, a radiological survey of the south end of the Ballod property was conducted by AEC in 1968. Based on the findings of that survey (Ref. 1), clearance was granted for release of the property with no radiological restrictions on its use. At the time of the survey, AEC was not aware that contaminated waste materials were present in the northeast corner of the property. In 1968, this portion of the SC property was sold to a private citizen who later sold it to Ballod Associates (Ref. 2). The property was subdivided in 1985 for the construction of the nursing home, which was completed in 1986.

In 1980, the U.S. Nuclear Regulatory Commission (NRC) was notified of elevated radiation levels on the Ballod Associates property. This information prompted NRC to

conduct a survey in late 1980 and then request a comprehensive survey to assess the radiological condition of the property. The survey was performed in February 1981 by Oak Ridge Associated Universities (ORAU) with the assistance of a representative from the NRC Region I office of (Ref. 2). In addition, an aerial radiological survey of the SC site, the Ballod Associates property, and the surrounding area was conducted by EG&G Energy Measurements Group for NRC in January 1981 (Ref. 3).

The U.S. Environmental Protection Agency (EPA) completed a preliminary assessment of the MCW property in December 1982. The site inspection was completed in August 1982. Subsequently, the site was scored using the hazard ranking system and placed on the National Priorities List in December 1982.

The 1984 Energy and Water Appropriations Act directed DOE to conduct a decontamination research and development project at the site of the former MCW and properties in its vicinity, and the site was added to DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP). Also during 1984, DOE negotiated with SC to obtain a lease on the land on which MISS would be established for the storage of contaminated materials removed from these properties. The land was transferred to DOE ownership in September 1985 to provide an interim storage site for the waste from vicinity properties (other than SC) until such time as a decision is made regarding its final disposition.

Since the site was assigned to DOE, over 80 vicinity properties have been identified as contaminated.

III. SUMMARY OF REQUIRED ACTIONS

To meet the environmental compliance requirements of both the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Environmental Policy Act (NEPA) for the final actions at the Maywood site, DOE developed the CERCLA/NEPA process. The application of this process to the Maywood site may involve input from EPA, state and local agencies, and the public, which will be considered in defining the remedial action alternative selected for Maywood.

As part of the CERCLA/NEPA process, a remedial investigation and feasibility study-environmental impact study (RI/FS-EIS) will be conducted. As a first step in this process, appropriate planning documents, such as the work plan and the field sampling plan, will be prepared and published. These documents describe and set controls for the work to be performed throughout the CERCLA/NEPA process.

The RI will consist of characterizing the remaining contaminated portions of MISS, SC, and the other vicinity properties. The characterization will consist of a comprehensive sampling program designed to determine the horizontal and vertical boundaries of the contamination and to identify potential pathways for contaminant migration.

Upon completion of the field work for the RI, the RI/FS-EIS report will be prepared. The RI portion of this report will document the results of the characterization work and provide the basis for the FS-EIS. The FS-EIS portion will evaluate the remedial action alternatives, environmental risks, and treatment technologies. The alternatives will then be assessed and the preferred alternative will be presented in the proposed plan. The alternative actually selected for implementation will be documented in a record of decision (ROD).

Once a ROD is signed, the design of the remedial action will be completed. This work will consist of preparing the subcontract packages needed to implement the ROD. Remedial action will follow design development and procurement of the subcontractors.

When the remedial action is complete, the site will be surveyed again by the project management contractor (PMC) and the independent verification contractor (IVC) to verify that the site complies with applicable guidelines and successfully implements the ROD.

If actions are needed to address contamination on any portion of these properties before finalization of the ROD, a removal action may be used under DOE's authority. A removal action allows an expedited cleanup. The environmental impacts of such a removal action would be evaluated and documented in an engineering evaluation/cost analysis (EE/CA) report.

The major documentation expected to be prepared for this site is summarized in Table III-1. Section VII, Bibliography, identifies site reports published since the site was designated.

TABLE III-1

LIST OF DOCUMENTS

Document Name
Before CERCLA/NEPA Process
1. Site designation
2. Characterization plan - Lodi residential
3. Geologic/hydrologic report - drilling
4. Characterization report N. Ballod/railroad (letter only) MISS Lodi commercial Lodi residential Sears
5. Engineering evaluation of remedial action alternatives
6. Action description memorandum (1984) Action description memorandum to completion of Phase I
After CERCLA/NEPA Process
7. Scoping/planning documents
8. RI/FS-EIS report
9. Proposed plan
10. Record of decision
11. EE/CA (as needed)
12. Post-remedial action report
13. Verification statements
14. Verification report
15. Certification docket 1984 and 1985 Certification dockets (as needed)

IV. REMEDIAL ACTION

A. Site Characterization and Scoping

Since late 1980, various organizations have conducted radiological surveys of MISS and the vicinity properties. A chronology of those characterizations follows.

October 1980. The New Jersey Department of Environmental Protection (NJDEP) conducted a survey on the SC and Ballod properties in response to information that elevated levels of radioactivity were present at the Ballod property. NJDEP verified the information and notified the NRC Region I office of its findings in November 1980 (Ref. 1).

November - December 1980, January 1981. NRC conducted its own survey and verified elevated measurements of thorium-232.

January 1981. NRC requested a comprehensive survey of the SC property and its vicinity. Using the SC plant as the center, a 4-mi^2 aerial survey conducted by EG&G identified anomalous concentrations of thorium-232 to the north of the SC property (the Davison and Latham properties) and to the south (Ref. 3). An ORAU ground survey of the Ballod property confirmed previous survey results (Ref. 2).

June 1981. In a separate survey, SC commissioned Henry W. Morton and Nuclear Safety Associates to conduct a survey of the SC and Ballod properties (Ref. 4). This survey also corroborated previous survey results. Figure IV-1 indicates waste burial sites at the SC property.

