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FACT SHEET: REMEDIAL DESIGN AND REMEDIAL ACTION UPDATE FOR THE OPERABLE UNIT 3 INTERIM REMEDIAL ACTION AT FERNALD

02/00/95

DOE-FN PUBLIC
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FACT SHEET

United States
Department of Energy
Fernald Environmental Management Project

DOE Fernald Office
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Fact Sheet:

Remedial Design and Remedial Action Update for the Operable Unit 3 Interim Remedial Action at Fernald

FEBRUARY 1995

This Fact Sheet Will Describe for You:

- The status of the OU3 interim remedial action;
- An overview of remedial design and remedial action activities for the OU3 interim remedial action;
- Engineering and administrative controls, and environmental monitoring during the OU3 interim remedial action;
- Highlights of the first two planned OU3 decontamination and dismantlement projects; and
- Opportunities for public involvement during the OU3 interim remedial action.

You are invited to a public workshop

to discuss the remedial design and remedial action process for the Fernald Environmental Management Project. The workshop will include a discussion on public involvement opportunities during the remedial design phase and provide information on two potential upcoming remediation projects for the OU3 interim remedial action: Building 4A and the External Complex. The meeting is scheduled from 7 to 9 p.m. on February 21, 1995, at The Plantation in Harrison, Ohio, 9660 Dry Fork Road.

INTRODUCTION

This fact sheet was prepared by the U.S. Department of Energy (DOE) to update the public on the remedial design (RD) and remedial action (RA) activities which have taken place and are scheduled relative to the Operable Unit 3 (OU3) interim remedial action. Specifically, this fact sheet provides a general overview of both the RD and RA processes as they apply to the OU3 interim remedial action, and information on the first two remediation projects under the OU3 interim remedial action: the decontamination and dismantlement of Building 4A (Green Salt Plant) and the External Complex (Skeet Range Building, Sewage Treatment Plant Incinerator, and Old Decontamination Building). This fact sheet also provides a summary of other project-specific issues of public interest, including a discussion of public involvement opportunities during the RD/RA process for OU3.

BACKGROUND

The Fernald Environmental Management Project (FEMP) is a DOE-owned, contractor-operated federal facility that produced high purity uranium metal products for the DOE and its predecessor agencies from 1952 to 1989. Thorium was also processed, but on a smaller scale, and stored on site. Production activities ceased in 1989, and the production mission was formally ended in 1991. The Fernald site was included on the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) National Priorities List in 1989. The current mission of the site is the safe environmental restoration of the site in accordance with all applicable requirements.

UNDERSTANDING OPERABLE UNIT 3

The Fernald site is divided into five operable units. Operable Unit 3 (OU3) consists of all man-made structures at Fernald, both above- and below- grade, that are not included in the other four operable units. OU3 components include buildings, storage pads, railroads,

sewer and electrical systems, roads, fences, inventory, drums, material piles, etc. Most of these lie within the former production area, which occupies about 136 acres near the center of the Fernald site. OU3 does not include environmental media such as soils and groundwater.

OU3 INTERIM REMEDIAL ACTION

Record of Decision for Interim Remedial Action

On July 22, 1994, the U. S. Environmental Protection Agency (USEPA) signed the *OU3 Record of Decision for Interim Remedial Action*. The OU3 Record of Decision of Interim Remedial Action addresses the decontamination and dismantlement of all above- and below-grade structures and related facilities in OU3, limited disposition of some of the resulting waste, and the temporary storage of most of the debris and remediation waste until 1996 when a decision concerning treatment and final disposition of stored remediation wastes and debris is made in the Record of Decision for the OU3 final remedial action.

MAJOR COMPONENTS OF THE INTERIM REMEDIAL ACTION

- Decontamination of more than 200 buildings and structures in OU3 by removing loose contamination;
- Dismantlement of the above-grade structures;
- Removal of foundations, storage pads, ponds, basins, underground utilities, and other at- and below-grade structures;
- Use of existing facilities or construction and operation of new interim storage facilities in or near the former production area;
- Off-site disposal of some non-recoverable or non-recyclable waste and debris generated by dismantlement;
- Off-site recycling of some material from dismantlement; and
- Temporary storage of the remaining waste and debris until treatment and disposition are selected in the Record of Decision for the OU3 final remedial action.

