IL.5-5 2435

IL.5

THE AEROSPACE CORPORATION

Suite 4000, 955 L'Enfant Plaza, S.W., Washington, D.C. 20024, Telephone: (202) 488-6000

7117-01.85.aw.65
26 November 1985

Mr. Arthur Whitman, NE-23
Division of Facility & Site
Decommissioning Projects
U.S. Department of Energy
Germantown, Maryland 20545

Dear Mr. Whitman:

ILLINOIS NATIONAL GUARD ARMORY
DESIGNATION PACKAGE

As per your request, enclosed please find the final remedial action designation package for the subject site with your comments incorporated. For the record the addresses (previously provided to you) of the owner and state contact are:

OWNER

Major General Harold Holesinger
The Adjutant General
Illinois Military and Naval Dept.
1301 North MacArthur Boulevard
Springfield, IL 62702-2399
Phone: (217) 785-3502

STATE

Terry R. Lash, Director
Illinois Department of Nuclear Safety
1035 Outer Park Drive
Springfield, IL 62704
Phone: (217) 546-8100

Sincerely,

Andrew Wallo, III
Project Engineer
Environmental Controls and
Analysis Directorate
Government Support Division

AW/sb

Enclosure

cc: E. DeLaney
R. Lewis (w/o)
Whitman file

bcc: F. Hoch
B. Fritz
S. Jones
F. Newman (w/o)
E. Vierzba
C. Young

TWENTY-FIVE YEARS OF EXCELLENCE

An Affirmative Action Employer

GENERAL OFFICES LOCATED AT: 2350 EAST EL SEGUNDO BOULEVARD, EL SEGUNDO, CALIFORNIA

ILLINOIS NATIONAL GUARD ARMORY
CHICAGO, ILLINOIS

HISTORICAL SUMMARY AND AUTHORIZATION EVALUATION

Introduction

This report and backup materials were prepared and assembled to support a decision regarding the need to designate or authorize the Illinois National Guard Armory site in Chicago, Illinois, for inclusion in the Formerly Utilized Sites Remedial Action Program (FUSRAP). The report summarizes the contractual, operational, and radiological history of the site.

The data suggest that the Department does have authority to perform remedial action at the site and that the site is contaminated with residual radioactive material to levels that exceed FUSRAP guidelines. The report includes the authority review and an analysis of the site (using the DOE priority system) to determine the site's remedial action priority.

Background and Historical Summary

The Illinois National Guard Armory site was used by the Manhattan Project to resolve space shortages suffered by its Chicago elements, in particular the University of Chicago and the Metallurgical Laboratory. It has been reported (ANL-83) that the facility was being used by the University as early as March of 1942; however, the earliest mention of the buildings use in historical records reviewed to date was 15 September 1943. At that time the University of Chicago, acting for the Manhattan Engineer District under authority provided in contract W-7401-eng-37, entered into a lease agreement with the State of Illinois for use of a portion of the Armory. The

area leased was used for University functions, Metallurgical Laboratory operations, and by the Area Engineer's Office. Shortly thereafter, about 1944, the lease agreement with the University was terminated and the Federal Government leased the entire Armory for the Area Engineer's Office and the Metallurgical Laboratory.

There is no summary of operations at the Armory presently available in the historical literature, however, from the correspondence records it appears that the site was at least being used for the storage and processing of uranium metal. In 1943 the building was the central procurement and shipping location for the Metallurgical Laboratory. Records from 1944 indicate uranium metal stock was received and temporarily stored in the shipping and receiving room. The Armory store room was apparently used for storage of uranium shavings and grinding wastes, because at least one of several uranium fires in the Armory was in the northeast corner of that room. That particular fire contaminated both the receiving and store rooms.

Memoranda also indicate that there were plans to construct either a burning pit or hearth for oxidizing the uranium chips for safer storage and shipment. It appears the hearth or furnace was eventually built and was located in the South Court of the Armory.

Operations at the Armory include sanding, cutting, grinding, and polishing of uranium metal. It is not clear from the records where or in how many areas this work was done, however, room 201-b was contaminated as a result of these activities. Interviews conducted by ANL personnel during the survey suggested that the court area of the Armory may have been used for more than the uranium oxidation process, but, no records have been identified to confirm these possibilities.

No record of the final termination of the lease for the use of the Armory has been identified. ANL indicated that the facility was used

until about 1951. Memoranda from 1946 and 1947 suggest that at least some activities were being phased out. Portions of the building were being surveyed for release, groups working at the Armory were being transferred elsewhere, and the storage space at the Armory had been abandoned.

Site Description

The Illinois National Guard Armory (also known as the Washington Park Armory) is located in Chicago, Illinois at 52nd Street and Cottage Grove Avenue. The Armory covers an area over 10,000 square meters and had four floors and large arena or court areas that were open for the complete four stories. Figure 1 depicts the location of the Armory.

