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*Certification Docket for the
Remedial Action Performed
at the Elza Gate Site in
Oak Ridge, Tennessee, 1991-1992*

*Department of Energy
Former Sites Restoration Division
Oak Ridge Operations Office*

February 1994



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CERTIFICATION DOCKET FOR THE REMEDIAL ACTION
PERFORMED AT THE ELZA GATE SITE
IN OAK RIDGE, TENNESSEE, 1991-1992

FEBRUARY 1994

Prepared for

UNITED STATES DEPARTMENT OF ENERGY

Oak Ridge Operations Office

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By

Bechtel National, Inc.

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ACRONYMS

AEC	Atomic Energy Commission
ANL	Argonne National Laboratory
BNI	Bechtel National, Inc.
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	U.S. Department of Energy
DOE-FSRD	Department of Energy Former Sites Restoration Division
EE/CA	engineering evaluation/cost assessment
EPA	U.S. Environmental Protection Agency
FUSRAP	Formerly Utilized Sites Remedial Action Program
IVC	independent verification contractor
MED	Manhattan Engineer District
MSL	mean sea level
NEPA	National Environmental Policy Act
ORAU	Oak Ridge Associated Universities
ORISE	Oak Ridge Institute for Science and Education
ORNL	Oak Ridge National Laboratory
PCB	polychlorinated biphenyl
PIC	photoionization chamber
TDHE	Tennessee Department of Health and Environment

UNITS OF MEASURE

cm	centimeter
cpm	counts per minute
dpm	disintegrations per minute
ft	foot
g	gram
h	hour
ha	hectare
in.	inch
m	meter
μ Ci	microcurie
μ R	microroentgen
ml	milliliter
mrem	millirem
pCi	picocurie
ppm	parts per million
yd	yard
yr	year

INTRODUCTION

The U.S. Department of Energy (DOE), Office of Environmental Restoration and Waste Management, Decontamination and Decommissioning Division (and/or predecessor agencies, offices, and divisions) conducted a remedial action project at the Elza Gate site in Oak Ridge, Tennessee. The work was administered by the Formerly Utilized Sites Remedial Action Program (FUSRAP) under the direction of the Decontamination and Decommissioning Division.

The United States Congress authorized DOE to initiate FUSRAP in 1974 to identify and clean up or otherwise control sites where chemical contamination and/or residual radioactive material (exceeding current guidelines) remains from the early years of the nation's atomic energy program or from commercial operations causing conditions that Congress has authorized DOE to remedy. The objectives of FUSRAP are to

- identify and assess all sites that were formerly utilized in support of early Manhattan Engineer District/Atomic Energy Commission (MED/AEC) nuclear work to determine whether further decontamination or control is needed;
- decontaminate or apply controls to these sites to permit compliance with current applicable guidelines;
- dispose of or stabilize all generated residues in an environmentally acceptable manner;
- accomplish all work in accordance with appropriate landowner agreements and local and state environmental and land-use requirements to the extent permitted by federal law and applicable DOE orders, regulations, standards, policies, and procedures; and
- certify, at the completion of the remedial action, that the chemical and radiological conditions of the sites comply with guidelines and that the sites may be released for appropriate future use.

FUSRAP is managed by the DOE Oak Ridge Operations Office, Former Sites Restoration Division (DOE-FSRD). As the project management contractor for FUSRAP, Bechtel National, Inc. (BNI) is responsible for planning, managing, and implementing FUSRAP.

Environmental Regulations for FUSRAP

To assess the environmental impacts of federal actions, Executive Order 11991 empowered the Council on Environmental Quality (CEQ) to issue regulations to federal agencies for implementing the procedural provisions of the National Environmental Policy Act (NEPA) that are mandatory under the law. In June 1979, CEQ issued regulations containing guidance and specific requirements. DOE guidelines for implementing the NEPA process and satisfying the CEQ regulations were subsequently issued and became effective on March 28, 1980.

The NEPA process required FUSRAP decision-makers to identify and assess the environmental consequences of proposed actions before beginning remedial action activities, developing disposal sites, or transporting and emplacing radioactive wastes. After the enactment of the Superfund Amendments and Reauthorization Act, which amended the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), DOE established a policy to integrate the similar requirements of CERCLA and NEPA.

Documentation required by NEPA and CERCLA to support the FUSRAP remedial action at the Elza Gate site was prepared by Argonne National Laboratory (ANL). Supporting documentation was provided to ANL by BNI in a series of engineering studies of the remedial action under consideration for the site. The remedial action alternative selected by DOE, based on the evaluation from the NEPA and CERCLA processes, was subsequently implemented for public safety and for compliance with applicable federal, state, and local requirements.

For the remedial action activities discussed in this certification docket, the CERCLA requirements were satisfied by the preparation of two engineering evaluations/cost analyses (EE/CAs). The EE/CAs compared remedial action alternatives and costs to determine the most appropriate method for decontaminating the site. NEPA requirements were satisfied by the

issuance of an action description memorandum for abrasive blasting and the approval of a categorical exclusion for the remedial action. These NEPA documents confirmed that there would be no adverse effects on the environment from the remedial action activities. Preparation and approval of these documents fulfilled NEPA and CERCLA requirements.

Work performed under FUSRAP by the project management contractor or by architect-engineers, construction and service subcontractors, and other project subcontractors is governed by the quality assurance program for the project and is in compliance with DOE Order 5700.6B. The effectiveness of the quality assurance program is assessed regularly by the BNI quality assurance organization and by DOE-FSRD.

Property Identification

Elza Gate is owned by the development company MECO and located in the Melton Lake Industrial Park on Antwerp Lane in Oak Ridge, Tennessee. Remedial action at Elza Gate was conducted in two phases. The first phase involved decontaminating a portion of an onsite building. The second phase involved the cleanup of all outdoor areas of the site. Both phases of remedial action are certified in this docket. On June 29, 1993, DOE certified that the property was in compliance with applicable DOE standards and criteria developed to protect health, safety, and the environment. A notice of certification was published in the *Federal Register* on November 5, 1993.

Docket Contents

The purpose of this docket is to document the successful decontamination of chemically and radiologically contaminated locations remediated at Elza Gate in 1991 and 1992. Material in this docket consists of documents supporting the DOE certification that conditions at the subject property are in compliance with chemical and radiological guidelines and standards determined to be applicable to the property. Furthermore, this certification docket provides the documents certifying that the use of the property will not result in any measurable chemical or

radiological hazard to the general public as a result of the activities of DOE or its predecessor agencies.

Exhibit I of this docket is a summary of the remedial action activities conducted at Elza Gate. The exhibit provides a brief history of the origin of the contamination at Elza Gate, the radiological characterizations conducted, the remedial action performed, and post-remedial action/verification activities. Cost data covering all remedial action conducted at Elza Gate are also included in Exhibit I. Appendix A of Exhibit I contains DOE guidelines for residual radioactive materials at FUSRAP sites.

Exhibit II consists of the letters, memos, and reports that were produced to document the entire remedial action process from designation of the site under FUSRAP to the certification that no radiologically or chemically based restrictions limit the future use of the site. Documents that are brief are included in Exhibit II. Lengthy documents are referenced in the exhibit and provided as an attachment to the certification docket at publication.

Exhibit III provides diagrams of the site identifying the areas of contamination that were remediated during the cleanup activities.

The certification docket and associated references will be archived by DOE through the Assistant Secretary for Management and Administration. Copies will be available for public review between 9:00 a.m. and 4:00 p.m., Monday through Friday (except federal holidays), at the DOE Public Reading Room located in Room 1E-190 of the Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. Copies will also be available in the DOE Public Document Room at the Oak Ridge office.

EXHIBIT I
SUMMARY OF REMEDIAL ACTION ACTIVITIES AT
THE ELZA GATE SITE
IN OAK RIDGE, TENNESSEE, 1991-1992

1.0 INTRODUCTION

Exhibit I summarizes the activities culminating in the certification that radiological and chemical conditions at the Elza Gate site are in compliance with applicable guidelines and that future use of the site will not result in radiological or chemical exposure above DOE criteria and/or standards established to protect members of the general public and occupants of the site. These activities were conducted under FUSRAP (Ref. 1). This summary includes a discussion of the remedial action process at the Elza Gate site: the characterization of the site radiological and chemical status, designation of the site as requiring remedial action, remedial action performed, and verification that the radioactive and chemical contamination has been removed. The Elza Gate site is located in eastern Tennessee in the town of Oak Ridge; Figure I-1 show the location of the site. Further details of each activity beyond those included in Exhibit I can be found in the referenced documents.

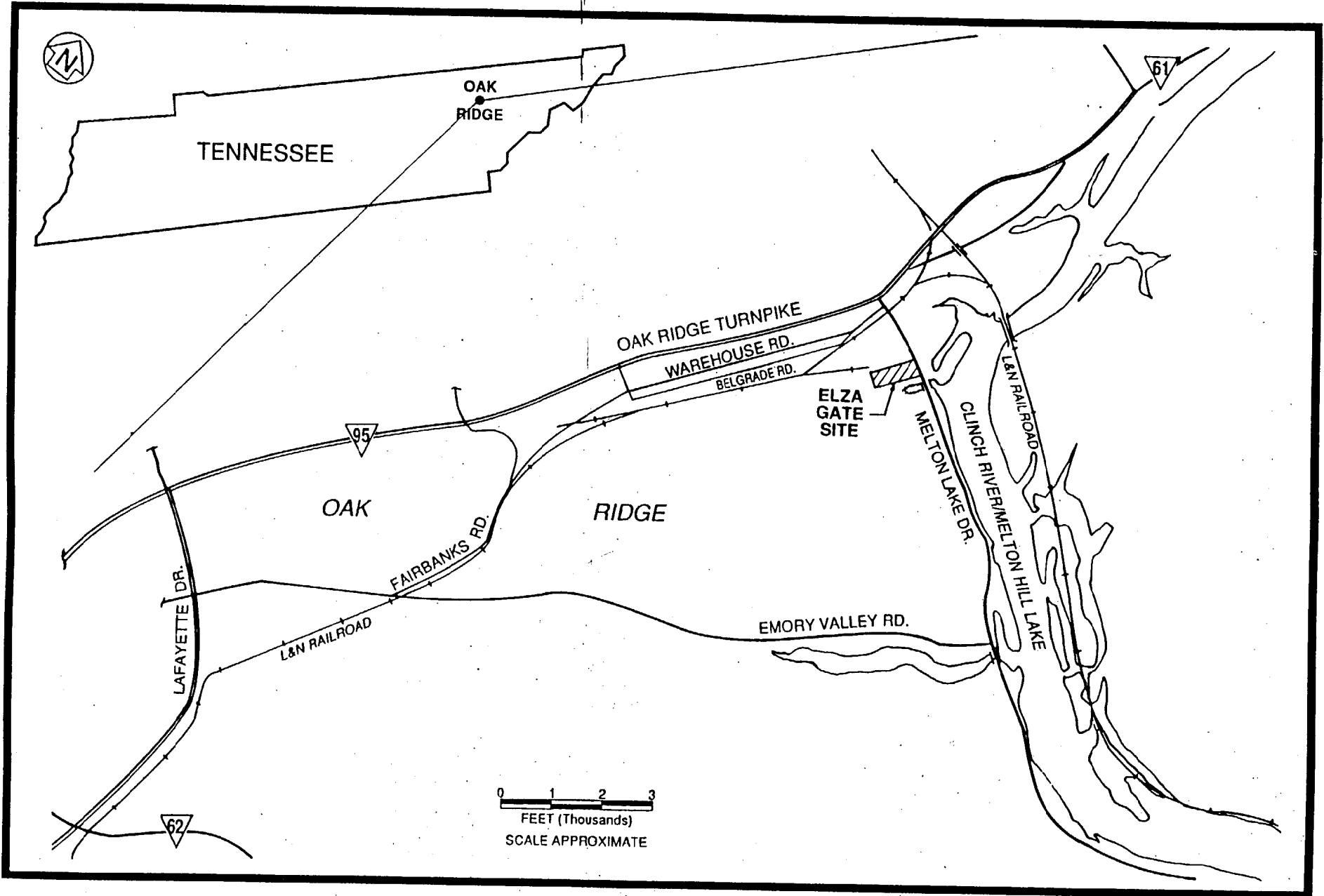


FIGURE I-1 LOCATION OF THE ELZA GATE SITE

2.0 SITE HISTORY

During the early 1940s, the Elza Gate site was developed by MED as a storage area for pitchblende (a high-grade uranium ore from Africa) and ore-processing residues. Three of five warehouses located at Elza Gate were used to store radioactive materials; the original concrete pad floors remained after these buildings were dismantled. Smaller structures may also have been built on the site and later dismantled.

In 1946, ownership of the site was transferred to AEC. It is not known when MED or AEC stopped using the warehouses for storage of the pitchblende ores and residues; AEC later operated the property as an equipment storage area for Oak Ridge National Laboratory (ORNL) and the Oak Ridge Y-12 Plant. During these periods, access to the site was provided from Warehouse Road west of the site and a railroad spur to the southwest. The railroad spur has since been removed, and the access road was closed and replaced by a new access road (Antwerp Lane) between the site and Melton Lake Drive. AEC used the site until it was vacated in the early 1970s. After radiological survey and decontamination activities were conducted by DOE in 1972, the site was deemed acceptable for use with no radiological restrictions (Ref. 2). At that time, title to the property was transferred to the General Services Administration and then to the City of Oak Ridge. The property was subsequently sold to Jet Air, Inc., which operated a fabricating and metal plating facility on the site. In 1987, at the request of the Tennessee Department of Health and Environment (TDHE), Oak Ridge Associated Universities (ORAU) conducted a survey at the site because of the possibility of contamination from the metal plating facility. Samples were analyzed for uranium, metals, and polychlorinated biphenyls (PCBs). The survey found elevated levels of PCBs, which were attributed to the storage of PCB-contaminated electrical equipment (Ref. 3), and above-background concentrations of uranium in soil in the southern section of the site. Isolated areas of elevated lead contamination were found and attributed to the metal plating operations.

In 1988, ownership of the property was transferred to MECO, a development company. At DOE's request, ORNL conducted a preliminary radiological survey to determine whether the site met newer, stricter cleanup guidelines (Ref. 4). The survey included the access road and the northern half of the industrial park, parcels 1 through 4. The survey indicated that soil at parcels 1 through 4 contained radioactive contamination from MED activities at levels above the newer guidelines, and as a result, on November 30, 1988, the entire Melton Lake Industrial Park was designated for inclusion in FUSRAP (Ref. 3). In 1989 and 1990, BNI conducted a comprehensive radiological and chemical characterization at the site (Ref. 5). On the basis of these characterization data, remedial action was conducted in 1991 and 1992; figures identifying the remediated areas are provided in Exhibit III of this certification docket.

3.0 SITE DESCRIPTION

The 7-ha (17.3-acre) Elza Gate site is located in the eastern portion of Oak Ridge, Tennessee, in what is now known as Melton Lake Industrial Park (Book of Deeds Z, Volume 12, page 204, Anderson County, Tennessee, corrected in Book of Deeds G, Volume 15, page 295, Anderson County, Tennessee). Access to the site, which is unrestricted, is off Melton Lake Drive near its intersection with Oak Ridge Turnpike (Figure I-1). Approximately 80 percent of the site is covered with vegetation. The site is divided into nine parcels; the MED warehouses were located on parcels 1 through 4 (Figure I-2). At the time of remedial action, none of the original structures remained, but the concrete pads on which the five warehouses were built were still in place, and one new building had been erected on an existing and expanded concrete pad in parcel 1. The total surface area of the five concrete pads was 7,421 m² (79,884 ft²). A second pad adjacent to this building was used for material storage. The Elza Gate site is owned by MECO, a real-estate development company; the site is being developed for an industrial park.

The Oak Ridge region is characterized by a ridge and valley topography, with a series of northeast-southwest trending ridges and intervening valleys. The ridges are breached at irregular intervals by stream channels, which otherwise follow the trend of the valleys. The ridges in the area reach elevations of approximately 300 m (1,000 ft) above mean sea level (MSL). The elevation of the Elza Gate site drops from 258 m (846 ft) above MSL on the northwest side to 244 m (800 ft) above MSL on the southeast side and is about 150 m (500 ft) from the southwest shore of Melton Hill Lake. The soils in the site area are sandy loams. The Clinch River, which eventually discharges into the Tennessee River, is the source of most of the water used in the Oak Ridge area. Melton Hill Lake is a backwater of the Clinch River and lies along Melton Lake Drive, with the Melton Lake Reservoir extending along the southeast side of the site, about 15 m (50 ft) from the fence line. The flood insurance rate map indicates that the site lies outside the 100-year floodplain, and all but a small area lies outside the 500-year floodplain (Ref. 6). However, dams along the Clinch River control river levels so that levels in the reservoir fluctuate accordingly.

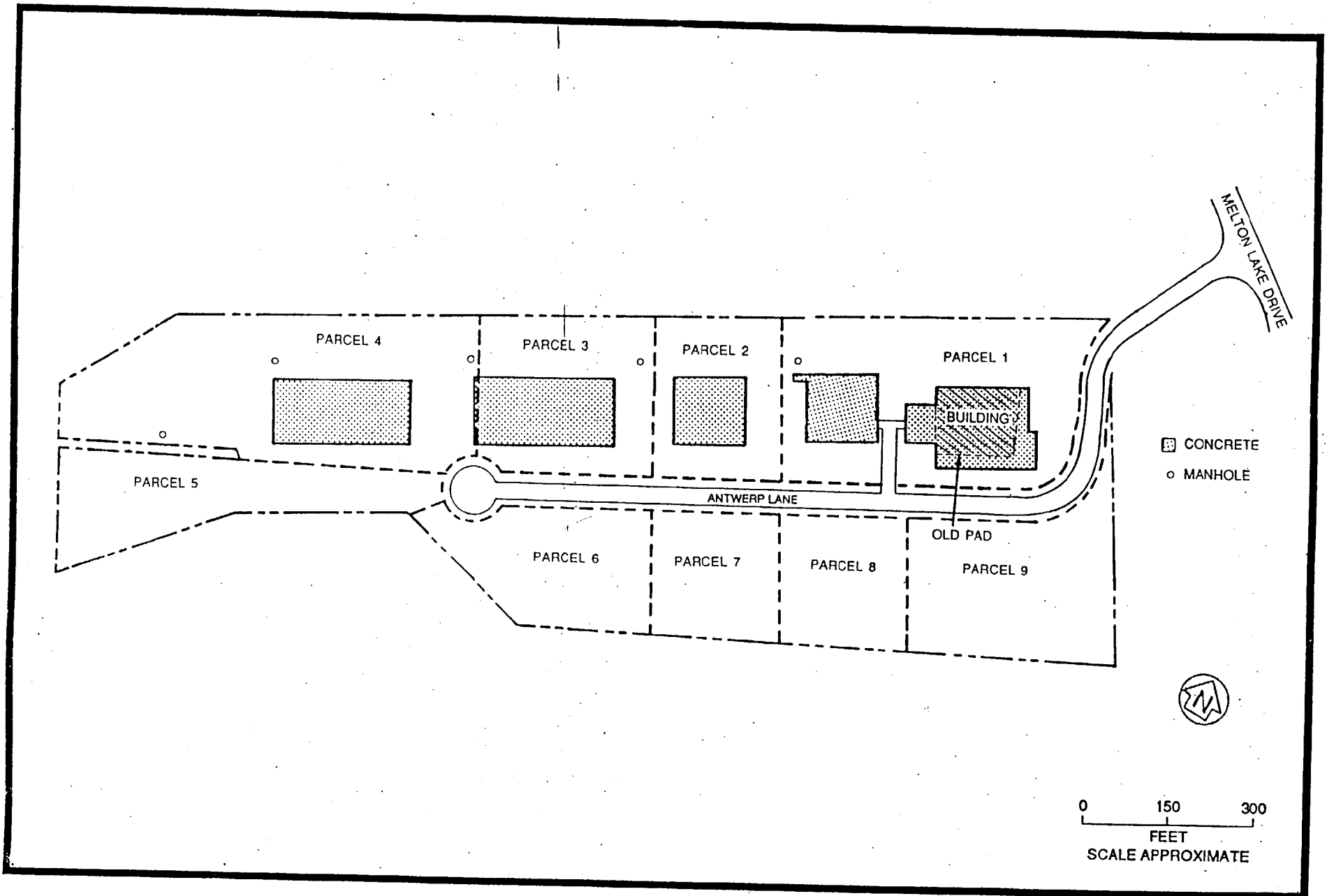


Figure I-2
Plan View of the Elze Gate Site

The climate of Oak Ridge is warm and humid. Summers are dominated by warm, moist air from the Gulf of Mexico. In winter, cold dry air masses from Canada are warmed as the air crosses the Cumberland Mountains and moves down the eastern slopes to the Oak Ridge area. Precipitation averages 140 cm (55 in.) annually; the relative humidity averages 70% (Ref. 7). The maximum 24-h rainfall is about 20 cm (8 in.). Approximately 70% of the average annual precipitation is lost through evapotranspiration, and the rest becomes runoff to surface waters and recharge to the groundwater. Snow is infrequent but sometimes occurs in sufficient quantity to hinder traffic and outdoor activities. Winds on the ridges blow predominantly from the southwest, although northeast winds are also frequent. Remnants of hurricanes and tropical storms occasionally affect the area.

