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*Certification Docket for the
Remedial Action Performed
at the Granite City Site in
Granite City, Illinois, June 1993*

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

September 1994



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CERTIFICATION DOCKET FOR THE REMEDIAL ACTION
PERFORMED AT THE GRANITE CITY SITE
IN GRANITE CITY, ILLINOIS, JUNE 1993

SEPTEMBER 1994

Prepared for

UNITED STATES DEPARTMENT OF ENERGY

Oak Ridge Operations Office

Under Contract No. DE-AC05-91OR21949

By

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ACRONYMS

AEC	Atomic Energy Commission
ALARA	as low as reasonably achievable
BNI	Bechtel National, Inc.
CCN	communications chronological number
CEQ	Council on Environmental Quality
DOE	U.S. Department of Energy
DOE-FSRD	Department of Energy Former Sites Restoration Division
DOE-ORO	Department of Energy Oak Ridge Operations Office
FUSRAP	Formerly Utilized Sites Remedial Action Program
HEPA	high-efficiency particulate air
IVC	independent verification contractor
LLRW	low-level radioactive waste
MED	Manhattan Engineer District
NSC	National Steel Corporation
NEPA	National Environmental Policy Act
ORNL	Oak Ridge National Laboratory
PCB	polychlorinated biphenyl
PMC	project management contractor
RSS	radiological support subcontractor

UNITS OF MEASURE

cm	centimeter
cpm	counts per minute
dpm	disintegrations per minute
ft	foot
g	gram
gal	gallon
h	hour
in.	inch
L	liter
lb	pound
m	meter
μCi	microcurie
μR	microroentgen
ml	milliliter
mrاد	millirad
mrem	millirem
pCi	picocurie
ppm	parts per million

INTRODUCTION

The U.S. Department of Energy (DOE), Office of Environmental Restoration, Eastern Area Programs, Off-Site Division conducted a remedial action project at the Granite City site in Granite City, Illinois. The work was administered by DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP) under the direction of the Deputy Assistant Secretary for Environmental Restoration.

The United States Congress authorized DOE to initiate FUSRAP in 1974 to identify and clean up or otherwise control sites where residual radioactive material and/or chemical contamination (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 used 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 achieve 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 radiological and/or chemical conditions of the sites comply with applicable guidelines and that the sites may be released without restriction for appropriate future use.

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

Environmental Regulations Applicable to 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. These regulations were revised April 24, 1992 (57 FR 15122).

The NEPA process requires FUSRAP decision-makers to identify and assess the environmental consequences of proposed actions before beginning remedial action activities, developing disposal sites, or transporting and managing or disposing of radioactive wastes. For the remedial action activities discussed in this certification docket, the NEPA requirements were satisfied by the preparation and approval of a categorical exclusion for the remedial action. This NEPA document confirmed that there would be no adverse effects on the environment from the remedial action activities.

Work performed under FUSRAP by the PMC 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

The Granite City site in Granite City, Illinois, is owned by National Steel Corporation (NSC). Remedial action was conducted on the Betatron Building (Parcel No. 301-001 filed in Deed/Plat Book 19-24-14, Page 22-1 in the records of Madison County, Illinois) in the Granite City South Plant Facility, 1417 State Street, Granite City, Illinois, from June 7 to June 11, 1993. On June 7, 1994, 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 June 14, 1994.

Docket Contents

The purpose of this docket is to document the successful decontamination of radioactively contaminated areas in the interior of the Betatron Building at the Granite City site in June 1993. Material in this docket consists of documents supporting the DOE certification that conditions at the Betatron Building are in compliance with current radiological guidelines and standards determined to be applicable to the property. This certification docket also provides the documents certifying that unrestricted use of the property will not result in any measurable radiological hazard to the general public as a result of the past activities of DOE or its predecessor agencies.

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

Exhibit II consists of the letters, memos, and reports that document the entire remedial action process from designation of the site into FUSRAP to the certification that no restrictions based on the radiological condition of the site limit its future use.

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

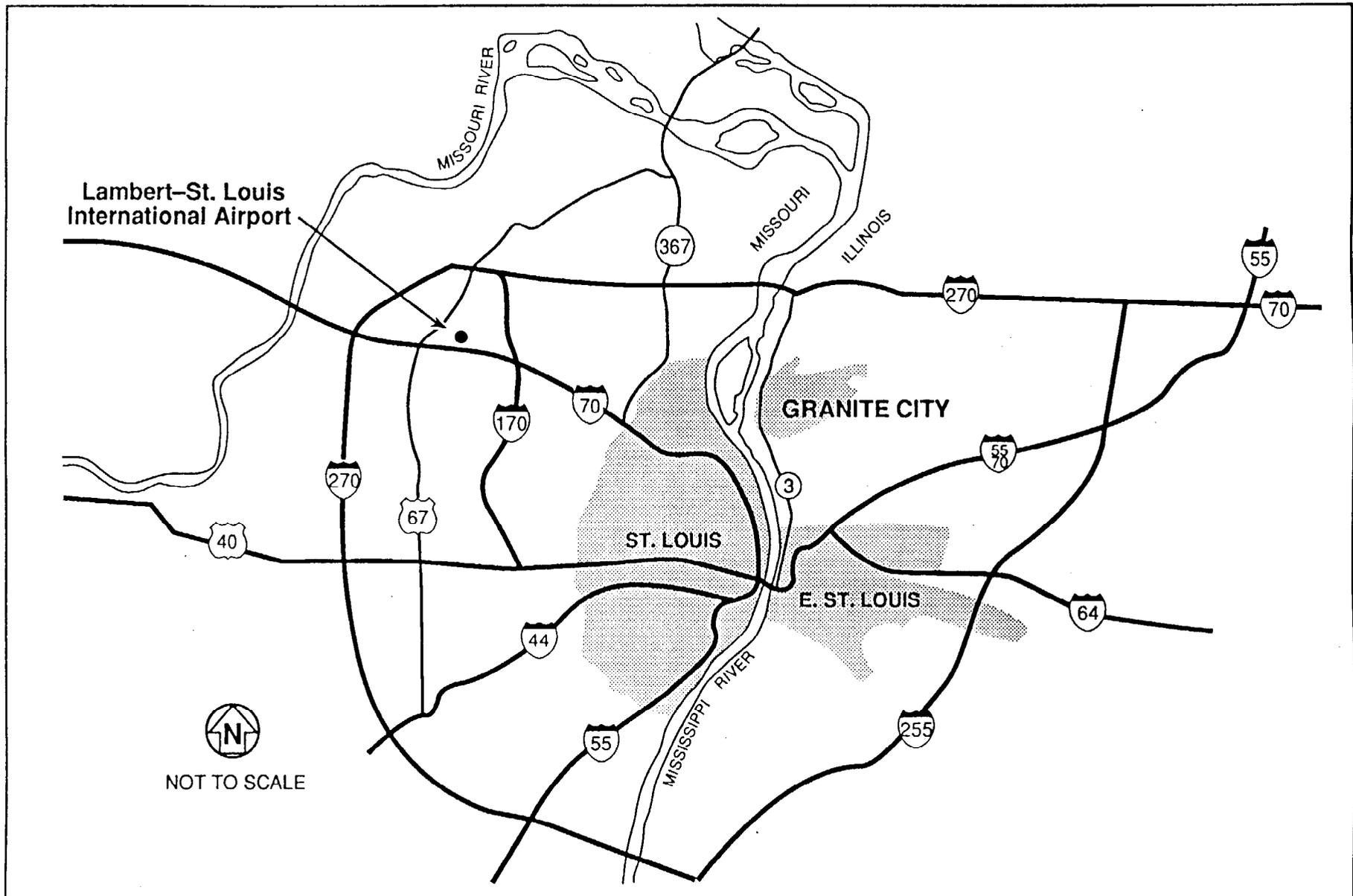
The certification docket and associated references will be archived by DOE through the Assistant Secretary for Management and Administration. Copies will be available for public review between 9:00 a.m. and 4:00 p.m., Monday through Friday (except federal holidays), at the DOE Public Reading Room located 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, Federal Building, 200 Administration Road, Oak Ridge, Tennessee.

EXHIBIT I
SUMMARY OF REMEDIAL ACTION ACTIVITIES AT
THE GRANITE CITY SITE
IN GRANITE CITY, ILLINOIS, JUNE 1993

1.0 INTRODUCTION

Exhibit I summarizes the activities culminating in the certification that radiological conditions at the Granite City site are in compliance with applicable guidelines and that future use of the site will not result in exposure to radioactivity 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 Betatron Building: the designation of the site as requiring remedial action, the remedial action performed, and verification that the radioactive contamination in excess of cleanup guidelines has been removed. Further details of each activity described in Exhibit I can be found in the referenced documents.

The Granite City site is in Granite City, Illinois, approximately 10 miles northeast of St. Louis Missouri; Figure I-1 shows the location of the site.



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Figure I-1
Location of Granite City, Illinois

2.0 SITE HISTORY

In the late 1950s and early 1960s, uranium-238 ingots were x-rayed for AEC in the Betatron Building to detect metallurgical flaws. X-ray services were provided by General Steel Castings Corporation under purchase orders from Mallinckrodt Chemical Works, a prime AEC contractor. Purchase orders were issued by Mallinckrodt from 1958 to 1966 on an "as required" basis (Ref. 2).

In 1986, NSC, the current owner of the building, built a bermed area in the Betatron Building. Since 1986, this area has been used for storage of electrical transformers.

3.0 SITE DESCRIPTION

The Granite City site is in Granite City, Illinois, approximately 10 miles northeast of St. Louis, Missouri (Figure I-1).

The Betatron Building is a two-story concrete and metal structure with a built-up tar roof. The building is generally in good condition, and the roof is in fair condition. An abandoned railroad spur (connected to Terminal Railroad) enters from the north end of the building, passes through a high bay area, and then enters a large, open room at the south end of the building called the betatron room (Figure I-2). The concrete floor was boxed out for the railroad track running through the building. Asphalt covers this area, and only the rails are exposed.

The betatron room and the adjacent bay area have 10-ft-thick walls constructed of concrete slabs built as two separate walls with sand between them, and the floor is also concrete. A bermed portion of the northern part of the room was used to store transformers. The berm is constructed of concrete and is approximately 18 in. (45 cm) tall and 12 in. (30 cm) wide. At the time of the designation surveys, two Allis-Chalmers betatron particle accelerators, used to x-ray the ingots, remained in the room against the south wall. NSC later removed the accelerators from the building.

The northeast quarter of the building is subdivided into offices and utility rooms. The second floor over these rooms is used as an electrical utility room and storage area (Figure I-3) (Ref. 2).

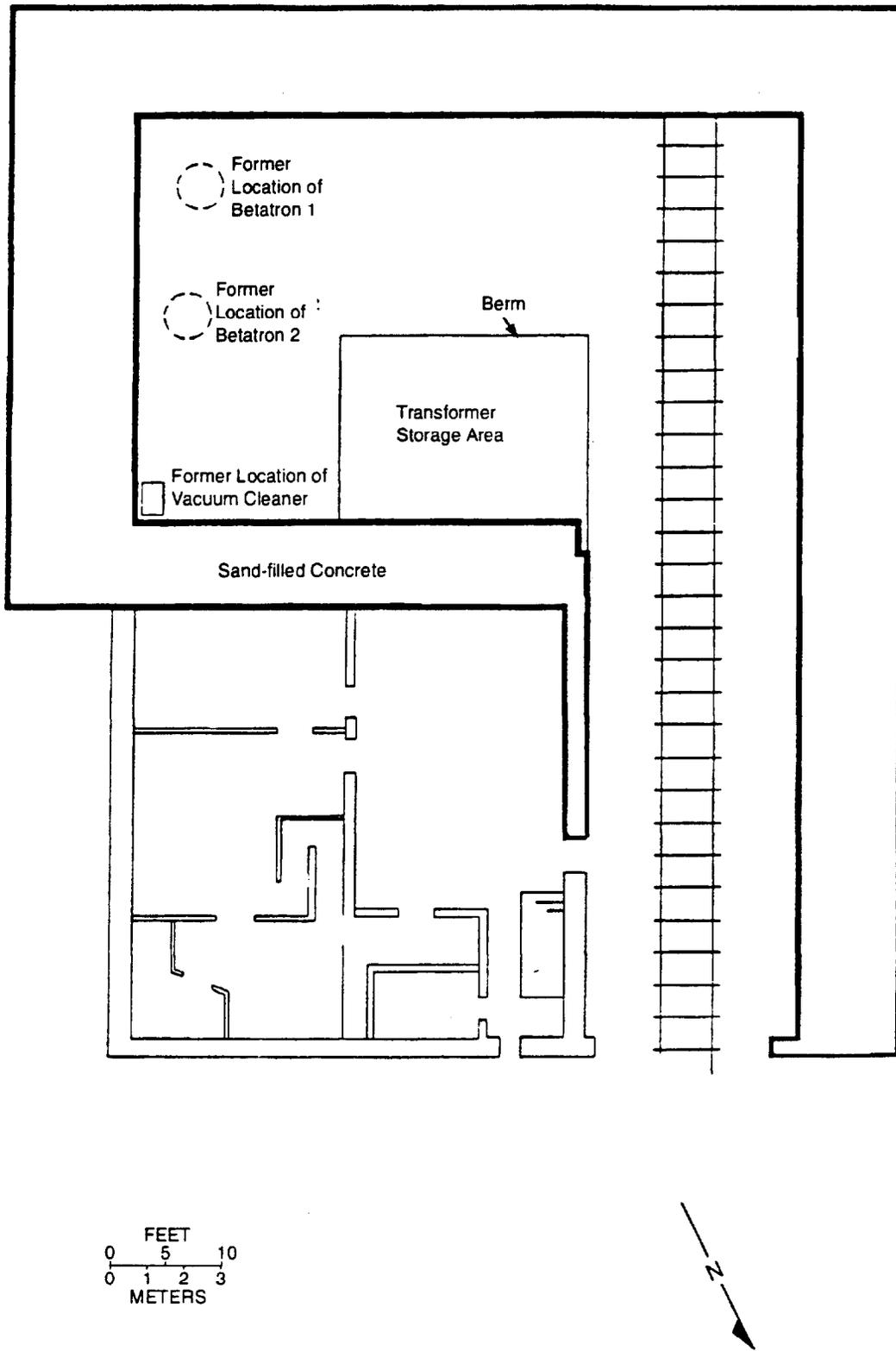


Figure I-2
 Floor Plan—First Floor of the Betatron Building Before Remedial Action