Owner and Operator History

During the MED/AEC era the site was owned by the State of Illinois and was leased initially by the University of Chicago for the Federal Government and later by the Federal Government directly. When the space was no longer required for MED or AEC activities the lease was terminated and the Armory was returned to the State. The Armory is presently being used by the Military and Naval Departments of the State of Illinois for National Guard activities. The Armory currently houses the 1st Battalion, 178th Infantry and the 2nd Battalion, 122nd Field Artillery.

Radiological History and Summary of Current Conditions

Some memoranda and information obtained from individuals involved in MED/AEC operations in the area, suggest that the building was decontaminated and surveyed prior to its return to the state. A search for records on these surveys and cleanup identified the designated location for the records, however, when requested they were found to be missing and are presumed destroyed.

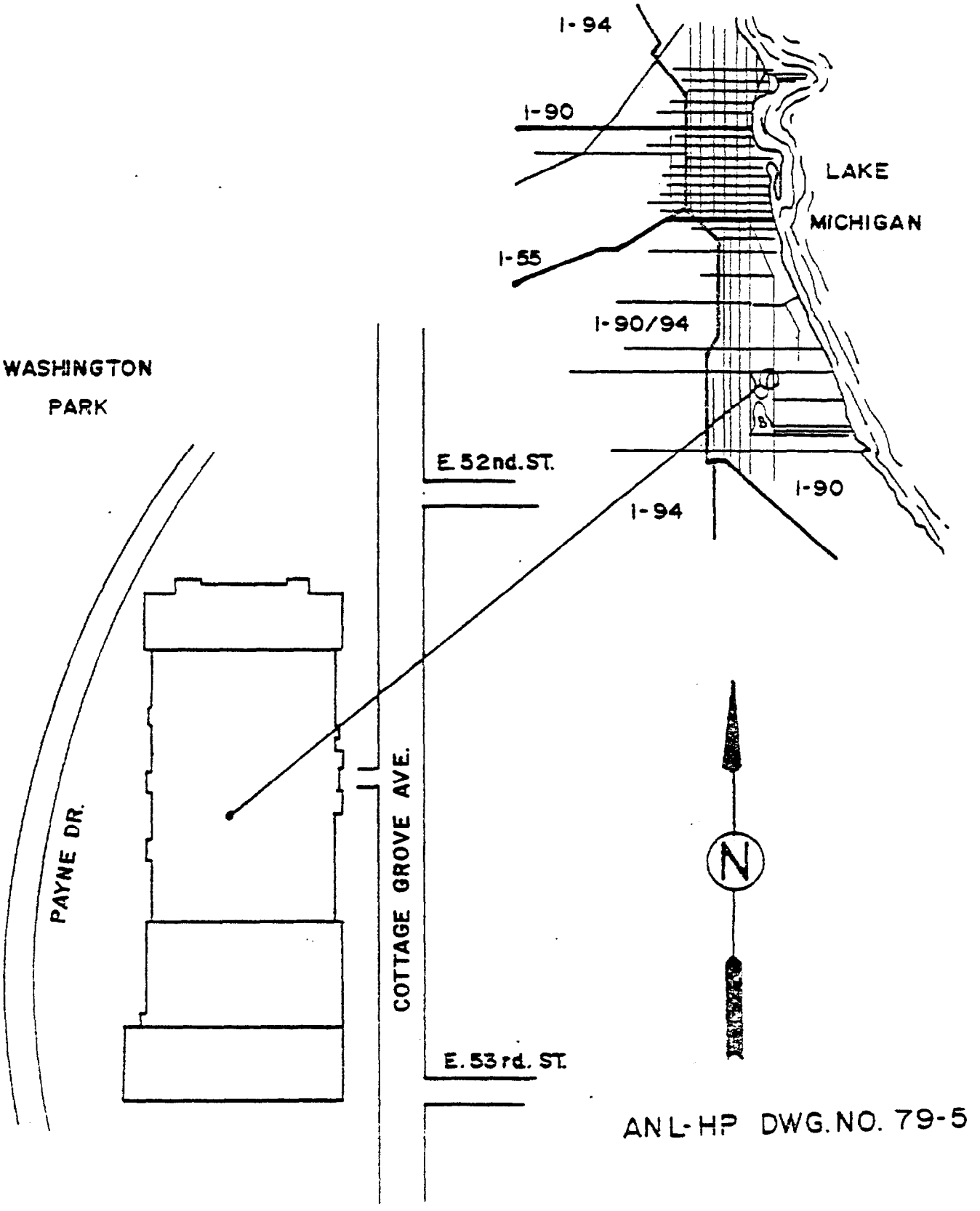


Figure 1. Site Location of Illinois National Guard Armory

Argonne National Laboratory conducted a survey of the building in 1977 and 1978 (report number DOE/EV-0005/22). The survey covered all accessible areas of the four floor structure (about 80% of the floors and 70% of the walls. Contamination attributable to MED/AEC operations was identified in 11 rooms and some drains. Surface contamination levels from these areas ranged up to approximately 340,000 dpm/100cm^2 for beta-gamma radiation and background to 58,000 dpm/100cm^2 for alpa radiation. The highest removable contamination was 1700 dpm/100cm^2 for alpha and 2500 dpm/100cm^2 for beta-gamma. Forty-two locations were in excess of FUSRAP surface contamination guidelines. The majority of the contamination was in room 1. Drains were contaminated with uranium to levels as high as 11,000 pCi/g.