OU3 Remedial Design/Remedial Action Work Plan

Upon selection of the remedy, the *OU3 RD/RA Work Plan for Interim Remedial Action* was developed to identify the activities required to design and implement the action. DOE has chosen to combine the RD and RA work plans into a single document to more efficiently utilize time, budget, and resources. The particulars of the other operable units, however, may dictate the more traditional approach of developing separate RD and RA work plans.

The draft final version of the OU3 RD/RA Work Plan, submitted to USEPA and the Ohio Environmental Protection Agency (OEPA) on December 16, 1994, provides the overall framework for developing designs and implementing each decontamination and dismantlement project. The RD/RA Work Plan also presents the overall OU3 RD/RA strategy for other aspects of the OU3 interim remedial action, including the approach for developing a sequence for implementation and necessary project support activities such as environmental monitoring and material management. Except for illustrative purposes, the scope of work and approach for specific decontamination and dismantlement projects are not addressed in the Work Plan. The OU3 RD/RA Work Plan was conditionally approved by OEPA on January 20, 1995, with USEPA approval expected in February 1995.

Implementation Plans

It is anticipated that twenty-three implementation plans will be prepared over the course of the OU3 interim remedial action (concurrent with design), one for each decontamination and dismantlement project, for the purpose of summarizing the specific remediation activities for each of the structures and associated components that make up the project. The overall project-specific approach to asbestos abatement/removal, surface decontamination, dismantlement, material management, environmental monitoring, proposed sampling, the project schedule, and project management responsibilities will be included in each implementation plan. The draft final version of the first of these implementation plans, for Building 4A, was submitted to USEPA and OEPA for review on December 16, 1994. This implementation plan was conditionally approved by OEPA on January 20, 1995, with approval by USEPA expected in February 1995. The OU3 RD/RA Work Plan and Building 4A Implementation Plan were placed in the Public Environmental Information Center for public inspection at the time of submittal to the regulators.

OU3 RD Prioritization and Sequencing Report

The methodology for developing a sequence and schedule for the entire OU3 interim remedial action program is presented in the RD/RA Work Plan. This approach consists of assembling buildings or structures into complexes, prioritizing the complexes for remediation, and developing a base schedule for the interim remedial action. The results of this scheduling activity will be presented in a report that will be submitted to USEPA and OEPA by March 17, 1995, entitled the *OU3 Remedial Design Prioritization and Sequencing Report*. An updated base schedule will be submitted as needed to the regulatory agencies if there are any changes to the base schedule.

REMEDIAL DESIGN AND REMEDIAL ACTION PROCESS

Remedial design and remedial action are two distinct, but interrelated, processes that follow and build upon the Record of Decision. Typically, the remedial design phase of a project begins around the time the Record of Decision is signed, and the remedial action phase begins shortly before or after remedial design is completed. The timing of these activities for the Building 4A project is illustrated in Figure 1. Although not shown in Figure 1, remedial design and remedial action activities often overlap due to the need to begin bidder prequalification prior to the bidding process. The discussion which follows under this heading details the remedial design process as it has been, and will continue to be, implemented for each project, and the remedial action process, as it is generally intended to occur throughout the OU3 interim remedial action.

Remedial Design

The purpose of the remedial design is to take the remedy identified for the OU3 interim remedial action and develop whatever technical direction is necessary, based on the approach specified in the OU3 RD/RA Work Plan, to ensure that the remedial action is implemented in a manner that meets all objectives specified in the OU3 ROD for the interim remedial action. In other words, the remedial design provides a mechanism through which concepts identified in the ROD are further developed and refined so as to provide appropriate direction to the subcontractor who will perform the decontamination and dismantlement activities. Specifically, the remedial design consists of developing detailed performance criteria for remedial activities that will be included in subcontracts for decontamination and dismantlement projects.

Although many of the remedial design activities will be performed by a remedial design subcontractor, multi-disciplinary teams, called Design-Engineering-Construction (DEC) Teams, are also formed to complete the remedial design activities for each project. These teams are made up of representatives from various FEMP organizations having disciplines in engineering, construction, environmental, health and safety, quality assurance, regulatory, waste management, safe shutdown, etc., as well as various representatives from DOE-FN. The DEC Team is the focal point for all technical, regulatory, and administrative issues for a specific project, thereby providing the integration and coordination necessary to ensure effective implementation of the project.