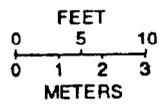
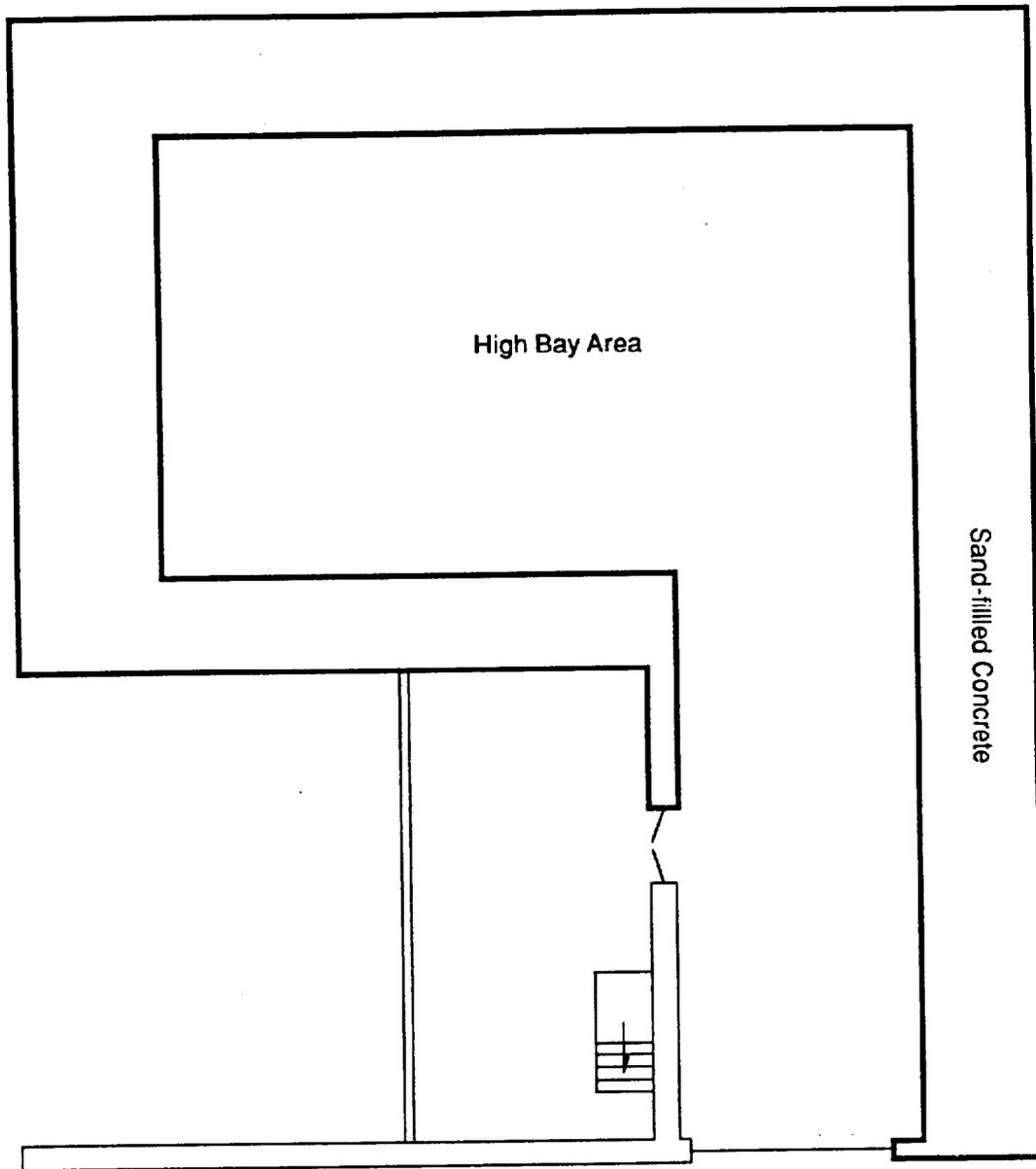


Figure I-3
Floor Plan—Second Floor of the Betatron Building

4.0 RADIOLOGICAL HISTORY AND STATUS

4.1 RADIOLOGICAL SURVEYS

In 1989 Oak Ridge National Laboratory (ORNL) conducted radiological surveys on behalf of DOE to determine current radiological conditions in and around the Betatron Building. Survey results indicated that only a limited area of this storage building was contaminated above current guidelines. Most of the building, its roof, and the surrounding grounds were generally free of residual radioactive contamination from AEC activities. No records were found to indicate that any cleanup activities were performed at the conclusion of the AEC contract work (Ref. 2).

AEC-related activities at the site caused some residual radioactive contamination (in excess of DOE guidelines) on an industrial vacuum cleaner, in the vacuum cleaner contents, on some of the building surfaces near the vacuum cleaner, on the ventilation duct above the vacuum cleaner, and in a few localized spots on the ground-level floor. The contaminant of concern was uranium. Gamma radiation exposure rates in the northeast corner of the betatron room were 90 $\mu\text{R}/\text{h}$ on contact with the industrial vacuum cleaner and 40 $\mu\text{R}/\text{h}$ on the floor beneath it (Figure I-4). The beta-gamma dose rate near the industrial vacuum cleaner was 0.2 mrad/h. Transferable alpha and beta-gamma measurements were below the DOE guideline of 1,000 dpm/100 cm^2 . Concentrations of uranium-238 were 3,300 pCi/g in dust samples from the floor beside the contaminated vacuum cleaner and 4,000 pCi/g in dust from the vacuum cleaner. In three other locations (the damper in a vent above the vacuum cleaner and at locations S4 and S6), uranium-238 values were above 35 pCi/g (Ref. 2).

In 1991 a second betatron building (referred to as the New Betatron Building) was also surveyed by ORNL at the request of DOE. New information indicated that the New Betatron Building may also have been used to examine uranium ingots. The survey results showed no residual uranium-238 attributable to former AEC-supported operations at this site (Ref. 3); therefore, no remedial action was performed in this building.

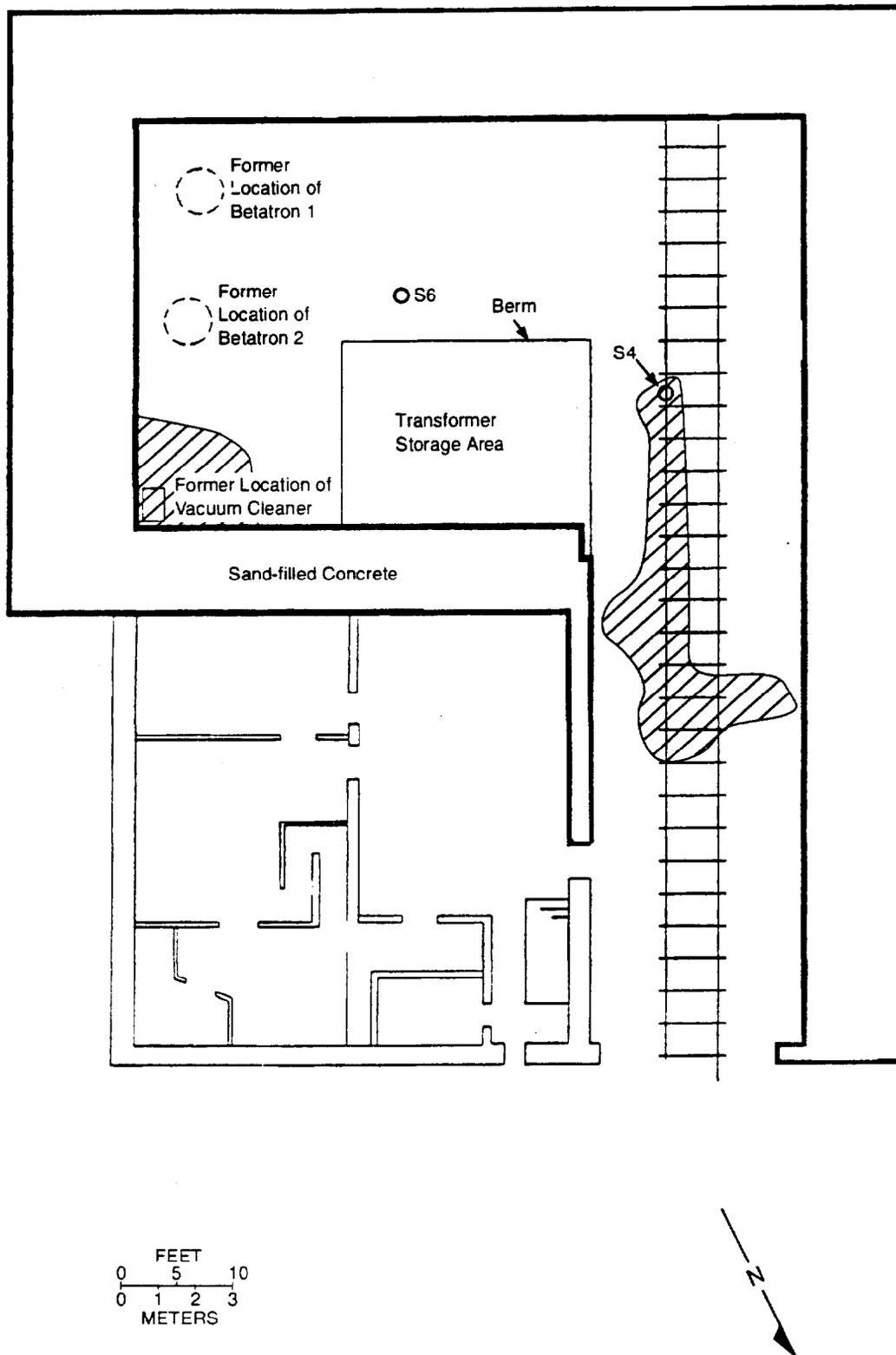


Figure I-4
Areas of Contamination at the Betatron Building Before Remedial Action

4.2 REMEDIAL ACTION GUIDELINES

The source of contamination in the Betatron Building was the handling and examination of uranium ingots for AEC, and the contamination was surficial and limited to the building interior. The residual contamination guidelines in DOE Order 5400.5, *Radiation Protection of the Public and Environment* (Ref. 4), were applicable. These guidelines are summarized in Table I-1; the complete guidelines are provided in Appendix I-A. *Design Criteria for Formerly Utilized Sites Remedial Action Program (FUSRAP) and Surplus Facilities Management Program (SFMP)* (Ref. 5) contains additional information regarding federal regulations.

According to DOE Order 5400.5, the relevant remedial action guidelines for alpha activity resulting from residual uranium on structural surfaces at the Granite City site are 5,000 dpm/100 cm² average and 15,000 dpm/100 cm² maximum for fixed (nontransferable) alpha activity and 1,000 dpm/100 cm² for transferable alpha activity. The relevant remedial action guidelines for beta-gamma activity are summarized in Table I-1.

4.3 POST-REMEDIAL ACTION STATUS

The post-remedial action survey results (Ref. 6) collected by BNI show that residual contamination at the site is now below release criteria as specified in DOE Order 5400.5 (Ref. 4). The ORNL radiological site assessment team was present while remedial action was taking place in the Betatron Building and independently reviewed the BNI data. ORNL also performed independent verification surveys (Ref. 7).

Subsequently, ORNL informed DOE (Ref. 8) that the Betatron Building now conforms to all applicable radiological guidelines established for release of the property for future use without radiological restrictions, and ORNL published its verification report (Ref. 7). The principle of ALARA (as low as reasonably achievable) was exercised and influenced the decision to decontaminate several areas to levels significantly lower than DOE guidelines. The building may now be used without concern for radiological exposure.

**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 reasonable 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

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 has no radiological restrictions on its 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 reasonable effort shall be made to achieve, an annual average (or equivalent) radon decay product concentration (including background) not to exceed 0.02 WL^d. In any case, the radon decay product concentration (including background) shall not exceed 0.03 WL. Remedial actions are not required in order to comply with this guideline when there is reasonable assurance that residual radioactive materials are not the cause.

External Gamma Radiation

The average level of gamma radiation inside a building or habitable structure on a site that has no radiological restrictions on its use shall not exceed the background level by more than 20 µR/h and will comply with the basic dose limits when an appropriate-use scenario is considered.

Indoor/Outdoor Structure Surface Contamination

<u>Radionuclide^f</u>	<u>Allowable Surface Residual Contamination^g (dpm/100 cm²)</u>		
	<u>Average^{g,h}</u>	<u>Maximum^{h,i}</u>	<u>Removable^{h,j}</u>
Transuranics, Ra-226, Ra-228, Th-230, Th-228 Pa-231, Ac-227, I-125, I-129 ^k	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 ^l	5,000 β - γ	15,000 β - γ	1,000 β - γ

**TABLE I-1
(CONTINUED)**

- ^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 DOE Manual for Implementing Residual Radioactive Materials Guidelines, DOE/CH/8901. 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.
- ^dA working level (WL) is any combination of short-lived radon decay products in 1 liter of air that will result in the ultimate emission of 1.3×10^5 MeV of potential alpha energy.
- ^eAs 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.
- ^fWhere surface contamination by both alpha- and beta-gamma-emitting radionuclides exists, the limits established for alpha- and beta-gamma-emitting radionuclides should apply independently.
- ^gMeasurements 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.
- ^hThe 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.
- ⁱThe maximum contamination level applies to an area of not more than 100 cm².
- ^jThe 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.
- ^kGuidelines for these radionuclides are not given in DOE Order 5400.5; however, these guidelines are considered applicable until guidance is provided.
- ^lThis 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.

5.0 SUMMARY OF REMEDIAL ACTION

The following sections 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

Coordination among DOE, BNI, and ORNL was critical to the timely and efficient decontamination of the building. Coordination was discussed during a planning meeting between representatives of BNI and ORNL on March 24, 1993, and points of agreement were summarized in a plan from BNI (Ref. 9) and acknowledged by ORNL (Ref. 10). The plan was developed in accordance with applicable verification protocols (Refs. 11 and 12).

Because the radioactive contamination was limited to the interior of the building and in small amounts, DOE recommended that the remediation follow the expedited protocol (Refs. 13 and 14). Appropriate environmental documentation was prepared, including a categorical exclusion (Ref. 15) as required under NEPA and a modified preliminary assessment/site inspection (Ref. 16) as required by the expedited protocol. A site access agreement was also obtained (Ref. 17).

Under the expedited protocol, ORNL acted as both the characterization contractor and the independent verification contractor (IVC). Therefore, characterization beyond that described in the designation report (Ref. 2) was the responsibility of ORNL. Complete characterization was not possible during the designation surveys because access to building surfaces was limited. To complete characterization of the building after material was removed, ORNL performed walkover surveys just before remedial action to locate and delineate any possible areas of contamination not included in the designation report (Ref. 2). ORNL performed walkover surveys on the first floor, the high bay area, and the betatron room using a floor monitor to directly measure alpha and beta-gamma radiation. These surveys excluded the office area, which had been previously characterized and was found to meet the release criteria for residual radioactive contamination (Ref. 2).

BNI and NSC provided logistical support for the ORNL characterization surveys. NSC moved pallets, building debris, and drums to provide access to the first floor for the survey. BNI provided scaffolding and lighting for the survey areas. ORNL supplied generator power for the lighting. NSC removed the betatron accelerators from the building, and the accelerators remained outside the building while remedial action was completed. The betatrons were surveyed during the designation survey and met release guidelines for residual radioactive contamination.

5.2 REMEDIAL ACTION ACTIVITIES

Various decontamination techniques were used at the Granite City site (see Table I-2). Decontamination activities focused first on areas designated in the site designation report (Ref. 2) and then on additional areas found to contain concentrations exceeding guidelines, as identified by characterization surveys conducted immediately before and during remedial activities. Designated areas and items were an industrial vacuum cleaner and its contents, building surfaces near the vacuum cleaner, the ventilation duct above the vacuum cleaner, and a few localized spots on the first floor (Figure I-4). Decontamination activities were documented daily by the BNI site superintendent in his log reports.