DOE Authority

DOE has completed an authority review based on the results of the radiological survey and MED/Metallurgical Laboratory correspondence regarding the operations at the site and a determination has been made that the Department has authority under the Atomic Energy Act of 1954 as amended to conduct any necessary remedial actions at the Armory (see Appendix A).

Potential for Exposure and Risk and Site Remedial Action Priority

Of the three general pathways under which individuals can receive radiation exposures (inhalation, ingestion and direct external exposure), only the inhalation pathway is considered to be a potentially significant source of exposure at this site. This resulted because there was no significant external gamma radiation above background and no measurable soil contamination. The only residual radioactivity above guidelines accessible to the users of the site is the surface contamination. Two scenarios were considered in assessing the potential dose and associated risk that might be

received by a user of the site. The first scenario assumes that an individual works for 2000 hours a year in the most contaminated room (room 1) and inhales resuspended uranium. The second scenario (presented in ANL report DOE/EV-0005/22) was an analysis of the dose received by an individual cutting the ceiling (for installation of equipment such as an exhaust fan) in an area of high contamination.

It must be emphasized that the estimates of potential dose provided in this section are totally hypothetical and generally represent the worst case situation. No individual is currently receiving these doses nor is any one expected to receive them under current use conditions. The associated risk estimates are also hypothetical and should not be taken out of the context of this report. The risk estimates are not absolute estimates of risk, they are prepared for the purpose of assigning a relative remedial action priority or ranking to this site.

No air samples for uranium were taken during the ANL radiological survey of the Armory. As a result, potential doses due to resuspended surface contamination are estimated using a conservative model outlined in the report by the Health Physics Standards Committee "SURFACE RADIOACTIVITY GUIDES FOR MATERIALS, EQUIPMENT, AND FACILITIES TO BE RELEASED FOR UNCONTROLLED USE" (REVISED 13 JUNE 1983). The procedure relates concentration of radionuclides in the air to surface contamination by the equation:

$$C = ARW/DV$$

where,

C = The concentration of the radionuclide in air (Ci/m^3)
A = The area covered by the surface contamination (m^2)
R = The resuspension rate (10^{-5}/hr)
W = The average concentration of the surface contamination over A (Ci/m^2)
D = The air exchange rate in the building room (5/hr)
V = The volume of the room (m^3).

Materials are generally resuspended as a result of activity and movement in the area of the contamination, and because there is little or no disturbance of the contaminated areas on the ceiling, the initial estimates of potential dose due to resuspension consider only the areas contaminated above guidelines on the floor. Room 1 is the room with the most extensive contamination. Using data and procedures described in the ANL survey report it was estimated that there was about 33 x 10^{-2} microCi of uranium on the surface over an area of about 2700 cm^2 (0.3 m^2) from nine contaminated locations on the floor of the room. The volume of room 1 was estimated at 2100 m^3. Using this data, the average concentration of uranium in the air in Room 1 was calculated to be on the order of 3 x 10^{-4} pCi/m^3. The report ORNL/OEPA-7 was used to estimate the potential dose commitment to an individual working 2000 hours per year in Room 1. Doses of about 0.02, 0.001, and 0.33 mrem/yr to the bone, kidney, and lung would result from exposure to that concentration of uranium. These doses equate to about 0.04 mrem/yr wholebody dose equivalent using the weighting factors provided in ICRP-26. This is about 0.01 percent of the 500 mrem/yr guideline for short term exposure or 0.04 percent of the 100 mrem/yr long term dose limit.

Using an even more conservative approach (assuming the floor and ceiling contamination contributes equally to the resuspension), the whole body dose equivalent would be about 0.24 mrem/yr which is still well below the dose limits. This calculation assumes that there is about 2.05 microCi of uranium on the surfaces (floor and ceiling) of Room 1. It is noted that for the actual circumstances at this site the simple resuspension model used is quite conservative.

The second scenario assumes that workers installing equipment in the ceiling of Room 1 cut through contaminated areas. It was assumed that a concrete core driller was used to cut a hole of 30.5 cm in diameter and that the cutting edge was 1.5 cm. The area was assumed to have a surface contamination level of 1.7x10^5 $dpm/100cm^2$ or about 3.7x10^{-2} microCi of uranium/100 cm^2. This activity was

estimated to suspend about 0.046 microCi of uranium and ANL calculated doses to the worker (exposed for about an hour) of 2.5 mrem, 0.5 mrem, and 0.03 mrem to the lung, bone, and kidney respectively. These doses would produce a whole body dose equivalent of about 0.3 mrem per event which is less than 1 percent both the short term dose limit and the long term exposure dose limit. Calculations using exposure to dose conversion factors from ORNL/OEPA-7 resulted in a similar estimated wholebody dose equivalent of about 1 mrem. While these estimates vary, they are both far below the DOE dose limits.