4.0 RADIOLOGICAL HISTORY AND STATUS

4.1 RADIOLOGICAL AND CHEMICAL SURVEYS

In 1987, at the request of TDHE, ORAU conducted a survey at the site because of the possibility of contamination from a metal plating facility that was privately operated on the property. Samples were analyzed for uranium, metals, and PCBs. Elevated levels of PCBs found during this survey were attributed to the storage of PCB-contaminated electrical equipment at the site (Ref. 3). Areas of elevated lead contamination were attributed to metal plating processes.

In 1988, a preliminary radiological survey of the site was conducted by ORNL for DOE. At parcels 1 through 4 and Antwerp Lane, the survey indicated that contamination exceeded the criteria for declaring a site eligible for remediation under FUSRAP. As a result, on November 30, 1988, the site was designated a FUSRAP site (Ref. 3).

Radiological and chemical surveys were conducted at the Elza Gate site in 1989 and 1990 by FUSRAP (Ref. 5). Levels measured during walkover gamma surveys were 1.5 times the background value of 4,400 cpm in some areas, and survey data indicated that all of the pads had above-guideline areas of contamination. Soil sampling results indicated contamination at a number of locations around the site at a maximum depth of 1.5 m (5 ft). Gamma radiation exposure rates were measured using a pressurized ionization chamber (PIC). Elevated gamma radiation levels were generally found in areas with above-guideline concentrations of uranium and radium. Chemical analyses were performed on soil samples for PCBs, metals, and volatile and semivolatile organics. Composite samples were analyzed for characteristics listed in the Resource Conservation and Recovery Act, including toxicity, which was measured by the extraction procedure toxicity test. Only lead and PCBs were detected at levels of regulatory concern in the 0- to 0.3-m (0- to 1-ft) sampling interval (Ref. 5).

4.2 REMEDIAL ACTION GUIDELINES

Consistent with previous surveys, the 1989 and 1990 characterization surveys indicated that areas of the Elza Gate site were contaminated in excess of the guidelines for total residual radioactivity and that uranium was the primary contaminant (Ref. 5). Table I-1 summarizes the DOE residual contamination guidelines; the complete guidelines are provided in Appendix A. *Design Criteria for Formerly Utilized Sites Remedial Action Program (FUSRAP) and Surplus Facilities Management Program (SFMP)* (Ref. 8) also contains additional information regarding federal regulations. The remedial action guidelines for uranium contamination on concrete surfaces of the pads are 5,000 dpm/100 cm² average, 15,000 dpm/100 cm² maximum, and 1,000 dpm/100 cm² removable.

The DOE guidelines for radionuclide concentrations in soil are 5 pCi/g for radium-226, thorium-232, and thorium-230 when averaged over the first 15 cm (6 in.) of soil and 15 pCi/g when averaged over any 15-cm- (6-in.-) thick soil layer below the surface layer, excluding background concentration (40 CFR 192). Guidelines for other radioactive contamination in soil are derived from the basic dose limits by means of an environmental pathway analysis using site-specific data, where available. For the Elza Gate site, the DOE soil cleanup guideline for uranium-238 was 35 pCi/g (Ref. 9). This value was derived from a pathways analysis considering a maximally exposed individual along with the current and proposed use of the site. The guideline was developed by ANL with a computer model for determining the dose from residual radioactive contamination at the site. The model takes into consideration geological conditions, site uses, and the nature and extent of contamination. The guideline for uranium-238 was established on the basis of this pathways analysis, the as-low-as-reasonably-achievable principle, and discussions with TDHE. In soil or on surfaces where contamination exceeded the applicable guidelines, remedial action was conducted until post-remedial action measurements indicated that DOE guidelines had been met.

Lead and PCBs were the only chemical constituents present at concentrations requiring remedial action. Environmental Protection Agency (EPA) guidelines for cleanup at the site were 1,000 ppm for lead (Ref. 10) and 50 ppm for PCBs (Ref. 11). DOE remediated the site to levels less than 25 ppm of PCBs and less than 100 ppm for lead.

TABLE I-1
SUMMARY OF RESIDUAL CONTAMINATION GUIDELINES

BASIC DOSE LIMITS

The basic limit for the annual radiation dose (excluding radon) received by an individual member of the general public is 100 mrem/yr. In implementing this limit, DOE applies as low as reasonably achievable principles to set site-specific guidelines.

SOIL GUIDELINES

<u>Radionuclide</u>	<u>Soil Concentration (pCi/g) Above Background^{a,b,c}</u>
Radium-226 Radium-228 Thorium-230 Thorium-232	5 pCi/g when averaged over the first 15 cm of soil below the surface; 15 pCi/g when averaged over any 15-cm-thick soil layer below the surface layer.
Other Radionuclides	Soil guidelines will be calculated on a site-specific basis using the DOE manual developed for this use.

STRUCTURE GUIDELINES

Indoor/Outdoor Structure Surface Contamination

<u>Radionuclide^e</u>	<u>Allowable Surface Residual Contamination^d (dpm/100 cm²)</u>		
	<u>Average^{f,g}</u>	<u>Maximum^{g,h}</u>	<u>Removable^{g,i}</u>
Transuranics, Ra-226, Ra-228, Th-230, Th-228 Pa-231, Ac-227, I-125, I-129	100	300	20
Th-Natural, Th-232, Sr-90, Ra-223, Ra-224 U-232, I-126, I-131, I-133	1,000	3,000	200
U-Natural, U-235, U-238, and associated decay products	5,000 α	15,000 α	1,000 α
Beta-gamma emitters (radionuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above ^k	5,000 $\beta - \gamma$	15,000 $\beta - \gamma$	1,000 $\beta - \gamma$

^aThese guidelines take into account ingrowth of radium-226 from thorium-230 and of radium-228 from thorium-232, and assume secular equilibrium. If either thorium-230 and radium-226 or thorium-232 and radium-228 are both present, not in secular equilibrium, the guidelines apply to the higher concentration. If other mixtures of radionuclides occur, the concentrations of individual radionuclides shall be reduced so that (1) the dose for the mixtures will not exceed the basic dose limit, or (2) the sum of ratios of the soil concentration of each radionuclide to the allowable limit for that radionuclide will not exceed 1 ("unity").

^bThese guidelines represent allowable residual concentrations above background averaged across any 15-cm-thick layer to any depth and over any contiguous 100-m² surface area.

^cIf the average concentration in any surface or below-surface area less than or equal to 25-m² exceeds the authorized limit or guideline by a factor of $(100/A)^{1/2}$, where A is the area of the elevated region in square meters, limits for "hot spots" shall also be applicable. Procedures for calculating these hot spot limits, which depend on the extent of the elevated local concentrations, are given in the supplement of the FUSRAP Summary Protocol. In addition, every reasonable effort shall be made to remove any source of radionuclide that exceeds 30 times the appropriate limit for soil, irrespective of the average concentration in the soil.

**TABLE I-1
(CONTINUED)**

- ^dAs used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute measured by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.
- ^eWhere surface contamination by both alpha- and beta-gamma-emitting radionuclides exists, the limits established for alpha- and beta-gamma-emitting radionuclides should apply independently.
- ^fMeasurements of average contamination should not be averaged over an area of more than 1 m². For objects of less surface area, the average should be derived for each such object.
- ^gThe average and maximum dose rates associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/h and 1.0 mrad/h, respectively, at a depth of 1 cm.
- ^hThe maximum contamination level applies to an area of not more than 100 cm².
- ⁱThe amount of removable radioactive material per 100 cm² of surface area should be determined by wiping an area of that size with dry filter or soft absorbent paper, applying moderate pressure, and measuring the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of surface area less than 100 cm² is determined, the activity per unit area should be based on the actual area and the entire surface should be wiped. It is not necessary to use wiping techniques to measure removable contamination levels if direct scan surveys indicate that total residual surface contamination levels are within the limits for removable contamination.
- ^jGuidelines for these radionuclides are not given in DOE Order 5400.5; however, these guidelines are considered applicable until guidance is provided.
- ^kThis category of radionuclides includes mixed fission products, including the Sr-90 which is present in them. It does not apply to Sr-90 which has been separated from the other fission products or mixtures where the Sr-90 has been enriched.

Sources: U.S. Department of Energy, DOE Order 5400.5, *Radiation Protection of the Public and the Environment*, Office of Environment, Safety and Health (February 1990).

U.S. Department of Energy, *FUSRAP Management Requirements and Policies Manual*, Appendix D-1, FUSRAP Summary Protocol (March 24, 1986).

U.S. Department of Energy, *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites* (March 1987).

4.3 POST-REMEDIAL ACTION STATUS

As shown in the post-remedial action report for the subject property (Ref. 12), the samples collected after removal of the radioactive soil showed that no area exceeded the DOE remedial action guidelines. Additionally, all remediated areas met appropriate guidelines for PCBs and lead. The remedial action activities performed on the property discussed in this report were independently reviewed by the ORAU radiological site assessment team to verify the data supporting the adequacy of the remedial action and to confirm that the site is in compliance with applicable remedial action guidelines. Based on all data collected, the site conforms to all applicable radiological and chemical guidelines established for release of the property for appropriate future use.

ORAU also provided independent verification by collecting separate post-remedial action samples for independent radiological analyses and conducting confirmatory walkovers and surface surveys for radiological verification.

To verify that areas of PCB and lead contamination were completely remediated, Thermo Analytical, Inc./Eberline collected discrete soil samples to a depth of 0.3 m (1 ft) at the center of each excavation and at locations 1.5 m (5 ft) and 3 m (10 ft) to the north, south, east, and west of the center. Thus, 9 samples were collected from the excavated areas. The samples were analyzed for PCBs by a Modified Spittler Method using an onsite gas chromatograph. Discrete soil samples collected from lead-contaminated areas were submitted to an offsite laboratory for analysis. ORAU certified the results and provided verification of chemical remediation of the site.

5.0 SUMMARY OF REMEDIAL ACTION

The following subsections briefly describe the remedial action process and the measures taken to protect the public and the environment during the process.

5.1 PRE-REMEDIAL ACTION ACTIVITIES

On the basis of ORNL survey results, DOE designated the Elza Gate site for remedial action (Ref. 3). To determine the appropriate actions for decontamination of this property, ANL performed two EE/CAs, one for pad 1 and one for the remainder of the site (Refs. 13 and 14). The evaluations indicated that the best approach was removal of contaminated materials and transport to a storage site on the Oak Ridge Reservation (ORR). DOE determined that this action would have no adverse environmental impact (Refs. 15 and 16) and identified the removal action as a categorical exclusion under NEPA; therefore, no further NEPA documentation was required.

BNI began more extensive characterization activities and engineering design work, and with its radiological support subcontractor, Thermo Analytical, Inc./Eberline, surveyed the property to more accurately define the boundaries of contamination. Several access agreements were obtained for the site before survey and remedial actions began.

5.2 REMEDIAL ACTION ACTIVITIES

Remedial action at the site was conducted in two phases. Phase I consisted of removal of the original concrete pad 1, excavation of contaminated soil beneath the pad, and excavation of soil from five areas outside the building located on parcel 1A (Figure I-3). The five remediation areas on parcel 1A were excavated to the maximum depth of contamination of 1 m (3 ft); a total of 112 m³ (146 yd³) of soil was excavated.

During the remedial action, individual pieces of the original concrete were removed from pad 1 by sawing or jackhammering. Water was sprayed as needed to control dust during concrete segregation/breakage. When possible, the concrete was removed in 1-m² (10.8-ft²)

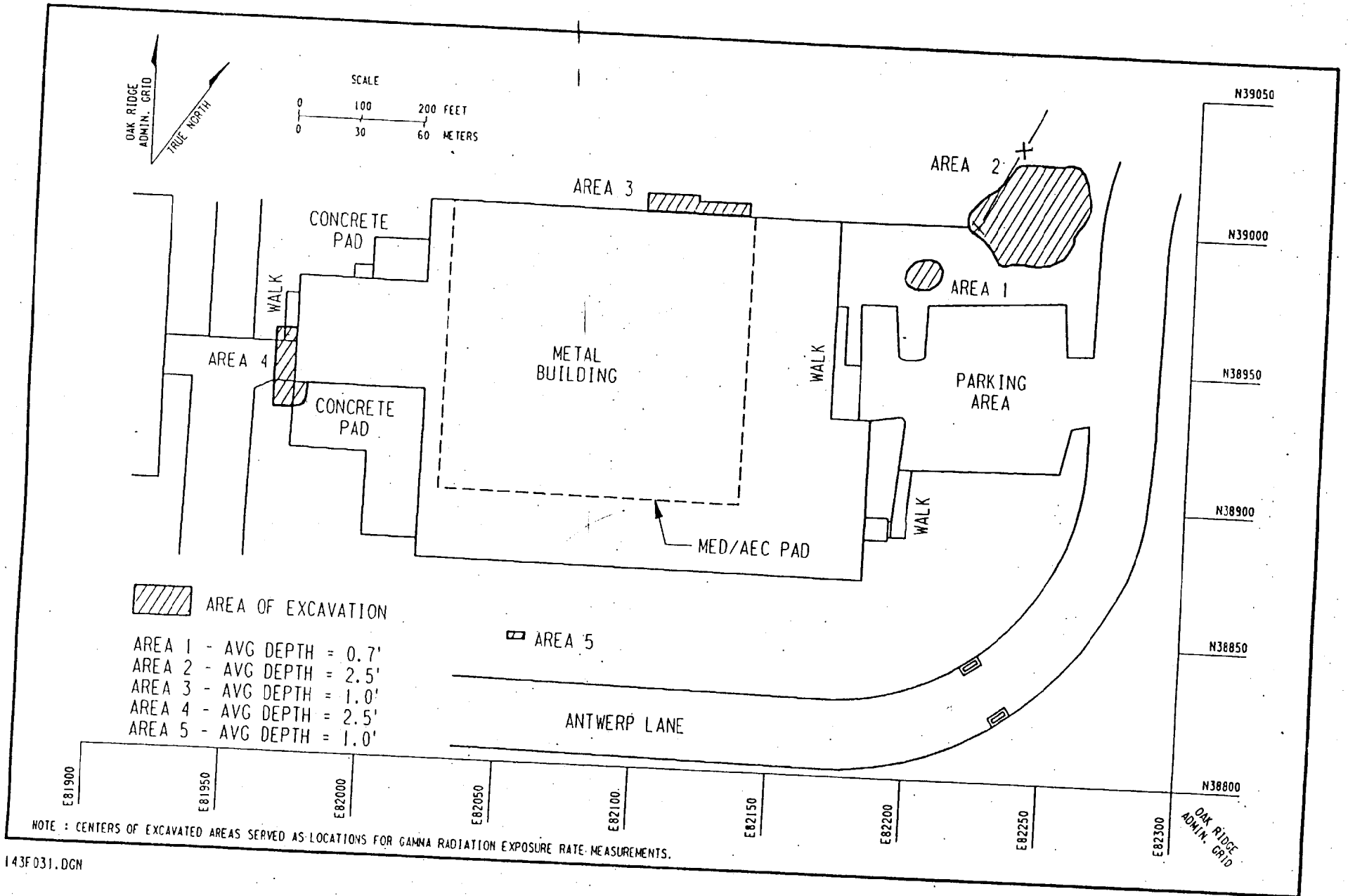


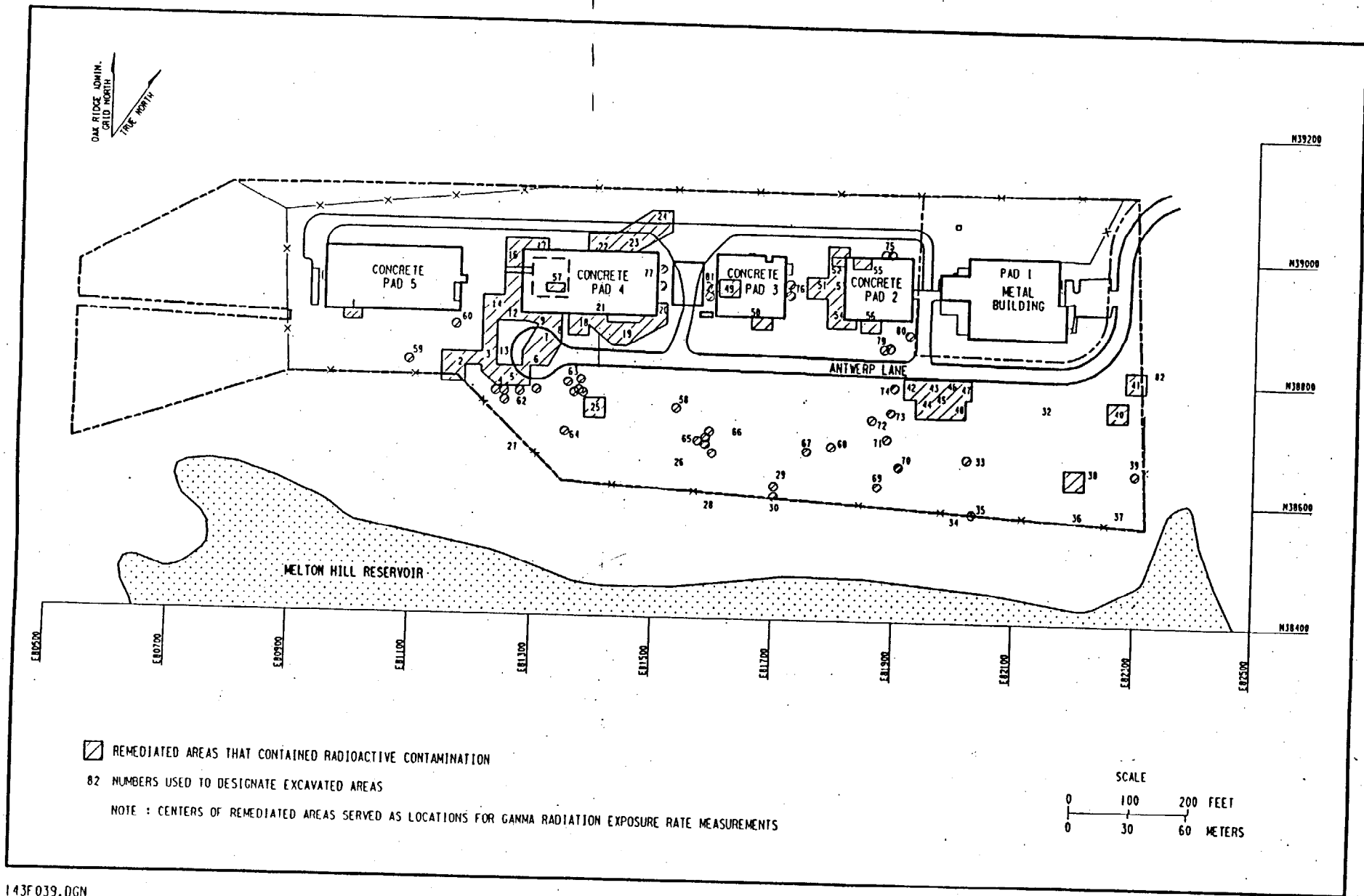
Figure I-3
Excavated Areas

sections to facilitate the post-remedial action surveys of the concrete for release from the site. An initial survey of each piece of concrete, using a thin-window Geiger-Mueller tube detector (HP-210 or Bicron PGM), was performed to segregate contaminated concrete. If residual radioactive surface contamination on the concrete pieces did not exceed the allowable limit for uranium-238 (5,000 dpm/100 cm²), the concrete was placed in an area designated for non-contaminated pieces. If the limits for residual surface contamination were exceeded, the concrete was taken to another area for further, more detailed surveying and subsequent decontamination by chipping or scabbling and was then staged for disposal. Each piece of concrete was marked with an identifier for traceability to its origin at pad 1.

Phase II consisted of the complete removal of concrete pads 2, 3, and 4 (along with their associated foundation footers), removal of a small section of pad 5, and the excavation of contaminated soil from beneath the pads and from other locations across the site (Figure I-4). On the basis of analytical results from previous characterization efforts, onsite areas were identified as requiring remedial action if they were radioactively contaminated or if they were contaminated with PCBs at a concentration of 25 ppm or greater or lead at a concentration of 100 ppm or greater. The maximum depth of chemical contamination was 0.3 m (1 ft); the maximum depth of radioactive contamination was 2.1 m (7 ft).

All concrete and soil removed during both phases of remedial action were transported to ORR and used as fill material in the closure of the United Nuclear Corporation disposal site (Ref. 12). The removal of all contaminated soil and rubble from Elza Gate required the transport of 5,124 m³ (6,700 yd³) of material in 818 truckloads to the disposal site. PCB-contaminated soil (294 ft³) was containerized in 40 drums currently stored at the K-25 site in Oak Ridge.

During excavation activities, a small area of asbestos contamination and an asbestos-wrapped pipe were discovered. The property owner arranged to have the asbestos-contaminated soil remediated and disposed of commercially. The pipe was cleaned and removed from the site. An additional area where transite board was found was remediated by double-bagging the suspect material and transporting it to ORR. Cleanup of asbestos-contaminated areas was verified by microscopic analyses; no asbestos was detected in any post-remedial action samples.



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Figure I-4
Remediated Areas of Radioactive Contamination (Excluding Parcel 1A)

5.3 POST-REMEDIAL ACTION MEASUREMENTS

5.3.1 Outdoor Areas

As excavation proceeded in outdoor areas, walkover gamma radiation scans were conducted to determine whether all soil that was radioactively contaminated in excess of DOE remedial action guidelines had been removed from the remediated areas. The walkover survey provided immediate data so that additional excavation could be performed if residual contamination exceeded remedial action guidelines. In addition to the walkover surveys, post-remedial action samples were submitted for a wet gamma screen to ensure that the areas were remediated to levels within DOE guidelines. Samples were analyzed to verify screening results, and the areas were scanned again to verify that the contamination had been removed. Analytical results for soil samples collected after remediation indicated that no radioactivity in excess of DOE remedial action guidelines remained in these areas.