Decontamination included packaging the contaminated vacuum cleaner and its contents in a 55-gal galvanized steel drum and then vacuuming the floor where the vacuum cleaner had been stored, using a high-efficiency particulate air (HEPA) filtered exhaust vacuum cleaner. The area of contamination on the floor was approximately 10 m² (107 ft²). In areas where fixed contamination remained after vacuuming, an Alconox™/water mixture and stiff-bristled brush were used to further decontaminate. Washing and light abrasive techniques were found to be generally effective; however, two locations [approximately 0.1 m² (1 ft²) each] required scabbling, a more aggressive, destructive technique, to remove the contaminated portion of the surface. The areas were scabbled to depths not greater than 0.6 cm (0.25 in.). Post-remedial action surveys showed no contamination on the walls in this area.

Table I-2
Decontamination Techniques Used at the Granite City Site

Technique	Description
HEPA vacuuming	High-efficiency particulate air (HEPA) filtered vacuum cleaners were used to remove loose contamination.
Hand wiping/light abrasion	Small areas and structural surfaces that were either inaccessible or resistant to HEPA vacuuming were wiped with a dry cloth or a cloth wetted with a detergent solution to remove loose surface contamination. Contamination that was resistant to simple wiping was brushed with a wire brush.
Scabbling	This destructive technique uses an impact hammer-drill with a rotary hone.
Chipping	This destructive technique uses an impact hammer-drill with a chisel bit.

A ventilation duct directly above the industrial vacuum cleaner was previously designated by ORNL as requiring decontamination. The contaminated portion of the duct was the damper unit [0.6 by 0.6 by 1 m (2 by 2 by 3 ft)]. The damper unit was removed and compacted to reduce its volume and was subsequently packed for waste disposal.

Two floor locations [S4 and S6 (Figure I-4)] were previously designated (Ref. 2). No contamination was detected at location S6 during remedial action. Location S4 is along the railroad tracks. The surfaces around the recessed railroad tracks are asphalt, with indentions in the asphalt 3 to 5 cm (1 to 2 in.) deep and 3 to 8 cm (1 to 3 in.) wide along the inside of each track. Soil that had accumulated in these indentions was removed and packaged for disposal. The ORNL characterization survey of the area conducted after soil removal indicated several spots of contamination within about 7 m (23 ft) south of location S4. ORNL designated these areas (Figure I-4) at the time of remediation. Chipping, a destructive technique using an impact hammer-drill with a chisel bit, was used to remove the contamination. Chipping depths were no greater than 2 cm (0.8 in.).

BNI performed decontamination concurrently with IVC characterization activities. Remedial action continued until ALARA concentrations were achieved. The BNI site superintendent notified the IVC when decontamination was complete and provided the IVC access to post-remedial action survey results as they became available. ORNL performed final independent verification surveys of the remediated areas and, on the basis of direct-reading measurements, verified that decontamination was completed. ORNL and BNI demobilized on June 10 and 11, 1993, respectively.

5.3 POST-REMEDIAL ACTION MEASUREMENTS

5.3.1 Outdoor Areas

Because no outside areas were designated or remediated, no post-remedial action samples were collected outside the building.

5.3.2 Indoor Areas

Following decontamination, the radiological support subcontractor (RSS) performed post-remedial action surveys to determine whether the removal action was complete. Post-remedial action surveys document that no residual radioactive contamination above DOE guidelines remains at the site and that the site may be released for use without radiological restrictions.

Background Measurements

Before performing post-remedial action surveys, the RSS obtained site-specific background measurements from remote background locations in the general vicinity of the site. The locations for background measurements were selected so that they represented the general area of the site and were mutually agreeable to BNI and ORNL (Figure I-5). BNI took background measurements with a pressurized ionization chamber and provided the results to ORNL. The three background gamma radiation exposure rates ranged from 6.6 to 8.2 $\mu\text{R/h}$ and averaged 7.4 $\mu\text{R/h}$ (Ref. 18).

Alpha and beta-gamma background measurements were taken daily. For alpha background measurements, the source was removed from the instrument for the reading. Beta-gamma measurements were taken from a source holder with the source removed. Alpha background measurements ranged from 1.0 to 2.0 cpm with the alpha scintillation probe and were consistently 0.32 cpm with the alpha scintillation smear counter. Beta-gamma background measurements ranged from 22.0 to 24.0 cpm with the gas proportional beta-gamma probe (Ref. 18).

Surveys

The RSS performed an external gamma radiation exposure rate survey at 1 m (3 ft) from the ground surface at six locations in the building to ensure that exposure rates were reduced to acceptable levels. The measured exposure rates ranged from 8.2 to 9.0 $\mu\text{R/h}$, including

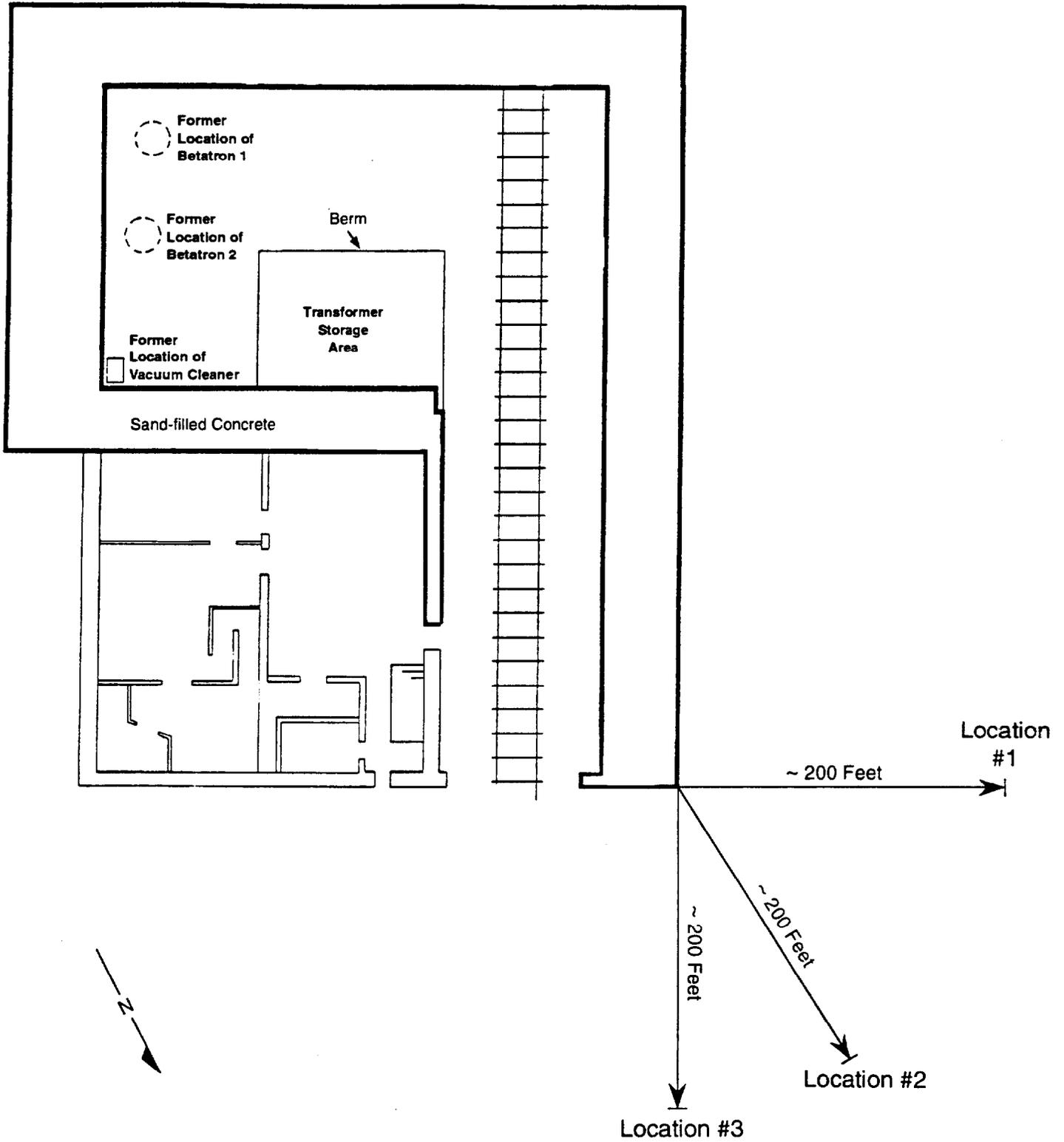


Figure I-5
Locations of Background Measurements Taken at the Granite City Site

background (which averaged 7.4 $\mu\text{R/h}$). These exposure rates are well below DOE exposure rate criteria, 20 $\mu\text{R/h}$ above background, for habitable structures and buildings (Ref. 18).

A 1-m² (10-ft²) grid was established over the remediated areas for fixed-point and transferable contamination survey measurements. The starting point for the grid was measured from the northern and eastern walls to enable possible future re-creation of the grid. Fixed-point measurements were taken and transferable contamination samples [smears collected over approximately 100 cm² (15.5 in²)] were collected at the corners and in the center of each block. Areas that remained above DOE guidelines were marked for further decontamination and were subsequently resurveyed.

After remediation, two general areas were surveyed for direct and transferable contamination (Figure I-4):

- In the S4 area along the railroad tracks, direct surface contamination ranged from 23 to 54 dpm/100 cm² (15.5 in²) for alpha and from 624 to 4,935 dpm/100 cm² for beta-gamma; all measurements were below the guideline of 5,000 dpm/100 cm² for average direct surface contamination. Transferable contamination concentrations ranged from 3 to 7 dpm/100 cm² for alpha and from 50 to 102 dpm/100 cm² for beta-gamma; all measurements were below the guideline of 1,000 dpm/100 cm² (Ref. 18).
- In the area where the industrial vacuum cleaner had been located, direct measurements ranged from 15 to 223 dpm/100 cm² (15.5 in²) for alpha and from 416 to 3,270 dpm/100 cm² for beta-gamma; all measurements were below the guideline of 5,000 dpm/100 cm² for average direct surface contamination. Transferable contamination concentrations ranged from 3 to 16 dpm/100 cm² for alpha and from 50 to 106 dpm/100 cm² for beta-gamma; all measurements were below the guideline of 1,000 dpm/1,000 cm² (Ref. 18).

Sampling

No removable residue remained after remediation; therefore, sampling was not required.

5.4 VERIFICATION ACTIVITIES

The IVC radiological site assessment team was present for remedial action on the Betatron Building and independently reviewed the BNI data. The IVC also performed independent verification surveys (Ref. 7) to verify that the site was remediated to levels below DOE guidelines. When the verification activities were completed, the IVC prepared a verification report (Ref. 7) for submittal to DOE, verifying that the Betatron Building now conforms to all applicable radiological guidelines for the release of the structure for use without radiological restrictions. DOE then transmitted a letter to NSC, notifying NSC of the IVC verification and releasing the site for use without radiological restrictions (Ref. 19).

5.5 PUBLIC AND OCCUPATIONAL EXPOSURE

This section describes controls implemented at the Granite City site during remedial action to prevent the spread of contamination and to minimize exposure to workers and the public. Several instructions and plans were applicable to the remedial action. The field crew performed training and planning activities in accordance with applicable work controlling documents before field activities began and conducted pre-job briefings each day of the remedial action.

Because the decontamination activities involved potential exposure to radioactively contaminated material, all work was performed under hazardous work permits. Hazardous work permits, issued by the site safety and health officer, specified required personal protective equipment and provided specific health and safety instructions for various tasks. In general, work in contaminated areas required gloves, hard hats, safety glasses, and sturdy work boots.

Access to the building and work areas was controlled by barriers and signs. Restricted work areas were set up around the industrial vacuum cleaner and the duct work. A heavy

plastic sheet was placed on the floor before the industrial vacuum cleaner and ductwork were packaged; the plastic was subsequently packaged for disposal. HEPA-filtered vacuum cleaners were used for dust control during chipping and scabbling. The vacuum cleaners were emptied over the plastic sheet. Face shields were worn during wet washing, chipping, and scabbling. All equipment was surveyed and decontaminated before being removed from the site.

Air particulate samples were collected from the roll-up door on the northeastern end of the building and from the industrial vacuum area. Also, representative members of the field crew wore breathing-zone air samplers to collect air samples in the controlled area of the remedial action. Samples were analyzed for airborne concentrations of total uranium; activity detected in these samples ranged from 1.9×10^{-14} to 8.3×10^{-13} $\mu\text{Ci/ml}$ (Ref. 18). Detected concentrations of uranium-238 were below occupational exposure guidelines (DOE Order 5480.11, Radiation Protection for Occupational Workers) and below derived air concentration guides for the safety of the general public (DOE Order 5400.5, Radiation Protection of the Public and the Environment) (2×10^{-11} and 2×10^{-12} $\mu\text{Ci/ml}$, respectively). Thermoluminescent dosimeters were also worn by the field crew to measure exposure to penetrating (beta/gamma) radiation. Results were well below exposure guidelines (DOE Order 5480.11) (Ref. 20).

Water was required onsite for possible personal decontamination and equipment decontamination; however, the use and amount of water were minimized. Flushing with large amounts of water was avoided. Water used for decontamination was collected with absorbent towels or wet vacuuming techniques. Standing water was absorbed.

5.6 WASTE MANAGEMENT

Waste was packaged in four 55-gal drums (Table I-3). The soil from the railroad tracks and the HEPA vacuum contents were packaged in two of the four drums. The remaining two drums contained the industrial vacuum cleaner, dismantled ductwork, plastic sheeting, and personal protective clothing contaminated during remediation.

Table I-3
Drum Inventory at the Granite City Site

Drum Identification Number	Contents	Type Waste	Container Weight (lb)
CD01851	Soil	LLRW ^a	750
CD01852	Vacuum cleaner	LLRW	125
CD01853	Duct metal, personal protective clothing, towels	LLRW	90
CD01854	Soil, plastic sheeting, HEPA ^b -vacuum filter, debris from HEPA-vacuum	LLRW	400

^aLLRW - low-level radioactive waste.

^bHEPA-high-efficiency particulate air.

The contents of the two drums containing the railroad soil were sampled for waste disposal purposes. Because the materials in the other two drums (the vacuum cleaner, metal duct, plastic sheeting, etc.) made it impossible to obtain representative samples, the highest contaminant concentration reported in the designation report (Ref. 2) for all the material in these drums was used for waste transportation manifesting and waste disposal records.

The drums were placed in temporary storage on pallets inside the Betatron Building to await final disposal. The drums were sealed, banded, and labeled to identify the drum contents, the waste generator, and the origin of the material. NSC provided security for the area.

Before the drums were sealed, representative sample aliquots of the railroad soil were collected in 0.5-L plastic containers for gamma spectroscopy and in 0.5-L amber glass containers for polychlorinated biphenyl (PCB) analysis. Gamma spectroscopy was performed by TMA/Eberline for uranium-238, radium-226, thorium-232, and thorium-230. PCB analysis was performed by Roy F. Weston, Inc. Laboratory. The drums were sampled before absorbent material was added.

Analytical results show the presence of aroclor-1254, a PCB, in the soil at a concentration of approximately 21 ppm. (The analytical result was qualified by the laboratory as an estimated value because the matrix spike was too dilute for the aroclor-1254 to be detected, and the spike recovery therefore could not be measured.) Isotopic analyses results were 4.2 pCi/g for uranium-238, 1.7 pCi/g for radium-226, 0.95 pCi/g for thorium-232, and 1.26 pCi/g for thorium-230 (Ref. 18).