Procedures established by DOE for assigning remedial action priorities to formerly utilized sites are based on potential health effects and are briefly presented in Figure 2. More details are provided in Appendix B. The procedures are used to rank contaminated sites that may require remedial action under FUSRAP into 3 categories: high, medium, and low. In general, sites are given high priorities if the total increase in equivalent whole body dose commitment or risk of radiation induced cancer under current use conditions are above acceptable levels. Sites are given medium priority if acceptable levels are exceeded under some conceivable potential use over the next 10 or 20 years. Sites having contamination above guidelines, but not falling into the high or the medium category, are given a low priority.

The acceptable levels are defined as those levels of total increased risk that are less than the risk of cancer that an individual would receive as a result of a 500 mrem dose annually or that a group would receive from an average dose of 170 mrem annually. These risk guides are 5×10^{-5} (5 per 100,000) annually for individuals and 2×10^{-5} (2 per 100,000) annually for groups. The conversion of the estimated potential dose calculated for each scenario to risk is done by multiplying the ICRP-26 factor of 10^{-4} radiation induced fatal cancers per rem by the dose. The risks from doses equivalent to those in scenarios 1 and 2 respectively are 4×10^{-7} (4 per 1,000,000,000 exposures) and 1×10^{-7} (1 per 10,000,000 exposures). Because these scenarios were considered potential use scenarios and risks were well below "acceptable levels", the site would be ranked as a low priority site. There is no possibility for extensive migration of these residues.

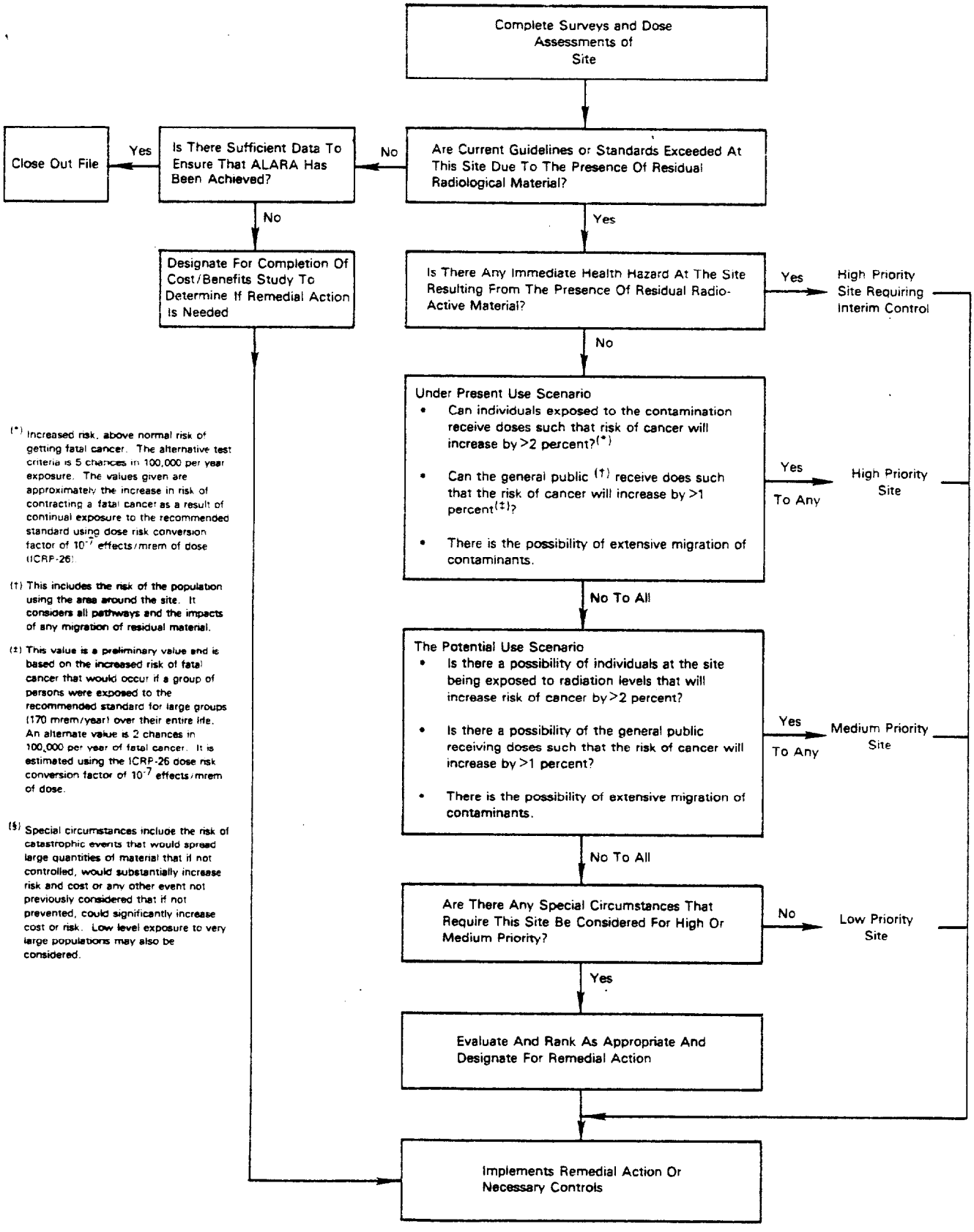


Figure 2. DOE FUSRAP Prioritization Procedure

Findings and Recommendations

1. The Armory site is contaminated with uranium residues that resulted from DOE predecessor operations.

2. Some of the contaminated areas exceed FUSRAP Guidelines.

3. There is authority under the Atomic Energy Act for DOE to conduct remedial action at this site.

4. There appears to be sufficient cause for designating this site for remedial action. However, additional survey work will be required and special attention should be given to ensuring areas identified in the historical documentation are surveyed in detail (south court, storage and shipping area, and Room 201b).