To ensure that no residual PCB or lead contamination remained above the established cleanup levels, soil samples were collected and analyzed for these parameters after remedial action was completed. Samples were collected by Thermo Analytical, Inc./Eberline technicians, and results are archived in the FUSRAP document control center.

Gamma exposure rate measurements were taken using a PIC at 1 m (3 ft) above the ground surface in radiologically remediated areas. The average background exposure rate for the Oak Ridge area ($9.1 \mu\text{R/h}$), which is provided for comparison with onsite PIC measurements, represents three selected background locations within the city limits of Oak Ridge and Knoxville, Tennessee (Ref. 5). All exposure rates were well below the DOE radiation protection standard of 100 mrem ($11.4 \mu\text{R/h}$) above background.

5.3.2 Indoor Areas

Removal of the original concrete pad and the soil beneath pad 1 (parcel 1A) were the only remedial activities conducted inside a building at the Elza Gate site. After removal of the concrete pad, the concrete pieces were surveyed to determine whether DOE residual surface

contamination guidelines had been met. Samples were collected by Thermo Analytical, Inc./Eberline technicians, and results are archived in the FUSRAP document control center. Direct contact beta-gamma measurements were taken with a Geiger-Mueller detector, and direct contact alpha measurements were taken with an AC-3 alpha scintillation detector. Where physical features permitted, five measurements were taken in the corners and center of 1- by 1-m (3- by 3-ft) squares. At a minimum, removable alpha contamination was measured in locations that exhibited direct alpha readings above guidelines for removable contamination. Removable alpha activity was determined by wiping a 100-cm² (16-in.²) area with an absorbent medium (filter paper) and measuring the alpha emissions from the paper with an alpha scintillation counter. Post-remedial action direct contact radiation measurements were performed on the concrete; pieces with levels below the DOE residual surface contamination guidelines were disposed of commercially in a municipal landfill. Residual direct alpha contamination on pieces that were disposed of in this manner ranged from 23 to 76 dpm/100 cm² and averaged 47 dpm/100 cm². Removable alpha contamination ranged from 3 to 8 dpm/100 cm² and averaged 5 dpm/100 cm².

Post-remedial action soil samples were collected from soil beneath pad 1 in the same manner as those from exterior areas. Analytical results for verification soil samples indicated no residual radioactivity exceeding remedial action guidelines in the soil beneath pad 1.

As part of the post-remedial action verification survey, PIC measurements were taken in remediated areas within the building on parcel 1A to ensure that the exposure rates were below the DOE radiation protection standard of 100 mrem/yr or 11.4 μ R/h above background. All exposure rate measurements were below this level. No chemical contamination was present in the building or on parcel 1A.

5.4 VERIFICATION ACTIVITIES

After remedial action activities were completed, the independent verification contractor (IVC) conducted a survey to verify that the site was remediated to levels below DOE guidelines. ORAU, now called Oak Ridge Institute for Science and Education (ORISE), performed the IVC survey of the Elza Gate site remediation areas. The objective of the verification survey was to

confirm that surveys, sampling, and analysis conducted during the remedial action process provided an accurate and complete description of the radiological and chemical status of the property.

The IVC's activities included reviewing the published radiological survey reports, chemical characterization reports, and the post-remedial action report, visiting the site for a visual inspection, and performing radiological and chemical surveys and sampling. When the verification activities were completed, the IVC prepared a verification report and submitted it to DOE (Ref. 17).

5.5 PUBLIC AND OCCUPATIONAL EXPOSURE

5.5.1 Public Exposure

During cleanup activities, increased radiological exposure to the general public could have resulted from exposure to airborne radiologically contaminated dust from excavations. To avoid this potential exposure, all removal actions were performed in conjunction with dust suppression measures to avoid generation of fugitive dust. Water was sprayed as needed to control dust during concrete segregation/breakage, soil removal, and soil transport. Trucks hauling contaminated concrete and soil were fitted with gasket seals around the tailgate section, and the loads were covered with tarps to prevent loss of the contents. Soil samples were collected from the haul roads after the remedial action to ensure that no clean areas were contaminated. Sediment barriers (silt fences) were placed around excavated areas until post-remedial action sampling results confirmed that contamination had been removed, and where practicable, large plastic sheets were placed around contaminated work areas to keep dust from migrating outside the areas.

Air-monitoring devices for detecting particulates were placed near the work areas to provide continuous air monitoring and to show that contamination was not being spread outside the work area. Results for the 32 locations monitored indicated that air particulate concentrations of total alpha activity ranged from 1.6×10^{-15} to 3.5×10^{-12} $\mu\text{Ci/ml}$ and

averaged 3.8×10^{-13} $\mu\text{Ci/ml}$, considerably below the applicable DOE guideline of 3.0×10^{-12} $\mu\text{Ci/ml}$, although at least one measurement was above the guideline.

5.5.2 Occupational Exposure

All personnel working in contaminated areas were required to wear disposable coveralls, safety glasses, disposable rubber boots, gloves, and hard hats. If conditions warranted, additional protective clothing and equipment such as respirators were available. Workers leaving contaminated work areas were whole-body scanned at the work area control point by a health physics technician using a hand-held detector to ensure that their protective clothing was not contaminated and to prevent the spread of contamination to clean areas. Workers also used personal air-sampling pumps to monitor exposure. No monitoring results were above applicable DOE guidelines.

5.6 COSTS

The final subcontract bid item quantities and the costs associated with the remedial action performed at the Elza Gate site are listed in Table I-2.

Personal air sampling pumps were used to monitor personal exposure. No monitoring results were above applicable DOE guidelines. Data are archived in the FUSRAP document control center. The maximum dose of radiation a member of the public could receive from the remediated site is 42 mrem/yr (Ref. 18), which is well below the DOE guideline of 100 mrem/yr.

Table I-2
Cost of Remedial Action at the Elza Gate Site*

Description	Amount
Characterization	\$ 571,000
Environmental compliance	202,000
Site access	1,000
Remedial action operations	2,427,000
Waste transport	13,000
Site surveillance and maintenance	6,000
Final engineering reports	58,000
Project management	<u>1,758,000</u>
TOTAL	<u>\$5,036,000</u>

*Estimated costs. Final costs will be available after completion of all final reports.

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APPENDIX A

U.S. DEPARTMENT OF ENERGY

GUIDELINES FOR RESIDUAL RADIOACTIVE MATERIAL AT
FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM

AND

REMOTE SURPLUS FACILITIES MANAGEMENT PROGRAM SITES

U.S. DEPARTMENT OF ENERGY GUIDELINES
FOR RESIDUAL RADIOACTIVE MATERIAL AT
FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM
AND
REMOTE SURPLUS FACILITIES MANAGEMENT PROGRAM SITES

(Revision 2, March 1987)

A. INTRODUCTION

This document presents U.S. Department of Energy (DOE) radiological protection guidelines for cleanup of residual radioactive materials and management of the resulting wastes and residues. It is applicable to sites identified by the Formerly Utilized Sites Remedial Action Program (FUSRAP) and remote sites identified by the Surplus Facilities Management Program (SFMP).^{*} The topics covered are basic dose limits, guidelines and authorized limits for allowable levels of residual radioactive material, and requirements for control of the radioactive wastes and residues.

Protocols for identification, characterization, and designation of FUSRAP sites for remedial action; for implementation of the remedial action; and for certification of a FUSRAP site for release for unrestricted use are given in a separate document (U.S. Department of Energy 1986) and subsequent guidance. More detailed information on applications of the guidelines presented herein, including procedures

* A remote SFMP site is one that is excess to DOE programmatic needs and is located outside a major operating DOE research and development or production area.

for deriving site-specific guidelines for allowable levels of residual radioactive material from basic dose limits, is contained in "A Manual for Implementing Residual Radioactive Material Guidelines" (U.S. Department of Energy 1987) referred to herein as the "supplement".

"Residual radioactive material" is used in these guidelines to describe radioactive materials derived from operations or sites over which the Department of Energy has authority. Guidelines or guidance to limit the levels of radioactive material to protect the public and environment are provided for: (1) residual concentrations of radionuclides in soil material, (2) concentrations of airborne radon decay products, (3) external gamma radiation level, (4) surface contamination levels, and (5) radionuclide concentrations in air or water resulting from or associated with any of the above.

A "basic dose limit" is a prescribed standard from which limits for quantities that can be monitored and controlled are derived; it is specified in terms of the effective dose equivalent as defined by the International Commission on Radiological Protection (ICRP 1977, 1978). The basic dose limits are used for deriving guidelines for residual concentrations of radionuclides in soil material. Guidelines for residual concentrations of thorium and radium in soil, concentrations of airborne radon decay products, allowable indoor external gamma radiation levels, and residual surface contamination concentrations are based on existing radiological protection standards or guidelines (U.S. Environmental Protection Agency 1983; U.S. Nuclear Regulatory Commission 1982; and Departmental Orders). Derived guidelines or limits based on the basic dose limits for those quantities are only used when the guidelines provided in the existing standards cited above are shown to be inappropriate.

A "guideline" for residual radioactive material is a level of radioactivity or of the radioactive material that is acceptable if the use of the site is to be unrestricted. Guidelines for residual radioactive material presented herein are of two kinds: (1) generic,

site-independent guidelines taken from existing radiation protection standards, and (2) site-specific guidelines derived from basic dose limits using site-specific models and data. Generic guideline values are presented in this document. Procedures and data for deriving site-specific guideline values are given in the supplement. The basis for the guidelines is generally a presumed worst case plausible scenario for a site.

An "Authorized Limit" is a level of residual radioactive material or radioactivity that must not be exceeded if the remedial action is to be considered completed and the site is to be released for unrestricted use. The Authorized Limit for a site will include limits for each radionuclide or group of radionuclides, as appropriate, associated with the residual radioactive material in the soil or in surface contamination of structures and equipment, and in the air or water, and, where appropriate, a limit on external gamma radiation resulting from the residual material. Under normal circumstances, expected to occur at most sites, Authorized Limits for residual radioactive material or radioactivity are set equal to guideline values. Exceptional conditions for which Authorized Limits might differ from guideline values are specified in Sections D and F. A site may be released for unrestricted use only if the conditions do not exceed the Authorized Limits or approved supplemental limits as defined in Section F.1 at the time remedial action is completed. Restrictions and controls on use of the site must be established and enforced if the site conditions exceed the approved limits, or if there is potential to exceed the dose limit if the site use was not restricted (Section F.2). The applicable controls and restrictions are specified in Section E.

DOE policy requires that all exposures to radiation be limited to levels that are as low as reasonably achievable (ALARA). For sites to be released for unrestricted use, the intent is to reduce residual radioactive material to levels that are as far below Authorized Limits as reasonable considering technical, economic, and social factors. At sites where the residual material is not reduced to levels that permit release for unrestricted use, ALARA policy is implemented by establishing controls to reduce exposure to levels that are as low as reasonably achievable. Procedures for implementing ALARA policy are discussed in the supplement. ALARA policies,

procedures, and actions shall be documented and filed as a permanent record upon completion of remedial action at a site.

B. BASIC DOSE LIMITS

The basic dose limit for the annual radiation dose received by an individual member of the general public is 100 mrem/year. The internal committed effective dose equivalent, as defined in ICRP Publication 26 (ICRP 1977) and calculated by dosimetry models described in ICRP Publication 30 (ICRP 1978), plus dose from penetrating radiation sources external to the body shall be used for determining the dose. This dose shall be described as the "Effective Dose Equivalent". Every effort shall be made to ensure that actual doses to the public are as far below the dose limit as is reasonably achievable.

Under unusual circumstances it will be permissible to allow potential doses to exceed 100 mrem/year where such exposures are based upon scenarios which do not persist for long periods and where the annual life time exposure to an individual from the subject residual radioactive material would be expected to be less than 100 mrem/year. Examples of such situations include conditions that might exist at a site scheduled for remediation in the near future or a possible, but improbable, one-time scenario that might occur following remedial action. These levels should represent doses that are as low as reasonably achievable for the site. Further, no annual exposure should exceed 500 mrem.

C. GUIDELINES FOR RESIDUAL RADIOACTIVE MATERIAL

C.1 Residual Radionuclides in Soil

Residual concentrations of radionuclides in soil shall be specified as above-background concentrations averaged over an area of 100 sq meters. Generic guidelines for thorium and radium are specified below. Guidelines for residual concentrations of other radionuclides shall be derived from the basic dose limits by means of an environmental pathway analysis using

site-specific data where available. Procedures for these derivations are given in the supplement.

If the average concentration in any surface or below surface area less than or equal to 25 sq meters exceeds the Authorized Limit or guideline by a factor of $(100/A)^{1/2}$, where A is the area of the elevated region in square meters, limits for "Hot Spots" shall also be applicable. These Hot Spot Limits depend on the extent of the elevated local concentrations and are given in the supplement. In addition, every reasonable effort shall be made to remove any source of radionuclide that exceeds 30 times the appropriate soil limit irrespective of the average concentration in the soil.

Two types of guidelines are provided, generic and derived. The generic guidelines for residual concentrations of the Ra-226, Ra-228, Th-230, and Th-232 are:

- 5 pCi/g, averaged over the first 15 cm of soil below the surface
- 15 pCi/g, averaged over 15-cm-thick layers of soil more than 15 cm below the surface

These guidelines take into account ingrowth of Ra-226 from Th-230 and of Ra-228 from Th-232, and assume secular equilibrium. If either Th-230 and Ra-226 or Th-232 and Ra-228 are both present, not in secular equilibrium, the appropriate guideline is applied as a limit to the radionuclide with the higher concentration. If other mixtures of radionuclides occur, the concentrations of individual radionuclides shall be reduced so that 1) the dose for the mixtures will not exceed the basic dose limit, or 2) the sum of the ratios of the soil concentration of each radionuclide to the allowable limit for that radionuclide will not exceed 1 ("unity"). Explicit formulas for calculating residual concentration guidelines for mixtures are given in the supplement.

C.2 Airborne Radon Decay Products

Generic guidelines for concentrations of airborne radon decay products shall apply to existing occupied or habitable structures on private property

that are intended for unrestricted use; structures that will be demolished or buried are excluded. The applicable generic guideline (40 CFR 192) is In any occupied or habitable building, the objective of remedial action shall be, and a reasonable effort shall be made to achieve, an annual average (or equivalent) radon decay product concentration (including background) not to exceed 0.02 WL.* In any case, the radon decay product concentration (including background) shall not exceed 0.03 WL. Remedial actions by DOE are not required in order to comply with this guideline when there is reasonable assurance that residual radioactive materials are not the cause.

C.3 External Gamma Radiation

The average level of gamma radiation inside a building or habitable structure on a site to be released for unrestricted use shall not exceed the background level by more than 20 μ R/h and shall comply with the basic dose limit when an appropriate use scenario is considered. This requirement shall not necessarily apply to structures scheduled for demolition or to buried foundations. External gamma radiation levels on open lands shall also comply with the basic dose limit considering an appropriate use scenario for the area.

C.4 Surface Contamination

The generic guidelines provided in the Table 1, Surface Contamination Guidelines are applicable to existing structures and equipment. These guidelines are adapted from standards of the U.S. Nuclear Regulatory

* A working level (WL) is any combination of short-lived radon decay products in one liter of air that will result in the ultimate emission of 1.3×10^5 MeV of potential alpha energy.

TABLE 1 SURFACE CONTAMINATION GUIDELINES

Radionuclides ²	Allowable Total Residual Surface Contamination (dpm/100 cm ²) ¹		
	Average ^{3, 4}	Maximum ^{4, 5}	Removable ^{4, 6}
Transuranics, Ra-226, Ra-228, Th-230 Th-228, Pa-231, Ac-227, I-125, I-129	100	300	20
Th-Natural, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1,000	3,000	200
U-Natural, U-235, U-238, and associated decay products	5,000 α	15,000 α	1,000 α
Beta-gamma emitters (radionuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above	5,000 β - γ	15,000 β - γ	1,000 β - γ

1. As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute measured by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.
2. Where surface contamination by both alpha- and beta-gamma-emitting radionuclides exists, the limits established for alpha- and beta-gamma-emitting radionuclides should apply independently.
3. Measurements of average contamination should not be averaged over an area of more than 1 m². For objects of less surface area, the average should be derived for each such object.
4. The average and maximum dose rates associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/h and 1.0 mrad/h, respectively, at 1 cm.
5. The maximum contamination level applies to an area of not more than 100 cm².
6. The amount of removable radioactive material per 100 cm² of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and measuring the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of surface area less than 100 cm² is determined, the activity per unit area should be based on the actual area and the entire surface should be wiped. The numbers in this column are maximum amounts.

Commission (1982)* and will be applied in a manner that provides a level of protection consistent with the Commission's guidance. These limits apply both interior and exterior surfaces. They are not directly intended for use on structures to be demolished or buried, but, should be applied to equipment or building components that are potentially salvageable or recoverable scrap. If a building is demolished, the guidelines in Section C.1 are applicable to the resulting contamination in the ground.

C.5 Residual Radionuclides in Air and Water

Residual concentrations of radionuclides in air and water shall be controlled to levels required by DOE Environmental Protection Guidance and Orders, specifically DOE Order 5480.1A and subsequent guidance. Other Federal and/or state standards shall apply when they are determined to be appropriate.

D. AUTHORIZED LIMITS FOR RESIDUAL RADIOACTIVE MATERIAL

The Authorized Limits shall be established to: 1) ensure that, as a minimum, the Dose Limits specified in Section B will not be exceeded under the worst case plausible use scenario consistent with the procedures and guidance provided, or 2) where applicable generic guidelines are provided, be consistent with such guidelines. The Authorized Limits for each site and vicinity properties shall be set equal to the generic or derived guidelines except where it can be clearly established on the basis of site specific data, including health, safety and socioeconomic considerations, that the guidelines are not appropriate for use at the specific site. Consideration

* These guidelines are functionally equivalent to Section 4 - Decontamination for Release for Unrestricted Use of NRC Regulatory Guide 1.86, but are applicable to Non-Reactor facilities.

should also be given to ensure that the limits comply with or provide an equivalent level of protection as other appropriate limits and guidelines (i.e., state, or other Federal). Documentation supporting such a decision should be similar to that required for supplemental limits and exceptions (Section F), but should be generally more detailed because it covers an entire site.

Remedial actions shall not be considered complete unless the residual radioactive material levels comply with the Authorized Limits. The only exception to this requirement will be for those special situations where the supplemental limits or exceptions are applicable and approved as specified in Section F. However, the use of supplemental limits and exceptions should only be considered if it is clearly demonstrated that it is not reasonable to decontaminate the area to the Authorized Limit or guideline value. The Authorized Limits are developed through the project offices in the field (Oak Ridge Technical Services Division for FUSRAP) and approved by the headquarters program office (the Division of Facility and Site Decommissioning Projects).

E. CONTROL OF RESIDUAL RADIOACTIVE MATERIAL AT FUSRAP AND REMOTE SFMP SITES

Residual radioactive material above the guidelines at FUSRAP and remote SFMP sites must be managed in accordance with applicable DOE Orders. The DOE Order 5480.1A and subsequent guidance or superceding orders require compliance with applicable Federal, and state environmental protection standards.

The operational and control requirements specified in the following DOE Orders shall apply to interim storage, interim management, and long-term management.

- a. 5440.1C, Implementation of the National Environmental Policy Act
- b. 5480.1A, Environmental Protection, Safety, and Health Protection Program for DOE Operations as revised by DOE 5480.1 change orders and the 5 August 1985 memorandum from Vaughan to Distribution
- c. 5480.2, Hazardous and Radioactive Mixed Waste Management

- d. 5480.4, Environmental Protection, Safety, and Health Protection Standards
- e. 5482.1A, Environmental Safety, and Health Appraisal Program
- f. 5483.1A, Occupational Safety and Health Program for Government-Owned Contractor-Operated Facilities
- g. 5484.1, Environmental Protection, Safety, and Health Protection Information Reporting Requirements
- h. 5000.3, Unusual Occurrence Reporting System
- i. 5820.2, Radioactive Waste Management

E.1 Interim Storage

- a. Control and stabilization features shall be designed to ensure, to the extent reasonably achievable, an effective life of 50 years and, in any case, at least 25 years.
- b. Above-background Rn-222 concentrations in the atmosphere above facility surfaces or openings shall not exceed: (1) 100 pCi/L at any given point, (2) an annual average concentration of 30 pCi/L over the facility site, and (3) an annual average concentration of 3 pCi/L at or above any location outside the facility site (DOE Order 5480.1A, Attachment XI-1).
- c. Concentrations of radionuclides in the groundwater or quantities of residual radioactive materials shall not exceed existing Federal, or state standards.
- d. Access to a site shall be controlled and misuse of onsite material contaminated by residual radioactive material shall be prevented through appropriate administrative controls and physical barriers--active and passive controls as described by the U.S. Environmental Protection Agency (1983--p. 595). These control features should be designed to ensure, to the extent reasonable, an effective life of at least 25 years. The Federal government shall have title to the property or shall have a long-term lease for exclusive use.

E.2 Interim Management

- a. A site may be released under interim management when the residual radioactive material exceeds guideline values if the residual radioactive material is in inaccessible locations and would be unreasonably costly to remove, provided that administrative controls are established to ensure that no member of the public shall receive a radiation dose exceeding the basic dose limit.
- b. The administrative controls, as approved by DGE, shall include but not be limited to periodic monitoring as appropriate, appropriate shielding, physical barriers to prevent access, and appropriate radiological safety measures during maintenance, renovation, demolition, or other activities that might disturb the residual radioactivity or cause it to migrate.
- c. The owner of the site or appropriate Federal, state, or local authorities shall be responsible for enforcing the administrative controls.