June 1981. To investigate the EG&G measurements from the Davison and Latham properties, DOE requested Oak Ridge National Laboratory (ORNL) to conduct a characterization. The characterization confirmed the elevated concentrations of thorium-232 (Refs. 5-12). The contamination was found primarily where soil had been used for fill and in gardens as mulch. As a result of the ORNL survey, eight properties were designated for remedial action.

1983-1989: ORNL conducted designation surveys to identify all properties in the vicinity of the former MCW that became contaminated as a result of the thorium processing conducted there. Over 80 properties have been identified, and properties have been designated in Maywood, Lodi, and Rochelle Park.

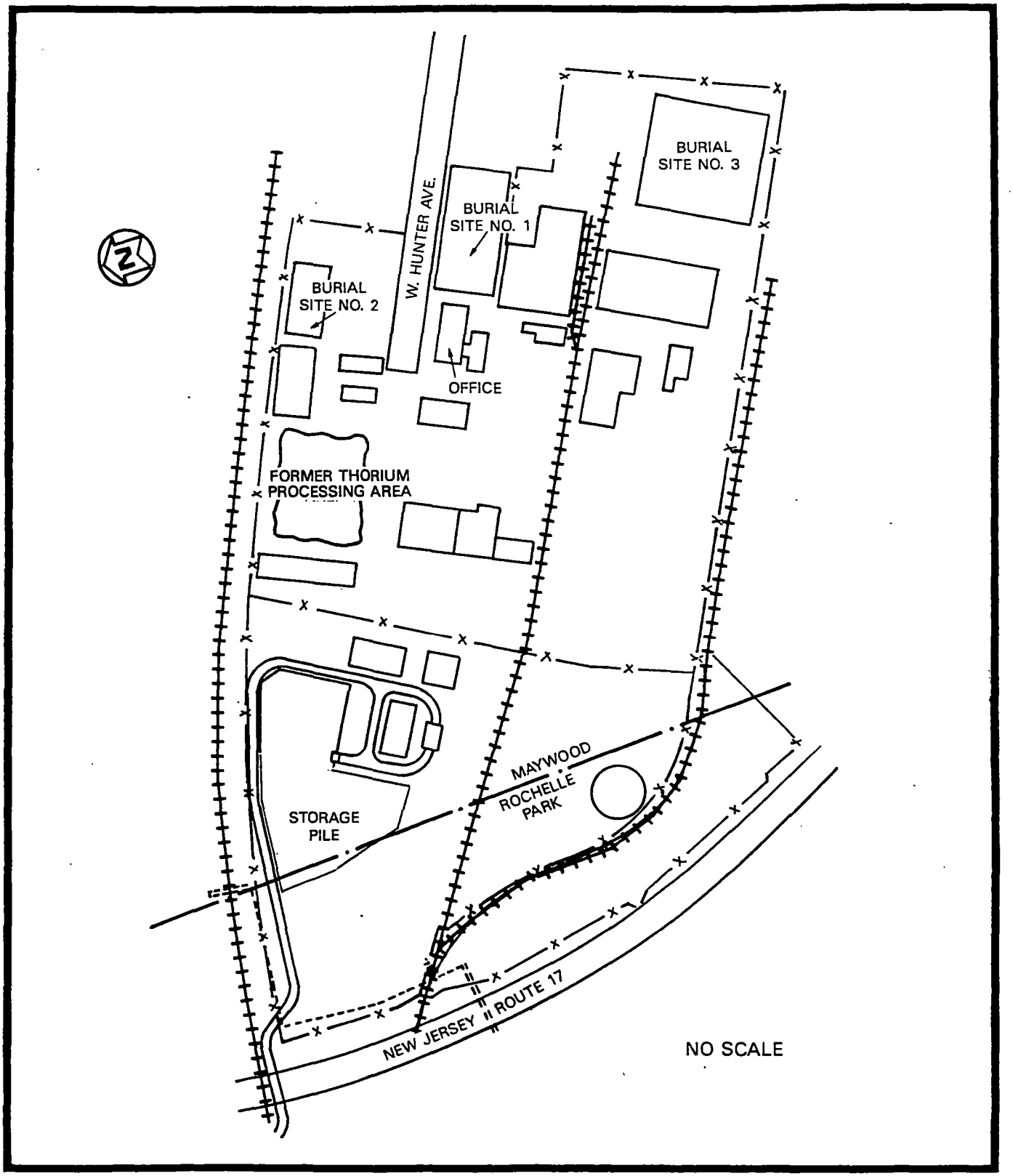


FIGURE IV-1 WASTE BURIAL SITES ON STEPAN COMPANY PROPERTY

Following designation, Bechtel National, Inc. (BNI), with support from ORNL, performed more complete characterizations to identify fully the boundaries of the contamination. These characterizations were performed prior to implementation of the formal CERCLA/NEPA process; therefore, the planning documents were titled characterization plans. The results are documented in characterization reports or radiological survey reports (Refs. 13-31).

As part of the CERCLA/NEPA process, several properties remain to be investigated. These include MISS itself (for chemical contaminants), the Stepan property, and several Maywood and Lodi vicinity properties. These will be part of the RI. The work plan and sampling and analysis plans will direct the work; the results will be included in the RI report.

B. Preliminary Engineering

Preliminary engineering will be addressed during the FS-EIS. The FS-EIS will outline the available remedial action technologies and will evaluate these technologies on the basis of the nine criteria outlined in the National Contingency Plan. These criteria include factors such as public risk, cost, technical feasibility and implementability, and public and state acceptance.