The material developed through the design process includes performance specifications, drawings,

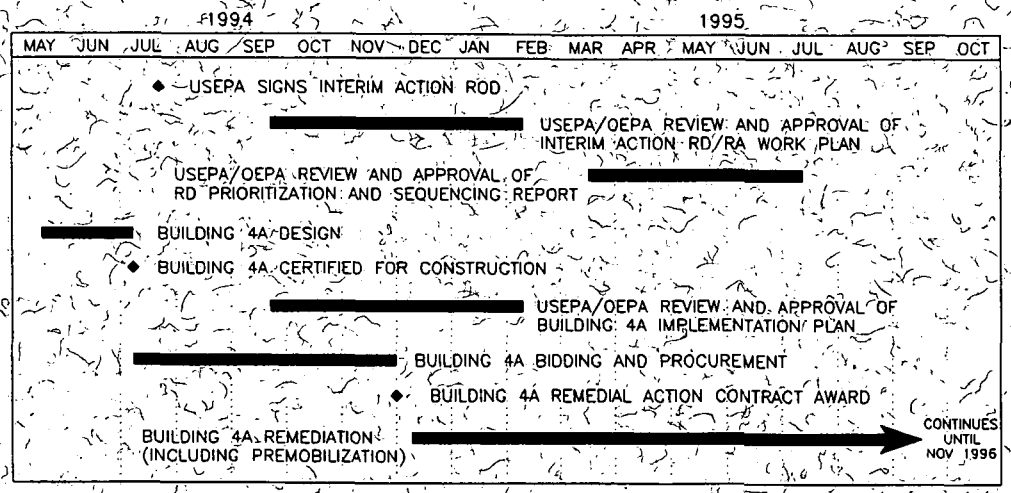

FIGURE 1

videos, and photographs. The photographs, videos, and some of the drawings allow the selected remediation subcontractor to visualize the conditions under which the work will be performed. The performance specifications identify activity-specific standards that must be met during decontamination and dismantlement. Specifically, the performance specifications identify submittals and provide general criteria for executing various aspects of the work such as waste handling, asbestos abatement, removing/fixing radiological contamination, concrete removal, structural steel dismantlement, etc. By using performance criteria, the specifications identify the criteria that must be met, but not *how* the work is to be done.

▸ **Remedial Action**

The remedial action phase for each project includes the actual decontamination and dismantlement activities and supporting activities on-site, such as monitoring and sampling, and material handling, storage, and disposition.

The remedial action phase starts with the procurement of the remediation subcontractor. The procurement process includes the development of a bid package, the bidding phase, and the award of the contract. The bid package includes the design elements identified above, along with bidding and award information, general and special terms and conditions, a statement of work, the project labor agreement, environmental health and safety and training requirements, and quality assurance requirements. The bidding phase involves advertising a request for bid proposals from prospective bidders for the work, to establish a list of prospective bidders who can do the type of work to be contracted and who meet minimum qualifications. Only pre-qualified bidders will then receive the bid package. During the bidding phase, pre-bid meetings will be held to familiarize the bidders with the site and the project and to answer any questions, whereupon bids will be prepared and submitted by the prospective bidders. Following opening of the bids that are received, the bids are reviewed to ensure that the apparent low bidder is "responsive and responsible." Upon recommendation by the contracts administrator, the award is then made to the responsive and responsible bidder that has the lowest bid.

Subsequent to the award of the remediation subcontract for a particular project, the successful bidding subcontractor will develop and submit work plans that propose specific actions, methods, procedures, technologies, and equipment by which the work will be done. These work plans may include an asbestos abatement work plan, a work plan for removing/fixing contamination, a work plan for concrete removal, a work plan for erosion and soil control, etc. These submittals will undergo formal FEMP review and approval.

The OU3 RD/RA Work Plan presents a strategy wherein the interim remedial action will be implemented through a series of seven remedial tasks performed under existing Fernald site programs or through subcontractors. These seven tasks are highlighted in Figure 2 on the next page. The first two tasks are "preparatory" actions, based on their performance under existing removal actions, that are not specifically included within the scope of the OU3 interim remedial action. As such, these activities are performed by Fernald site workers.