E.3 Long-Term Management

Uranium, Thorium, and Their Decay Products

- a. Control and stabilization features shall be designed to ensure, to the extent reasonably achievable, an effective life of 1,000 years and, in any case, at least 200 years.
- b. Control and stabilization features shall be designed to ensure that Rn-222 emanation to the atmosphere from the waste shall not: (1) exceed an annual average release rate of 20 pCi/m²/s, and (2) increase the annual average Rn-222 concentration at or above any location outside the boundary of the contaminated area by more than 0.5 pCi/L. Field verification of emanation rates is not required.

- c. Prior to placement of any potentially biodegradable contaminated wastes in a long-term management facility, such wastes shall be properly conditioned to ensure that (1) the generation and escape of biogenic gases will not cause the requirement in paragraph b. this section (E.3) to be exceeded, and (2) biodegradation within the facility will not result in premature structural failure in violation of the requirements in paragraph a. of this section (E.
- d. Groundwater shall be protected in accordance with Appropriate Departmental orders and Federal and state standards, as applicable to FUSRAP and remote SFMP sites.
- e. Access to a site should be controlled and misuse of onsite material contaminated by residual radioactive material should be prevented through appropriate administrative controls and physical barriers--active and passive controls as described by the U.S. Environmental Protection Agency (1963--p. 595). These controls should be designed to be effective to the extent reasonable for a least 200 years. The Federal government shall have title to the property.

Other Radionuclides

- f. Long-term management of other radionuclides shall be in accordance with Chapters 2, 3, and 5 of DOE Order 5820.2, as applicable.

F. SUPPLEMENTAL LIMITS AND EXCEPTIONS

If special site specific circumstances indicate that the guidelines or Authorized Limits established for a given site are not appropriate for a portion of that site or a vicinity property, then the field office may request that supplemental limits or an exception be applied. In either case, the field must justify that the subject guidelines or Authorized Limits are not appropriate and that the alternative action will provide adequate protection giving due consideration to health and safety,

environment and costs. The field office shall obtain approval for specific supplemental limits or exceptions from headquarters as specified in Section D of these guidelines and shall provide to headquarters those materials required for the justification as specified in this section and in the FUSRAP and SFMP protocols and subsequent guidance documents. The field office shall also be responsible for coordination with the state or local government of the limits or exceptions and associated restrictions as appropriate. In the case of exceptions, the field office shall also work with the state and/or local governments to insure that restrictions or conditions of release are adequate and mechanisms are in place for their enforcement.

F1. Supplemental Limits

The supplemental limits must achieve the basic dose limits set forth in this guideline document for both current and potential unrestricted uses of the site and/or vicinity property. Supplemental limits may be applied to a property or portion of a property or site if, on the basis of a site specific analysis, it is determined that certain aspects of the property or portion of the site were not considered in the development of the established Authorized Limits and associated guidelines for the site, and as a result of these unique characteristics, the established limits or guidelines either do not provide adequate protection or are unnecessarily restrictive and costly.

F2. Exceptions

Exceptions to the Authorized Limits defined for unrestricted use of the site may be applied to a portion of a site or a vicinity property when it is established that the Authorized Limits cannot be achieved and restrictions on use of the site or vicinity property are necessary to provide adequate protection of the public and environment. The field office must clearly demonstrate that the exception is necessary, and the restrictions will provide the necessary degree of protection and that they comply with the requirements for control of residual radioactive material as set forth in Part E of these guidelines.

F3. Justification for Supplemental Limits and Exceptions

Supplemental limits and exceptions must be justified by the field office on a case by case basis using site specific data. Every effort should be made to minimize the use of the supplemental limits and exceptions. Examples of specific situations that warrant the use of supplemental standards and exceptions are:

- a. Where remedial actions would pose a clear and present risk of injury to workers or members of the general public, notwithstanding reasonable measures to avoid or reduce risk.
- b. Where remedial actions--even after all reasonable mitigative measures have been taken--would produce environmental harm that is clearly excessive compared to the health benefits to persons living on or near affected sites, now or in the future. A clear excess of environmental harm is harm that is long-term, manifest, and grossly disproportionate to health benefits that can reasonably be anticipated.
- c. Where it is clear that the scenarios or assumptions used to establish the Authorized Limits do not under plausible current or future conditions, apply to the property or portion of the site identified and where more appropriate scenarios or assumptions indicate that other limits are applicable or necessary for protection of the public and the environment.
- d. Where the cost of remedial actions for contaminated soil is unreasonably high relative to long-term benefits and where the residual radioactive materials do not pose a clear present or future risk after taking necessary control measures. The likelihood that buildings will be erected or that people will spend long periods of time at such a site should be considered in evaluating this risk. Remedial actions will generally not be necessary where only minor quantities of residual radioactive

materials are involved or where residual radioactive materials occur in an inaccessible location at which site-specific factors limit their hazard and from which they are costly or difficult to remove. Examples are residual radioactive materials under hard-surface public roads and sidewalks, around public sewer lines, or in fence-post foundations. A site-specific analysis must be provided to establish that it would not cause an individual to receive a radiation dose in excess of the basic dose limits stated in Section B, and a statement specifying the residual radioactive material must be included in the appropriate state and local records.

- e. Where there is no feasible remedial action.

G. SOURCES

Limit or Guideline	Source
<u>Basic Dose Limits</u>	
Dosimetry Model and Dose Limits	International Commission on Radiological Protection (1977, 1978)
<u>Generic Guidelines for Residual Radioactivity</u>	
Residual Concentrations of Radium and Thorium in Soil Material	40 CFR 192
Airborne Radon Decay Products	40 CFR 192
External Gamma Radiation	40 CFR 192
Surface Contamination	Adapted from U.S. Nuclear Regulatory Commission (1982)
<u>Control of Radioactive Wastes and Residues</u>	
Interim Storage	DOE Order 5480.1A and subsequent guidance
Long-Term Management	DOE Order 5480.1A and subsequent guidance; 40 CFR 192; DOE order 5820

H. REFERENCES

- International Commission on Radiological Protection, 1977. Recommendations of the International Commission on Radiological Protection (Adopted January 17, 1977). ICRP Publication 26. Pergamon Press, Oxford. [As modified by "Statement from the 1978 Stockholm Meeting of the ICRP." Annals of the ICRP, Vol. 2, No. 1, 1978.]
- International Commission on Radiological Protection, 1978. Limits for Intakes of Radionuclides by Workers. A Report of Committee 2 of the International Commission on Radiological Protection. Adopted by the Commission in July 1978. ICRP Publication 30. Part 1 (and Supplement), Part 2 (and Supplement), Part 3 (and Supplements A and B), and Index. Pergamon Press, Oxford.
- U.S. Environmental Protection Agency, 1983. Standards for Remedial Actions at Inactive Uranium Processing Sites; Final Rule (40 CFR 192). Federal Register 48(3):590-604 (January 5, 1983).
- U.S. Department of Energy, 1984. Formerly Utilized Sites Remedial Action Program. Summary Protocol: Identification - Characterization - Designation - Remedial Action - Certification. Office of Nuclear Energy, Office of Terminal Waste Disposal and Remedial Action, Division of Remedial Action Projects. April 1984.
- U.S. Department of Energy, 1987. Supplement to U.S. Department of Energy Guidelines for Residual Radioactivity at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites. A Manual for Implementing Residual Radioactivity Guidelines. Prepared by Argonne National Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, and Pacific Northwest Laboratory for the U.S. Department of Energy.
- U.S. Nuclear Regulatory Commission, 1982. Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material. Division of Fuel Cycle and Material Safety, Washington, D.C. July 1982.
- U.S. Atomic Energy Commission, 1974. Regulatory Guide 1.86, Termination of Operating Licenses for Nuclear Reactors, June 1974

EXHIBIT II
DOCUMENTS SUPPORTING THE CERTIFICATION OF
THE REMEDIAL ACTION PERFORMED AT THE
ELZA GATE SITE
IN OAK RIDGE, TENNESSEE, 1991-1992

1.0 CERTIFICATION PROCESS

The purpose of this certification docket is to provide a consolidated and permanent record of DOE activities at the Elza Gate site and of the radiological and chemical conditions of these properties at the time of certification. A summary of the remedial action activities conducted at the site was provided in Exhibit I. Exhibit II contains the letters, memos, reports, and other documents that were produced to encompass the entire remedial action process from designation of the site under FUSRAP to certification that no radiologically or chemically based restrictions limit the future use of the site.

2.0 SUPPORTING DOCUMENTATION

For the convenience of the reader, Subsections 2.1 through 2.11 will be paginated continuously for the final draft of this certification docket. Each page number begins with the designator "II" to distinguish the numbering systems used in the supporting documentation that constitutes Exhibit II. These page numbers will be listed in the table of contents at the beginning of this docket and in Subsections 2.1 through 2.11. Lengthy documents are incorporated by reference only and will be designated as such with the abbreviation "Ref."; the actual documents will be provided as attachments to the certification docket at publication.

2.1 DECONTAMINATION OR STABILIZATION CRITERIA

The following documents contain the guidelines that determine the need for remedial action. The subject property has been decontaminated to comply with these guidelines. The first document listed is included as Appendix A of Exhibit I; the next three documents are included here by reference; and the two remaining documents are included in this section.

U.S. Department of Energy (DOE). *U.S. Department of Energy Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 2, March 1987.

App. I-A

DOE. *Design Criteria for Formerly Utilized Sites Remedial Action Program (FUSRAP) and Surplus Facilities Management Program (SFMP)*, 14501-00-DC-01, Rev. 2, Oak Ridge, Tenn., March 1986.

Ref. 8

Environmental Protection Agency (EPA). *Interim Guidance on Establishing Lead Cleanup Levels at Superfund Sites*, OSWER 9355.4-02, Office of Solid Waste and Emergency Response, Washington, D.C., September 1989.

Ref. 10

EPA. *Guidance on Remedial Actions for Superfund Sites with PCB Contamination*, EPA/540/G-90/007, Office of Emergency and Remedial Response, Washington, D.C., August 1990.

Ref. 11

Letter from J. W. Wagoner (DOE-HQ) to L. K. Price (DOE-OR), "Uranium Cleanup Guidelines for the Elza Gate, Tennessee FUSRAP Site," BNI CCN 075376, Oak Ridge, Tenn., February 1991.

Ref. 9

Letter from L. M. Hubbard to S. D. Liedle, "PCB Regulation at Elza Gate," BNI CCN 067708, Oak Ridge, Tenn., April 18, 1990.

memorandum

DATE: FEB 6 1991

REPLY TO
ATTN OF: EM-421 (W. A. Williams, FTS 233-5439)

SUBJECT: Uranium Cleanup Guidelines for the Elza Gate, Tennessee, FUSRAP Site

TO: Lester K. Price, Director
Former Sites Restoration Division
Oak Ridge Operations Office

This is in response to your request for uranium cleanup guidelines for the Elza Gate site. Your staff recommended a cleanup guideline of 35 picoCuries per gram (pCi/g) of Uranium-238. This recommendation was based on the projected volumes of contaminated soil at different cleanup criteria levels for uranium and on a draft supporting analysis by Argonne National Laboratory (ANL).

The ANL analysis determined a maximum residual concentration of U-238 in soil of 59 to 2000 pCi/g, depending on future land use. These concentrations are equivalent to 100 millirem per year for various land uses. The recommended value of 35 pCi/g for U-238 is equivalent to 4 millirem per year for the current industrial use of the land and as much as 60 millirem per year for assumed future residential and agricultural use. The recommended value is within DOE's dose guideline of 100 millirem per year, which must be met under all worst case, plausible scenarios, such as an assumed residential and agricultural use.

In the application of ALARA, practical considerations, costs, and benefits are also taken into account. For practical considerations, it is likely that the contaminated areas will be cleaned up to a level below whatever guideline is established. This is likely for two reasons. First, in order to remove all contamination above the guideline, some soil contaminated below the guideline will be removed. This will have the practical effect of lowering the guideline as it is applied during cleanup operations. Second, during cleanup operations, it is difficult to precisely delineate the point at which the contamination above the guideline ends. As a result, remedial personnel will remove all suspect materials to avoid repeated cleanup operations on the same property. For these reasons, it is likely that cleanup will be accomplished at some level lower than the established guideline. A final practical consideration is the use of clean fill material to replace excavated materials. This will cause a shielding and covering effect on the remaining soils, reducing both gamma ray and radon exposures. If the site is used for agricultural or residential use in the future, the clean fill would also reduce the projected doses by diluting the residual contamination. Thus, in the actual application of a cleanup guideline, it is very likely that a cleanup level substantially below the established guideline will be achieved.

A review of the contaminated soil volume as a function of the cleanup guideline indicates an increasing volume of contaminated soil as the

guideline becomes smaller. Since costs are related to the volume of soil handled, costs will increase proportionately.

Between the cleanup guidelines of 100 and 35 pCi/g, the volume of contaminated soil increases by 36 percent. For the current industrial use of the property, this increase in waste volume and cost is equivalent to a reduction in dose from 12 millirem per year to 4, neglecting any practical considerations. A further reduction in the cleanup guideline to 25 pCi/g increases the waste volume an additional 41 percent, while slightly reducing the already small annual dose. This is a costly reduction for a nominal benefit for the current use of the property.

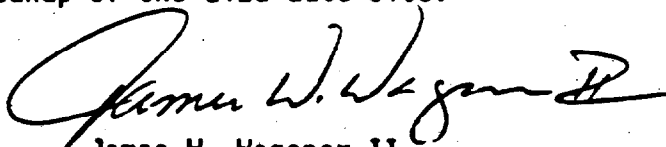
The possible residential and agricultural use of the site in the future must also be considered. Two such scenarios are examined in the ANL Report. Scenario C assumes a resident farmer will:

- (1) use on-site pond for drinking water supply,
- (2) eat plant foods grown on the site,
- (3) eat meat and milk from livestock grown on the site,
- (4) eat fish from the pond, and
- (5) obtain all needed water from the pond.

Scenario D is similar to Scenario C except that the resident farmer is assumed to draw all water from a well down gradient side of the decontaminated zone. For this site, Scenario C represents the most plausible case because the use of a well as a sole water supply is not likely for a site so near the Clinch River.

For Scenario C, a guideline of 35 pCi/g corresponds to an annual dose of 15 millirem to the resident farmer. A reduction in the cleanup level to 25 pCi/g results in a dose reduction of 4 millirem per year and a 41 percent increase in waste volume and cost. This is a small benefit for such a large increase.

Based on the above considerations, a guideline of 35 pCi/g of U-238 is approved for use in the cleanup of the Elza Gate Site.



James W. Wagoner II
Acting Chief
Off-Site Branch
Division of Eastern Area Programs
Office of Environmental Restoration

Bechtel

Interoffice Memorandum

067708

To S. D. Liedle
Subject PCB Regulation
at Elza Gate
Copies to K. C. Noey
J. H. Wright

File No. 7440/143
Date April 18, 1990
From L. M. Hubbard
Of FUSRAP Project 14501
At Oak Ridge Ext. 6-5912

PCB REGULATION IN THE STATE OF TENNESSEE

Results of Phone Interviews on Monday, April 16, 1990

According to Robert Morrison of the Waste Activity Audit division of the TN Dept of Health and Environment in Nashville, TN, the state does not regulate for PCBs. Talking with him further, I found this to mean that TN did not write any state regulations concerning PCBs. The federal EPA implements TSCA and runs any PCB program in the state of TN. Karen Devenedictis in the Toxics Section in the EPA Region 4 Office confirmed this information, saying that the federal TSCA is used to regulate PCBs in TN and is implemented through the EPA regional office, not the state. The cleanup levels used are those that appear in 40 CFR 761.125. RODs are not used for PCB enforcement and regulation.

Review of TSCA

The cleanup levels of PCBs in soil given in TSCA are those that appear in 40 CFR 761.125, section (c), "Requirements for cleanup of high-concentration spills and low-concentration spills involving 1 pound or more PCBs by weight." Paragraph (c)(3)(v), contains requirements for decontaminating spills in restricted access areas other than outdoor electrical substations: "Soil contaminated by the spill will be cleaned to 25 ppm PCBs by weight."

40 CFR 761.125, paragraph (c)(4)(v), contains requirements for decontaminating spills in nonrestricted access areas: "Soil contaminated by the spill will be decontaminated to 10 ppm PCBs by weight provided that soil is excavated to a minimum depth of 10 inches. The excavated soil will be replaced with clean soil i.e., containing less than 1 ppm PCBs, and the spill site will be restored."



The responsible party is required to document the cleanup with records of decontamination and maintain these records for 5 years. The necessary documentation is described in 40 CFR 761.125 paragraphs (c)(5)(i) through (ix).

Results of Visit to the TN Department of Health and the Environment,
Tuesday, April 17, 1990

A visit to the TN Department of Health and Environment in Knoxville was necessary to obtain copies of documents concerning cleanup criteria for PCBs and chemicals, according to Chris Andler of the Superfund Group.

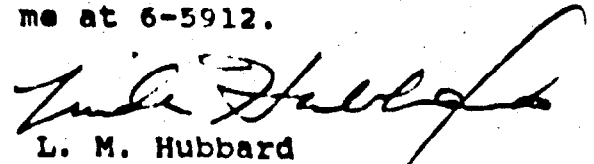
One file yielded a table entitled "Criteria Applicable to Waste Constituents Identified During Phase II, Stage 1 Investigation, AEDC, Tennessee" (source document unknown). This table lists a PCB standard/criteria for soils and sediments as 25 ppm in a restricted area and 10 ppm in a non-restricted area. This is the only instance I've come across that lists a Tennessee "standard/criteria" for PCBs. In all other instances, only guidance levels have been indicated and most evidence indicates that PCBs in Tennessee are regulated by the EPA regional office and not the state.

Another table entitled "Hazardous Substance Guidelines, Tennessee Division of Superfund," lists a guidance level for PCBs in soil of 10 mg/kg soil (10 ppm). This number is based on a partitioning coefficient relative to the water quality standard. This table was in draft form (never published) and was prepared by Margaret E. Dew, PhD, in November 1987.

Brief Summary

PCBs in Tennessee are regulated by the EPA Region 4 Office. The criteria used are 25 ppm for restricted areas and 10 ppm for non-restricted areas. Documentation is required under TSCA.

If you have any questions, please contact me at 6-5912.


L. M. Hubbard

LMH:jlm0932e



2.4 ENVIRONMENTAL COMPLIANCE DOCUMENTATION

NEPA and CERCLA documents listed in this section fulfill the NEPA and CERCLA requirements for the Elza Gate site.

ANL. *Engineering Evaluation/Cost Analysis for the Proposed Removal of Contaminated Materials from Pad 1 at the Elza Gate Site, Oak Ridge, Tennessee*, DOE/OR/23701-37.1, Argonne, Ill., June 1990.

Ref. 13

ANL. *Engineering Evaluation/Cost Analysis for the Proposed Removal of Contaminated Materials at the Elza Gate Site, Oak Ridge, Tennessee*, DOE/OR/23701.3, Argonne, Ill., June 1991.

Ref. 14

Letter from Paul F. Blom, Off-Site Branch, Division of Eastern Area Programs, Office of Environmental Restoration, to L. K. Price, (DOE-OR), "Approved Categorical Exclusion for Removal Actions at Elza Gate, Tennessee," September 1991.

Ref. 15

ANL. *Action Description Memorandum, Demonstration of the Effectiveness of Abrasive Blasting Techniques for Decontaminating Concrete Pads at the Elza Gate Site, Oak Ridge, Tennessee*, Argonne, Ill., May 1989

Ref. 16

memorandum

1991 SEP 23 PM 1:54

DATE: SEP 18 1991

REPLY TO
ATTN OF: EM-421 (P. Blom, 3-8148)

SUBJECT: Approved Categorical Exclusion for Removal Actions at Elza Gate, Tennessee

TO: Lester K. Price, OR

Attached is a copy of the approved Categorical Exclusion (CX) for removal of contaminated material at the Elza Gate site in Tennessee. The removal action involves the removal of radioactive contaminated soil and concrete as well as the removal of Polychlorinated Biphenyl (PCB) contaminated soil. This CX was approved by Carol Borgstrom, Office of National Environmental Policy Act Oversight (EH-25), September 9, 1991.



Paul F. Blom
Off-Site Branch
Division of Eastern Area Programs
Office of Environmental Restoration

Attachment

memorandum

DATE: SEP 13 1991

REPLY TO
ATTN OF: EM-421 (J. Wagoner, 3-8147)

SUBJECT: Categorical Exclusion - Removal Action at Elza Gate, Tennessee

TO: J. LaGrone, Manager
DOE Field Office, Oak Ridge

Attached for your information is a copy of the approved categorical exclusion for the removal action of radioactive contaminated waste from Elza Gate, Tennessee. Any comments provided by the Office of NEPA Oversight are indicated directly on the attached categorical exclusion.

Please contact me, or your staff may contact Mr. James Wagoner (FTS 233-8147) of my staff, should further information be required.



Leo P. Duffy
Director
Office of Environmental Restoration
and Waste Management

Attachment

cc:
L. Price, OR-FSRD

memorandum

DATE: AUG 19 1991

REPLY TO
ATTN OF: EM-421 (J. Wagoner, 3-8147)

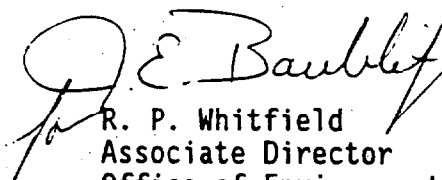
SUBJECT: Categorical Exclusion Determination - Removal Action at Elza Gate,
Tennessee

TO: Leo P. Duffy, Director
Office of Environmental Restoration
and Waste Management

We have reviewed the subject proposed action and concur that it be categorically excluded from further National Environmental Policy Act (NEPA) documentation under Section D of the Department of Energy NEPA Guidelines, as amended.