C. Environmental Compliance

Documentation required by CERCLA/NEPA in support of remedial action is prepared by Argonne National Laboratory (ANL). Supporting documentation is provided by the FUSRAP PMC for the preparation of a series of engineering studies and environmental reports to evaluate remedial action alternatives under consideration for the site.

The environmental evaluation of the work done at MISS and the vicinity properties in 1984 is described in the action description memorandum (ADM) (Ref. 32) prepared by ANL, and a "finding of no significant impact" was made by DOE (Ref. 33). An additional ADM was prepared by ANL in 1987 to address the impact of all vicinity property removal actions (Ref. 34).

The required environmental documentation for the remaining properties to be remediated will include the RI/FS-EIS, the

proposed plan, and the ROD. If removal actions are used to expedite a portion of the cleanup process, an EE/CA will be prepared for those actions.

D. Design Engineering

1. Design

In October 1983, BNI started design engineering to support the vicinity property cleanups. The cleanups performed in 1984 and 1985 required design engineering to prepare subcontracts for the following services.

- o Surveying
- o Materials testing
- o Site preparation
- o Land clearing
- o Excavation, hauling, and backfilling
- o Concrete work
- o Miscellaneous services

Additional design engineering will support the remaining remedial actions selected in the ROD. Subcontracts similar to those noted above may be required.

2. Permits

During 1985, application was made to NJDEP, Water Resources Division, for a New Jersey State Pollutant Discharge Elimination System (NJPDES) permit. One of the NJPDES permit requirements was the installation of groundwater monitoring wells at MISS, and the wells were installed. A public meeting conducted by NJDEP was held in September 1985 to afford the public a chance to express views concerning the permit application. Emergency Permit No. NJ0054500 was issued on September 17, 1985, pending processing of the routine permit application. The original emergency permit was extended and remained in effect until January 8, 1986. An application for an extension was submitted to NJDEP in late 1985 and

received in April 1986. In this case, the existing permit remains effective until it is terminated by NJDEP. The permit will be kept in effect until remedial action is complete.

NJPDES regulates interim storage of waste at MISS to prevent contamination of the groundwater. The emergency permit prohibits discharges of water with unauthorized levels of radionuclide or chemical concentrations to surface water or groundwater.

F. Site Access

Before any work begins, DOE must obtain from each property owner an agreement authorizing the work. The agreement grants DOE and its contractors the right to perform remedial investigation or remedial action and states the scope of work, DOE responsibilities, and the plan to restore the properties. Access agreements will be required for any additional properties designated for remedial or removal action.

G. Remedial Action Operations

Cleanup actions at the Maywood site are divided into two phases. Phase I consists of removing contaminated materials from selected residential, municipal, commercial, and state-owned vicinity properties and storing them at MISS. During Phase II, the remainder of the waste will be addressed. Removal actions were undertaken on selected properties in 1984 and 1985 as part of the Phase I cleanup.

1. 1984 Removal Action

In 1984, nine vicinity properties on Grove Avenue and Parkway and a portion of the Ballod Associates property in Rochelle Park and eight properties on Davison and Latham in Maywood were decontaminated and restored. A total of 4,700 yd^3 of material was transported to the MISS for interim storage.

2. 1985 Removal Action

In 1985, eight residences in Lodi and the major portion of the Ballod property were decontaminated and restored. This work resulted in 30,200 yd^3 of contaminated material being added to the interim

storage pile at MISS. In addition, site preparation for a stockpile to accept additional material was completed, including installation of the bottom liner and leachate collection system.

3. Future Removal Actions: If expedited cleanup is required on other designated properties, removal actions will be undertaken by DOE. Excavated waste would be added to the MISS storage pile.

   For budgeting and planning purposes, this plan assumes removal actions on commercial, municipal, and residential properties will be conducted each year of the five-year plan.

4. Remedial Action: Following completion of the RI/FS-EIS, proposed plan, and ROD, the remedial action alternative selected for the site will be implemented. For budgeting/planning purposes, it is assumed that the selected alternative will be excavation of the waste and disposal at a site within New Jersey to be determined.

H. Waste Transportation

If excavation followed by off-site disposal is the selected alternative, transportation of the waste will be required. As shown in Table IV-1, volume estimates for the Maywood site are 340,000 yd^3. For budgeting/planning purposes, it is assumed that the waste would be transported and disposed of within a 100-mi radius of the site.

I. Site Surveillance and Maintenance

The following surveillance and maintenance will be performed.

1. Environmental Monitoring

   An environmental monitoring program is maintained at MISS to meet federal and state requirements. Radioactivity in air (radon and thoron), sediments, surface water, groundwater, and external gamma radiation levels are monitored. Results are documented in an annual environmental monitoring report. During removal/remedial action work, an operations monitoring program is established on an activity-specific basis.

TABLE IV-1

TOTAL WASTE VOLUMES

Property		Estimated Volume (yd^3)
Maywood		
Scanel Property on Essex Street		8,000
NYS&W Railroad in Maywood		4,000
Sears (exclusive of warehouse)		43,000
Sears area commercial		11,000
Sears (under warehouse)		26,000
Other commercial properties (Muscarelle, Sears Truck Depot, National Community Bank)		4,000
Stepan Company		40,000
MISS in Maywood (stockpiled, buried, and leachate collection system materials)		62,000
	Subtotal	198,000
Lodi		
Residential		25,000
Municipal		7,000
Commercial		22,000
	Subtotal	54,000
Rochelle Park		
North Ballod property		6,000
NYS&W Railroad in Rochelle Park		2,000
MISS in Rochelle Park (buried)		60,000
Route 17		20,000
	Subtotal	88,000
	Grand total	340,000

Chemical sampling of the groundwater monitoring wells is conducted on a routine basis to meet permit requirements of NJDEP. Samples are analyzed for priority pollutants and radionuclides of concern as well as for other parameters specified by the NJPDES permit.