Activities under the remedial action tasks described in Figure 2 will be included in the scope of remediation for each component, as necessary, but may not necessarily be implemented in the order that they are presented in the figure. For example, activities associated with more than one task, such as above-grade dismantlement and surface decontamination, could occur at the same time. Figure 2 simplifies the discussion of remedial activities by grouping them into general tasks.

During remedial action activities, DOE and FERMCO will oversee the work by conducting inspections of the subcontractor's activities so as to ensure that all remediation tasks adhere to the performance specifications. If deficiencies are noted during inspection and surveillance activities, the subcontractor shall be notified immediately so that corrective actions are taken as soon as possible.

ENGINEERING AND ADMINISTRATIVE CONTROLS

Engineering and administrative controls are an integral part of the OU3 interim remedial action, since they serve to control access to the project and control the exposure of workers and the environment to hazardous substances. Engineering controls eliminate hazards by mechanical means or by process design, and are the preferred method for protecting the individual and the environment from hazards. They consist of apparatus and/or mechanisms which physically prevent entry, minimize hazards, or create some kind of barrier. Administrative controls are not

intended to physically stop individuals or remove hazards, but rather are intended to ensure protection against hazards by management, procedures, record keeping, and assessments. Some examples of these controls, as they are factored into the interim remedial action, are as follows:

▸ **Control of Fugitive Emissions**

The control of fugitive emissions could consist of physical barriers, air locks, fixatives, filtration equipment, sealants, water sprays, and wetting agents that will ensure the safety of workers and decrease airborne dust. Details on the methods and materials to be utilized to control fugitive emissions for each of the various activities, such as for concrete removal, will be developed by the remediation subcontractor and be presented in a work plan for DOE review and approval.

▸ **Protection of Adjacent Facilities**

The remediation subcontractor is required to take steps necessary to provide for the protection of adjacent facilities, including railroad tracks, manholes, catch basins, underground utilities, adjacent structures, and groundwater monitoring wells, from damage during the work. These steps could include the construction of protective barriers.

REMEDIATION TASKS PRIOR TO/DURING REMEDIAL ACTION

Task I **Preparatory Action: Inventory Removal - Removal No. 9**
Activities prior to the remediation of components, performed under existing programs
- Removal of existing waste inventories and miscellaneous stored materials from components

Task II **Preparatory Action: Safe Shutdown - Removal No. 12**
Activities prior to remediation of components that will prepare components for decontamination and dismantlement
- Isolate and de-energize utilities
- Remove hold-up material
- Gross cleaning of component surfaces

Task III **Hazardous Waste Management Unit (HWMU) Closure (as applicable)**
Performance of RCRA-required closure activities for HWMUs to be closed under CERCLA
- Initial (above-grade) HWMU clean closure efforts or activities

Task IV **Asbestos Removal - Removal No. 26**
Removal of friable asbestos and related surface decontamination activities as specified under existing procedures - small abatement projects to be performed as a preparatory action and large abatement projects to be performed during remedial action
- Abatement of friable Asbestos Containing Material on pipes and equipment using enclosure systems/glove bags
- In situ surface cleaning as necessary (dry and hydro-cleaning)
- Aggressive air sampling to release enclosure(s)

Task V **Surface Decontamination**
In situ surface decontamination to remove loose, unfixed (and some fixed, if necessary for the closure of HWMUs) radiological and chemical contaminants (release cleaning)
- High-efficiency particulate air (HEPA) filter vacuuming of surfaces
- Hydro-cleaning
- Scabbling
- Lock-down of remaining contaminants

Task VI **Above-Grade Dismantlement**
Material and structural dismantlement and removal of materials
- Establishment of additional control measures
- Removal of ductwork, piping, conduit, and remaining equipment
- Removal of interior and exterior siding
- Removal of structural steel and above-grade concrete

Task VII **At- and Below-Grade Dismantlement**
Final remediation of components to coincide with OU5 soil remediation schedule
- Removal of slabs, foundations, at- and below-grade utilities, below-grade storage tanks, roads, and railroads

FIGURE 2

▸ **Management of Contaminated Water**

Wastewater and stormwater produced during the decontamination and dismantlement activities or from surface runoff during construction will be managed within the project boundary to minimize the generation of additional waste streams and prevent the spread of contamination off-site. During decontamination, wastewater will be collected, containerized, and characterized. After characterization, the water may require initial filtration before being transported to the wastewater treatment system or offsite for treatment and/or disposal in accordance with applicable regulations. A stormwater runoff plan, subject to DOE approval, will be prepared by the remediation subcontractor to address control of erosion and drainage from the jobsite.