The proposed action is to safely remove and dispose of the contaminated materials thereby eliminating all potential exposure of workers and the public to radioactive contaminants which exceed applicable cleanup guidelines. The Department of Energy (DOE) proposed removal action will involve removal of radioactively contaminated soils and concrete, with subsequent incorporation of these wastes into a closure action being implemented at the United Nuclear Corporation (UNC) site on the Oak Ridge Reservation. These wastes will be used as a substitute for fill material which would otherwise have been used to fill void space between the UNC site wastes and the permanent cap to be emplaced over the UNC site.

In accordance with the authority delegated to you by the Secretary of Energy Notice 15, dated February 5, 1990, we recommend that you sign the attached categorical exclusion (CX), the memorandum transmitting the CX to the Office of NEPA Oversight in the Office of Environment, Safety and Health, and the memorandum forwarding a copy of the CX to Oak Ridge (OR). The memorandum to the OR Manager will be forwarded after obtaining EH approval.



R. P. Whitfield
Associate Director
Office of Environmental Restoration


3 Attachments

memorandum

DATE: AUG 26 1991
REPLY TO
ATTN OF: EM-421 (J. Wagoner, 3-8147)
SUBJECT: Categorical Exclusion Determination - Removal Action at Elza Gate,
Tennessee
TO: Carol M. Borgstrom, EH-25

I have approved the subject categorical exclusion under Section D of the Department of Energy's National Environmental Policy Act Guidelines and am forwarding it to you for review.

I request that you notify me within 2 weeks, in accordance with the Interim Procedural Guidelines for implementation of SEN-15-90, whether you have any objection to this determination.



Leo P. Duffy
Director
Office of Environmental Restoration
and Waste Management

Attachment

RECEIVED

AUG 26 1991
NEPA# 61470

CATEGORICAL EXCLUSION FOR ELZA GATE, TENNESSEE**PROPOSED ACTION**

The proposed action involves removal of contaminated materials at the Elza Gate site with disposal at existing facilities that are in compliance with all applicable or relevant and appropriate regulatory requirements.

LOCATION

The site is located in Oak Ridge, Tennessee, and is part of the Department's Formerly Utilized Sites Remedial Action Program (FUSRAP). The site is located in an uncontrolled area and is readily accessible by the public.

DESCRIPTION OF THE PROPOSED ACTION

The Elza Gate site contains residual contamination from the storage of uranium ore, processing residues, and electrical components. The materials were stored on concrete pads; the uranium ore and processing residues were segregated from the electrical components. The concrete pads and the soil beneath the pads were residually contaminated with low levels of radioactivity (where the uranium ore and processing residuals were stored) and Polychlorinated Biphenyls (PCBs) (where the electrical components were stored).

The proposed action is to safely remove and dispose of the contaminated materials, thereby eliminating all potential exposure of workers and the public to contamination exceeding applicable cleanup guidelines. The Department of Energy (DOE) proposed removal action will involve removal of approximately 7,000 cy³ of radioactively contaminated soils and concrete, with subsequent incorporation of these wastes into a closure action being implemented at the United Nuclear Corporation (UNC) site on the Oak Ridge Reservation. These wastes will be used as a substitute for fill material which would otherwise have been used to fill void space between the UNC site wastes and the permanent cap to be emplaced over the UNC site. The closed disposal facility will contain and control all contamination buried within, minimize infiltration of surface water and groundwater, prohibit any direct contact with humans, and preclude the spread of contamination.

The PCB contaminated materials are at levels exceeding control requirements established by the Toxic Substances Control Act (TSCA). These soils are not mixed with radioactive wastes and, accordingly, will be shipped to an existing commercial facility for disposal.

The estimated cost for this proposed removal action is less than \$2 million and will not take longer than 12 months from the time activities begin on-site. The proposed action is appropriate since the action is being conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), will not involve construction or expansion of waste disposal, recovery, or treatment facilities, will be implemented in accordance with applicable statutory and regulatory requirements and permits, and is consistent with the final remedial action for the site.

**Categorical Exclusion for
Elza Gate, Tennessee**

Furthermore, the planned work is not to be conducted in an environmentally sensitive area, defined as to include archaeological sites, critical habitats, floodplains, wetlands, and sole-source aquifers.

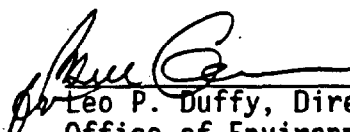
CATEGORICAL EXCLUSION TO BE APPLIED

The categorical exclusion (CX) to be applied is Removal Action as identified in the DOE National Environmental Policy Act (NEPA) Guidelines and the Federal Register (Vol. 55, No. 174, September 7, 1990, pg. 37174).

COMPLIANCE ACTION

I have determined that the proposed action meets the requirements of the CX referenced above. Therefore, the proposed action is categorically excluded from further NEPA review and documentation.

Approval:



Leo P. Duffy, Director
Office of Environmental Restoration
and Waste Management, EM-1

Date:

9/21/91

EH-25 has reviewed this determination and has no objection.

Signature:


Carol Borgstrom, Director
Office of NEPA Oversight, EH-25

Date:

9/9/91

2.5 ACCESS AGREEMENTS

The documents in this section include access agreements that were obtained for the site and adjacent property before remedial action activities began. Letters from the property owners granting access to Elza Gate and a nearby utility right of way follow:

Letter from G. K. Hovey, Program Manager, FUSRAP, Bechtel National, Inc., to Keith Cole, Pathway Bellows, Inc., "Transmittal of Signed Access Agreement," BNI CCN 059209, February 14, 1989.

Letter from Joseph Rizzie, President, Electro-Panel, to R. R. Harbert, Project Manager, FUSRAP, Bechtel National, Inc., "Cleaning MECO Building," BNI CCN 061462, May 19, 1989.

Letter from Andrew P. Avel, Site Manager, Technical Services Division, Department of Energy, to R. R. Harbert, Project Manager, FUSRAP, Bechtel National, Inc., "Access Agreement for Elza Gate," BNI CCN 061511, May 24, 1989.

Letter from G. K. Hovey, Program Manager, FUSRAP, Bechtel National, Inc., to Keith Cole, Pathway Bellows, Inc., "Transmittal of Signed Access Agreement," BNI CCN 061765, June 6, 1989.

Letter from Robert G. Thress, Manager, Property Management, Eastern Land Resources District, Tennessee Valley Authority, to David G. Adler, Site Manager, Former Sites Restoration Division, Department of Energy, "Lead Contamination at Elza Gate-TVA Property, Authorization to Use TVA Land," BNI CCN 084051, December 20, 1991.

bcc: R.R. Harbert
R.R. Land
J.M. Houston

059209

Bechtel National, Inc.

Systems Engineers — Constructors

Jackson Plaza Tower
800 Oak Ridge Turnpike
Oak Ridge, Tennessee 37830

Mail Address: P.O. Box 350, Oak Ridge, TN 37831-0350
Telex 3785873

FEB 14 1989



Pathway Bellows, Inc.
P.O. Box 3027
Oak Ridge, TN 37831-3027

Attention: Mr. Keith Cole

Subject: Bechtel Job No. 14501, FUSRAP Project
DOE Contract No. DE-AC05-81OR20722
Transmittal of Signed Access Agreement
Code: 2600/WBS: 143

Dear Mr. Cole:

Enclosed for your files is a fully executed original of the agreement between you and the U.S. Department of Energy. If you have any further questions, please contact Jeannie Houston of my staff at (615) 576-2142.

Very truly yours,

A handwritten signature in black ink, appearing to read "G. K. Hovey".

G. K. Hovey
Program Manager - FUSRAP

JMH:jik:9306A

Enclosure: As stated

CONTROLLED

Handwritten initials and markings in a rectangular box, including "JMH", "W", and "ERH".

2/3/89

CONSENT FORM PROGRAM ACCESS,
SURVEYS AND ENGINEERING STUDIES

The undersigned persons (hereinafter individually and collectively referred to a "Owner") represent that they own the following property:

MELTON LAKE INDUSTRIAL PARK

The following matters are understood by the Owner:

The United States of America (the "Government"), acting through the U.S. Department of Energy ("DOE"), will provide or contract for radiological surveys and engineering assessments for the following purposes: (1) DESIGNATION - determining if there is radiological contamination on the property sufficient to require remedial action. If the property is designated for remedial action, the next step will be (2) PRELIMINARY CHARACTERIZATION through a gamma-ray walk through - accurately defining the extent of contamination in order to design remedial action.

DOE shall be responsible for loss or destruction of, or damage to, the Owner's real and personal property and the personal property of any lessee to whom the Owner has leased the property, caused by the activities of DOE, their authorized representatives, agents, contractors and subcontractors, in exercising any of the rights granted in this Agreement; DOE shall restore such real and personal property to a condition comparable to its condition immediately prior to the conduct of any activities on the Property by techniques of backfilling, seeding, sodding, landscaping, rebuilding, repair or replacement.

Nothing in this document shall be deemed to obligate the Owner to enter into an agreement for the performance of remedial action. No remedial action shall be performed until and unless (1) DOE shall have determined the need for and selected the appropriate remedial action, and (2) the DOE and Owners have entered into a written agreement providing for the performance of such remedial action.

Nothing in this document shall be deemed a waiver by the Owner of any claim he may have concerning, or a limitation of the government's liability for, damages incurred by the Owner as a consequence of the contamination or clean up of the property.

By signing this document and sending it to the DOE; the Owners grant, effective FEB 6 1989 and terminating May 1, 1989, to the DOE and its contractors and subcontractors, such access to the Property as is reasonably required, and at times satisfactory to, the Owners and their lessees, only for the performance of the gamma-ray walk through phase of the radiological surveys and engineering studies. This agreement shall

terminate on May 1, 1989, regardless of the progress which has been made on the gamma ray walk through phase of the radiological surveys and engineering studies.

The gamma ray walk through phase of the radiological surveys and engineering studies will involve some or all of the following activities:

Reviewing existing building, structural, and site plans available to the Owner. Such plans shall be provided to DOE and its contractors, at on cost to the Owner. If such plans are not in the possession of the Owner but are available, the Owner agrees to permit the DOE and its representatives to borrow or acquire, at no cost to the Owner, those plans deemed necessary to facilitate the performance of these reviews.

Performing land surveys and placing survey stakes as required to characterize the premises, including any light clearing of vegetation that may be required.

Determining the location and extent of actual radioactive material on the premises through measurements by various techniques and/or removing samples of contaminated materials by digging or core drilling. Any measurement and/or removal of samples shall be subject to the prior approval of the Owner and Lessee of the property.

Measuring and examining the premises and structures thereon.

Documenting through photographs the existing conditions of the Property and structures thereon.

Taking radiation measurements and performing core drilling inside structures, in such a manner as is agreeable to the Owner; placing a small radiation monitor in the structures, and collecting a sample from the monitor periodically.

THE UNITED STATES OF AMERICA

BY: DEPARTMENT OF ENERGY

BY: *Peter J. Gross*
Peter J. Gross

TITLE: Director, Technical Services Division

DATE: 2/8/89

MICO A TENNESSEE PETERSON
(printed name of Property Owner(s))

[Signature]
(Signature of Owner) Partner

(Signature of Owner (if multiple))

electro-panel

controls sensors

In reponse, please refer to:
589-JWR-260

May 19, 1989

Bechtel National, Inc.
P. O. Box 350
Oak Ridge, TN 37831-0350

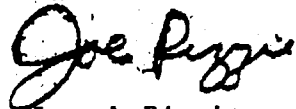
SUBJECT: CLEANING MECO BUILDING

Dear Mr. Harbert:

Bechtel is authorized access to the MECO building to clean and survey the applicable floor area. Your EPI contact in my absence is Eddie Trowbridge. Eddie should be given assurance before the in-building cleaning process begins that it will not contaminate equipment or personnel in the present or future. If airborne contamination is present in your prototype test on the back pad, please suspend operation in the building until EPI can evaluate alternatives.

Sincerely,

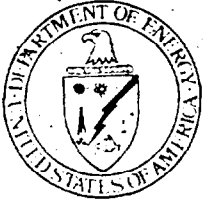
ELECTRO-PANEL, INC.



Joseph Rizzie
President

JR:rd

cc: J. Meyer
E. Trowbridge



061511

89-351

Department of Energy

Oak Ridge Operations
P.O. Box 2001
Oak Ridge, Tennessee 37831-8723

May 24, 1989

Mr. R. R. Harbert
Project Manager-FUSRAP
Bechtel National, Inc.
P.O. Box 350
Oak Ridge, Tennessee 37831

Dear Mr. Harbert:

ACCESS AGREEMENT FOR ELZA GATE

The purpose of this letter is to transmit two copies of the subject access agreement. A copy of the access agreement has already been delivered to the property owner.

If you have any questions concerning this correspondence contact me at 576-0844.

Sincerely,

A handwritten signature in cursive script that reads "Andrew P. Avel".

Andrew P. Avel
Site Manager
Technical Services Division

Enclosure:
As stated



Department of Energy

Oak Ridge Operations
P.O. Box 2001
Oak Ridge, Tennessee 37831 - 8723

May 24, 1989

Mr. R. R. Harbert
Project Manager-FUSRAP
Bechtel National, Inc.
P.O. Box 350
Oak Ridge, Tennessee 37831

Dear Mr. Harbert:

ACCESS AGREEMENT FOR ELZA GATE

The purpose of this letter is to transmit two copies of the subject access agreement. A copy of the access agreement has already been delivered to the property owner.

If you have any questions concerning this correspondence contact me at 576-0844.

Sincerely,

A handwritten signature in cursive script that reads "Andrew P. Avel".

Andrew P. Avel
Site Manager
Technical Services Division

Enclosure:
As stated

CE-53:APAvel:SMuse:6-4452:5/24/89
IBM(PS)2 AVEL B:AVEL.LTR

DECONTAMINATION DEMONSTRATION ACCESS AGREEMENT

THIS AGREEMENT, entered into this ^{24th} day of ^{May} ~~27th~~ ^{May}, 1989, effective as of the ^{24th} day of ~~27th~~ ^{May}, 1989 between THE UNITED STATES OF AMERICA (hereinafter called the "Government"), acting through the DEPARTMENT OF ENERGY (hereinafter called the "DOE"), and MECO, A TENNESSEE PARTNERSHIP, owner (hereinafter called the "Licensor") of the Melton Lake Industrial Park, Oak Ridge, Tennessee

WITNESSETH THAT:

WHEREAS, the property described above has been designated for remedial action under DOE's Formerly Utilized Sites Action Program, and

WHEREAS, a decontamination demonstration of a Shot Blast System is to be conducted by DOE or its contractors on the western-most three pre-1972 (original) concrete pads on the property (see Attachment A), and

WHEREAS, the Licensor owns real property described above which is suitable as a location for the decontamination demonstration; and

WHEREAS, the Licensor has agreed to such decontamination demonstration under the terms set forth below.

NOW THEREFORE, in consideration of the mutual promises, the parties hereto agree as follows:

1. The Licensor hereby grants to DOE or its designees a permit giving the right to enter upon his property for the purpose of conducting the decontamination demonstration which consists of scraping Pad #3 clear of existing asphalt, clearing vegetation from Pads #3, #4, and #5, and scabbling up to 1/4 inch of concrete off of these pads.

2. The Licensor shall remove all equipment and material from Pads #4 and #5 prior to demonstration.

3. DOE shall be responsible for any loss or destruction of or damage to the Licensor's real or personal property caused by the activities of DOE or its designees in exercising any of the rights given in this Agreement. To the extent that provisions of this agreement call for the expenditure of appropriated funds in fiscal years subsequent to Fiscal Year 1989, such provisions shall be subject to the availability of funds appropriated by Congress which DOE may legally spend for such purposes and nothing in this consent implies Congress will appropriate funds for such expenditures. DOE shall conduct the demonstration starting on May 22, 1989, for a period of approximately two weeks. Pad #1, within the warehouse, and Pad #2, leased by Electro-Panel, Inc., will not be included in this demonstration. DOE will confirm the effectiveness of the decontamination demonstration by conducting surveys for a period up to July 21, 1989.

4. The Licensor will notify DOE in writing if his property is, or at any time during the term of this Agreement shall become, leased, sold or otherwise transferred to another party.

The Licensor will also give written notice to any purchaser, lessee, or transferee of the applicability of the rights contained in this Agreement when such purchase, lease, or transfer takes place during the term of this Agreement. The Licensor hereby consents to any Lessee of the property the right to enter into a suitable agreement with the Government covering any part of the demonstration that may affect such Lessee.

5. No member of or delegate to Congress, or Resident Commissioner, shall be admitted to any share of part of this Agreement, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.

6. The Licensor warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees and bona fide established commercial or selling agencies maintained by the Licensor for the purpose of securing business. For breach or violation of this warranty, the Government shall have the right to annul this Agreement without liability or in its discretion to deduct from the Agreement price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

7. This Agreement shall terminate upon completion of the demonstration and no later than July 21, 1989, in accordance with the terms and conditions of this Agreement.

IN WITNESS WHEREOF, Licensor and the United States of America have placed their hands and seals hereto on the dates indicated below.

LICENSOR:

MECO, A TENNESSEE PARTNERSHIP

By Keith Cole
Keith Cole

WITNESS:

Keith Cole

DATE: 5/24/89

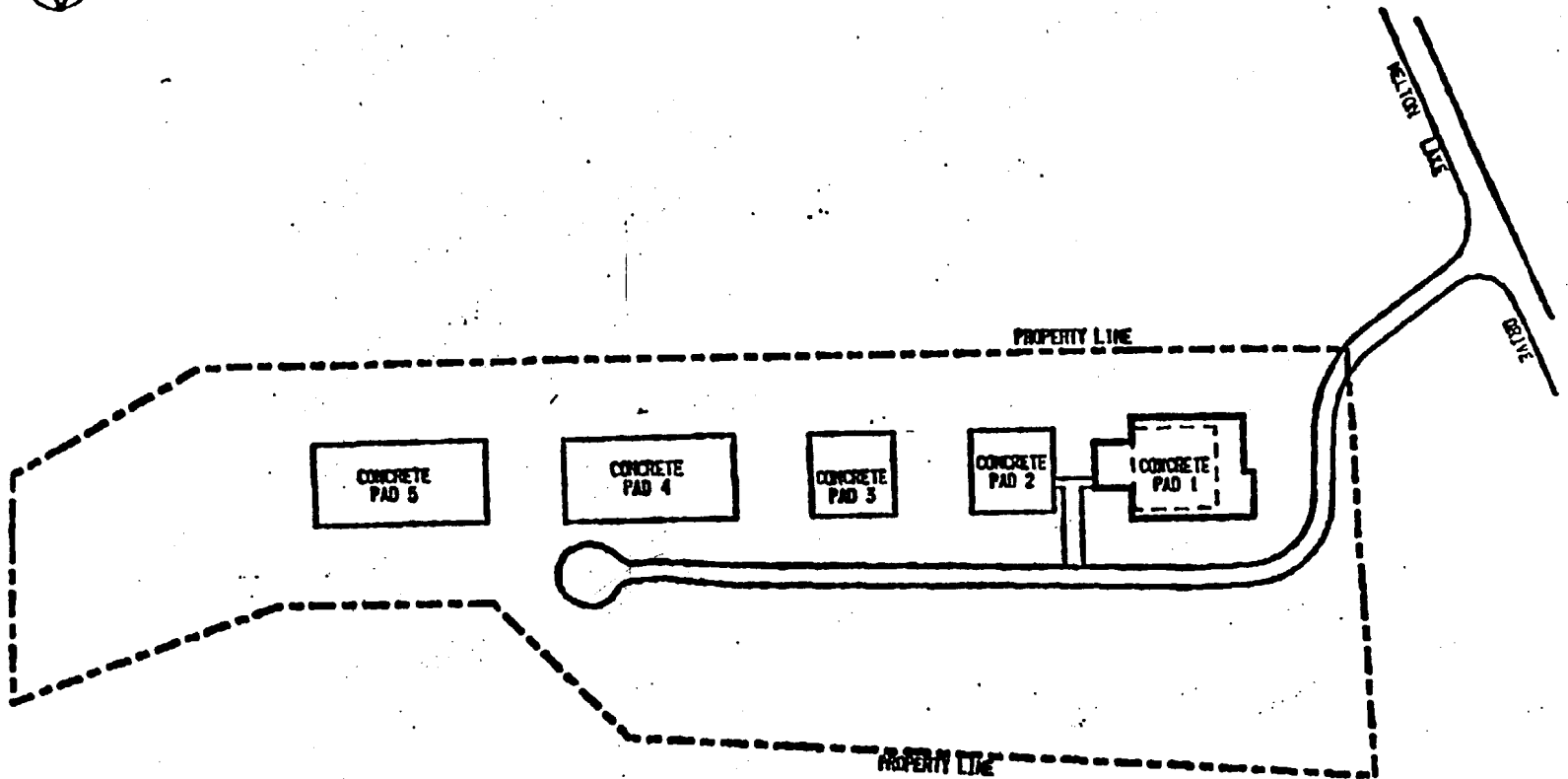
THE UNITED STATES OF AMERICA

BY: DEPARTMENT OF ENERGY

BY: Bryan D. Walker
Bryan D. Walker

TITLE: Acting Director,
Technical Services Division

DATE: 5/24/89



II-28

ELZA GATE

061511

061765

Bechtel National, Inc.