Environmental monitoring is conducted in accordance with DOE Order OR 5480.1A, "Environmental Protection, Safety, and Health Protection Program for Oak Ridge Operations" (Ref. 35); and DOE Order 5484.1, "Environmental Protection, Safety, and Health Protection Information Reporting Requirements" (Ref. 36).

2. Security and Maintenance

To protect the environment and the health and safety of the public and site personnel, BNI has developed a maintenance and surveillance program for MISS.

The program is designed to monitor the containment of contamination and to provide physical safety and security controls; it includes plans for site security, grass mowing, and fence repair. The program will be carried out until completion of ultimate site cleanup and will ensure that applicable requirements of DOE, the State of New Jersey, and federal regulatory agencies are met.

J. Final Report

Documentation of the results of remedial and removal actions performed at the site will be contained in the post-remedial action reports (PRARs) and the certification dockets. The PRARs describe the origin of contamination, methods used to determine the extent of contamination, types of remedial action performed, and data on the current radiological status of the site. The certification dockets include a summary of activities at the site (site history and description, radiological history and status, remedial action summary, and history of selection process); documents, illustrations, and tables supporting certification of the site; and a list of additional documents relevant to certification of the site.

V. COST AND SCHEDULE

Estimated costs associated with the portion of work specifically addressing the Maywood site during the time period covered by this plan are listed in Figures V-1 and V-2. The costs shown are in year-of-expenditure dollars. The schedule of work for FY 91 through FY 95, as illustrated in Figure V-3 and the text of this plan, are based on current progress and priorities.

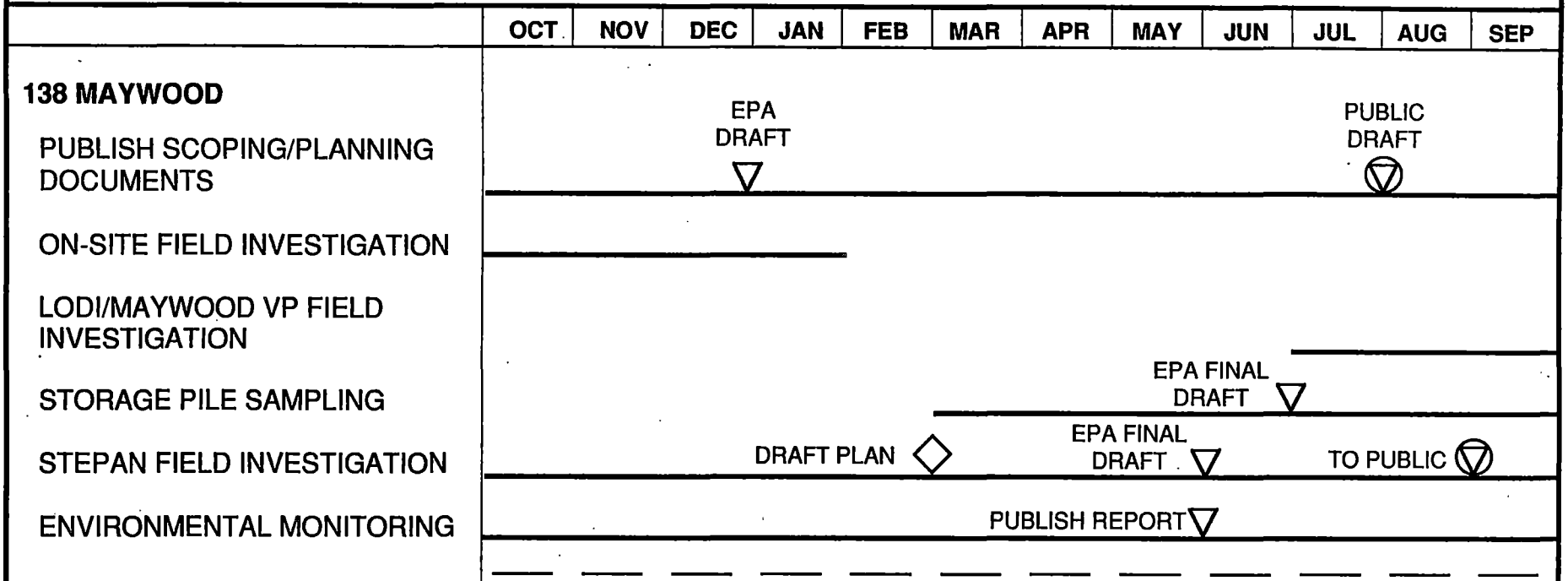
($000)

ACTIVITY	FY 90	FY 91	FY 92	FY 93	FY 94	FY 95
BNI						
ASSESSMENT (B&R AH-10-05-01)	3,305	737	93	-	-	-
CLEANUP* (B&R AH-10-05-02)	625	6,369	6,239	6,818	6,633	6,781
SUBTOTAL	3,930	7,106	6,332	6,818	6,633	6,781
ANL	180	180	175	100	75	25
HQ	940	540	335	270	215	205
TOTAL	5,050	7,826	6,842	7,188	6,923	7,011
NOTE: Dollars are BA						

*Cleanup costs include costs for surveillance and maintenance of the site.
See Section IV-I for a description of surveillance and maintenance activities.