▸ **Jobsite Access Controls**

The subcontractor will be responsible for the establishment of control zones, contamination reduction zones, support zones, construction areas, access/egress corridors, and a sign station at the entrance to the jobsite for posting of permits and health and safety plans.

ENVIRONMENTAL MONITORING

Environmental monitoring activities have been designated for the interim remedial action activities to help assess the effectiveness of activities and controls, and to identify the need for any additional mitigative measures. There are essentially three aspects to proposed environmental monitoring: groundwater; surface water; and air within and at the Fernald site boundary.

▸ **Groundwater**

Groundwater monitoring is currently being conducted under two programs by Operable Unit 5 (OU5 includes groundwater, surface water, soils not included in other Operable Units, etc). DOE has determined that those two programs will produce sufficient monitoring data to assess any potential impacts to groundwater quality due to the OU3 interim remedial action. It is anticipated that no additional groundwater monitoring will be required for project-specific activities unless a release of contamination occurs, or is suspected to have occurred, that could potentially impact groundwater quality.

▸ **Surface Water**

Management of surface waters will continue to be maintained under the existing site-wide surface water sampling programs. Activities will be managed to ensure compliance with all effluent limitations and permit conditions stipulated by the National Pollutant Discharge Elimination System permit.

▸ **Air**

Two existing air monitoring programs, one being environmental and the other occupational, and one supplemental air monitoring program will be used to support the OU3 interim remedial action. The existing programs include the Fernald Site Environmental Monitoring Program, and the Occupational Air Monitoring Program, respectively. To provide project-specific environmental air monitoring, a supplemental environmental air monitoring program will be designed for each project. The supplemental environmental air monitoring program provides project-specific air monitoring support primarily to determine the effectiveness of engineering control measures. Individual project-specific air monitoring plans will be developed during the remedial design using the methodology which was established during the development of the OU3 RD/RA Work Plan and will be presented the appropriate implementation plan.

The supplemental environmental air monitoring program is similar to the one utilized during the decontamination and dismantlement activities for Plant 7 which effectively measured airborne concentrations of the contaminants of concern using a sufficient number of continuous air monitors strategically placed for that project. The supplemental monitoring program for the OU3 interim remedial action involves the placement of monitors around the facilities being remediated, and collecting radiological samples on a weekly basis during remediation. To provide a baseline with which results are compared, the sampling will begin approximately eight weeks prior to the start of remediation. Attempts will be made to report preliminary air monitoring results to the construction manager within seven to ten calendar days for evaluation against the baseline. If the results are elevated in comparison to the established baseline, the decontamination and dismantlement activities will be reviewed to determine the effectiveness of engineering controls during remediation and to identify any need for additional mitigative measures. Validated data will be compiled and reported to DOE monthly for distribution. The need to monitor for

asbestos and other constituents of concern (e.g., lead) will be determined on an activity-specific basis and, if necessary, will be performed under the occupational air monitoring program.

SCOPE OF BUILDING 4A PROJECT

The first complex scheduled for remediation under the interim remedial action is the Building 4A project. This project consists of the decontamination and dismantlement of the above-grade portion of Building 4A (Plant 4 or the Green Salt Plant) as shown in Figure 3. Building 4A housed the hydrofluorination process for the conversion of uranium trioxide to uranium tetrafluoride. Building 4A was also briefly used for the hydrofluorination of thorium oxide in 1954.

Building 4A was selected as the logical starting point for OU3 remediation because it has no current or future value as a usable structure and has exceeded its intended design life. Also, with the dismantlement of Plant 7, the Plant 7 Overhead Crane, and the Plant 4 Maintenance Building under Removal Action 19, this project would leave an open area, the size of a complete city block, in the center of the former production area for future use either as a location for storage of heavy construction equipment or unused shipping containers, a central staging area, etc.