Systems Engineers — Constructors

Jackson Plaza Tower
800 Oak Ridge Turnpike
Oak Ridge, Tennessee 37830

Mail Address: P.O. Box 350, Oak Ridge, TN 37831-0350
Telex: 3785873



JUN 06 1989

Pathway Bellows, Inc.
P.O. Box 3027
Oak Ridge, TN 37831-3027

Attention: Keith Cole

Subject: Bechtel Job No. 14501, FUSRAP Project
DOE Contract No. DE-AC05-81OR20722
Transmittal of Signed Access Agreement
for Elza Gate
Code: 2600/WBS: 143

Dear Mr. Cole:

Enclosed for your files is a fully executed original of the agreement between you and the U.S. Department of Energy. If you have any further questions, please contact Jeannie Houston of my staff at (615) 576-2142.

Very truly yours,

G. K. Hovey
Program Manager - FUSRAP

JMH:djw:9919A

Enclosure: Access Agreement for Elza Gate

CONFIDENTIAL

gral	ru	RLH		
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SUPPLEMENTAL AGREEMENT

This SUPPLEMENTAL AGREEMENT is made part of the Agreement entered into on the 26th day of May 1989 between the UNITED STATES OF AMERICA, acting through the DEPARTMENT OF ENERGY (hereinafter called the "DOE"), and MECO, a Tennessee Partnership (hereinafter called the "LICENSOR") with regard to the property of the LICENSOR of the Melton Lake Industrial Park, Oak Ridge, Tennessee.

WITNESSETH, in addition to the terms, covenants and conditions of the aforesaid Agreement, LICENSOR hereby grants to DOE and its contractors the right to access pad 1 as required to complete the decontamination demonstration. Access to this pad must be verbally approved by the tenant so as to minimize potential impact to the tenant's ongoing operations.

IN WITNESS WHEREOF, LICENSOR and the UNITED STATES OF AMERICA have placed their hands and seals hereto on the dates indicated below.

LICENSOR:
MECO, A TENNESSEE PARTNERSHIP
by Keith Cole
Keith Cole

WITNESS:
David W. Hale

DATE: 5/31/89

THE UNITED STATES OF AMERICA
BY: DEPARTMENT OF ENERGY
BY: Bryan D. Walker
Bryan D. Walker

TITLE: Acting Director,
Technical Services Division

DATE: 5/31/89



Tennessee Valley Authority, Post Office Box 6000, Morristown, Tennessee 37815

December 20, 1991

Mr. David G. Adler, Site Manager
Former Sites Restoration Division
U.S. Department of Energy
Oak Ridge Operations
P.O. Box 2001
Oak Ridge, Tennessee 37831-8723

Dear Mr. Adler:

This is in regard to your December 16 letter to Dr. Ralph Brooks, and your December 17 site visit with Dan Fisher of my staff, in which you requested TVA approval for environmental cleanup operations by U.S. Department of Energy (DOE) contractors on TVA Tract No. DHR-84R, located near Clinch River Mile 51.1R, as shown on the enclosed exhibit map for Melton Hill Reservoir. In your site visit with Mr. Fisher, you pointed out the area for cleanup operations which was up against an existing fence abutting the industrial park property, approximately 40 feet back from the reservoir, and about 10 to 15 feet long by about 6 to 8 feet wide.

We understand, based on our discussions with you, that the purpose of the cleanup operation is to remove lead contaminated soils which migrated from the "Elza Gate" property to the TVA tract, that the observed contamination levels are between 1000 to 2000 parts per million (ppm), and that contamination levels over 1000 ppm require cleanup, according to U.S. Environmental Protection Agency guidelines. We also understand that the cleanup operation will remove the contaminated soils to an approved long term storage location, and that the disturbed area will be restored by replacement of clean topsoil, smoothing, seeding, and strawing.

Based on these understandings, we have no objections to the cleanup operation, subject to DOE acceptance of the following conditions:

All contaminated soil cleanup operations including handling, shipping, and storage, shall be conducted in accordance with applicable Federal, State, and local statutes, regulations, or ordinances. In addition, DOE shall provide TVA with copies of the pertinent test data indicating the site was contaminated, and copies of the test data which show that the site has been cleaned up to applicable standards.

All land-disturbing activities shall be conducted in accordance with best management practices as defined by Section 208 of the Clean Water Act and implementing regulations to control erosion and sedimentation so as to prevent adverse water quality and related aquatic impacts. Such practices shall be consistent with sound engineering and construction principles; applicable Federal, State, and local statutes, regulations, or ordinances; and proven techniques for controlling erosion and sedimentation.

2

Mr. David G. Adler
December 20, 1991

If any historical or prehistorical archaeological material (such as arrowheads, broken pottery, bone, or similar items) is encountered during operations, you will immediately contact this office and temporarily suspend work at that location until authorized by this office to proceed.


In issuing this authorization letter, TVA assumes no liability and undertakes no obligation or duty (in tort, contract, strict liability, or otherwise) to DOE, its contractors, or to any third party for any damages to property (real or personal), or personal injuries (including death), including any future liability for additional cleanup operations, arising out of or in any way connected with the actions which are the subject of this letter. All arrangements for storage, treatment, or disposal of contaminated material shall be made by DOE, and TVA shall not, under any circumstances, arrange or be considered as having arranged for storage, treatment, or disposal of such material.

Any changes in this authorization, including the extent, type, or location of the cleanup operations, must be approved by TVA in writing prior to undertaking the work.

If the foregoing conditions and understandings are acceptable, please arrange for signature by the appropriate DOE representative on the enclosed copy of this letter, and return it to this office. This authorization is not effective until the signed acceptance is received by TVA.

you have any questions, or if we can be of further assistance, please call Dan Fisher of my staff at 587-5600 (Morristown).

Very Truly Yours,


Robert G. Thress, Manager
Property Management
Eastern Land Resources District

Enclosures

Accepted without qualification this

23rd day of December, 1991

By: Jester K. Price

Title: Director, Former Sites Restoration Div
US DOE, Oak Ridge Field Office

2.6 POST-REMEDIAL ACTION REPORT

The following report documents the remedial action activities and the post-remedial action radiological status for each of the locations at the Elza Gate site.

Bechtel National, Inc. *Post-Remedial Action Report For the Elza Gate Site, Oak Ridge, Tennessee, Oak Ridge, Tenn., October 1992.*

Ref. 12

2.7 VERIFICATION STATEMENT, INTERIM VERIFICATION LETTERS TO PROPERTY OWNERS, AND VERIFICATION REPORTS

This section contains the documents related to the successful decontamination of the subject property, including the verification statement and the IVC's verification reports.

Oak Ridge Institute for Science and Education, *Verification Survey of the Elza Gate Site, Oak Ridge, Tennessee*, December 1992.

Ref. 16

2.8 STATE, COUNTY, AND LOCAL COMMENTS ON REMEDIAL ACTION

The State of Tennessee, the City of Oak Ridge, and Anderson County were kept fully informed of all DOE activities conducted at the Elza Gate site in Oak Ridge, Tennessee. The following reference is for the plan followed during remedial action activities for community relations.

Bechtel National, Inc., *Community Relations Plan for Removal of Contaminated Material at the Elza Gate Site, Oak Ridge, Tenn., January 1991.*

2.9 RESTRICTIONS

There are no radiologically or chemically based restrictions on the future use of the subject properties.

2.10 FEDERAL REGISTER NOTICE

This section contains a copy of the published *Federal Register* notice. It documents the certification that the subject property is in compliance with all applicable decontamination criteria and standards.

drug (ATOD) prevention—including school personnel, community representatives, and Federal, State, and local policymakers—to share information and strategies, explore new and emerging issues, and establish and strengthen collaborative efforts. Additionally, a preconference session will provide technical assistance to current Drug-Free Schools and Communities Act (DFSCA) grantees. The previously announced postconference session to provide information to prospective grantees on how to apply for upcoming DFSCA grants has been canceled.

CONFERENCE INFORMATION: The conference is scheduled for December 1-3, 1993 at the Washington, DC Renaissance Hotel, 999 9th Street, NW., Washington, DC 20001-9000.

FOR FURTHER INFORMATION CONTACT: Rii Conference Department, 1010 Wayne Avenue, Suite 300, Silver Spring, Maryland 20910. Telephone: (301) 565-4048 or (301) 565-4049. Individuals who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1-800-877-8339 between 8 a.m. and 8 p.m., Eastern time, Monday through Friday.

Dated: October 29, 1993.

Thomas W. Payzant,

Assistant Secretary for Elementary and Secondary Education.

[FR Doc. 93-27315 Filed 11-4-93; 8:45 am]

BILLING CODE 4000-01-P

DEPARTMENT OF ENERGY

Certification of the Radiological and Chemical Condition

AGENCY: Office of Environmental Restoration and Waste Management, Department of Energy (DOE).

ACTION: Notice of certification.

SUMMARY: DOE has completed remedial action to decontaminate the Elza Gate property in Oak Ridge, Tennessee. The property was found to contain quantities of radioactive materials from the wartime Manhattan Engineer District/Atomic Energy Commission (MED/AEC) activities. Radiological and chemical surveys show that the site now meets applicable requirements for unrestricted use.

ADDRESSES:

Public Reading Room, Room 1E-190, Forrestal Building, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585;

Public Document Room, Oak Ridge Operations Office, U.S. Department of Energy, Oak Ridge, Tennessee 37831.

FOR FURTHER INFORMATION CONTACT: Mr. James J. Fiore, Director, Office of Eastern Area Programs, Office of Environmental Restoration, and Waste Management (EM-42), U.S. Department of Energy, Washington, DC 20585, (301) 903-8141 Fax: (301) 903-8136.

SUPPLEMENTARY INFORMATION: DOE, Office of Environmental Restoration and Waste Management, Office of Eastern Area Programs, Off-Site Program Division has conducted a remedial action project at the Elza Gate site in Oak Ridge, Tennessee (Book of Deeds, Z, Volume 12, page 204, Anderson County, Tennessee, corrected in Book of Deeds G, Volume 15, page 295, Anderson County, Tennessee), as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP). The objective of the program is to identify and remediate or otherwise control sites where residual radioactive contamination remains from activities carried out under contract to the MED/AEC during the early years of the nation's atomic energy program. In 1988, the Elza Gate site was designated for remediation as part of the FUSRAP program.

During the early 1940's, the Elza Gate site was developed by MED as a storage area for pitchblende (a high-grade uranium ore from Africa) and ore processing residues. In 1946, ownership of the site was transferred to AEC. It is not known when MED or AEC stopped using the warehouses for storage of the pitchblende ores and residues; AEC later operated the property as an equipment storage area for Oak Ridge National Laboratory (ORNL) and the Oak Ridge Y-12 Plant. AEC used the site until it was vacated in the early 1970s. After radiological survey and decontamination activities were conducted by DOE in 1972, the site was deemed acceptable under the standards in place at that time for use with no radiological restrictions. At that time, title to the property was transferred first to the General Services Administration and then to the City of Oak Ridge. The property was subsequently sold to Jet Air, Inc., which operated a fabricating and metal plating facility on the site. In 1988, ownership of the property was transferred to MECO, a development company. At DOE's request, ORNL conducted a preliminary radiological survey to determine whether the site met newer, stricter remediation guidelines. The survey indicated that soil at the site contained residues from MED activities. As a result, on

November 30, 1988, DOE designated the Elza Gate site for inclusion in FUSRAP. In 1989 and 1990, Bechtel National, Inc. conducted a comprehensive radiological and chemical characterization of the site. Based on these characterization data, DOE conducted remedial action at the Elza Gate site in 1991 and 1992.

Post-remedial action surveys have demonstrated and DOE has certified that the subject property is in compliance with DOE radiological decontamination criteria and standards. The standards are established to protect members of the general public and occupants of the site and to ensure that future use of the property will result in no radiological exposure above applicable guidelines. Chemical contaminants in soil at the site were remediated to Environmental Protection Agency (EPA) soil guidelines of 25 ppm for PCBs and 1,000 ppm for lead. These findings are supported by the DOE Certification Docket for the Remedial Action Performed at the Elza Gate Site in Oak Ridge, Tennessee, 1991-1992. Accordingly, this property is released from the FUSRAP program administered by the DOE as of November 5, 1993.

The certification docket will be available for review between 9 a.m. and 4 p.m., Monday through Friday (except Federal holidays) in the DOE Public Reading Room located in room 1E-190 of the Forrestal Building, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585. Copies of the certification docket will also be available in the DOE Public Document Room, U.S. Department of Energy, Oak Ridge Operations Office, Oak Ridge, Tennessee 37831.

DOE, through the Oak Ridge Operations Office, Former Sites Restoration Division, has issued the following statement:

Statement of Certification: Elza Gate Site Former MED/AEC Operations

DOE Oak Ridge Operations Office, Former Sites Restoration Division, has reviewed and analyzed the radiological data obtained following remedial action at the Elza Gate site (Book of Deeds Z, Volume 12, page 204, Anderson County, Tennessee, corrected in Book of Deeds G, Volume 15, page 295, Anderson County, Tennessee). Based on analysis of all data collected, DOE certifies that the following property is in compliance with DOE radiological decontamination criteria and standards. For radiological exposure resulting from past MED/AEC activities at the site, this certification of compliance provides assurance that future use of the property will result in no radiological exposure above

applicable guidelines established to protect members of the general public or site occupants. For chemical contaminants, this certification statement provides assurance that polychloride biphenyl (PCB) and lead concentrations in soil do not exceed 25 ppm of PCBs and 1,000 ppm of lead, which were the EPA guidelines established for the site.

Property owned by MECO, Tennessee Partnership: Melton Lake Industrial Park, Antwerp Lane, Oak Ridge, Tennessee 37830.

R.P. Whitfield,

Deputy Assistant Secretary for Environmental Restoration.

[FR Doc. 93-27291 Filed 11-4-93; 8:45 am]

BILLING CODE 6450-01-M

Notification of Wetland Involvement for the Tonawanda Site, Tonawanda, NY

AGENCY: Department of Energy (DOE).

ACTION: Notice of Wetlands Involvement.

SUMMARY: DOE proposes to conduct a remedial action in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to remediate radioactively contaminated sediment from soils in areas determined to include freshwater wetlands. This proposed CERCLA remedial action, which is necessary to remove contaminated sediments that exceed current DOE criteria for residual radioactivity in soil, would be conducted at the Ashland 2 property and at two vicinity properties located adjacent to the northwest corner of the Linde property. Linde and Ashland 2 are two of four properties located in the town of Tonawanda, New York, that comprise the Tonawanda site. The Tonawanda site has been designated for remedial action under DOE's Formerly Utilized Sites Remedial Action Program.

In accordance with 10 CFR Part 1022, DOE will prepare a wetlands assessment and will perform this proposed remedial action in a manner so as to avoid or minimize potential harm to or within the affected wetlands.

DATES: Comments are due to the address below no later than November 22, 1993.

ADDRESSES: Comments should be addressed to: Mr. Lester K. Price, Oak Ridge Operations Office, U.S. Department of Energy, P.O. Box 2001, Oak Ridge, Tennessee 37831-8723.

FOR FURTHER INFORMATION CONTACT: Information on this proposed action is available from: Mr. Ronald E. Kirk, Site Manager, Former Sites Restoration

Division, Oak Ridge Operations Office, U.S. Department of Energy, P.O. Box 2001, Oak Ridge, Tennessee 37831-8723, (615) 576-7477. Fax: (615) 576-0956.

For further information on general DOE Wetlands Environmental Review Requirements, Contact: Ms. Carol M. Borgstrom, Director, Office of NEPA Oversight, EH-25, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 586-4600 or (800) 472-2756.

SUPPLEMENTARY INFORMATION: In accordance with DOE regulations for compliance with wetlands environmental review requirements (10 CFR Part 1022), DOE will prepare a wetlands assessment for this proposed DOE action. The wetlands assessment for this proposed remedial action will be included in the feasibility study/proposed plan-environmental impact statement being prepared for the Tonawanda site.

Issued in Washington, DC on October 28, 1993.

Clyde W. Frank,

Acting Principal Deputy Assistant Secretary for Environmental Restoration and Waste Management.

[FR Doc. 93-27292 Filed 11-4-93; 8:45 am]

BILLING CODE 6450-01-M

Pittsburgh Energy Technology Center; Sources Sought Announcement for Upcoming Class III Mid-Term Solicitation

AGENCY: Bartlesville Project Office, Pittsburgh Energy Technology Center, Department of Energy.

ACTION: Mid-Term Program Opportunity Notice.

SUMMARY: The U.S. Department of Energy, Bartlesville Project Office through the Pittsburgh Energy Technology Center, announces that it intends to issue a competitive Program Opportunity Notice (PON) in support of maximizing the economic producibility of oil from Slope and Basin clastic (Class III) reservoirs. A public meeting is being scheduled.

DATES: The scheduled release date for the solicitation is January 28, 1994. No details pertaining to the public meeting are available at this time.

ADDRESSES: A copy of all pertinent information, including the solicitation, may be obtained by writing to the Department of Energy, Pittsburgh Energy Technology Center, Attention Keith R. Miles, Contract Specialist, P.O. Box 10940, Mail Stop 921-118, Pittsburgh, PA 15234. Requests may be faxed to 412/892-6216.

SUPPLEMENTARY INFORMATION: P Opportunity Notice No. DE-PS-94BC14973.

Title of Solicitation

Class III Oil Program: Mid-Term Activities.

Objective

The specific objective of this P Opportunity Notice is to solicit applications to conduct cost-share projects in domestic Slope and Basin clastic reservoirs that lead to maximizing the economic production of the domestic oil resource. The projects should demonstrate and transfer advanced reservoir characterization techniques or to advanced reservoir management techniques, or advanced recovery technologies aimed at resolving production problems which will result in a significant increase of domestic reserves in Slope and Basin clastic reservoirs.

Sources Sought

Organizations interested in being placed on the Department's source for information, are encouraged to submit a written request to the address listed in this announcement. The request must include: The company name, address, and point of contact including telephone number. Any organization who has previously responded to the DOE Bartlesville Project Office's "Open Letter" date August 16, 1993 need not respond to this announcement.

Dated: October 27, 1993.

Dale A. Siciliano,

Contracting Officer.

[FR Doc. 93-27288 Filed 11-4-93; 8:45

BILLING CODE 6450-01-M

Notice of Noncompetitive Financial Assistance Award for the Society of Petroleum Engineers' Ninth Symposium on Improved Oil Recovery

AGENCY: U.S. Department of Energy, Bartlesville Project Office.

ACTION: Notice of Noncompetitive Financial Assistance Award.

SUMMARY: The Department of Energy (DOE), Bartlesville Project Office (BP) announces that pursuant to 10 CFR 600.7(b)(2)(i) (B) and (D), it intends to make a Noncompetitive Financial Assistance (Grant) Award through the Pittsburgh Energy Technology Center to the Society of Petroleum Engineers for a symposium on Improved Oil

2.11 APPROVED CERTIFICATION STATEMENTS

The following memorandum and statements document the certification of the subject property for future use.

memorandum

DATE: **NOV 01 1993**
REPLY TO: EM-421 (W. A. Williams, 903-8149)
ATTN OF:
SUBJECT: Recommendation for Certification of Remedial Action at the Elza Gate Site
Oak Ridge, Tennessee
TO: R. P. Whitfield, EM-40

I am attaching for your signature a Federal Register notice concerning the remediation of contamination associated with the former Manhattan Engineer District/Atomic Energy Commission (MED/AEC) activities at the Elza Gate site in Oak Ridge, Tennessee.

The Department of Energy (DOE), Office of Environmental Restoration and Waste Management, Office of Eastern Area Programs, Off-Site Program Division, has conducted a remedial action project at the Elza Gate site in Oak Ridge, Tennessee (Book of Deeds Z, Volume 12, page 204, Anderson County, Tennessee, corrected in Book of Deeds G, Volume 15, page 295, Anderson County, Tennessee), as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP). The objective of the program is to identify and remediate or otherwise control sites where residual radioactive contamination remains from activities carried out under contract to the MED/AEC during the early years of the nation's atomic energy program. In 1988, the Elza Gate site was designated for remediation under FUSRAP.

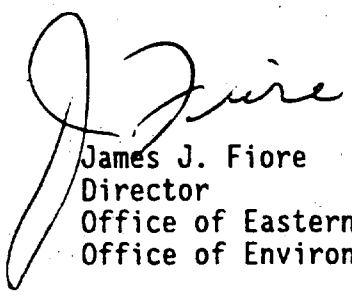
During the early 1940s, the Elza Gate site was developed by MED as a storage area for pitchblende (a high-grade uranium ore from Africa) and ore processing residues. In 1946, ownership of the site was transferred to AEC. It is not known when MED or AEC stopped using the warehouses for storage of the pitchblende ores and residues; AEC later operated the property as an equipment storage area for Oak Ridge National Laboratory (ORNL) and the Oak Ridge Y-12 Plant. AEC used the site until it was vacated in the early 1970s. After radiological survey and decontamination activities were conducted by DOE in 1972, the site was deemed acceptable for use with no radiological restrictions. At that time, title to the property was transferred first to the General Services Administration and then to the City of Oak Ridge. The property was subsequently sold to Jet Air, Inc., which operated a fabricating and metal plating facility on the site. In 1988, ownership of the property was transferred to MECO, a development company. At DOE's request, ORNL conducted a preliminary radiological survey to determine whether the site met newer, stricter remediation guidelines. The survey indicated that soil at the site contained residues from MED activities. As a result, on November 30, 1988, the Elza Gate site was designated for inclusion in FUSRAP. In 1989 and 1990, Bechtel National, Inc. conducted a comprehensive radiological and chemical characterization of the site. Based on these characterization data, remedial action was conducted at the Elza Gate site in 1991 and 1992.