FIGURE V-1 MAYWOOD SITE BUDGET

FY90 DETAIL — MAYWOOD, NJ



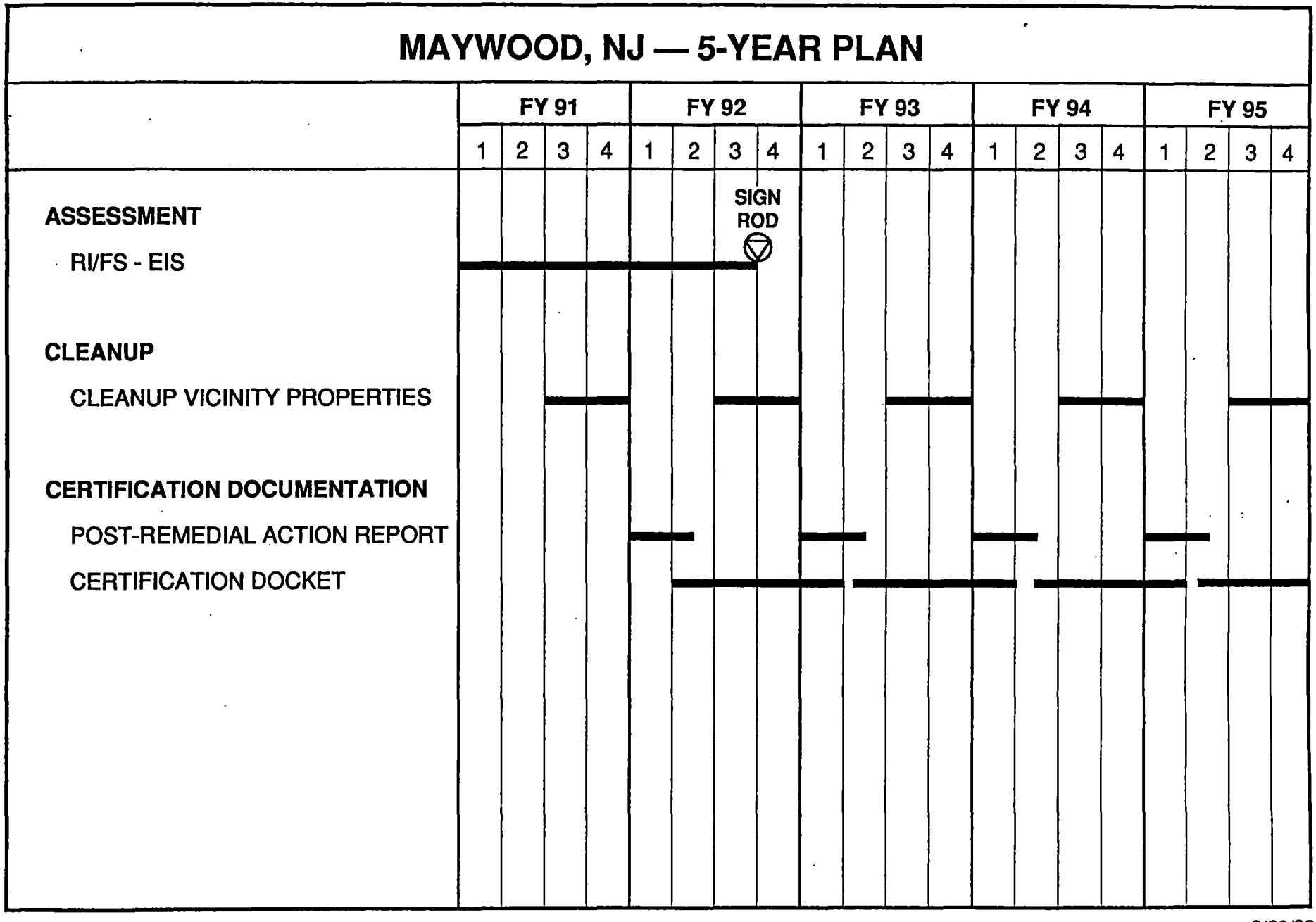
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
FUSRAP	468	301	213	158	117	110	186	458	528	453	445	493
ANL	15	15	15	15	15	15	15	15	15	15	15	15
HQ	78	78	78	78	78	78	78	78	78	78	78	82
TOTAL ($000-BA)	561	394	306	251	210	203	279	551	621	546	538	590

FIVE-YEAR PLAN FY90 VS. FY90 BASELINE RECONCILIATION: THE VICINITY PROPERTY RA WILL NOT TAKE PLACE IN FY 90. THE FEASIBILITY STUDY, EIS, AND THE RI/FS-EIS REPORT WILL NOT START IN FY 90. WORK THAT WAS NOT INCLUDED IN THE FY 90 5-YEAR PLAN SCOPE, BUT WILL BE PERFORMED IN FY 90 INCLUDE THE PILE SAMPLING, STEPAN PROPERTY CHARACTERIZATION, AND THE LODI/MAYWOOD PHASE 3 CHARACTERIZATION.

PROPOSED MILESTONES CONTROLLED BY ▽ DOE HQ ▽ ORO TSD ◇ PMC ○ ANL

9/89 1141.8

FIGURE V-2 FY 90 DETAIL



9/89 1132.19

9/20/89

FIGURE V-3 FY 91 - 95 SCHEDULE

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Appendix D

Site Plan for New Jersey Waste Disposition

SITE PLAN FOR NEW JERSEY WASTE DISPOSITION

NEW JERSEY

DECEMBER 1989

Prepared for

UNITED STATES DEPARTMENT OF ENERGY

OAK RIDGE OPERATIONS OFFICE

Under Contract No. DE-AC05-81OR20722

By

Bechtel National, Inc.

Oak Ridge, Tennessee

Bechtel Job No. 14501

FOREWORD

This document is one of a series of plans, each prepared for a specific site requiring stabilization, decontamination, and/or disposal of low-level radioactive contamination under the U.S. Department of Energy (DOE) Formerly Utilized Sites Remedial Action Program. The objective of this site plan is to describe remedial action objectives and discuss how they will be accomplished in accordance with the project summary work breakdown structure. In addition to background information, each phase of the remedial action project is described, including what has been accomplished. This site plan serves as a working reference document for the project management contractor and DOE. It will be reviewed and updated annually to reflect progress, changes, and new information regarding the scope of work at the site.