REFERENCES

ORNL/OEPA-7, Doses for Various Pathways to Man Based on Unit Concentrations of Radionuclides Pertinent to Decontamination and Decommissioning of Propertives, March 1979.

DOE/EV-0005/22, Radiological Survey of the National Guard Armory Park, 52nd Street and Cottage Grove Avenue, Chicago, Illinois, January 1983.

MED/AEC Historical Records, 1940-1955 (see Appendix A).

APPENDIX A. AUTHORITY REVIEW FOR THE NATIONAL GUARD ARMORY SITE CHICAGO, ILLINOIS

This analysis is based on the summary contained in the body of this report and the sample correspondence provided as Attachment 1 to this Appendix. Other records (still classified) contain additional similar information and data on this site. None of the classified material reviewed to date provide additional information, nor do they contain data which disagrees with or counters any of the records or findings contained in this section. These records may eventually be declassified, but, it was not believed to be worthwhile to delay this review for the completion of that declassification.

Authority Analysis

In order for a site to be considered for inclusion in the remedial action program, the Department must have the authority to take such action. DOE evaluates each site on the basis of five questions to determine if such authority exists. The following is a summary of the Departments review of these issues:

1. Was the site or operation owned by a DOE predecessor or did a DOE predecessor have significant control over the operation?

   Yes. The site is and was owned by the State of Illinois. The facility was leased by the University of Chicago for the MED and later by the Federal Government for the MED and AEC. During the period that the MED/AEC work was being conducted at the site, DOE predecessors and their prime contractors had complete control of the site and all operations relating to uranium research and development and processing. Due to the security requirements of the work the owner (the State) did not even know what activities were underway at the Armory. All the work was done directly by

MED or MED Metallurgical Laboratory personnel and the facility was guarded by security personnel supplied by MED or hired by MED through the University of Chicago. In addition, equipment and materials (including the uranium) were government owned.

2. Was a DOE predecessor responsible for maintaining or ensuring the environmental integrity of the site?

   Yes. The MED, AEC, the University of Chicago, and the MED Metallurgical Laboratory were responsible for the environmental integrity of the site. They conducted radiological surveys and safety inspections of the facility and conducted the necessary cleanups following incidents such as the uranium fires referenced in the literature. None of the memoranda discussing the fires or contamination events indicate the property owner (the State) was made aware these events. There are no copies of the leases available in the records, however, the limited correspondence available suggests that the MED accepted the responsibility for ensuring that the site be free of contamination when it was returned to the State.

3. Is the waste, residue, or radioactive material on the site the result of DOE predecessor-related operations.

   Yes.

4. Is the site in need of further clean up and was the site left in an unacceptable condition as a result of DOE predecessor-related activity?

   There are levels of radioactivity in the Armory that are in excess of FUSRAP guidelines. These areas are the result of DOE predecessor operations.

5. Did the owner accept responsibility for the site with knowledge of its contaminated condition and that additional remedial measures would be needed to make the site acceptable for unrestricted use by the general public?

   The termination of the lease and records relating to the final clean-up of the site have apparently been destroyed. However, no records documenting that the site was accepted by the state in a contaminated condition have been identified in Department records or Illinois State records. No records have been identified to suggest that the state was or is aware of the condition (radiological) of the site with the possible exception of information supplied to them as a result of ANL survey activities under FUSRAP.

ATTACHMENT 1 TO APPENDIX A

November 12, 1943

A. B. Greninger

T. T. Magel

Delivery of Items from the Armory to Site B

Ever since the Procurement Department and Shipping Department moved to the Armory, the service has been extremely bad. It is impossible to call up Tony Matz and obtain the use of a truck, even for a very short period of time. Furthermore, even when notified that it is of utmost importance that "an in stock" item be picked up immediately here in town, the trucking service merely ignores these requests. As a consequence, we have found it necessary at times to send a messenger by taxi to pick up these urgently needed items.

The trucking service always gives as an excuse that there are not enough trucks nor help. If that is the case, then why does the Army not provide sufficient equipment and personnel to do the job properly.

The above is another example of interference with the progress of research.

TECHNICAL DIVISION
A.B.Greninger, Section Chief

T. T. Magel

cc C.M.Cooper-J.Chipman
Reading File ✓
TTM File

2.9.5

FS

METALLURGICAL LABORATORY

1/23/44

COPY

T. E. Hall — Security

J. C. Pyle — Safety

Fire at Armory Shipping Room, 1-23-44

We had another fire!