Post-remedial action surveys have demonstrated, and DOE has certified, that the subject property is in compliance with DOE radiological decontamination criteria and standards. The standards are established to protect members of the general public and occupants of the site and to ensure that future use of the property will result in no radiological exposure above applicable guidelines. Chemical contaminants in soil at the site were remediated to EPA soil guidelines of 25 ppm for PCBs and 1,000 ppm for lead. These findings are supported by the DOE Certification Docket for the Remedial Action Performed at the Elza Gate Site in Oak Ridge, Tennessee, 1991-1992. Accordingly, this property is released from FUSRAP.

Based on a review of all documents related to the subject property, we have concluded that the site is in compliance with the criteria and standards that were established to be in accordance with DOE Guidelines and Orders, to be consistent with other appropriate guidelines of the U.S. Nuclear Regulatory Commission and U.S. Environmental Protection Agency, and to protect public health and the environment.

The Office of Eastern Area Programs is preparing the certification docket for the subject property. The Federal Register notice will be part of the docket.

I recommend that you sign the attached Federal Register notice, as well as the transmittal memorandum to the Federal Register Liaison Officer. This office will notify interested parties, including the property owner, interested Federal, State, and local agencies, the public, and local land offices of the certification action by correspondence and local newspaper announcements, as appropriate. The documents transmitted with the certification statement and the Federal Register notice will be compiled in final docket form for retention in accordance with DOE Order 1324.2 (Disposal Schedule 25).



James J. Fiore
 Director
 Office of Eastern Area Programs
 Office of Environmental Restoration


Attachments

memorandum

DATE: NOV 01 1993
REPLY TO
ATTN OF: EM-421 (W. A. Williams, 903-8149)
SUBJECT: Federal Register Notice for Certification of Remediation at Oak Ridge,
Tennessee
TO: Federal Register Liaison Officer, HR-622

Attached is the original and three copies of the signed Federal Register Notice certifying the completion of remedial action at the Elza Gate Site near Oak Ridge, Tennessee. This site was remediated by the Department's Formerly Utilized Sites Remedial Action Program. This attached notice has been reviewed by and concurred in by the Office of General Counsel (GC-11 and GC-41), and a copy of that concurrence is also attached for your information and use.

Please forward the attached notice to the Federal Register for publication.



R. P. Whitfield
Deputy Assistant Secretary
for Environmental Restoration

2 Attachments

cc:
D. Adler, OR

[6450-01]
DEPARTMENT OF ENERGY

Certification of the Radiological and
Chemical Condition

AGENCY: Office of Environmental Restoration and Waste Management,
Department of Energy (DOE)

ACTION: Notice of Certification

SUMMARY: DOE has completed remedial action to decontaminate the Elza Gate property in Oak Ridge, Tennessee. The property was found to contain quantities of radioactive materials from the wartime Manhattan Engineer District/Atomic Energy Commission (MED/AEC) activities. Radiological and chemical surveys show that the site now meets applicable requirements for unrestricted use.

ADDRESSES: Public Reading Room
Room 1E-190
Forrestal Building
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Public Document Room
Oak Ridge Operations Office
U.S. Department of Energy
Oak Ridge, Tennessee 37831

FOR FURTHER INFORMATION CONTACT: Mr. James J. Fiore, Director
Office of Eastern Area Programs
Office of Environmental Restoration
and Waste Management (EM-42)
U.S. Department of Energy
Washington, D.C. 20585

(301) 903-8141 Fax: (301) 903-8136

SUPPLEMENTARY INFORMATION:

DOE, Office of Environmental Restoration and Waste Management, Office of Eastern Area Programs, Off-Site Program Division has conducted a remedial action project at the Elza Gate site in Oak Ridge, Tennessee (Book of Deeds Z, Volume 12, page 204, Anderson County, Tennessee, corrected in Book of Deeds G, Volume 15, page 295, Anderson County, Tennessee), as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP). The objective of the program is to identify and remediate or otherwise control sites where residual radioactive contamination remains from activities carried out under contract to the MED/AEC during the early years of the nation's atomic energy program. In 1988, the Elza Gate site was designated for remediation as part of the FUSRAP program.

During the early 1940s, the Elza Gate site was developed by MED as a storage area for pitchblende (a high-grade uranium ore from Africa) and ore processing residues. In 1946, ownership of the site was transferred to AEC. It is not known when MED or AEC stopped using the warehouses for storage of the pitchblende ores and residues; AEC later operated the property as an equipment storage area for Oak Ridge National Laboratory (ORNL) and the Oak Ridge Y-12 Plant. AEC used the site until it was vacated in the early 1970s. After radiological survey and decontamination activities were conducted by DOE in 1972, the site was deemed acceptable under the standards in place at that time for use with no radiological restrictions. At that time, title to the property was transferred first to the General Services Administration and then to the City of Oak Ridge. The property was subsequently sold to Jet Air, Inc., which operated a

fabricating and metal plating facility on the site. In 1988, ownership of the property was transferred to MECO, a development company. At DOE's request, ORNL conducted a preliminary radiological survey to determine whether the site met newer, stricter remediation guidelines. The survey indicated that soil at the site contained residues from MED activities. As a result, on November 30, 1988, DOE designated the Elza Gate site for inclusion in FUSRAP. In 1989 and 1990, Bechtel National, Inc. conducted a comprehensive radiological and chemical characterization of the site. Based on these characterization data, DOE conducted remedial action at the Elza Gate site in 1991 and 1992.

Post-remedial action surveys have demonstrated and DOE has certified that the subject property is in compliance with DOE radiological decontamination criteria and standards. The standards are established to protect members of the general public and occupants of the site and to ensure that future use of the property will result in no radiological exposure above applicable guidelines. Chemical contaminants in soil at the site were remediated to Environmental Protection Agency (EPA) soil guidelines of 25 ppm for PCBs and 1,000 ppm for lead. These findings are supported by the DOE Certification Docket for the Remedial Action Performed at the Elza Gate Site in Oak Ridge, Tennessee, 1991-1992. Accordingly, this property is released from the FUSRAP program administered by the DOE as of [insert date of publication].

The certification docket will be available for review between 9:00 a.m. and 4:00 p.m., Monday through Friday (except Federal holidays) in the DOE Public Reading Room located in Room 1E-190 of the Forrestal

Building, U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, D.C. 20585. Copies of the certification docket will also be available in the DOE Public Document Room, U.S. Department of Energy, Oak Ridge Operations Office, Oak Ridge, Tennessee 37831.

DOE, through the Oak Ridge Operations Office, Former Sites Restoration Division, has issued the following statement:

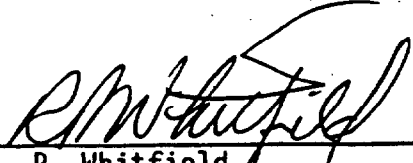
**STATEMENT OF CERTIFICATION: ELZA GATE SITE
FORMER MED/AEC OPERATIONS**

DOE Oak Ridge Operations Office, Former Sites Restoration Division, has reviewed and analyzed the radiological data obtained following remedial action at the Elza Gate site (Book of Deeds Z, Volume 12, page 204, Anderson County, Tennessee, corrected in Book of Deeds G, Volume 15, page 295, Anderson County, Tennessee). Based on analysis of all data collected, DOE certifies that the following property is in compliance with DOE radiological decontamination criteria and standards. For radiological exposure resulting from past MED/AEC activities at the site, this certification of compliance provides assurance that future use of the property will result in no radiological exposure above applicable guidelines established to protect members of the general public or site occupants. For chemical contaminants, this certification statement provides assurance that polychloride biphenyl (PCB) and lead concentrations in soil do not exceed 25 ppm of PCBs and 1,000 ppm of lead, which were the EPA guidelines established for the site.

Property owned by MECO, Tennessee Partnership:

Melton Lake Industrial Park
Antwerp Lane
Oak Ridge, Tennessee 37830

Issued in Washington, D.C., on _____, 1993.



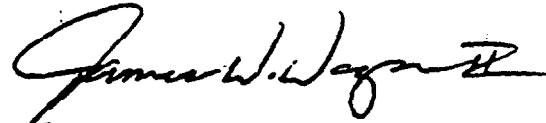
R. P. Whitfield
Deputy Assistant Secretary
for Environmental Restoration

memorandum

DATE: JUL 18 1993
 REPLY TO ATTN OF: EM-421 (W. Williams, 903-8149)
 SUBJECT: Request for GC-11 and GC-41 Review and Concurrence for the Certification of Remedial Action at the Elza Gate Site, Oak Ridge, Tennessee
 TO: W. Dennison, GC-11

The Formerly Utilized Sites Remedial Action Program (FUSRAP) has recently completed the remediation of the Elza Gate Site in Oak Ridge, Tennessee. FUSRAP has prepared the attached Action Memorandum and Federal Register Notice to give public notice of the completion of remediation and the availability of the certification docket. The Federal Register Notice was prepared in the Oak Ridge Field Office and has been reviewed and approved (with minor comments) by the Office of Chief Counsel in the Oak Ridge Operations Office, copy attached. Some additional editorial changes have been made by my staff.

This package is furnished for the review, comment, and concurrence of GC-11 and GC-41, and I would appreciate very much a simultaneous review of this document by your staff and GC-41. It would be helpful if the GC comments and concurrences were furnished no later than August 1, 1993.



James W. Wagoner II
 Director
 Division of Off-Site Programs
 Office of Eastern Area Programs
 Office of Environmental Restoration

Attachments

cc:
 D. Adler, OR

as mod.
 WAD 8/25/93
 GC-11 Concurrence

TW 8/27/93
 GC-41 Concurrence
 (as marked)

GC-
 #2
 8-25

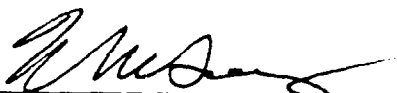
Energy

STATEMENT OF CERTIFICATION: ELZA GATE SITE
FORMER MED/AEC OPERATIONS

The U.S. Department of Energy, Oak Ridge Operations Office, Former Sites Restoration Division, has reviewed and analyzed the radiological and chemical data obtained following remedial action at the Elza Gate site (Book of Deeds Z, Volume 12, page 204, Anderson County, Tennessee, corrected in Book of Deeds G, Volume 15, page 295, Anderson County, Tennessee). Based on analysis of all data collected, the Department of Energy (DOE) certifies that the following property is in compliance with DOE radiological decontamination criteria and standards. For radiological exposure resulting from past MED/AEC activities at the site, this certification of compliance provides assurance that future use of the property will result in no radiological exposure above applicable guidelines established to protect members of the general public or site occupants. For chemical contaminants, this certification statement provides assurance that polychloride biphenyl (PCB) and lead concentrations in soil do not exceed 25 ppm of PCBs and 1000 ppm of lead, which were the EPA guidelines established for the site.

Property owned by MECO, A Tennessee Partnership:

Melton Lake Industrial Park
Antwerp Lane
Oak Ridge, Tennessee 37830

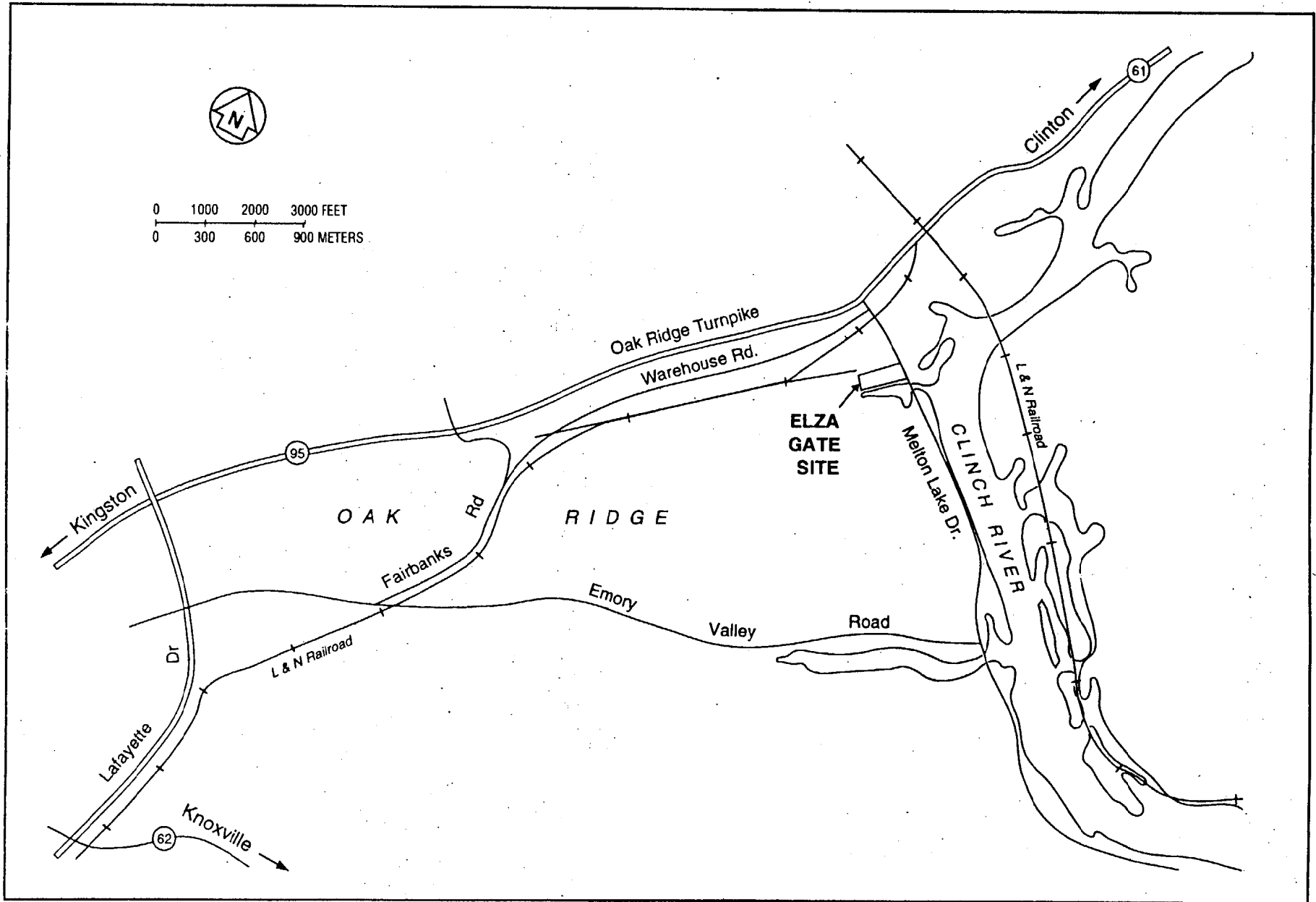


W. M. Seay, Acting Director
Former Sites Restoration Division
Oak Ridge Operations Office
U.S. Department of Energy

Date: 6/29/93

EXHIBIT III
DIAGRAMS OF THE REMEDIAL ACTION PERFORMED AT THE
ELZA GATE SITE
IN OAK RIDGE, TENNESSEE, 1991-1992

The figures provided on the following pages are taken from the post-remedial action report; they illustrate the extent and types of remedial action performed at the subject property.



4.120 1104.11

Figure III-1
Location of the Elza Gate Site

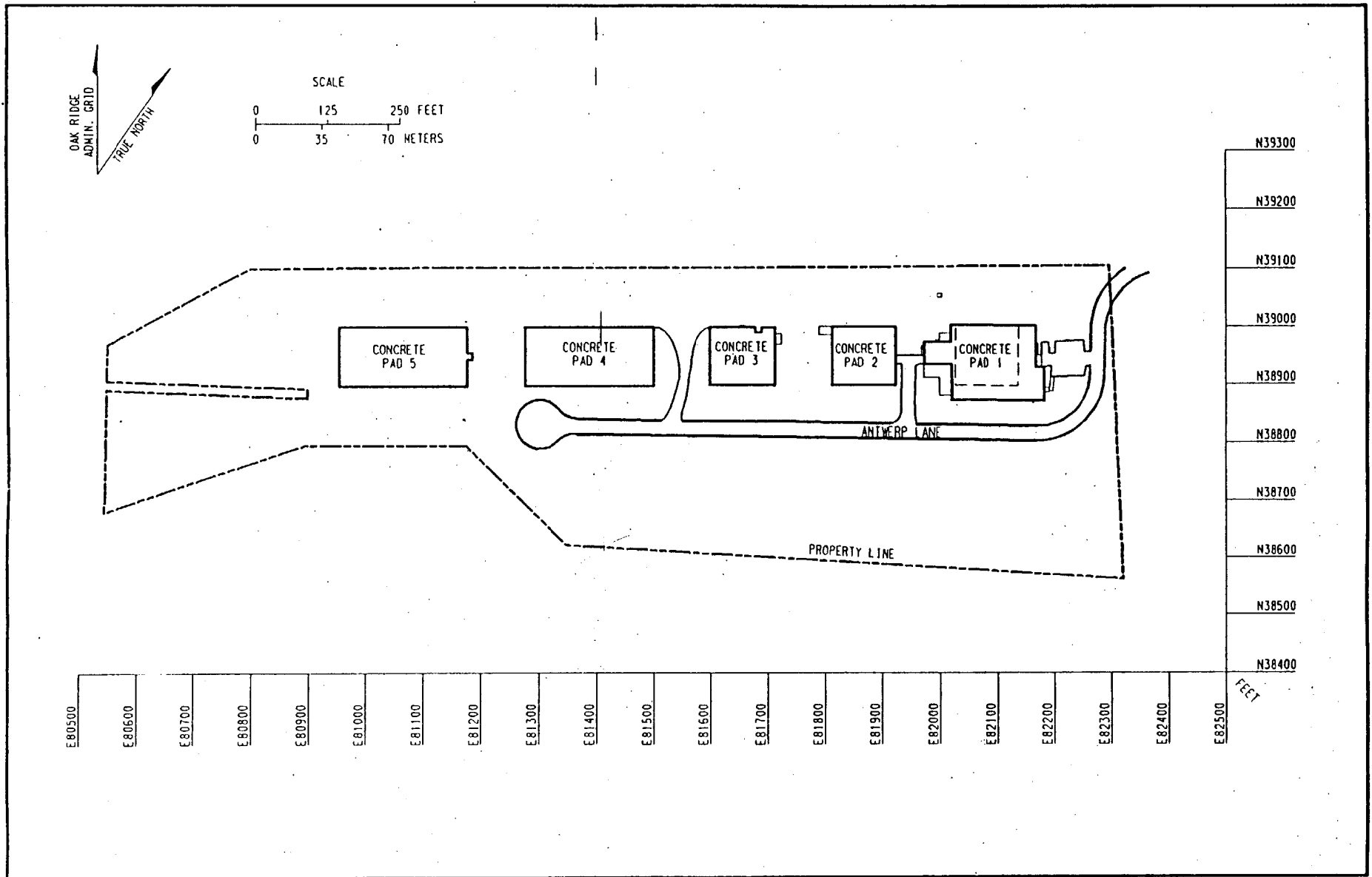
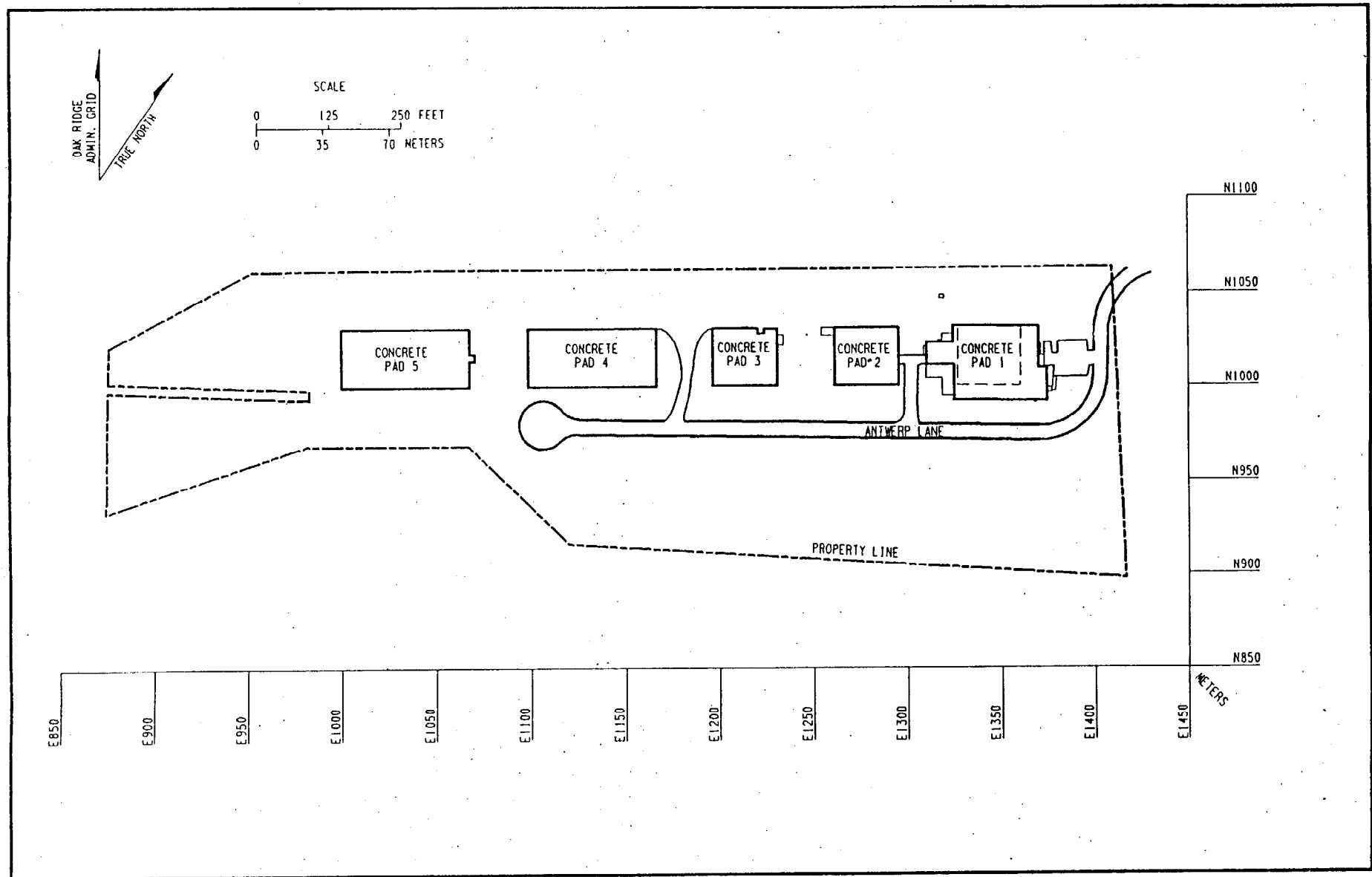