Additional analyses were required for completion of the manifesting forms required for the final disposal of the waste at Envirocare of Utah, Inc. Samples were analyzed for specific gravity, grain size distribution, moisture density, paint filter moisture content, cyanide reactivity, sulfide reactivity, pH, and toxicity characteristic leaching procedure analytes. The results of testing (Ref. 20) were used to complete the Envirocare forms, and Envirocare approved the waste for disposal. Transportation of the waste was arranged with Tri-State Motor

Transport. The waste was shipped on December 14 and arrived at Envirocare on December 16, 1993.

5.7 COSTS

The final subcontract bid item quantities and the costs associated with the remedial action performed at the Granite City site are listed in Table I-4.

Table I-4
Cost of Expedited Remedial Action at the Granite City Site

Description	Amount
Remedial action operations	\$ 21,000
Waste transportation and disposal	15,000
Final engineering reports	14,000
Project management	<u>51,000</u>
TOTAL	<u>\$ 101,000</u>

Actual costs are based on December 31, 1993 data. Final costs will be available after completion of all final reports.

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16. Interoffice Memorandum from Richard K. Atwood, Environmental Compliance Coordinator, BNI, to Gerald L. Palau, Granite City Project Manager, BNI, "Expedited Protocol Documentation (modified preliminary assessment/site investigation)," April 8, 1993.
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18. Memorandum from S. B. Hill, Environmental Technology, BNI, to file, "Granite City Post-Remedial Action Report Data," BNI CCN 108230, Oak Ridge, Tenn., September 9, 1993.
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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, 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-236, 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 to 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. of 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.3).
- 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 (1983--p. 595). These controls should be designed to be effective to the extent reasonable for at 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

<u>Limit or Guideline</u>	<u>Source</u>
<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 5820.2

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
GRANITE CITY SITE
IN GRANITE CITY, ILLINOIS, JUNE 1993

1.0 CERTIFICATION PROCESS

The purpose of this certification docket is to provide a consolidated and permanent record of DOE activities at the Granite City site and of the radiological conditions of this property 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 encompass the entire remedial action process from designation of the site under FUSRAP to certification that no restrictions, based on the levels of residual radioactivity remaining at the site, limit the future use of the site.

Reference numbers following the documents listed in this exhibit correspond to numbers in the list of references at the end of Exhibit I.

2.0 SUPPORTING DOCUMENTATION

For the convenience of the reader, Sections 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 Sections 2.1 through 2.11. Lengthy documents are incorporated by reference only and 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 Betatron Building has been decontaminated to comply with these guidelines. The first document listed is included as Appendix A of Exhibit I.

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, *Description of the Formerly Utilized Sites Remedial Action Program*, ORO-777, Oak Ridge, Tenn., September 1980. Ref. 1

Memorandum from J.J. Fiore (DOE-HQ) to S. W. Ahrends (DOE-ORO), "Revised Guidelines for Residual Radioactive Material at FUSRAP and Remote SFMP Sites," (Attachment: *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), BNI CCN 045227, April 2, 1987. Ref. 4

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. 5

2.2 DESIGNATION OR AUTHORIZATION DOCUMENTATION

The following documents pertain to designation or authorization for remedial action at the Granite City site.

- Oak Ridge National Laboratory (ORNL), *Results of the Radiological Survey at the Granite City Steel Facility, Granite City, Illinois*, BNI CCN 095802, Oak Ridge, Tenn., July 1990. Ref. 2
- ORNL, *Results of the Radiological Survey at the New Betatron Building, Granite City Steel Facility, Granite City, Illinois*, BNI CCN 095802, January 1992. Ref. 3
- Letter from R. P. Whitfield, Deputy Assistant Secretary for Environmental Restoration to Joe La Grone, Manager, DOE-ORO, "Authorization for Remedial Action at Granite City Steel Site, Granite City, Illinois," BNI CCN 095801, October 8, 1992. Ref. 13
- Memorandum from J. W. Wagoner to L. Price, "Designation for Remedial Action at the Granite City Steel Site," BNI CCN 095802, September 25, 1992. Ref. 14

memorandum

DATE: OCT 08 1992

1992 OCT 13 PM 1:29

REPLY TO

ATTN OF: EM-421 (W. A. Williams, 903-8149)

SUBJECT: Authorization for Remedial Action at Granite City Steel Site, Granite City, Illinois

TO: Manager, DOE Oak Ridge Field Office

This is to notify you that the Granite City Steel site in Granite City, Illinois, is designated for remedial action under the Formerly Utilized Sites Remedial Action Program (FUSRAP). This notification does not constitute a FUSRAP baseline change control approval. Approval of the baseline change will be accomplished through the normal baseline change control procedures.

The site was used by the former Atomic Energy Commission for x-ray studies on uranium dingots during the 1950s and 1960s. A radiological survey found residual uranium inside one building and around an industrial vacuum cleaner. Because of the limited extent of the contamination, the site may be remediated using the expedited cleanup process now under development.



R. P. Whitfield
Deputy Assistant Secretary
for Environmental Restoration

CC:

J. Fiore, EM-42
J. Wagoner, EM-421
L. Price, OR

United States Government

Department of Energy

memorandum

1992 SEP 13 PM 1:29

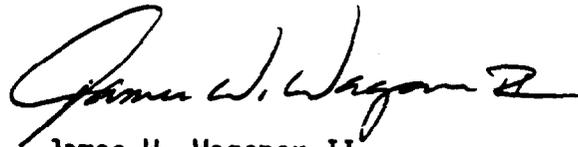
DATE: **SEP 25 1992**
REPLY TO
ATTN OF: EM-421 (W. A. Williams, 903-8149)
SUBJECT: Designation for Remedial Action at the Granite City Steel Site in Madison, Illinois
TO: L. Price, OR

The site of the Granite City Steel Division, National Steel Corporation in Granite City, Illinois, is designated for inclusion in the Formerly Utilized Sites Remedial Action Program (FUSRAP). This designation is based upon the results of a radiological survey and review of other information described in the attached Designation Summary. The authority determination and preliminary survey report also are attached for information.

The site has been assigned a low priority under the FUSRAP protocol as the contamination is confined to a few areas in an unused building. Under present use, it is highly unlikely that an individual working near or frequenting the area would receive a significant exposure.

Because the contamination is limited in extent and contained entirely inside the building, we recommend that cleanup follow the proposed expedited protocol that is currently under development. We will work closely with your staff, the designation contractor, and the property owner to ensure that remedial action is conducted efficiently.

The effect of this designation on the FUSRAP baseline should be evaluated, documented and submitted for approval under the baseline change control procedures.



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

Attachments

2.3 RADIOLOGICAL CHARACTERIZATION REPORTS

The pre-remedial action status of the Granite City site is documented in the following report.

ORNL, *Results of the Radiological Survey at the Granite City Steel Facility, Granite City, Illinois*, BNI CCN 095802, Oak Ridge, Tenn., July 1990. Ref. 2

2.4 ENVIRONMENTAL COMPLIANCE DOCUMENTATION

Documents listed in this section fulfill the NEPA and expedited protocol documentation requirements for the Granite City site.

- Letter from Joe La Grone, Manager, DOE-ORO, to Carol M. Borgstrom, Director, Office of NEPA Oversight, "Categorical Exclusion (CX) Determination - Removal Action at the Granite City Site," BNI CCN 120350, March 25, 1993. Ref. 15
- Interoffice Memorandum from Richard K. Atwood, Environmental Compliance Coordinator, BNI, to Gerald L. Palau, Granite City Project Manager, BNI, "Expedited Protocol Documentation (modified preliminary assessment/site investigation)," BNI CCN 102915, April 8, 1993. Ref. 16

United States Government

Department of Energy
Oak Ridge Field Office**memorandum**

DATE: March 25, 1993

REPLY TO
ATTN OF: EW-93:HartmanSUBJECT: CATEGORICAL EXCLUSION (CX) DETERMINATION - REMOVAL ACTION AT THE GRANITE CITY
SITE

TO: Carol M. Borgstrom, Director, Office of NEPA Oversight, FORS, EH-25

Attached is a categorical exclusion (CX) determination describing the proposed removal and disposal of radiologically contaminated materials at the Granite City, Illinois, site. Removal action at this site is being undertaken as part of DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP) and is being conducted under the expedited response process. I have determined that this action conforms to an existing NEPA Subpart D CX and may be categorically excluded from further NEPA review and documentation. This CX determination was made pursuant to the DOE NEPA Implementing Procedures; Final Rule, 57 FR 15122, Subpart D, Appendix B, p. 15156 (1992), as referenced on the attached determination.

Questions you have concerning NEPA compliance issues may be directed to Patricia W. Phillips, OR NEPA Compliance Officer, at (615) 576-4200.

Joe La Grone
Joe La Grone
Manager

Attachment

cc w/attachment:
G. K. Hovey, BNI
G. L. Palau, BNI
T. E. Gangwer, SAIC
J. L. King, SAIC
P. Doolittle, BAH, EM-421, TREV II
R. S. Scott, EM-20, FORS
J. W. Wagoner, EM-421, TREV II
L. E. Harris, EM-431, TREV II
D. G. Adler, EW-93, OR
G. S. Hartman, EW-93, OR
W. M. Seay, EW-93, OR
P. W. Phillips, SE-311, OR

**CATEGORICAL EXCLUSION (CX) FOR
REMOVAL OF RADIOLOGICALLY CONTAMINATED MATERIALS
AT THE GRANITE CITY SITE**

PROPOSED ACTION: Removal of radiologically contaminated materials.

LOCATION: Granite City Site, 1417 State Street, Granite City, Illinois
[FUSRAP site]

DESCRIPTION OF PROPOSED ACTION: The proposed action is to safely remove, temporarily store, and transport for disposal radiologically contaminated materials at the Granite City Site, thereby eliminating potential exposure of workers and the public to contamination exceeding applicable cleanup guidelines. The known radiological contamination at the site occurs inside the x-ray building at the South Plant facility of the Granite City Steel Division, located approximately ten miles northeast of St. Louis, Missouri. The facility was used by the Atomic Energy Commission (AEC) for x-raying uranium metal ingots. At the Granite City Site, Uranium-238 above DOE guidelines is present in the x-ray building in debris from an industrial vacuum cleaner and in dust and debris in several small locations throughout the building. There are no known hazardous wastes at the site; however, if hazardous wastes are determined to be commingled with radioactive waste, removal and temporary storage would be done in accordance with applicable requirements; the mixed waste would then be disposed of at an existing facility designed to accept these wastes. The action includes decontamination of localized areas of a radiologically contaminated building; temporary storage of wastes, either on-site or at an existing DOE facility or FUSRAP site; and packaging, transportation, and disposal of low-level radiologically contaminated materials to an existing appropriately licensed disposal site. In the event that disposal delays require temporary on-site storage of wastes, storage would be conducted in accordance with all applicable regulations. Removal action at this site would be undertaken as part of DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP).

The proposed removal action would be conducted under DOE authorities pursuant to the Atomic Energy Act (AEA), would be consistent with the final remedial action for the site, and meets the eligibility criteria for conditions that are integral elements of actions eligible for categorical exclusion as stated in 57 FR 15154, 15155, April 24, 1992:

1. The proposed action would not threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, including requirements of DOE orders. All activities would be managed by the FUSRAP program.
2. The proposed action would not require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators and facilities for treating wastewater, surface water, and groundwater). Wastes generated during the proposed action

**CATEGORICAL EXCLUSION (CX) FOR
REMOVAL OF RADIOLOGICALLY CONTAMINATED MATERIALS
AT THE GRANITE CITY SITE (continued)**

would be disposed of at an existing facility or stored temporarily at an existing DOE facility or FUSRAP site pending implementation of final disposal options.

3. The proposed action would not disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases. The removal action would be conducted in an environmentally responsible manner to ensure site-specific control of environmental contamination.
4. The proposed action would not adversely affect any environmentally sensitive resources defined in the Federal Register Notice referenced below, including archaeological or historical sites; potential habitats of endangered or threatened species; floodplains; wetlands; areas having a special designation such as Federally- and state-designated wilderness areas, national parks, national natural landmarks, wild and scenic rivers, state and Federal wildlife refuges, and marine sanctuaries; prime agricultural lands; special sources of water such as sole-source aquifers; and tundra, coral reefs, or rain forests. The removal action would be conducted in a previously disturbed area.

There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal, and the proposal is not precluded by 40 CFR 1506.1 or Section 1021.211 of the DOE NEPA Implementing Procedures; Final Rule, 57 FR 15122, Subpart D, p. 15146 (1992).

The estimated cost for this action is less than \$2 million and the action would take less than 12 months from the time activities begin on site.

CX TO BE APPLIED: From the DOE NEPA Implementing Procedures; Final Rule, 57 FR 15122, Subpart D, Appendix B, p. 15156 (1992), under actions that "Normally Do Not Require EAs or EISs," "B6.1 Removal actions under CERCLA (including those taken as final response actions and those taken before remedial action) and removal-type actions similar in scope under RCRA and other authorities (including those taken as partial closure actions and those taken before corrective action), including treatment (e.g., incineration), recovery, storage, or disposal of wastes at existing facilities currently handling the type of waste involved in the removal action."

**CATEGORICAL EXCLUSION (CX) FOR
REMOVAL OF RADIOLOGICALLY CONTAMINATED MATERIALS
AT THE GRANITE CITY SITE (continued)**

I have concluded that the proposed action meets the requirements for the CX referenced above. Therefore, I recommend that the proposed action be categorically excluded from further NEPA review and documentation.

Patricia W. Phillips 3/15/93
Patricia W. Phillips, OR NEPA Compliance Officer Date

Based on my review and the recommendation of the OR NEPA Compliance Officer, I recommend that the proposed action be categorically excluded from further NEPA review and documentation.

W. D. Adams 3-23-93
William D. Adams, Assistant Manager for Date
Environmental Restoration and Waste Management

Based on the recommendations of the OR NEPA Compliance Officer and the Assistant Manager for Environmental Restoration and Waste Management, I determine that the proposed action is categorically excluded from further NEPA review and documentation.

Joe La Grone 3/25/93
Joe La Grone, Manager, DOE Oak Ridge Field Office, OR Date

CONCURRENCE

RTG SYMBOL

EW-93

INITIALS/SIG. *E*

Hartman

DATE *3/9/93*

RTG SYMBOL

EW-93

INITIALS/SIG.

Seay *MS*

DATE

3/10/93

RTG SYMBOL

SE-311

INITIALS/SIG.

Phillips

DATE

3/15/93

RTG SYMBOL

CC-10

INITIALS/SIG. *X*

Bartlett

DATE

3/23/93

RTG SYMBOL

EW-90

INITIALS/SIG.

Adams

DATE

2/23/93

RTG SYMBOL

M-3

INITIALS/SIG.

Rice

DATE

RTG SYMBOL

M-2

INITIALS/SIG.

Smithwick

DATE

3/25/93

RTG SYMBOL

M-1

INITIALS/SIG.