Because of its similarity to Plant 7 in terms of its construction, the decontamination and dismantlement of Building 4A will be similar to that which was performed for Plant 7. Building 4A is constructed of a structural steel frame enclosed by transite siding and roofing panels, and is supported by a reinforced concrete base. Since Building 4A is a seven-level, five-story, rectangular structure measuring 146 x 194 x 92 feet high, it is slightly shorter than Plant 7, but overall is about three times as large as Plant 7. Based on an evaluation of health, safety, and cost savings, the preferred method of dismantlement for Building 4A, as was with Plant 7, is controlled use of explosives to bring the structural frame to the ground. However, the method that will be used will be detailed by the subcontractor in a work plan that will be subject to DOE approval.

On December 1, 1994, the subcontract for the Building 4A project was awarded to Babcock and Wilcox (B&W-NESI) of Lynchburg, Virginia. Remediation subcontractor submittals are currently being prepared and field activities are expected to begin early this spring, following completion of the preparatory actions (i.e., inventory removal and safe shutdown) and approval of subcontractor submittals.

SCOPE OF THE EXTERNAL COMPLEX PROJECT

This project is also planned for implementation in the early spring of 1995, generally about the same time as Building 4A following preparatory actions. The project includes decontamination and dismantlement of the following three structures, proposed to be in this order: Building 69 - Decontamination Building; Component 39D - Sewage Treatment Plant Incinerator; and Building 28F - the Skeet Range Building (see Figure 3 for location of these structures).

The Old Decontamination Building is a single-story building measuring approximately 43 x 83 x 18 feet high and consists of a structural steel frame, concrete block walls with glass windows, an acid brick and concrete floor, and corrugated metal roofing. The Sewage Treatment Plant Incinerator measures approximately 16 x 20 feet and consists of a structural steel frame on a concrete base with a smoke stack that extends 36 feet high. This component was used from 1954 through 1979 to incinerate a variety of process and non-process wastes. The Skeet Range Building (formerly known as Building 90) is a single story structure with approximate dimensions of 15 x 15 x 9 feet high, consisting of a steel frame with metal siding and roofing. It was used for storing clay pigeons and pigeon launching equipment.

These three structures were designed for remediation in July 1994 and were selected for near-term remediation because they also have no current use and are immediately available for remediation. At this time, it is planned that the FEMP's construction support contractor, Wise Construction Services, will perform the remediation of these three structures. The construction support contractor, which provides trained labor on an hourly basis, was selected to perform this project based on several factors, a few of which include the ability to perform the work quicker, cost-effectiveness, and meeting minority and small business labor goals. Traditional wrecking methods are envisioned for these three structures; however, the final approved methods have not yet been determined. The draft implementation plan for the External Complex is being prepared for submittal to USEPA and OEPA in late February 1995.