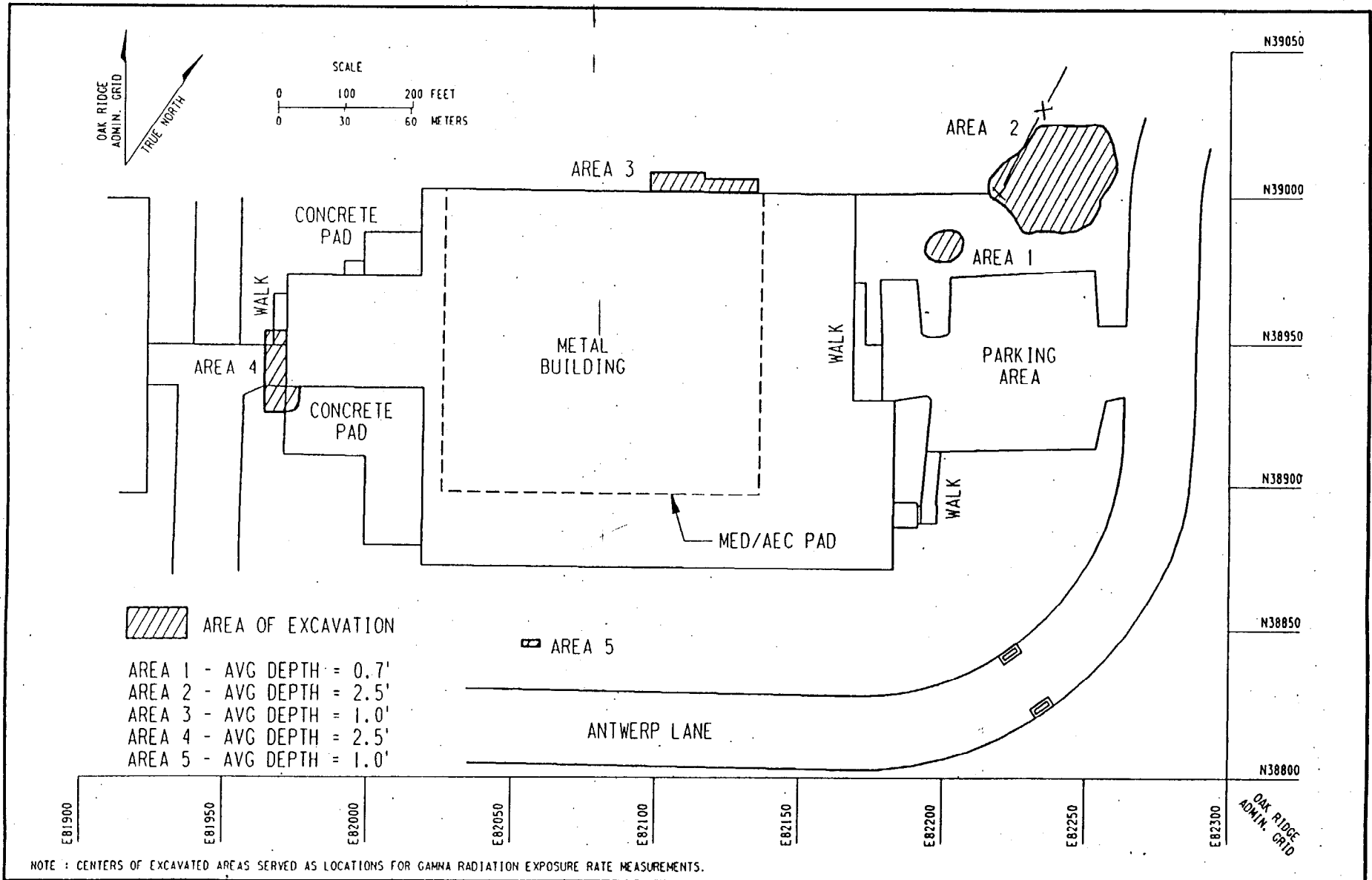
Figure III-2
Plan View of the Elza Gate Site
(English Grid)


S-III



143 R17F001.DGN F2

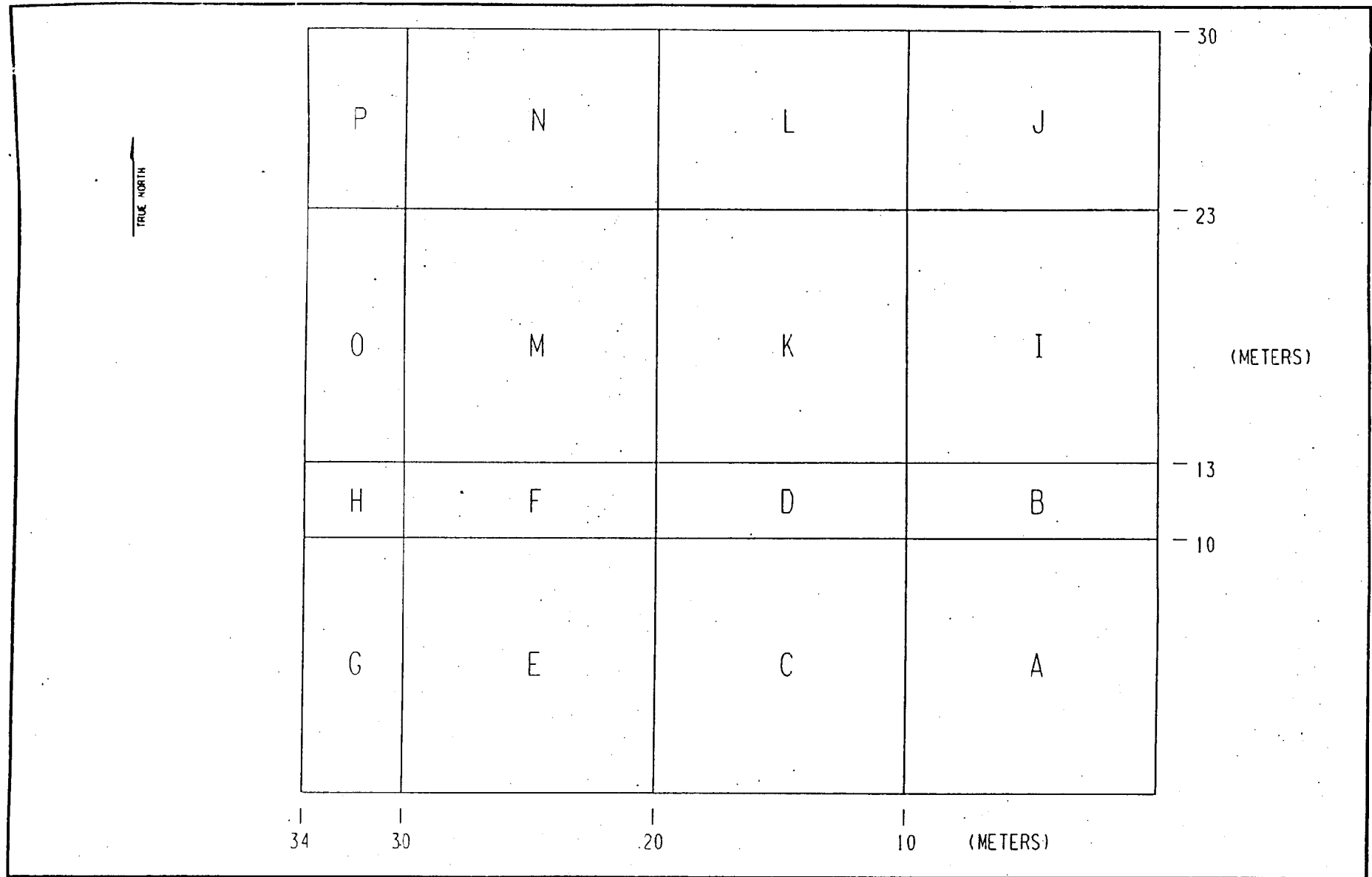
Figure III-3
Plan View of the Elza Gate Site
(Metric Grid)



 AREA OF EXCAVATION

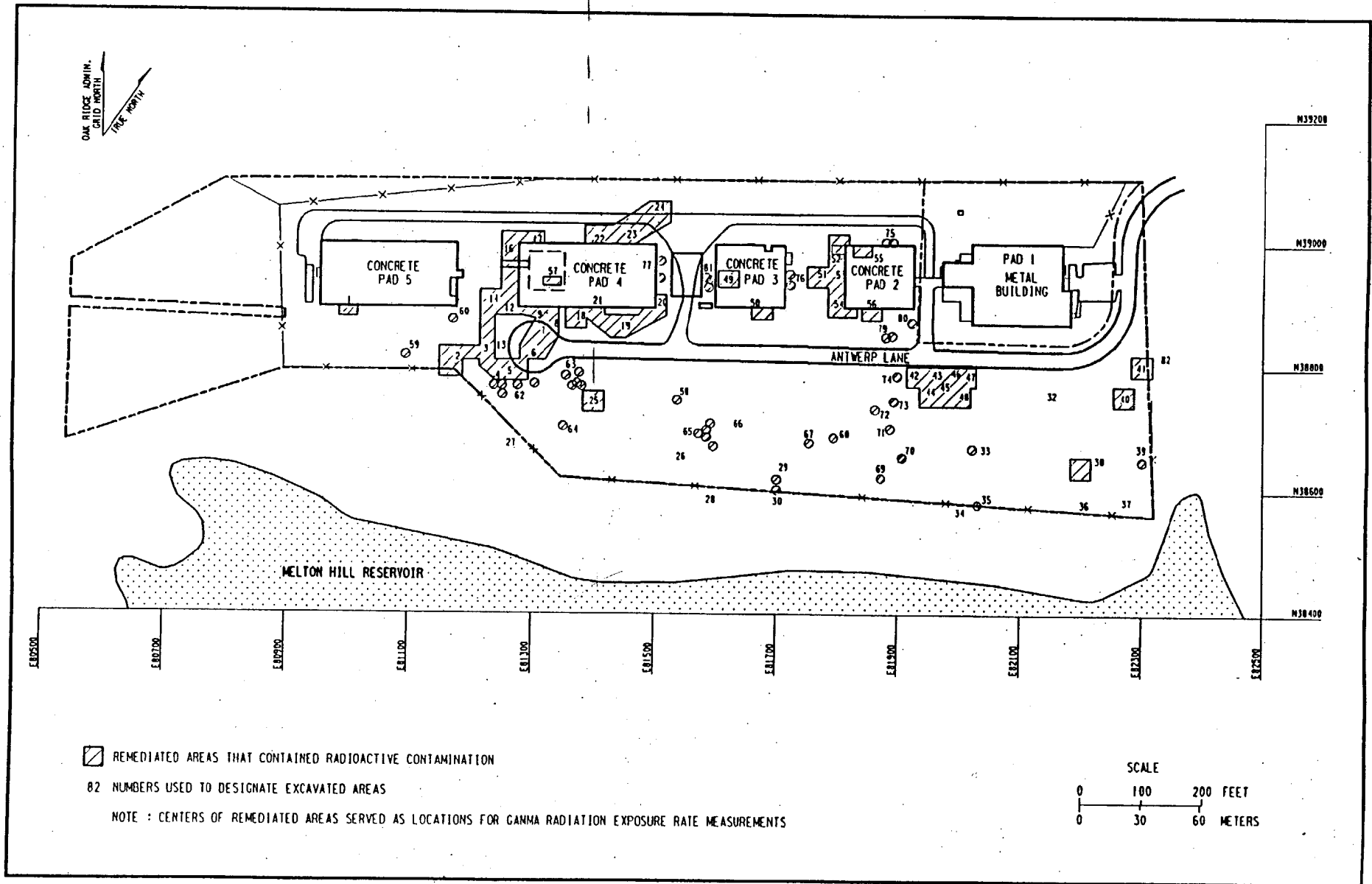
- AREA 1 - AVG DEPTH = 0.7'
- AREA 2 - AVG DEPTH = 2.5'
- AREA 3 - AVG DEPTH = 1.0'
- AREA 4 - AVG DEPTH = 2.5'
- AREA 5 - AVG DEPTH = 1.0'

Figure III-4
Excavated Areas at Parcel 1A



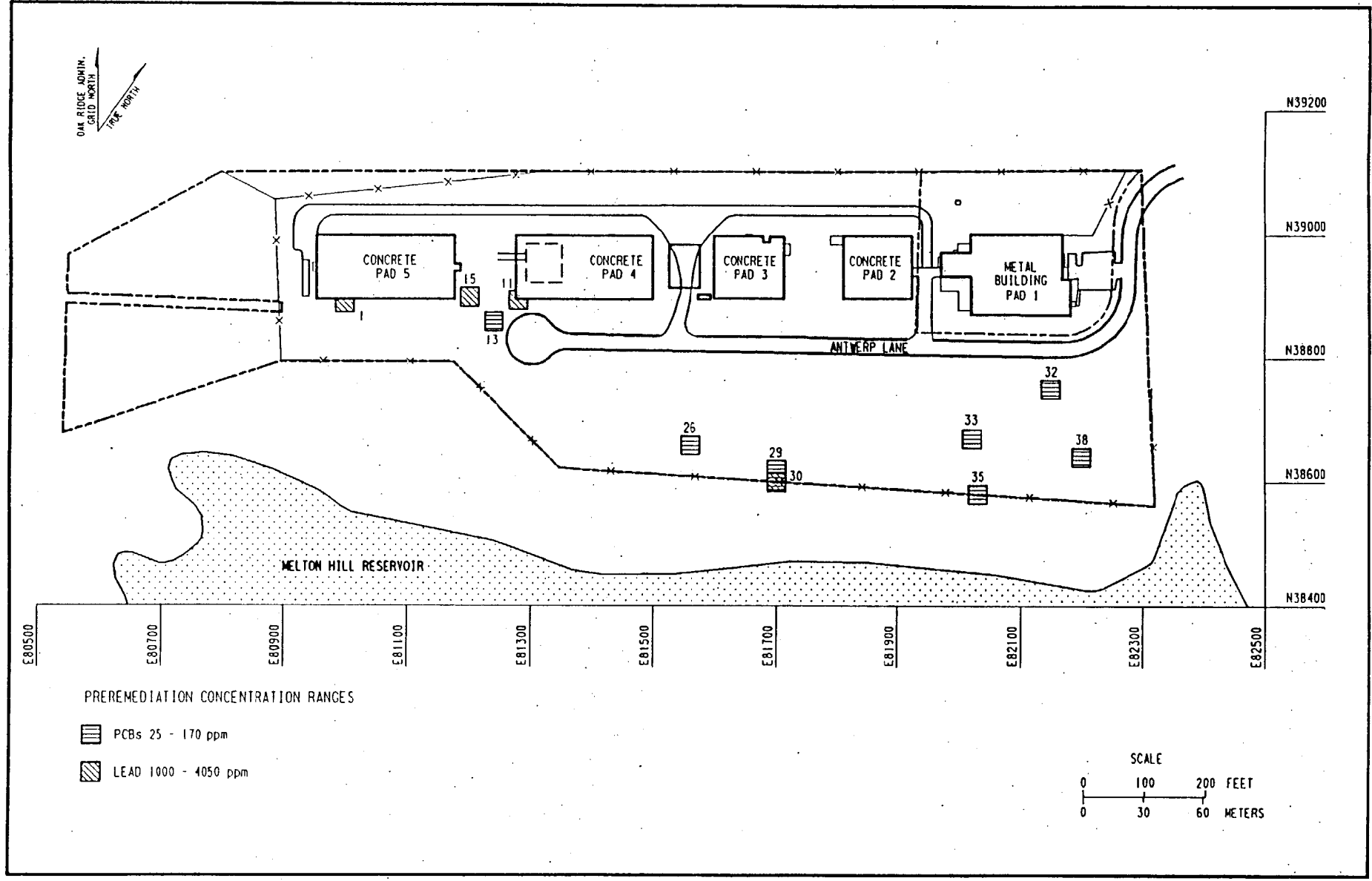
143F040.DGN

Figure III-5
Master Grid Used During Remediation of Pad 1



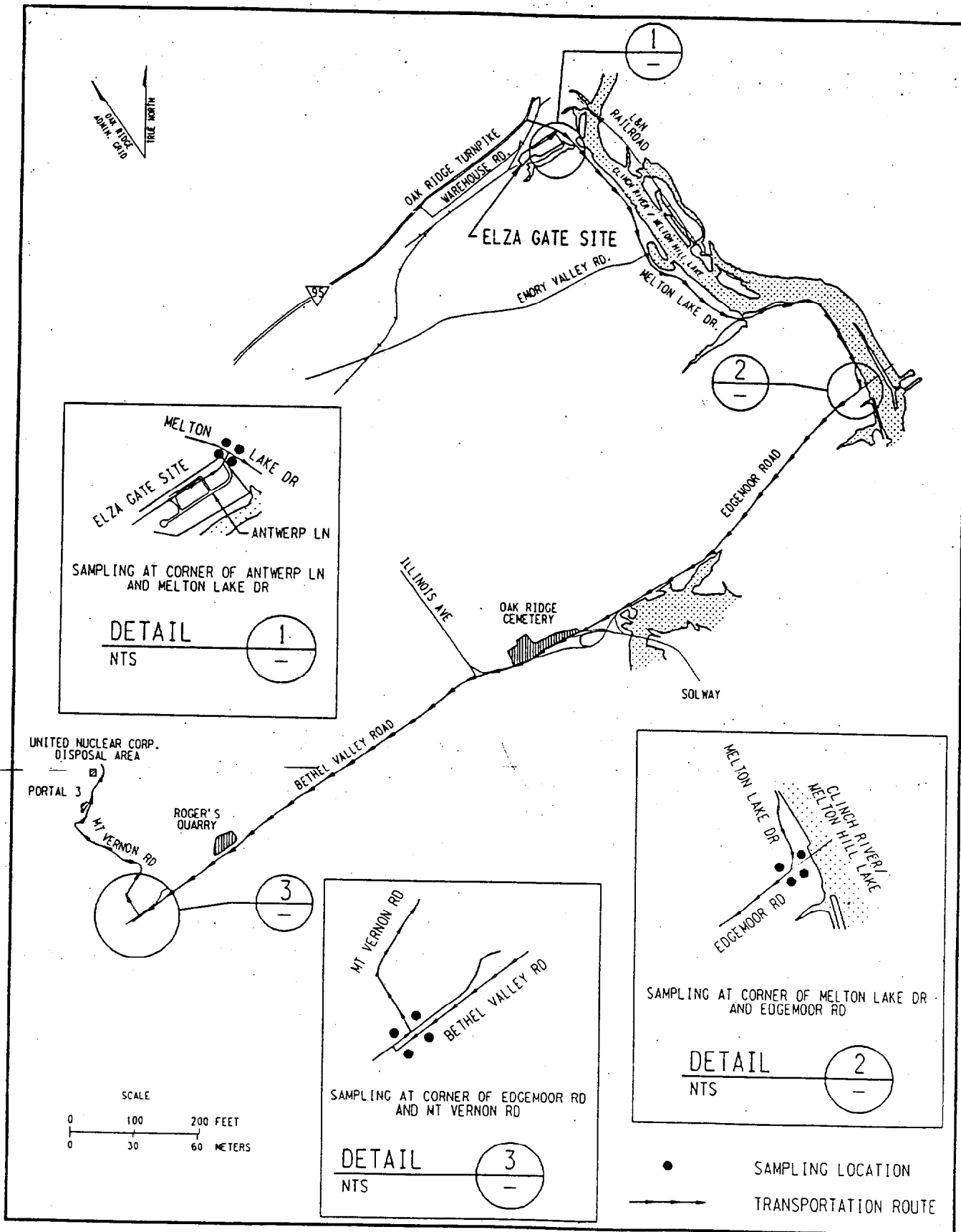
143F 039.DGN

Figure III-6
Remediated Areas of Radioactive Contamination (Excluding Parcel 1A)



143F038.DGN

Figure III-7
Remediated Areas of Chemical Contamination



143F 033.DGN F3

Figure III-8
Sampling Locations along Elza Gate Transportation Route