La Grone

DATE

EW-93:GSHartman:TJGunter:6-6694:3/09/93

DOE F 1325.10 HARTMAN A:GRANITE.CX1 (7-79)

OFFICIAL FILE COPY

Bechtel

Interoffice Memorandum

To G. L. Palau

Subject Expedited Protocol Documentation

Copies to G. R. Galen
E. T. Newberry
T. E. Morris
A. F. Temeshy

File No. 7440/106

Date April 8, 1993

From R. K. Atwood *RKA*

Of FUSRAP

At Oak Ridge Ext. 4-3599

Attached is the environmental compliance documentation to support the expedited response action planned for the Granite City Steel site, as recommended by the Environmental Compliance Group on March 23, 1993 (CCN 102119-01). This review documents compliance with the documentation requirements of the expedited protocol as outlined in the DOE memo of Wallo to J. Fiore dated June 25, 1990.

The expedited protocol outlines a process which involves identification and characterization, evaluation and planning, remediation, and certification of the site. This review provides the documentation for the evaluation and planning phase which includes an informal, desktop Preliminary Assessment (PA)/ Site Investigation (SI) and a Hazardous Ranking System (HRS) score equivalent. This evaluation was performed at a preliminary level as a screening tool to provide a more cost effective, efficient method for satisfying the requirements of the expedited protocol.

This environmental compliance review assesses the relative degree of risk at Granite City Steel to the human health and the environment. The information provided is sufficient to determine that the site would not qualify for inclusion on the National Priority List (NPL) and therefore does not constitute a significant environmental or human health risk.

If you have any questions, please contact me at 574-3599.

RA:bk:IO_0696

Attachments: (1) Granite City Steel Site/ Expedited Protocol Documentation



102510

GRANITE CITY STEEL SITE/ EXPEDITED PROTOCOL

DOCUMENTATION

I. INTRODUCTION

Remediation at the Granite City Steel Site will be conducted using the expedited protocol developed by DOE. The protocol envisions a process which involves the following phases: identification and characterization, evaluation and planning, remediation, and certification. This document provides the requirements, and assessment of, the evaluation and planning phase which includes a desktop review following the format for a CERCLA Preliminary Assessment (PA)/ Site Investigation (SI) for data requirements and the preparation of an informal CERCLA Hazardous Ranking System (HRS) score.

II. BACKGROUND

The Granite City Steel Division is located in southwest Granite City, Illinois, northeast and across the Mississippi River from St. Louis. The site was used by the former Atomic Energy Commission for X-ray studies on uranium ingots during the 1950s and 1960s. A radiological survey found residual uranium inside an unused building. Uranium-238 was found in elevated concentrations in debris in an industrial vacuum cleaner, and in dust and debris in several small locations throughout the X-ray building. Under present conditions, it is highly unlikely that an individual working near or frequenting the area would receive significant exposures.

III. PA EQUIVALENT EVALUATION

This evaluation is based on 40 CFR parts 300.410 (removal site evaluation), 300.415 (removal action), and 300.420 (remedial site evaluation). The following factors are intended to determine whether further environmental studies and clean up is warranted.

- (a) Source identification, nature/threat of the release:
Residual radioactive contamination (Uranium-238) was detected in several discrete, localized spots throughout the X-ray building.
- (b) ATSDR/ other agencies public health threat evaluation:
No other evaluations have been performed to date.
- (c) Evaluation of the magnitude of the threat:
The radiological survey results indicate no immediate risk to the workers or the general public from the residual contamination at the facility. This determination is based on

the contamination being very localized and limited in extent.

(d) Factors determining removal actions:

1. Exposure to nearby human, animal populations and food chain:
Under present conditions there are no significant exposures to the nearby human populations, animal populations or food chain.
2. Contamination of drinking water supplies or sensitive ecosystems:
The contamination is limited to a few localized areas inside a building hence, there is no threat to the drinking water or sensitive ecosystems.
3. Tanks or bulk storage containers posing a threat of release:
No contaminants are stored in bulk storage containers.
4. High levels of contaminants in surface soils which may migrate:
There is no exterior soil contamination, and as all contamination is limited to equipment surfaces, and debris inside a building, there is minimal potential contaminant migration.
5. Weather conditions which may induce migration of contamination:
The contamination is contained inside the X-ray building hence, weather conditions will not induce migration of contamination unless there is a significant loss of the building's structural integrity.
6. Threat of fire or explosion:
Nature of contamination reveals no significant threat of fire or explosion.
7. Response by Federal/state agencies to potential release:
DOE has the authority to conduct remedial action on the interior residual radioactivity. This authority is based upon the documented use of the site by Mallinckrodt and/or its subcontractor under contract to the AEC (CCN 095801).
8. Other factors representing a threat to the public welfare:
Because the contamination is highly localized, confined to a few areas, and contained inside a building used only for limited storage, no other factors represent a threat to the public welfare.

IV. SI EQUIVALENT EVALUATION

This evaluation is based on 40 CFR part 300.420 (remedial site

evaluation). The following factors are intended to determine the potential need for additional studies and if remedial action is warranted.

(a) **Site Information:**

The Granite City Steel Division is located at 1417 State Street in southwest Granite City, Illinois. The site, referred to as the South Plant Facility, is no longer in use. The site is currently owned by the National Steel Corporation.

(b) **Waste Source Information:**

Contamination is highly localized in dust and debris in several small locations throughout the X-ray building.

(c) **Radiological Survey Results:**

Dust inside a vacuum cleaner: Uranium-238 present at concentrations of 3,300 to 4,000 pCi/g.

Dirt and debris on floor surfaces: Uranium-238 present at concentrations of 0.70 to 75 pCi/g.

(d) **Hazard Assessment - Groundwater Route:**

No likelihood of release of contaminants to the groundwater.

(e) **Hazard Assessment - Surface water Route:**

No likelihood of release of contaminants to the surface water.

(f) **Hazard Assessment - Soil Route:**

There is no external soil contamination onsite. Because the building is used only for limited storage, it is highly unlikely that an individual working in or frequenting the area would receive significant radiation exposures.

(g) **Hazard Assessment - Air Route:**

There are no significant air contaminants detected nor are any suspected, until remedial activities take place.

V. HAZARD RANKING SYSTEM

The HRS is intended to be a screening tool, providing an indication as to the specific level of risk from the site. This assessment is based on the consideration of the current conditions at the site where contaminants are localized indoors, are of limited extent, and significant exposure pathways are nonexistent. The HRS is an appropriate method of determining the risk level to human health and environment at Granite City Steel under present site conditions. As risk levels to human health and the environment are minimal given that all contamination is indoors, no actual HRS score was completed.

(a) **Ground Water Migration Pathway:**

Likelihood of contaminant release to the groundwater and drinking water wells is minimal under present conditions. Additionally, there are no populations nor wellhead protection areas potentially at risk.

(b) **Surface water Migration Pathway:**

There is minimal likelihood that runoff containing hazardous substances from the site have reached surface water or that releases have occurred via groundwater to surface water, as there are no discharges to the surface water. There are no populations, food chains, or sensitive environments at risk.

(c) **Soil Exposure Pathway:**

There is minimal potential for exposure by direct, physical contact with the contaminated surfaces inside the building because access by personnel is controlled and limited. The soil pathway presents no exposure levels as all contamination is contained to the inside of a building, and there are no resident or nearby populations, or terrestrial sensitive environments at risk.

(d) **Air Migration Pathway:**

Under present conditions there are no observed or potential releases of airborne gases or particulates, and there are no populations nor sensitive environments at risk. The air migration pathway poses an insignificant risk level.

VI. CONCLUSIONS

The expedited protocol has been chosen as the method for conducting remedial action at the Granite City site. The expedited protocol provides a cost effective, efficient method for remediating FUSRAP sites which warrant its use.

To document the rationale for remediating the Granite City site under the DOE expedited protocol, the modified desktop PA/SI and HRS was conducted. These documents, based on the site designation survey, assessed the relative degree of risk at Granite City to human health and the environment. As a final check of the appropriate use of the expedited process, a comparison to the criteria for inclusion on the National Priorities List (NPL) is called for by the expedited protocol. Information provided in this document is sufficient to determine that this site would not qualify for inclusion on the NPL.

Based on site conditions, the expedited approach is warranted, and represents the most efficient, cost effective method for remediating the Granite City site.

2.5 ACCESS AGREEMENTS

The document in this section is the access agreement obtained for the site before remedial action activities began.

Letter from Katy Kates, Realty Specialist, DOE, to Nancy Myers, Community Relations, BNI, "Real Estate License No. Reorder-7-93-0115 from National Steel Corp., Granite City, Ill.," BNI CCN 103132, April 20, 1993.

Ref. 17



Department of Energy
Oak Ridge Field Office
P.O. Box 2001
Oak Ridge, Tennessee 37831—

April 20, 1993

Ms. Nancy Myers
FUSRAP Program
Bechtel National, Inc.
P. O. Box 350
Oak Ridge, Tennessee 37831-0350

Dear Ms. Myers:

REAL ESTATE LICENSE NO. REORDOER-7-93-0115 FROM NATIONAL STEEL CORP., GRANITE CITY, IL

Reference your letter dated April 16, 1993 requesting execution of the subject license. Said instrument has been reviewed and assigned Real Estate License No. REORDOER-7-93-0115. Any correspondence or questions pertaining to this instrument should reference this number.

The license has been executed on behalf of the Department of Energy and the original retained here as official office of record. Two executed copies are returned for distribution as appropriate.

As per your normal performance, you have done an excellent job on preparation and completion of this action!

Sincerely,

A handwritten signature in cursive script that reads "Katy Kates".

Katy Kates
Realty Specialist

Enclosure (dupe)

DEPARTMENT OF ENERGY

LICENSE

PROJECT: FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM
LOCATION: GRANITE CITY, ILLINOIS
PURPOSE: REMEDIAL ACTION, SAMPLING, SURVEYS

THIS LICENSE, between National Steel Corp., Granite City Steel Division, known as the "Grantor" and the U.S. Department of Energy, known as the "Grantee", is subject to the following terms and conditions.

1. Rights Granted - The Grantor grants to the Grantee, its agents, employees, or representatives permission to use the premises or facilities, together with ingress and egress, for the purpose of removing low-level radioactive material or performing any other reasonable action ~~consistent with~~ necessary for the completion of the remedial action, taking soil samples, and conducting follow-up radiological surveys at the location shown depicted on Exhibit "A" attached to this instrument and more specifically identified in whole or in part as Parcel No(s). 301-001 filed in Deed/Plat Book 19-24-14 Page 22-1 in the records of Madison County, Illinois.
2. Term/Termination Rights - This License is valid upon execution by the Grantee and will be effective on the date of execution by the Grantor of this instrument and shall continue in effect for a period of ~~18~~ thru December 30, 1993 unless terminated by either of the parties on not less than thirty (30) days prior written notice given to the other; provided, however, that the Grantor may not terminate this License without the Grantee's approval.
3. Consideration - Upon execution of this License by the Grantee, the Grantee shall initiate action to pay to the Grantor the sum of \$ (\$) as full and complete payment for the rights granted within this License.
4. Authority to License - The Grantor represents and warrants that it is the owner of the property and has full right, power, and authority to enter into this License and grant the rights set out in this License.

5. Grantor Responsibility - The Grantor responsibility is set out within the terms and conditions of the rights granted under this License. The Grantor makes no representation as to the suitability or fitness of the premises for the intended purpose. Upon certification by the Grantee that the Grantor's property meets all applicable radiological criteria, the Grantor agrees to release the Grantee, its agents, employees or representatives, from all responsibility related to the radioactive contamination and the remedial action covered by this license *

6. Grantee Responsibility - The Grantee, its agents, employees, or representatives will be responsible for property damage or injury to persons caused by the sole and direct negligence of their respective employees in performing on the Grantor's premises the activities and restoration which are the subject of this License. Grantee shall obtain all necessary permits, licenses, and approvals in connection with the activities to be conducted by the Grantee on the premises. During the performance of the activities specified in this License, the Grantee shall not unreasonably interfere with the use and enjoyment of the premises by the Grantor.

7. Access - During the term of this License, the Grantee, its agents, employees, or representatives shall have the right of access to and egress from the premises as needed and shall have the right to bring necessary equipment upon the premises in connection with the performance of the Grantee's activities as set out in Condition 1.

8. Remedial Action - Grantee shall perform removal of low-level radioactive material in accordance with the Remedial Action Plan set forth in Exhibit "B" attached to this instrument. Grantee shall maintain the premises in such a manner as not to create a nuisance or be a hazard to the health, safety, and welfare of the citizens of the State in which the premises are located.** Following completion of the remediation action, the Grantee shall restore the premises as set out in Condition 10. **and shall comply with Grantor's safety procedures and requirements.

9. Title to Equipment, Fixtures - Title to all equipment, fixtures, appurtenances, and other improvements furnished and/or installed in connection with the Grantee's activities under this License shall remain with the Grantee.

* 5. (Continued) Upon completion of removal of the low-level radioactive material and remedial action described in Condition 1, and upon certification by the Grantee that the Grantor's property meets all applicable radiological criteria, and except as provided in Condition 16, Grantee Indemnification, the Grantor agrees to release the Grantee, its agents, employees or representatives, from all responsibility related to the radioactive contamination and the remedial action covered by this License.

10. Restoration - Upon termination of this License, the Grantee shall remove all its equipment, fixtures, appurtenances, and other improvements furnished and/or installed on the premises in connection with the Grantee's activities under this License. The Grantee shall restore the premises, when such restoration is required in connection with the Grantee's activities, to the extent reasonably practical, to the condition existing at the time of initiation of the Grantee's activities. With the consent of the Grantor, the Grantee may abandon Grantee-owned equipment, fixtures, appurtenances, and other improvements in place in lieu of restoration when it is in the best interests of the Grantee.

11. Successors in Interest - This License and the parties' commitments within, shall be binding on both parties, their successors, and assigns.

12. Funding - Obligations of the Grantee under this License shall be subject to the availability of funds appropriated by the Congress which the Grantee may legally spend for such purposes and nothing in this License implies that Congress will appropriate funds to perform this License.

13. Notices - All notices regarding the specific terms and conditions of this License, and within the restrictions of this License, shall be in writing and shall be deemed effectively given upon personal delivery, upon verified facsimile receipt, or upon mailing by registered or certified mail, postage prepaid, and addressed to the parties at the following respective addresses, or to such other persons or at such other addresses as may be designated in writing by either party to the other.

If to the Grantee:

Richard P. Nicholson
Realty Officer
Department of Energy
P.O. Box 2001
Oak Ridge, Tennessee 37831

If to the Grantor:

Thomas Mahl, Environmental Specialist
National Steel Corporation
Granite City Steel Division
1417 State Street
Granite City, Illinois 62040
618-451-3458

14. Entire Agreement - This License represents the entire understanding of the parties on this matter and no oral statements or collateral documents (except as noted within) may modify this License.

15. Amendment - This License may not be amended or superseded except by an agreement in writing executed by the Grantor and Grantee.

That prior to execution of this License certain Conditions were deleted, revised, and/or added (with the additions being as set out below or as designated as Page(s) N/A and being made a part of this License) in the following manner: Condition No. 3 was deleted in its entirety; Condition Nos. 1, 5, and 8 were revised; Condition Nos. 16 and 17 were added.

16. Grantee Indemnification - The Grantee shall indemnify and save harmless the Grantor for damages or claims for damages arising out of or in connection with activities of the Grantee, its agents, employees, or representatives related to the rights granted within this License.