CONTENTS

FIGURES

TABLES

ACRONYMS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	Department of Energy
FUSRAP	Formerly Utilized Sites Remedial Action Program
MML	Middlesex Municipal Landfill
MSP	Middlesex Sampling Plant
NEPA	National Environmental Policy Act
RI/FS-EIS	remedial investigation/feasibility study-environmental impact study
ROD	record of decision

Site: New Jersey
Waste Disposition
WBS: 154
Date: 12/08/89

I. SUMMARY OF HISTORICAL ACTIONS AND POLICIES

The Middlesex Municipal Landfill (MML) and privately owned properties in the vicinity of the former Middlesex Sampling Plant (MSP) in Middlesex, New Jersey, have been remediated under the Department of Energy's (DOE) Formerly Utilized Sites Remedial Action Program (FUSRAP). The wastes resulting from these cleanup activities have been placed in secure interim storage on site at the MSP. Likewise, some private properties in the vicinity of the former Maywood Chemical works in Maywood, New Jersey, and the former W.R. Grace facility in Wayne, New Jersey, have been or are in the process of being remediated and the wastes placed in secure on-site interim storage. The locations of these sites, as well as the other New Jersey FUSRAP sites, are illustrated in Figure I-1.

Final remedial actions on the Wayne, Maywood, and Middlesex sites will include disposition of the interim storage piles as well as the on-site contamination. Selection of the appropriate remedial action alternative will be accomplished through the Comprehensive Environmental Response, Compensation, and Liability Act/National Environmental Policy Act (CERCLA/NEPA) process. The process involves preparation of a remedial investigation/feasibility study-environmental impact study (RI/FS-EIS) to analyze available remedial action alternatives; a proposed plan, which assesses the alternatives; and a record of decision (ROD), which selects an alternative for implementation.

Preliminarily identified alternatives include (1) no action, (2) excavation and on-site disposal, (3) excavation and off-site disposal, and (4) on-site treatment/stabilization. Off-site disposal may include disposal at an existing facility or creation of a new facility.

While nothing in this plan is intended to predetermine the waste disposition option to be selected in the ROD, some assumptions are necessary for budgeting and planning purposes. This plan assumes that the waste will be placed in a facility, yet to be built, within 100 mi of the three New Jersey FUSRAP sites.