It was extinguished by Municipal fire equipment!

It is undoubtedly too much to hope that the time will ever come when the first statement need never be repeated. But, until that second statement can be changed to read at all times, "The fire was discovered and extinguished in its earliest stages by trained project personnel, with a minimum of confusion," then the Safety Section has a tremendous responsibility and an urgent backlog of unfinished business.

Specific Fire Report

Building - Armory
Location - Shipping Room
Immediate Person in charge - David Rudolph for special materials. Mr. Allen in nominal control of shipping activities.
General - Persons in charge - Tony Mata, in charge of receiving area, acting for Mr. Blair, Property chief.
Time - Approximately, 5:15 P.M., 1-23-44
Origin - Explosion of one or more tightly sealed metal pails of oxide.
Extent - Force of explosion or flash igniting dislocated wallboard-and-frame partition immediately adjacent to the stored material. Fire spread to nearby excelsior, table, papers, wall framing and partition material.
Damage - Probably $100.00 to construction details added to building by Metallurgy. No damage to the State owned building. Damage to equipment and property in route through shipping and receiving rooms difficult to estimate - Perhaps $250.00 - $500.00, partially due to water damage. Some damage to personal clothing.
Injuries - None

Narrative Report as Assembled by Safety Section -
Approximately a dozen pails of oxide had been shipped in from out of town location, without covering instructions for handling or explanation of contents. The material was presumably shipped dry. The oxide was such that a chemical reaction slowly went on within the air tight containers until sufficient hydrogen accumulated to burst the containers of at least one of the pails.

D

COPY

Other pails blew open, whether from concussion or outside heat, or from interior pressure is not know.

Higgins, Dispatcher, saw the first container start to "bubble" out and called David Rudolph, in charge of special materials. By the time Rudolph got to the doorway the hydrogen had burst into flame and the fire was on.

At least two Foamite extinguishers, one 2 gallon water pump, and one 1½" hose were brought into action by Project personnel.

However, the confusion and uneasiness among the less cool headed workers as a result of the alarm that "explosive material" had started the fire, caused the City Fire Department to be called, and the fire was quickly brought under control and extinguished. Water damage was relatively great.

The two Foamite extinguishers nearest the blaze, and the nearest hose lines were untouched.

Mr. Rudolph had the presence of mind to call Dr. Creutz immediately after the outbreak of the fire. Dr. Creutz was the only one on the scene who knew enough about the properties of the oxides to analyze the origins of the fire and make recommendations for handling the remainder of the oxide to prevent recurrence of the fire.

Potential Damage—Dry oxide was blown over a large area of the receiving and store room when the shipping room wall let go. Wet oxide was tracked around by firemen and project personnel.

Dr. Creutz pointed out that this widespread contamination probably presented no physical hazards, but certainly constituted a tremendous potential hazard to laboratory work if permitted to get out to various counting rooms and the like. He recommended a thorough clearing of everything affected, and a warning to receivers of the material that a residual contamination might exist.

Recommendations —(A number of full, compressed gas cylinders were stored in the adjoining room, next to the partition which was damaged. The fire might have gotten to these tanks and could have multiplied many-fold. Mr. Miller, storekeeper, thought of this and confined most of this to playing an extinguisher over the cylinders closest to the fire.)

A recommendation for an outside location for storage of full cylinders was made some time ago. When that recommendation was changed to permit inside storage, the Safety Section tacitly approved on the basis that any rack was better than no rack

COPY

at all.

At the time of the fire, only a few empty cylinders were in the newly constructed racks.

1. Therfore;-Without further ado, let an outside shed and rack be constructed for compressed gas cylinders. Act thosetanks holding combustible gasses be seperated from those which hold gases supporting combustion, by a fire resistant partition, or by distance.

2. Let Dr. Crouts, and those others who are thoroughly familiar with all of the implications of the type of material responsible for the fire, prepare a report that will guide the Safety and Security peopl and all others, in the care and handling of such materials.

3. Burning excelsior helped to feed this fire. Again, let it be reiterated that this type of combustion material must be eliminated from the scene at the earliest possible moment and the first possible point. In this instance the excelsior was supposedly there to use in preparing articles for shipment. The stuff should be brought to the shipping room only as needed, and used immediately.

   In the receiving area, some plan should be worked out to get rid of excelsior, shredded paper and the like, as soon as a package is opened. A delivery procedure should be activated that will make it unnecessary to repack equipment and material for delivery to the local sites.

4. The proper training of Armory personnel in the co-ordinated fighting of fires will necessarily follo completion of such work at Site B and the West Stands. But there should be no delay beyond that point. Most of them have already received instruction, or are familiar with the use of extinguishers.)