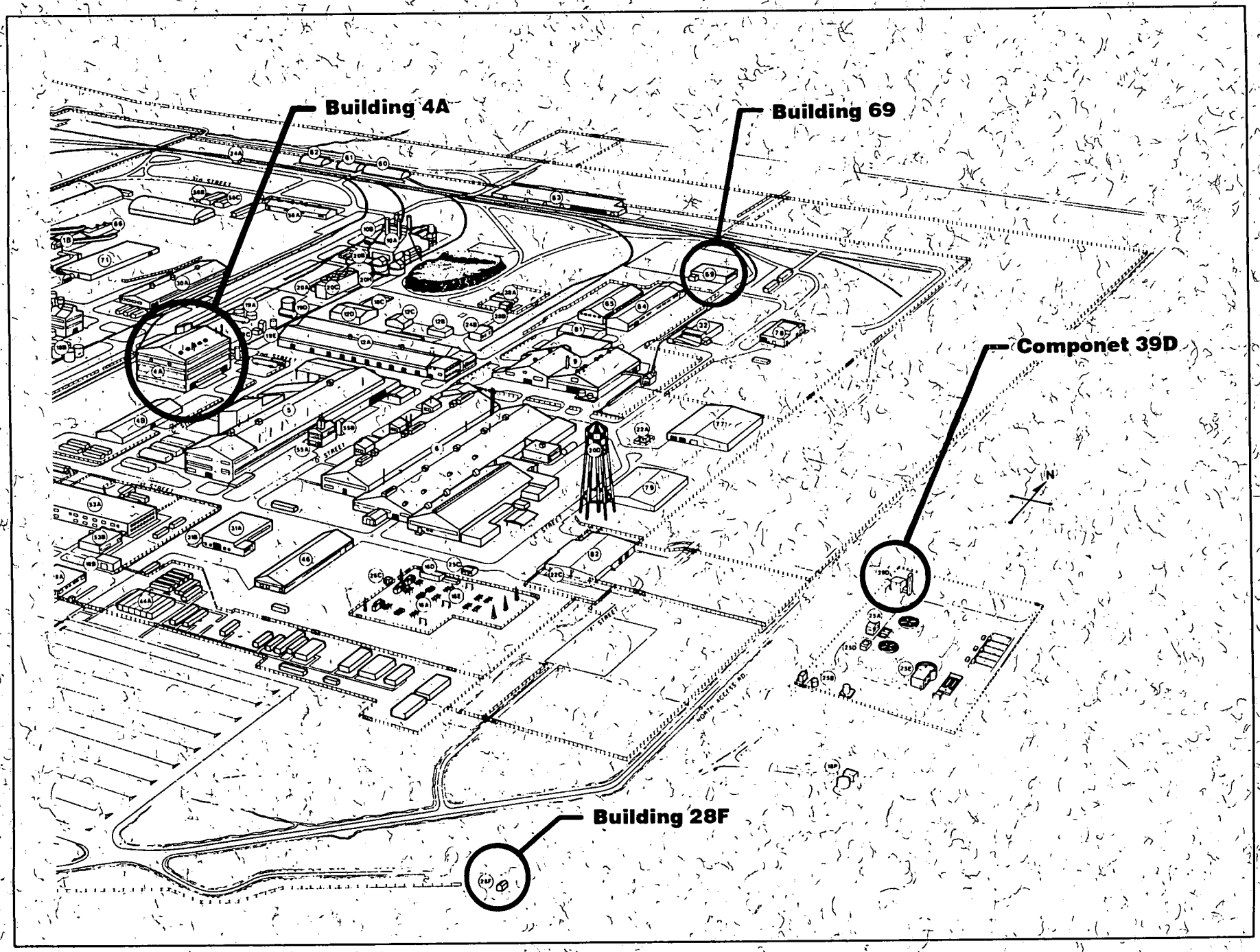

FIGURE 3

PUBLIC INVOLVEMENT

The DOE values public involvement in the Fernald decision-making process and, shall continue to offer opportunities for public involvement beyond those required by regulations. Under the RD and RA phase of the cleanup, requirements include revising the Community Relations Plan, as was recently done, and notifying the public at the beginning of the remedial design stage and prior to beginning remedial action. The revised Community Relations Plan provides more information on both required and supplemental public involvement opportunities. USEPA approved the Fernald Community Relation's Plan on January 18, 1995. The final plan will be placed in the Public Environmental Information Center by mid-February.

Additional information or related clean-up documents are available to the public at the following location:

Public Environmental Information Center
JAMTEK Building
10845 Hamilton-Cleves Highway
Harrison, Ohio 45030
(513) 738-0164 or 0165

If you have any additional questions, you may contact Mr. Gary Stegner at 513-648-3153. For information on Fernald-related public meetings and documents available to the public, you may call the community access line at 513-648-6272.

Opportunities for Public Involvement during the OU3 Interim Remedial Action

Availability of Key Decision-Making Documents: Throughout the RD/RA process, DOE will continue to make key decision-making documents available to the public for their inspection. As these documents are issued, DOE will inform the public of their availability. For OU3, such documents will include, but not necessarily be limited to, the OU3 RD/RA Work Plan, implementation plans, and the OU3 RD Prioritization and Sequencing Report. Draft Final versions of the OU3 RD/RA Work Plan and the Building 4A Implementation Plan were made available to the public in December 1994. Copies of these documents will be made available at the Public Environmental Information Center, JAMTEK Building, 10845 Hamilton-Cleves Highway, Harrison, Ohio 45030, (513) 738-0164 or 738-0165.

Public Briefings: DOE will continue to update the public through briefings at township and citizens' group meetings, community roundtables, workshops, etc., on timely topics of interest. One such briefing will be the public workshop scheduled for February 21, 1995 to discuss specifics on Building 4A and External Complex.

Fact sheets: In addition to the above, other mechanisms such as fact sheets may be used to provide the public with information on key decision-making documents and/or issues affecting implementation of the remedial action.

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