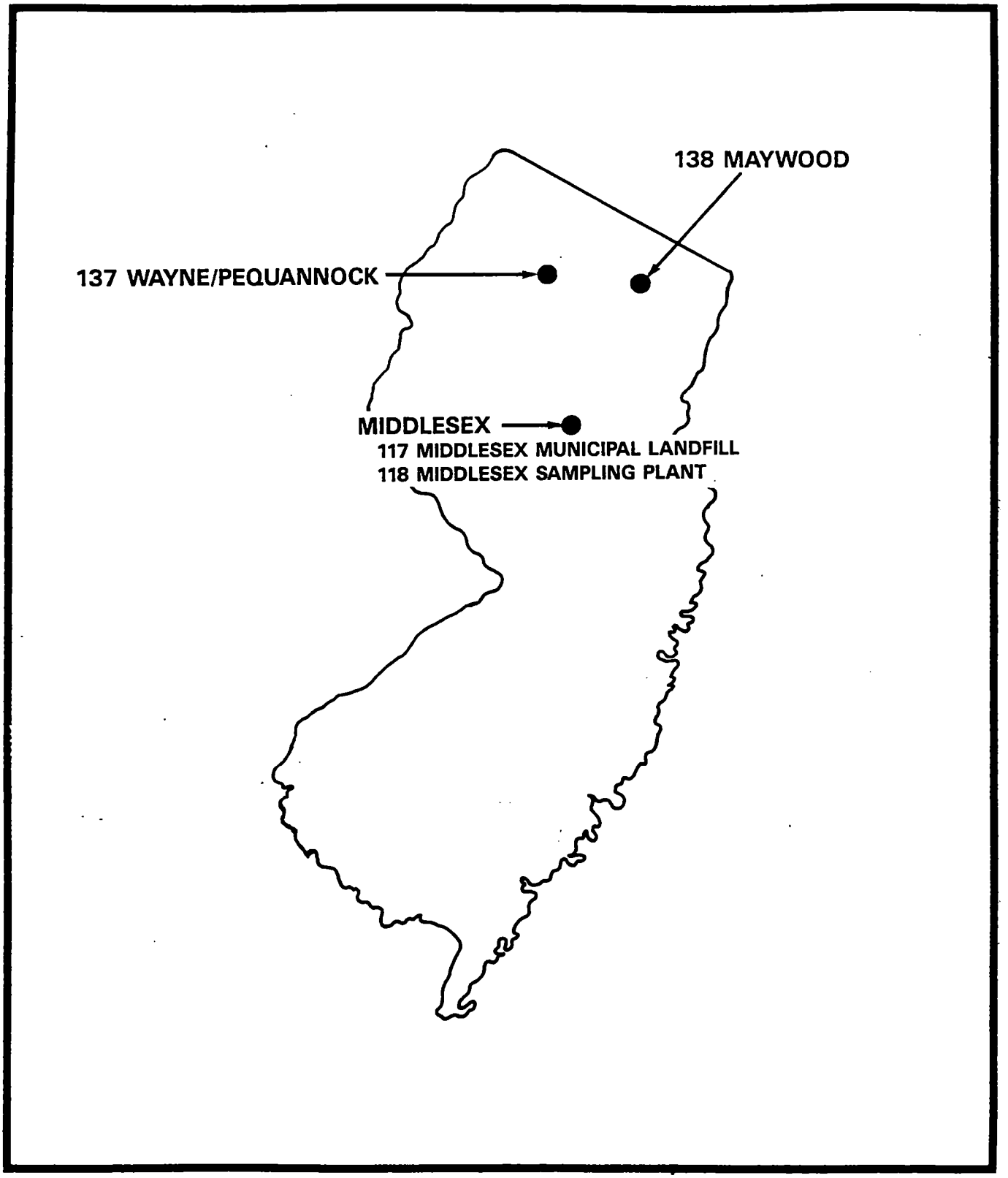

FIGURE I-1 NEW JERSEY REMEDIAL ACTION SITES

II. DISPOSAL SITE DEVELOPMENT ACTIVITIES

A. Introduction

The following discussion presents the steps that would be taken to develop a FUSRAP disposal site for the New Jersey wastes, should it be determined through the CERCLA/NEPA processes for Wayne, Maywood, or Middlesex that such a site is necessary.

The documentation required to support the development of a disposal cell is summarized in Table II-1.

B. Phase I - Site Selection

The site selection process involves two major steps: identification of three to five suitable sites, and final site selection.

In the first two steps of the site selection process, the qualifying conditions of the site evaluation criteria will be applied to identify large areas to be considered for disposal site development. The results of these studies will identify sites for further consideration.

Following the large-area screening, the preferred sites will be identified based on desirable site features. Concurrently, information regarding preferred sites will be provided to state and federal agencies, as well as the general public, from whom comments will be solicited.

Throughout the site selection process, a public participation program will be implemented to involve interested citizens and officials in the decision-making process. Public meetings will be held at various locations to solicit comments and suggestions. Additionally, a citizens' advisory group may be established to provide overview and input to the selection process, if needed. All written and oral comments received will be considered and incorporated as appropriate.

C. Phase II - Site Characterizations, Environmental Evaluations, and Candidate Site Selection

Phase II activities will include site characterization, modeling, environmental evaluation, and candidate site

TABLE II-1

LIST OF DOCUMENTS

Document Name

Phase I - Site Selection

1. Site performance and suitability criteria report
2. Applicable or relevant and appropriate requirements document
3. Site screening plan
4. Large-area screening study report
5. Small-area screening study report

Phase II - Site Characterization, Environmental Evaluations, and Final Site Selection

6. Characterization plan
7. Site characterization report
8. Conceptual design report

Phase III - CERCLA/NEPA Documentation

9. Site selection report
10. Final environmental impact statement

TABLE II-1

LIST OF DOCUMENTS

Document Name
Phase IV - Site Acquisition/ Design/Construction
11. Design package
12. Operations and closure plan
Phase V - Operation/Monitoring/Closure
13. Environmental monitoring reports
14. Final disposal report

Note: Designation of key documents is not yet finalized.

selection. Detailed characterizations of each candidate site will be conducted, and each site will be modeled. The models will serve as a basis for assessing each site's conformance to the performance criteria.

DOE will acquire access rights to enter the selected sites for the purpose of environmental, geological, and hydrological investigations and field sampling and monitoring.

Each of the preferred sites will be investigated and monitored, if necessary, for environmental, hydrological, chemical, geological, and meteorological characteristics. Field data and samples will be gathered and analyzed to provide input for environmental analysis. A site characterization report discussing field investigations and monitoring will be issued.

Conceptual engineering design of the disposal facility will be performed to support the environmental evaluation activities. Features needed throughout the life of the facility will be addressed. The design will incorporate mitigation measures dictated by factors considered during environmental, geological, and hydrological evaluations. A conceptual design report will be prepared and issued.

An environmental evaluation will be conducted to determine which site is best suited for the disposal of the FUSRAP wastes. A site selection report will be issued recommending the site to be developed.

D. Phase III - CERCLA/NEPA Documentation

An EIS for the disposal site will be performed. The review and issuance of this document and the ROD will be in accordance with the federal Council on Environmental Quality regulations and applicable DOE orders.

E. Phase IV - Site Acquisition, Design, and Construction

In Phase IV, the site will be acquired by DOE, and detailed design and construction activities will be performed.

DOE will acquire the site and obtain the necessary permits from federal, state, or local government agencies. Site construction, operation, and closure plans will be

prepared. These plans will be patterned after analogous documents required for the development of commercial low-level radioactive waste disposal sites. Based on this plan, detailed engineering designs will be developed. Quality assurance assessments will be performed.

The site will be constructed by local subcontractors. The disposal cell will be constructed in phases, with each phase designed to accommodate the material to be received the following year.

F. Phase V - Operation, Monitoring, Closure, and Post-Closure

During Phase V, FUSRAP wastes from New Jersey interim storage locations will be moved to the disposal site. Site surveillance and maintenance and environmental monitoring routines will be established.

An environmental monitoring program will be maintained during the operating life of the site and for a period thereafter to be agreed upon. Monitoring of air, groundwater, surface water, and external gamma radiation will be conducted. The monitoring results will be included in an annual environmental monitoring report.

During the operating life of the site and for a period thereafter to be agreed upon, certain security and maintenance activities will be required (such as miscellaneous repairs, utilities, supplies, equipment maintenance, snow removal, and guard service). Custody and control of site use will be continued indefinitely.

Documentation of the disposal operations will be maintained. This final disposal report and supporting documentation will be stored in government archives.

Complete copies or summaries will also be placed on file at an appropriate local center, such as a public library or state or local government planning or records offices.