METALLURGICAL LABORATORY

COPY

date 2/4/44

To T. E. Hall Security

From J. O. Pyle Safety

In Re: Correction of Armory Fire Report with Additional Recommendations

The Safety Section report of 1/28/44 in re, the Armory Fire of 1/27/44, is ancient history by now. Even the fact that the report shows the fire occurring one day later than it actually did, has been forgotten. However, to get the record suitably amended, the oxide was not received in the 17 air-tight containers, but in two, large, open top metal drums. The transfer to the containers was made on 1/22/44, as a part of some transfer back and forth from Area Engineer to Metallurgy and back to Area Engineer.

So much for dead matter.

Now for additional recommendations submitted for your processing:

1. The area Engineer's store room in the north-west corner of the receiving area must be reorganized at once. Metallurgy must protect itself from possible fire spreading from this hazardous area. (Also, it is probably Metallurgy surplus storage, placed there by Metallurgy employees, that has resulted in such disorder.)

   Be that as it may, the Army storeroom is a mess. The contents should be restacked. Definite aisles should be marked clearly on the floor, and kept clear, to permit easy access to any portion of the stock.

   Probably nothing should be stacked against the south and east wall of this area as they are of temporary construction. However, shelves for small articles could be placed along these walls if desired.

   Mr. Blair should be requested to forbid stacking of parcels on the ramp to the receiving dock. This ramp should be entirely clear at all times. Mr. Blair should be requested to requisition a guard rail along the outer edge of the ramp, and along the north side of the receiving dock from the west wall back to the ramp entrance. (A recent injury points up this request - Alexander Scott.)

   Material must not be piled higher than six feet from floor level.

   Receiving dock should be equipped to chain up gas cylinders received on the dock until they can be transhipped.

E

COPY

question any real advantage obtained from the elaborate partitioning of the checking, shipping, stock room, and store room facilities. The fire resistant properties of the plaster-board walls is questionable; would probably be more than offset by the ease in guarding, inspecting, and getting to the source of trouble if the area were returned to one big room.

J. C. Pyle /s/

JCP:E

METALLURGICAL LABORATORY

COPY

2/7/44

To T. E. Hall — Security

From J. O. Pyle — Safety

In Re: Armory Receiving Room

The final paragraph of my memorandum of 2-4-44 regarding the Armory fire suggested that the abolition of the many temporary partitions might introduce certain advantages in the operating and guarding of the area.

Of course, even though my argument may develop convincingly and reasonably, there will be a natural reluctance to accept the idea that it could be economical to tear out so much plasterboard and 2 x 4's, doors, gates and padlocks which represent a good deal of time, expense, labor and thought.

Perhaps the most I can hope for is that when the time comes to make first one change and then another in the present layout, some consideration will be given to the following points.

Objections to Present Space Divisions (Shipping Room, Furniture Receiving Room, Store Room, Stock Room)

1. Plasterboard on one side of a wood stud partition is rated very very low in fire resistance.

2. Full partitions to the ceiling cut down ventilation, make it possible for fires to start and grow unnoticed in concealed areas.

3. The padlocking of these subdivisions places just one more barrier in the way of constant, over-all guarding, and may delay by minutes getting to a burning area with first aid fire fighting equipment.

4. The frequent changes in the requirements of every phase of Metallurgy laboratory work has shown how futile it is to enclose a space and assume that the space so enclosed will meet for all time, or even a little time, the needs of activity involved.

Summary: Plasterboard partitions in a warehouse area of this type are fire hazards in themselves, may seriously hinder fire prevention and fire fighting; probably only reflects man's inherent desire to circumscribe his property and himself and build a wall to keep out the Indians. Why not let an anthropologist worry about how we got that way, and let the Armory building and the Metallurgy guard force keep out the Indians?

F

COPY

Advantages of An Open Warehouse Area:

1. Entire area easily kept under constant observation.

2. A disturbance anywhere in the area shows up immediately, may be coped with in its earliest stages. No delay, no obstructions in getting emergency equipment to the scene of the disturbance.

3. Operations-wise, the absence of arbitrary, not easily moved partitions, makes for greater flexibility and adaptability in the use of the space to meet ever changing requirements. If some line of demarkation is absolutely required, low counters or rails can serve the purpose adequately.

4. Better housekeeping should result from working with large, open areas. Poor arrangement, and unwise allocation of space would not be concealed or perpetuated.

Special note: The above recommendations do not include the office occupied by Kate, Ellen, and others. However, it is specifically and strongly urged that use of the vault-like room in back of the receiving dock be immediately discontinued as an office, and the occupants be removed to the much more office in the west room. This transfer should be made at once.

J. C. Pyle /s/

P

METALLURGICAL LABORATORY

2/14/44 COPY

T. L. Hall — Security

J. O. Pyle — Safety

Fire Protection at Armory

The recent Armory fire precipitated many desirable safety measures or proposed safety measures.

Except for the Armory itself!

Carelessness and poor housekeeping are still obvious for comfort. May I list some examples of unsafe practices and conditions which may easily result in another - perhaps greater - catastrophe.