17. Grantor's Presence and Copies of Data - Grantor may be present at all times during remedial action providing Grantee-mandated safety requirements are adhered to by Grantor during the activities. The Grantee shall provide the Grantor with copies of all analytical data and reports derived from the Grantee's activities involving the Grantor's property including, but not limited to duplicate sets of photographs, measurements and readings from any radiation monitoring. Said data shall be furnished the Grantor prior to the Grantee furnishing such information to a third party.

The above terms and conditions are acknowledged and agreed upon as indicated by the signatures affixed below:

GRANTOR: National Steel Corporation
Granite City Steel Division

GRANTEE: U.S. Department of Energy

By: Joseph L. Kocut

By: Katy Kates
for Richard P. Nicholson

Title: Director-Plant Mtce & Engr

Title: Realty Officer

Date: April 12, 1993

Date: April 20, 1993

EXHIBIT "B"

REMEDIAL ACTION PLAN

The remedial action activities at the site will consist of:

- 1) Reviewing existing building, structural, and site plans; and examine facilities and areas in which remediation will occur.
- 2) Performing radiological and civil surveys as necessary to delineate areas of contamination requiring remedial action, and to verify the adequacy of cleanup after the remedial activities are completed.
- 3) Documenting through photographs, video, and or other appropriate techniques the existing conditions of the property and structures on which remediation will occur.
- 4) Performing radiological decontamination procedures and related activities to remove contamination to levels appropriate for future use.
- 5) Packaging and shipping radioactive waste from the facility in accordance with Department of Transportation requirements.
- 6) Restoring and returning areas in which work was performed to structural/physical conditions comparable to those before the work began or as otherwise agreed to with Grantor.

2.6 POST-REMEDIAL ACTION REPORT

The following items document the remedial action activities and the post-remedial action radiological status for the Granite City site:

BNI, Post-Remedial Action Report For the Granite City Site, Granite City, Illinois, Oak Ridge, Tenn., September 1993.

Ref. 6

Memorandum from S. B. Hill, Environmental Technology, BNI, to file, "Granite City Post-Remedial Action Report Data," BNI CCN 108230, Oak Ridge, Tenn., September 9, 1993.

Ref. 18

Bechtel*Interoffice Memorandum*

To	File	File No.	7330
Subject	Granite City PRAR Data	Date	September 9, 1993
		From	S. B. Hill
		of	FUSRAP E&T
Copies to	M. Kaye B. Stanley J. Wood	At	Oak Ridge Ext. 6-5211

The following data packages contain the post-remedial action sampling data, waste management data, and health and safety data that were reported in the Granite City PRAR.

D-15056	6-23-93	Direct and transferable contamination survey of betatron room with map
D-15055	6-23-93	Gamma exposure rate survey of backgrounds and betatron room
D-15040	6-21-93	Final report: pcb
D-15167	7-12-93	93-06-038 Case narrative, report of analysis, field sample collection form, and QC information
D-15057	6-17-93	Air particulate sample reporting logs



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.

- Oak Ridge National Laboratory (ORNL), *Results of the Independent Verification Survey at the Old Betatron Building, Granite City, Illinois (GSG001)*, ORNL/RASA-94/2, Oak Ridge, Tenn., July 1994. Ref. 7
- Letter from Michael M. Murray, Measurement Applications and Development Group, ORNL, to Dr. W. A. Williams, DOE, Washington, D. C., "Independent Verification of the Radiological Condition of the Old Betatron Building Owned by the Granite City Steel Corporation, Granite City, Illinois," BNI CCN 106264, July 16, 1993. Ref. 8
- Letter from Dave Adler, Granite City Site Manager (DOE-ORO), to Thomas Mahl, Environmental Specialist, NSC, "Betatron Building - Completion of Decontamination - Transmittal of Preliminary Verification," BNI CCN 108866, September 22, 1993. Ref. 19

OAK RIDGE NATIONAL LABORATORY
OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC

POST OFFICE BOX 2008
OAK RIDGE, TENNESSEE 37831

1993 JUL 19 11 09 20

July 16, 1993

Dr. W. A. Williams
Department of Energy
Trevion II Building
EM-421
Washington, D. C. 20585-0002

Dear Dr. Williams:

Independent Verification of the Radiological Condition of the Old Betatron Building Owned by the Granite City Steel Corporation, Granite City, Illinois

A team from the Measurement Applications and Development (MAD) group, Oak Ridge National Laboratory (ORNL), at the request of the Department of Energy (DOE) conducted an independent verification of the radiological condition of the old betatron building owned by the Granite City Steel Corporation. The uranium contamination present resulted from the handling of uranium slabs of metal during the time the betatron facility was being used to x-ray the slabs for metallurgical defects. The assessment was performed after the cleanup activities were performed under the direction of Bechtel National Incorporated (BNI). The designation survey, reported in ORNL/RASA-89/10, did not characterize the entire floor space because of equipment and debris that could not be moved at the time. Therefore, prior to the remediation by BNI, a thorough characterization of the floor was conducted and the results were immediately conveyed to BNI staff onsite. The process of characterization, remediation, and verification was accomplished within a five day period mostly due to the limited contamination present and the planning and cooperation of the various contractors.

The characterization of the floor was accomplished as follows. The floor was marked off in a one meter grid and was completely scanned for beta activity using large-area floor monitors and GM "pancake" detectors. Areas of radioactivity above background were marked for further characterization. All spots/areas with elevated activity were extensively characterized by determining the alpha and beta/gamma activity in dpm/100 cm² and smear samples were taken to determine the transferability of the activity. In addition, 31 of the 260 grid blocks were randomly selected and extensively characterized in the same manner as the elevated areas. Initially 12 locations were determined to be above 5000 dpm/100 cm² (beta) or marginally close enough to merit remediation. The contamination could best be described as spotty with the maximum being 30,000 dpm/100 cm². The contamination was predominately fixed as determined by the analysis of the smear samples. The maximum alpha activity detected on a smear was 15 dpm/100 cm² and the maximum beta activity was 80 dpm/100 cm².

Personnel from BNI were continually updated concerning the number and magnitude of contaminated spots so they could most efficiently schedule their work load. Once BNI completed cleaning an area of spots, cleanliness verification began. In most cases the contamination was successfully removed. However, some areas required multiple attempts at contamination removal/verification. Two reasons existed for this iterative process: 1. a difference in instruments and conversion factors among the contractors caused minor discrepancies; 2. as the "hottest" spots were removed, the lesser contaminated spots could be more readily identified. In either case, a mutual understanding between

Dr. W. A. Williams

-2-

July 15, 1993

the contractors allowed for a quick turn-around in the overall process. The ALARA principle also influenced the decision to clean several spots significantly less than DOE guidelines. As a result of the remedial action taken by BNI and independently verified by ORNL staff, the betatron building conforms to all applicable DOE radiological guidelines established for release of this site for unrestricted use. If more details are needed or you have any questions regarding the survey, please contact Michael Murray at 615-574-5838.

Sincerely,



Michael E. Murray
Measurement Applications
and Development Group

MEM:ec

c: D. G. Adler (DOE-ORO)
W. D. Cottrell (ORNL)
R. D. Foley (ORNL)
G. L. Palau (BNI)



Department of Energy

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

September 22, 1993

Mr. Thomas Mahl
Environmental Specialist
National Steel Corporation
Granite City Steel Division
1417 State Street
Granite City, Illinois 62040

Dear Mr. Mahl:

BETATRON BUILDING - COMPLETION OF DECONTAMINATION - TRANSMITTAL OF PRELIMINARY VERIFICATION

The purpose of this letter is to inform you that the Department of Energy (DOE) has completed its decontamination of the Betatron Building, and that the building now conforms to all applicable guidelines for the release of the structure from radiological restrictions. Anyone can work in the building without concern for radiological exposure.

Bechtel National, Inc. performed the decontamination for DOE. The principle of ALARA (as low as reasonably achievable) was exercised and influenced the decision to decontaminate several areas to levels significantly less than DOE guidelines. Oak Ridge National Laboratory (ORNL) acted as the independent verification contractor for DOE, and performed independent verification surveys of the decontaminated Betatron Building. ORNL subsequently has informed DOE (enclosed letter) that the Betatron Building now conforms to all applicable DOE guidelines established for the release from radiological restrictions of structures formerly contaminated with radioactivity.

DOE is completing a post remedial action report, and ORNL is completing its independent verification report. Following the completion of these reports, DOE will prepare a certification docket that will become the complete record of the cleanup activity. Copies of all of these documents will be forwarded to you as they become available. If you have any questions, please contact me at (615) 576-9634 or Gerald Palau of Bechtel at (615) 576-1710.

Sincerely,

A handwritten signature in black ink, appearing to read "David G. Adler".

David G. Adler, Site Manager
Former Sites Restoration Division

Enclosure

OAK RIDGE NATIONAL LABORATORY

OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC

POST OFFICE BOX 2008
OAK RIDGE, TENNESSEE 37831

1993 JUL 19 AM 9:20

July 16, 1993

Dr. W. A. Williams
Department of Energy
Trevion II Building
EM-421
Washington, D. C. 20585-0002

Dear Dr. Williams:

Independent Verification of the Radiological Condition of the Old Betatron Building Owned by the Granite City Steel Corporation, Granite City, Illinois

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Dr. W. A. Williams

-2-

July 15, 1993

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Sincerely,


Michael E. Murray
Measurement Applications
and Development Group

MEM:ec

c: D. G. Adler (DOE-ORO)
W. D. Cottrell (ORNL)
R. D. Foley (ORNL)
G. L. Palau (BNI)

2.8 STATE, COUNTY, AND LOCAL COMMENTS ON REMEDIAL ACTION

No correspondence with the state, county, or local governments was required for the remedial action.

2.9 RESTRICTIONS

There are no restrictions based on residual radioactive contamination at the Betatron Building.

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.

to include dredging the pier areas, the turning basin, and its approach. The purpose of this notice is to identify that the scope of the EIS will include dredging the San Diego Bay channel to a depth greater than the existing - 42 feet Mean Lower Low Water (MLLW).

NIMITZ-class aircraft carriers are heavier and draw a deeper draft than the aircraft carriers currently homeported at Naval Air Station (NAS) North Island; therefore, to meet operational considerations, the San Diego Bay channel needs to be dredged to a depth greater than the existing maintained depth of - 42 feet MLLW. This requirement is in addition to the dredging identified in the two previous public notices of August 1993 and March 1994.

The maximum dredge depths being considered are - 50 feet MLLW for the channel between NAS North Island and Ballast Point and - 55 feet MLLW for the channel south of Ballast Point. The supporting technical information for dredging the San Diego Bay channel, including dredge depths, will be included in the EIS being prepared for this project.

In providing an opportunity to comment on this change in scope, the anticipated time for having a Draft EIS available for your review and comment is early October 1994 instead of July 1994.

For more information regarding this project, please call NAS North Island Public Affairs Officer at (619) 545-8157. Please submit written comments regarding this notice no later than July 18, 1994, to: Commanding Officer, NAS North Island (Code 00B), P.O. Box 357033, San Diego, CA 92135-7033.

Dated: June 9, 1994.

Lewis T. Booker, Jr.,
LCDR, JAGC, USN, Federal Register Liaison
Officer

[FR Doc. 94-14406 Filed 6-13-94; 8:45 am]

BILLING CODE 3810-AE-M

Etrema Products, Inc.; Partially Exclusive Patent

AGENCY: Department of the Navy, DOD.

ACTION: Intent to grant partially exclusive patent license; Etrema Products, Inc., a wholly owned subsidiary of Edge Technologies, Inc.

SUMMARY: The Department of the Navy hereby gives notice of its intent to grant to Etrema Products, Inc., a wholly owned subsidiary of Edge Technologies, Inc., a revocable, nonassignable, partially exclusive license in the United States to practice the Government-owned inventions described in U.S.

Patents No. 4,158,366, entitled "Magnetostrictive Transducer," and 4,375,372, entitled "Use of Cubic Rare Earth-Iron Laves Phase Intermetallic Compounds as Magnetostrictive Transducer Materials".

Anyone wishing to object to the grant of this license has 60 days from the date of this notice to file written objections along with supporting evidence, if any. Written objections are to be filed with the Office of Naval Research (ONR J0CC3), Ballston Tower One, 800 North Quincy Street, Arlington, Virginia 22211-5660.

FOR FURTHER INFORMATION CONTACT:

Mr. R.J. Erickson, Staff Patent Attorney, Office of Naval Research (ONR J0CC3), Ballston Tower One, 800 North Quincy Street, Arlington, Virginia 22211-5660, telephone (703) 696-4001.

Dated: June 9, 1994.

Lewis T. Booker, Jr.,
LCDR, JAGC, USN, Federal Register Liaison
Officer.

[FR Doc. 94-14401 Filed 6-13-94; 8:45 am]

BILLING CODE 3810-AE-M

DEPARTMENT OF ENERGY

[Docket No. 6450-01]

Certification of the Radiological Condition of the Granite City Site, Granite City, IL, June 1993

AGENCY: Department of Energy.

ACTION: Notice of certification.

SUMMARY: The Department of Energy (DOE) has completed radiological surveys of the Granite City Site in Granite City, Illinois. The property was found to contain residual quantities of radioactive material from Atomic Energy Commission (AEC) activities. Cleanup activities have occurred at this site sufficient to remediate it to Departmental guidelines.

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

SUPPLEMENTARY INFORMATION: The DOE Office of Environmental Restoration, Office of Eastern Area Programs (EM-42), Off-Site/Savannah River Program Division, has conducted a remedial action project at the Granite City Site in Granite City, Illinois (Parcel No. 301-001 filed in Deed/Plat Book 19-24-14, Page 22-1 in the records of Madison County, Illinois), as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP). The objective of the program

is to identify and clean up or otherwise control sites where residual radioactive contamination remains from activities carried out under contract to the Manhattan Engineer District (MED) and AEC statutory predecessors to DOE during the early years of the nation's atomic energy program. In September 1992, the Granite City Site was designated for cleanup under FUSRAP.

In the late 1950's and early 1960's, uranium metal bars (uranium-238 ingots) were x-rayed for AEC in the Betatron Building to detect metallurgical flaws. X-ray services were provided by General Steel Castings Corporation (currently Granite City Steel) under purchase orders from Mallinckrodt Chemical Works, a prime AEC contractor. Purchase orders were issued by Mallinckrodt from 1958 to 1966 on an "as required" basis.

At DOE's request, the Oak Ridge National Laboratory conducted a preliminary radiological survey in 1989 to determine whether the site met newer, stricter cleanup guidelines. The survey indicated that the site contained residual radioactive contamination from AEC activities. As a result, on September 25, 1992, the site was designated for inclusion in FUSRAP. In June 1993, Bechtel National, Inc., conducted remedial action in accordance with DOE Orders, at the Granite City Site.

Post-remedial action surveys have demonstrated, and DOE has certified, that the subject property is in compliance with DOE residual radioactive contamination 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. These findings are supported by the DOE Certification Docket for the Remedial Action Performed at the Granite City Site in Granite City, Illinois, June 1993. Accordingly, this property is released from FUSRAP.

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, 1000 Independence Avenue, SW., Washington, DC. Copies will also be available in the DOE Public Document Room, Federal Building, 200 Administration Road, Oak Ridge, Tennessee, and will be provided to the property owner and to appropriate local officials.