III. COST AND SCHEDULE

Estimated costs associated with the portion of work specifically addressing the waste disposal site during the period covered by this plan are listed in Figures III-1 and III-2. The costs shown are in year-of-expenditure dollars. The schedule of work for FY 91 through FY 95 as illustrated in Figure III-3 and the text of this plan are based on current progress and priorities.

($000)

ACTIVITY	FY 90	FY 91	FY 92	FY 93	FY 94	FY 95
BNI						
ASSESSMENT (B&R AH-10-05-01)	46	49	248	552	390	2,550
CLEANUP* (B&R AH-10-05-02)	-	-	-	-	-	-
SUBTOTAL	46	49	248	552	390	2,550
ANL	25	24	75	100	50	25
HQ	15	5	15	25	15	75
TOTAL	86	78	338	677	455	2,650
NOTE: Dollars are BA						

*Cleanup costs include costs for surveillance and maintenance of the site.
See Section IV-I for a description of surveillance and maintenance activities.

FIGURE III-1 NEW JERSEY WASTE DISPOSITION SITE BUDGET

FY90 DETAIL — NEW JERSEY WASTE DISPOSITION

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
154 NEW JERSEY WASTE DISPOSITION												
SITE SELECTION MEETINGS												
FUSRAP	4	4	3	4	3	4	5	4	3	4	4	4
ANL	3	2	2	2	2	2	2	2	2	2	2	2
HQ	2	1	1	2	1	1	2	1	1	1	1	1
TOTAL ($000-BA)	9	7	6	8	6	7	9	7	6	7	7	7

PROPOSED MILESTONES CONTROLLED BY ⓥ DOE HQ ▽ ORO TSD ◇ PMC ○ ANL

9/89 1141.9

FIGURE III-2 FY 90 DETAIL

NEW JERSEY WASTE DISPOSITION — 5-YEAR PLAN

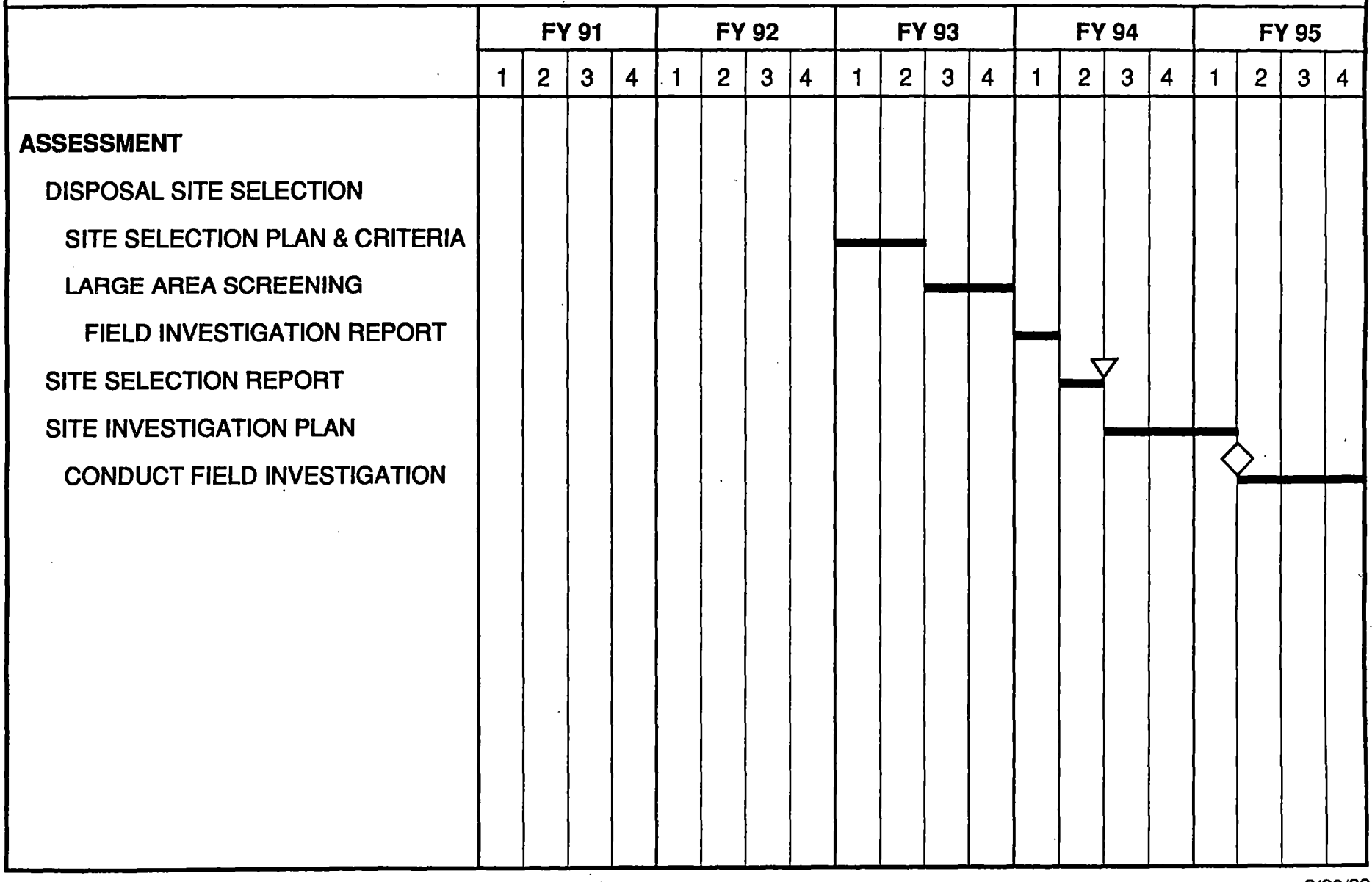

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FIGURE III-3 FY 91 - 95 SCHEDULE

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No documents have been published to date.