DOE, through the Oak Ridge Operations Office, Former Sites

Restoration Division, has issued the following statement:

Statement of Certification: Granite City Site Former AEC Operations

The U.S. DOE, Oak Ridge Operations Office, Former Sites Restoration Division, has reviewed and analyzed the radiological data obtained following remedial action at the Granite City Site (Parcel No. 301-001 filed in Deed/Plat Book 19-24-14, Page 22-1 in the records of Madison County, Illinois). 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 AEC subcontract 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.

Property owned by National Steel Corporation: Granite City Steel Division, 1417 State Street, Granite City, Illinois 62040.

Issued in Washington, DC, on June 7, 1994.

John E. Baublitz,

Acting Deputy Assistant Secretary for Environmental Restoration.

[FR Doc. 94-14430 Filed 6-13-94; 8:45 am]

BILLING CODE 6450-01-P

Availability of Draft Strategic Plan for the Office of Energy Efficiency and Renewable Energy

AGENCY: Office of Energy Efficiency and Renewable Energy, DOE.

ACTION: Notice.

SUMMARY: This notice announces the availability for public comment of a draft strategic plan for the Office of Energy Efficiency and Renewable Energy (EE). The draft strategic plan presents EE's mission and vision, goals and objectives, and strategies to achieve those goals and objectives.

DATES: Individuals wishing to present their views on the draft report should do so in writing by September 30, 1994.

ADDRESSES: A copy of the draft strategic plan is available for inspection and reproduction at the public reading room of the U.S. Department of Energy, Forrestal Building, 1000 Independence Avenue SW., Washington, DC. The public reading room is open from 9 a.m. to 4 p.m.; you may contact reading room staff at (202) 586-6020. If you wish to have a copy of the draft report mailed to you directly, please contact Jerry Dion at the address below.

Written comments should be addressed to Jerry Dion, Office of Planning and Assessment, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy, 1000 Independence Avenue SW., EE-72, Washington, DC 20585. Receipt of comments on diskette, formatted in WordPerfect 5.1, will facilitate the process.

FOR FURTHER INFORMATION CONTACT: Jerry Dion, Office of Planning and Assessment, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy, 1000 Independence Avenue SW., EE-72, Washington, DC 20585, (202) 586-9470.

SUPPLEMENTARY INFORMATION: The U.S. Department of Energy is issuing this draft strategic plan for public review and comment. The plan sets forth EE's goals, objectives, and strategies for program implementation. EE will use this draft document to begin a comprehensive planning process involving stakeholders and oriented toward careful identification and thorough analysis of strategic issues. The outcome of the effort will be a final version of the strategic plan and a five-year program plan.

The draft strategic plan is divided into four sections: overview, mission and vision, goals and objectives, and EE strategy. The EE goals and objectives are aligned with those expressed in the Department of Energy's strategic plan, *Fueling a Competitive Economy*. The strategy section addresses EE's technology, market, and organizational strategies. A series of short appendices is also included in the draft strategic plan: situation analysis, description of EE stakeholder categories, description of EE sectors' individualized missions, and evolution of EE's strategic planning process.

Respondents are welcome to express their views on any aspect of the draft strategic plan. Areas which commenters might want to address include whether the themes and content are aligned with your assessment of EE priorities; whether there are ideas that should be added or receive special emphasis; and what issues require further analysis.

Christine A. Ervin,
Assistant Secretary for Energy Efficiency and Renewable Energy.

[FR Doc. 94-14429 Filed 6-13-94; 8:45 am]

BILLING CODE 6450-01-P

Notice of Issuance of Proposed Decision and Order by the Office of Hearings and Appeals; Week of May 16 Through May 20, 1994

During the week of May 16 through May 20, 1994, the proposed decision and order summarized below was issued by the Office of Hearings and Appeals of the Department of Energy with regard to an application for exception.

Under the procedural regulations that apply to exception proceedings (10 C.F.R. Part 205, subpart D), any person who will be aggrieved by the issuance of a proposed decision and order in final form may file a written notice of objection within ten days of service. For purposes of the procedural regulations, the date of service of notice is deemed to be the date of publication of this Notice or the date an aggrieved person receives actual notice, whichever occurs first.

The procedural regulations provide that an aggrieved party who fails to file a Notice of Objection within the time period specified in the regulations will be deemed to consent to the issuance of the proposed decision and order in final form. An aggrieved party who wishes to contest a determination made in a proposed decision and order must also file a detailed statement of objections within 30 days of the date of service of the proposed decision and order. In the statement of objections, the aggrieved party must specify each issue of fact or law that it intends to contest in any further proceeding involving the exception matter.

Copies of the full text of this proposed decision and order are available in the Public Reference Room of the Office of Hearings and Appeals, Room 1E-234, Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, Monday through Friday, between the hours of 1:00 p.m. and 5:00 p.m., except federal holidays.

Dated: June 8, 1994.

George B. Breznay,
Director, Office of Hearings and Appeals.

Wells Oil Co., Tucson, AZ, LEE-0108, Reporting Requirements

Wells Oil Co. filed an Application for Exception from the provisions of the reporting requirement of Form EIA-782B. The exception request, if granted, would permit Wells Oil Co. to stop filing Form EIA-782B, entitled "Resellers'/Retailers' Monthly Petroleum Product Sales Report." On May 20, 1994, the Department of Energy issued a Proposed Decision and Order

2.11 APPROVED CERTIFICATION STATEMENTS

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

memorandum

DATE: MAY 20 1994

REPLY TO
ATTN OF: EM-421 (W. A. Williams, 903-8149)

SUBJECT: Recommendation for Certification of Remedial Action at the Granite City Site in Granite City, Illinois

TO: J. Baublitz, EM-40

I am attaching for your signature a Federal Register notice concerning the cleanup of contamination associated with the former Atomic Energy Commission (AEC) activities at the Granite City Site in Granite City, Illinois.

The Department of Energy (DOE), Office of Environmental Restoration, Office of Eastern Area Programs (EM-42), Off-Site/Savannah River Program Division, has conducted a remedial action project at the Granite City Site in Granite City, Illinois (Parcel No. 301-001 filed in Deed/Plat Book 19-24-14, Page 22-1 in the records of Madison County, Illinois), as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP). The objective of the program is to identify and clean up or otherwise control sites where residual radioactive contamination remains from activities carried out under contract to the Manhattan Engineer District (MED) or AEC during the early years of the nation's atomic energy program. In September 1992, the Granite City Site was designated for cleanup under FUSRAP.

In the late 1950's and early 1960's, uranium metal bars (uranium-238 ingots) were x-rayed for AEC in the Betatron Building to detect metallurgical flaws. X-ray services were provided by the General Steel Castings Corporation under purchase orders from Mallinckrodt Chemical Works, a prime AEC contractor. Purchase orders were issued by Mallinckrodt from 1958 to 1966 on an "as required" basis.

At DOE's request, the Oak Ridge National Laboratory conducted a preliminary radiological survey to determine whether the site met newer, stricter cleanup guidelines. The survey indicated that the site contained residual radioactive contamination from AEC activities. As a result, on September 25, 1992, the site was designated for inclusion in FUSRAP. In June 1993, Bechtel National, Inc., conducted remedial action at the Granite City Site.

Post-remedial action surveys have demonstrated, and DOE has certified, that the subject property is in compliance with DOE residual radioactive contamination 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. These findings are supported by the DOE Certification Docket for the Remedial Action Performed at the Granite City Site in Granite City, Illinois, June 1993. 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 Nuclear Regulatory Commission and Environmental Protection Agency guidelines, and to protect the public health and environment.

EM-42 is preparing the certification docket for the subject property. The Federal Register Notice will be part of the docket.

I recommend that you sign and date the attached Federal Register Notice, as well as the transmittal memorandum to the Federal Liaison Officer. This office will notify interested State and local agencies, the public, local land offices, and the specific property owners of the certification actions 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 by EM-42 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

Attachment

Memorandum

DATE: JUN 08 1994

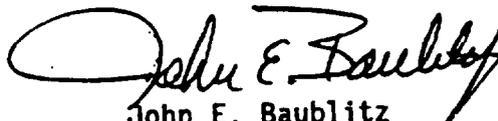
REPLY TO: EM-421 (W. A. Williams, 903-8149)

SUBJECT: Federal Register Notice for Certification of Cleanup at Granite City, Illinois

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 Granite City Site in Granite City, Illinois. This site was cleaned up 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.



John E. Baublitz
Acting Deputy Assistant Secretary
for Environmental Restoration

Attachments (4)

cc:
D. Adler, OR

3.17.10

[Docket No. 6450-01]

Department of Energy

**Certification of the Radiological Condition
of the Granite City Site, Granite City
Illinois, June 1993**

AGENCY: Department of Energy

ACTION: Notice of Certification

SUMMARY: The Department of Energy (DOE) has completed radiological surveys of the Granite City Site in Granite City, Illinois. The property was found to contain residual quantities of radioactive material from Atomic Energy Commission (AEC) activities. Cleanup activities have occurred at this site sufficient to remediate it to Departmental guidelines.

FOR FURTHER INFORMATION CONTACT:

Mr. James J. Fiore
Director
Office of Eastern Area Programs
Office of Environmental Restoration
Mail Stop, EM-42
U.S. Department of Energy
Washington, D.C. 20585
(301) 903-8141

SUPPLEMENTARY INFORMATION:

The DOE Office of Environmental Restoration, Office of Eastern Area Programs (EM-42), Off-Site/Savannah River Program Division, has conducted a remedial action project at the Granite City Site in Granite City, Illinois (Parcel No. 301-001 filed in Deed/Plat Book 19-24-14, Page 22-1 in the records of Madison County, Illinois), as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP). The objective of the program is to identify and clean up or otherwise control sites where residual radioactive contamination remains from activities carried out under contract to the Manhattan Engineer District (MED) and AEC statutory predecessors to DOE during the early years of the nation's atomic energy program. In September 1992, the Granite City Site was designated for cleanup under FUSRAP.

In the late 1950's and early 1960's, uranium metal bars (uranium-238 ingots) were x-rayed for AEC in the Betatron Building to detect metallurgical flaws. X-ray services were provided by General Steel Castings Corporation (currently Granite City Steel) under purchase orders from Mallinckrodt Chemical Works, a prime AEC contractor. Purchase orders were issued by Mallinckrodt from 1958 to 1966 on an "as required" basis.

At DOE's request, the Oak Ridge National Laboratory conducted a preliminary radiological survey in 1989 to determine whether the site met newer, stricter cleanup guidelines. The survey indicated that the site contained residual radioactive contamination from AEC activities. As a result, on September 25, 1992, the site was designated for inclusion in FUSRAP. In June 1993, Bechtel National, Inc., conducted remedial action in accordance with DOE Orders, at the Granite City Site.

Post-remedial action surveys have demonstrated, and DOE has certified, that the subject property is in compliance with DOE residual radioactive contamination 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. These findings are supported by the DOE Certification Docket for the Remedial Action Performed at the Granite City Site in Granite City, Illinois, June 1993. Accordingly, this property is released from FUSRAP.

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, 1000 Independence Avenue, S.W., Washington, D.C. Copies will also be available in the DOE Public Document Room, Federal Building, 200 Administration Road, Oak Ridge, Tennessee, and will be provided to the property owner and to appropriate local officials.

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

**STATEMENT OF CERTIFICATION: GRANITE CITY SITE
FORMER AEC OPERATIONS**

The U.S. DOE, Oak Ridge Operations Office, Former Sites Restoration Division, has reviewed and analyzed the radiological data obtained following remedial action at the Granite City Site (Parcel No. 301-001 filed in Deed/Plat Book 19-24-14, Page 22-1 in the records of Madison County, Illinois). 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 AEC subcontract 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.

Property owned by National Steel Corporation:

Granite City Steel Division
1417 State Street
Granite City, Illinois 62040

Issued in Washington, D.C., on June 7, 1994.

John E. Baublitz

**John E. Baublitz, Acting Deputy Assistant Secretary
for Environmental Restoration**

Memorandum

DATE: APR 20 1994
REPLY TO: EM-421 (W. A. Williams, 903-8149)
ATTN OF:

SUBJECT: Request for GC-11 and GC-41 Review and Concurrence for the Certification of Remedial Action at the Granite City Site, Granite City, Illinois

TO: W. Dennison, GC-11

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

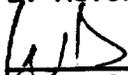
This package is furnished for the review, comment, and concurrence of GC-11 and GC-41, and I would appreciate very much a simultaneous review of this document by your staff and GC-41. It would be helpful if the GC comments and concurrences were finished no later than May 1, 1994. Please provide any comments on a mark-up version of the Notice and sign the concurrence block provided below. As the attached draft transmittal memorandum indicates, the comments and concurrence of the Office of General Counsel will be transmitted to the Federal Register Liaison Officer with the Federal Register Notice.

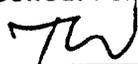

James J. Fiore
Director
Office of Eastern Area Programs
Office of Environmental Restoration

Attachment

cc:
L. Lawson, EM-22
L. Harris, EM-431
D. Adler, OR

2 AM
5/8



GC-11 Concurrence
3


GC-41 Concurrence
72

5/4/94

Date
5/4/94

Date

GC-51
#20
4-25-94

STATEMENT OF CERTIFICATION: GRANITE CITY SITE
FORMER AEC OPERATIONS

The U.S. Department of Energy (DOE), Oak Ridge Operations Office, Former Sites Restoration Division, has reviewed and analyzed the radiological data obtained following remedial action at the Granite City site (Parcel No. 301-001 filed in Deed/Plat Book 19-24-14, Page 22-1 in the records of Madison County, Illinois). 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 Atomic Energy Commission subcontract 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.

Property owned by National Steel Corporation:

Granite City Steel Division
1417 State Street
Granite City, Illinois 62040



Lester K. Price, Director
Former Sites Restoration Division
Oak Ridge Operations Office
U.S. Department of Energy

Date:

5/22/87

Memorandum

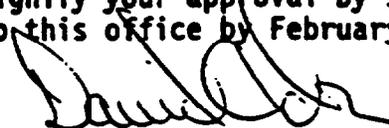
DATE: February 1, 1994

RE: TO
BY OF: EW-93

SUBJECT: DRAFT FEDERAL REGISTER NOTICE AND CERTIFICATION STATEMENT: CERTIFICATION FOR THE REMEDIAL ACTION PERFORMED AT THE GRANITE CITY SITE IN GRANITE CITY, ILLINOIS, JUNE 1993

TO: Dane Bartlett, CC-10

Attached for your review and approval are a copy of a draft Federal Register notice and a draft copy of the certification statement for the Granite City Site in Granite City, Illinois. Please signify your approval by signing below and returning a copy of this memorandum to this office by February 8.



D. G. Adler, Site Manager
Former Sites Restoration Division

Attachments

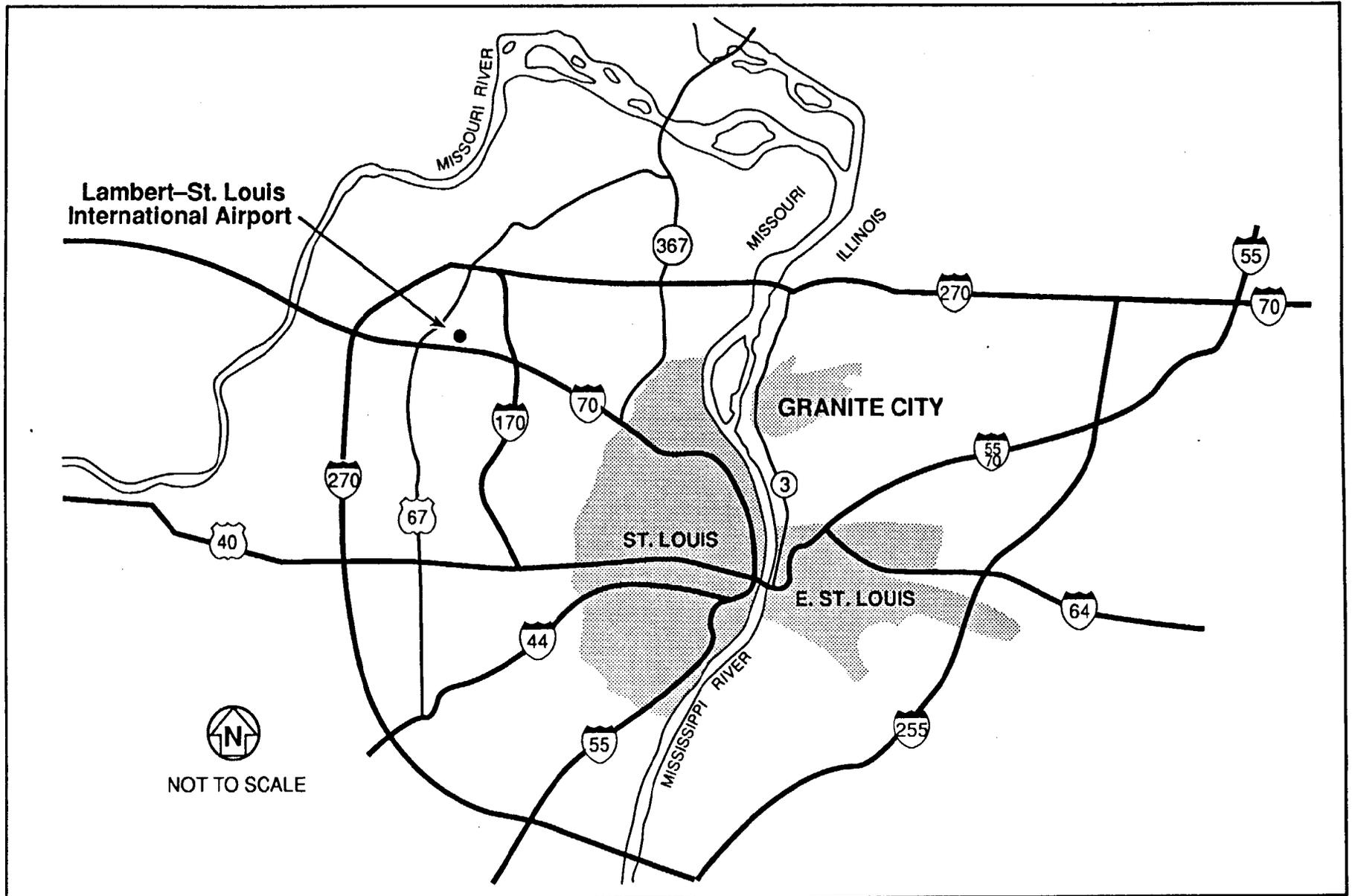
Approval:


Dane Bartlett
Office of Chief Counsel


Date

EXHIBIT III
DIAGRAMS OF THE REMEDIAL ACTION PERFORMED AT THE
GRANITE CITY SITE
IN GRANITE CITY, ILLINOIS, JUNE 1993

The figures provided on the following pages are taken from the post-remedial action report; they show the location of Granite City, Illinois, the floor plans of the first and second floors of the Betatron Building, and the locations of remedial action in the Betatron Building.



4.150 4023.1

Figure III-1
Location of Granite City, Illinois

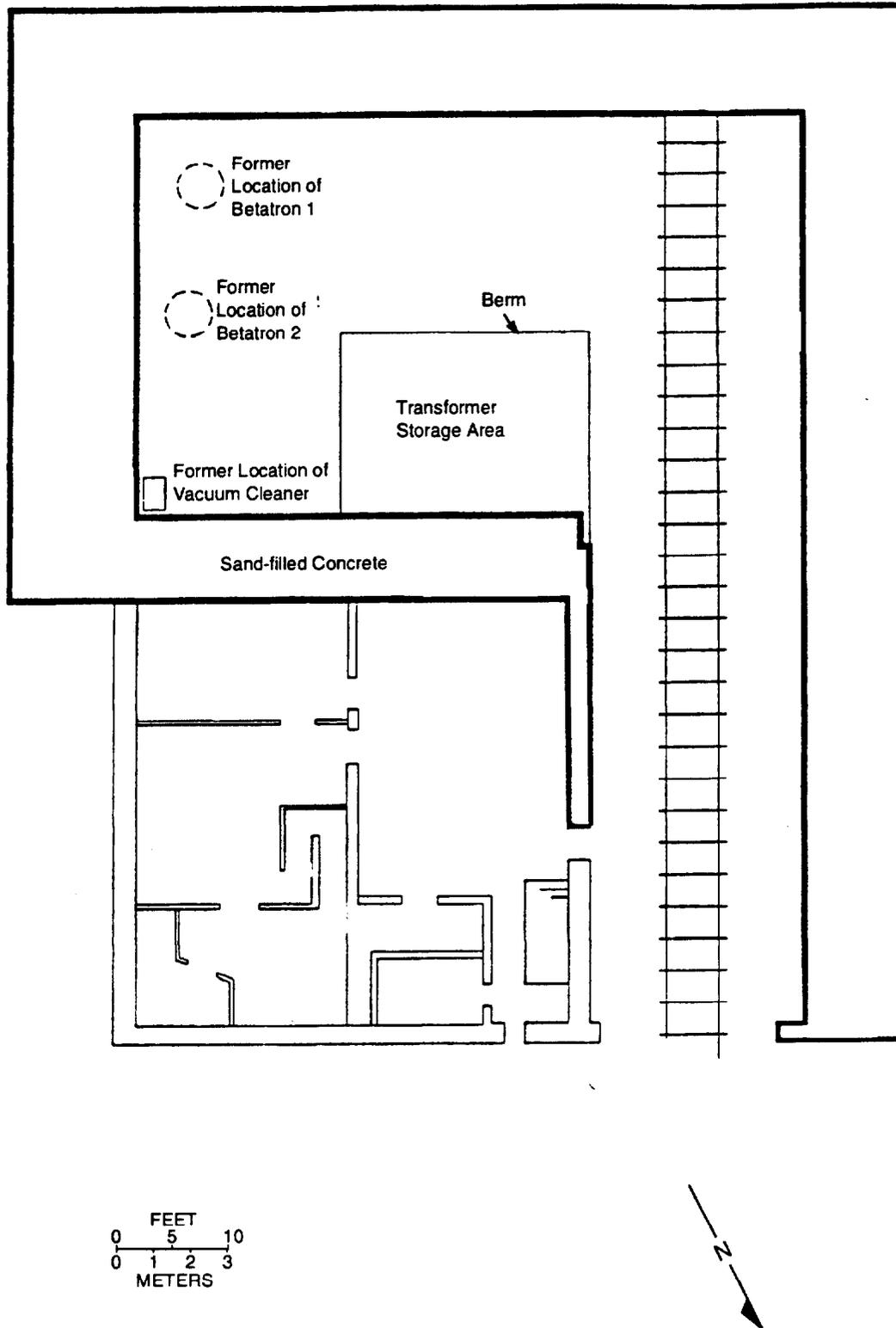


Figure III-2
 Floor Plan—First Floor of the Betatron Building Before Remedial Action

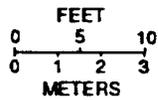
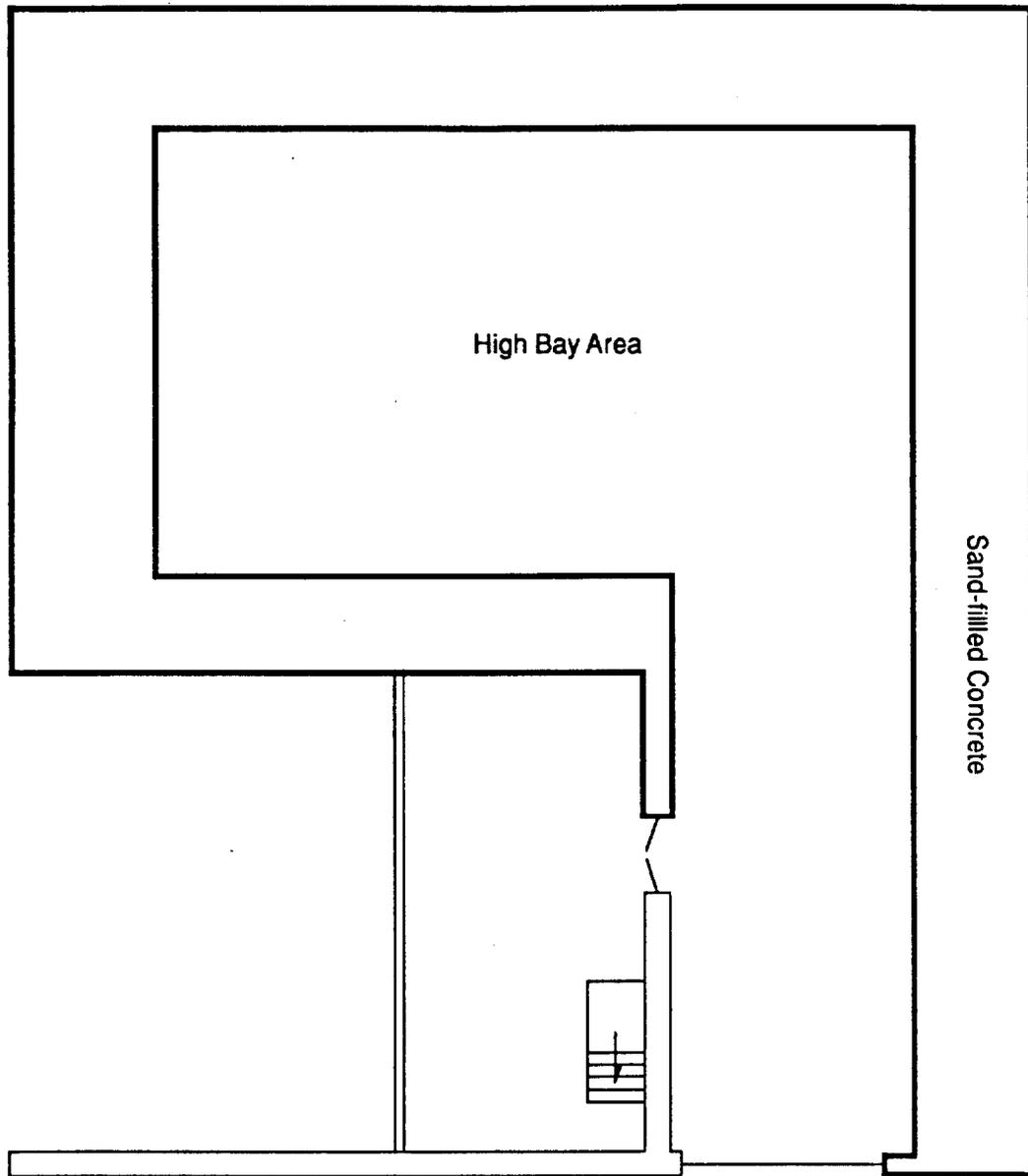


Figure III-3
Floor Plan—Second Floor of the Betatron Building

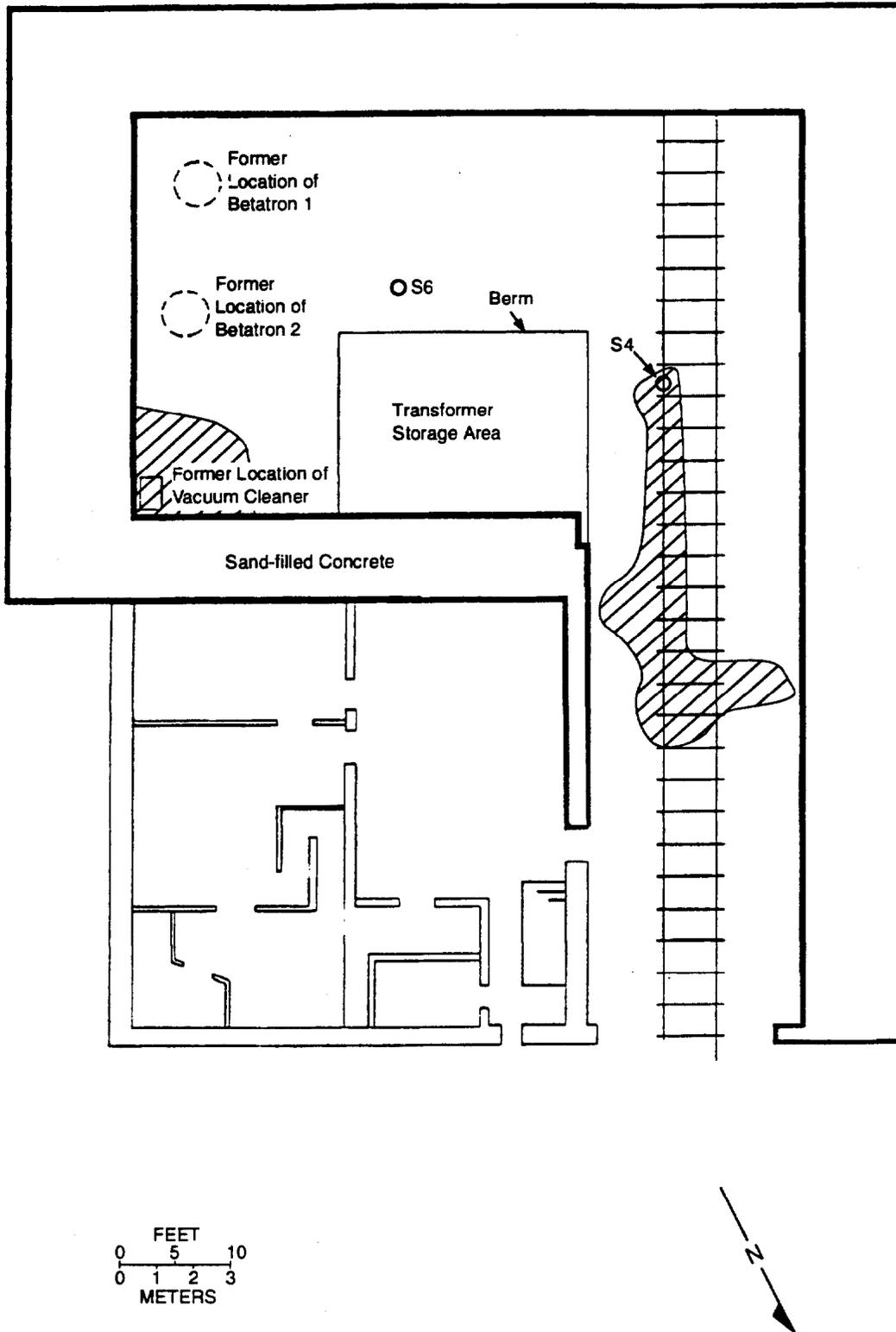


Figure III-4
Areas of Contamination at the Betatron Building Before Remedial Action