1. Floor around checking tables littered with excelsior, shredded paper, papers, cartons.
2. Shipping room in disorder, with cartons, packing materials and the like, out of place and scattered around.
3. Large ammonia tank unchained and right by doorway from checking room to gas cylinder racks. (This full ammonia tank has been in this place for many weeks. Time only increases the hazard of such an unsafe condition. Apparently, no one wants the tank. It should be returned to the manufacturer immediately.)
4. Hazardous chemicals are being received and stocked in Miller's storeroom without securing a chemist's advice as to which chemicals can be safely stored close together.
5. The so-called Army storeroom incorporates many hazards. Open boxes containing excelsior is stored below flammable liquids. Several bales of rags are not isolated from other storage. One such bale is open, with rags on the floor and loose, ready to catch the first sparks that come along. (Don't forget that a spark may be struck by a shoe nail on the cement floor.) The covering burlap on these bales are dirty, may contain animal matter sufficient to induce spontaneous combustion. The large door leading from this storeroom to the big arena is kept locked. It should at least have a key always in the lock, perhaps covered by a crash box. It must be usable as an emergency exit.
6. Gas cylinders are received on the unloading dock and permitted to stand unchained in the middle of a great confusion of crates, cartons and the constant flow of newly received material.
7. Metal stock is thrown off inbound trucks, to lie on the floor in front of the dock until someone thinks to do something with it.
8. More people have been added to the staff using the poorly ventilated room back of the dock. This room cannot economically be improved for office use. It should be abandoned at once.
9. Surplus material now coming in for storage is being placed in the North-east corner of the area used for storage of trucks and cars. This material is not classified or stacked properly. Such haphazard handling cannot be condoned despite the probable transient nature of the practice.

A safety hazard is no less a hazard simply because it is temporary.

JOP:D cc: J.Blair, D.K.Keith

G

COPY

A portion of a Confidential Report, dated 7 February 1944, signed by L. A. Kimpton, H. C. Vernon, and T. E. Hall

"D. Armory:

* * * * * * * * * * *

2. The need for immediate disposal of all heavy metal shavings and chips now stored outside the Armory building under the ramp leading to the second story. (See Exhibit B - letter from the committee to the Area Engineer dated February 7, 1944.)"

Exhibit I

COPY

7 February 1944

"EXHIBIT B"

Area Engineer

L. A. Kimpton

Disposal of Heavy Metal Shavings and Chips

The committee on fire and explosion hazards appointed by Dr. Compton requests immediate action on the disposal of all heavy metal shavings and chips at present stored under the ramp of the Armory leading to the second floor. Such shavings and chips are Government property and can only be disposed of by the Area Engineer's Office. The continued storage of such material constituted an acute fire and explosion hazard. Delay in the fulfillment of this request may seriously impede the war effort.

/s/ L. A. Kimpton

/s/ H. C. Vernon

/s/ T. E. Hall"

Exhibit J

COPY

METALLURGICAL LABORATORY

12 February 1944

J. H. McKinley — Area Engineer's Office

L. A. Kimpton — Metallurgical Laboratory

Disposal of Heavy Metal Shavings and Chips

Reference is made to your memorandum of February 11, 1944, on the disposal of heavy metal shavings and chips. It is my understanding that you will provide us in the near future with construction plans for a hearth to oxidize the turnings. The moment that is in our hands, we shall begin the construction. We shall see to it that shavings are oxidized before they are shipped in accordance with regular standard procedures.

L. A. Kimpton
Chief Administrative Officer

mq
cc: H. C. Vernon
T. E. Hall

L

COPY

METALLURGICAL LABORATORY

LM-579 MUC-HCV

February 12, 1944

To: C. M. Cooper

From: H. C. Vernon

BURNING PIT

Enclosed you will please find carbon copy of letter from J. H.McKinley and a penciled sketch. This sketch shows the burning pit, which we recently discussed as being necessary to transform metal chips or dust to a safe condition for shipment. It is our understanding that you plan to take steps to install something of this general nature wherever metal is being machined under your jurisdiction. We should be interested in being informed of any current development.

M

COPY

METALLURGICAL LABORATORY

17 February 1944

D. K. KEITH

L. A. KIMPTON

Burning Pit

I attach herewith, a copy of a letter from Mr. Vernon to Mr. Cooper on a burning pit for heavy metal shavings. I suggest that Mr. Howard carry the ball on this matter and put through a formal request to Captain Ware for the construction of this burning pit. We should act quickly on this so that we may oxidize this material and get it out of here. The Army refuses to move it prior to oxidation, and now it becomes our problem to take the first step.

mq
cc. D. Rudolph

L. A. Kimpton

N

COPY

EIDM CGO-1

28 February 1944

MEMORANDUM

SUBJECT: Labor priority for Special Material Shipments

TO: L. A. Kimpton

At various times there have been difficulties in securing sufficient laborers to load or unload trucks carrying special materials, even when shipments have been exceptionally valuable.

It is urgent that Mr. McWilliams be instructed to furnish laborers at once for handling these shipments when requested by D. P. Rudolph.

J. H. MC KINLEY
Captain, CE
Deputy Area Engineer

cc D. P. Rudolph

METALLURGICAL LABORATORY

COPY

1 March 1944

J. H. McKinley — Area Engineer's Office

L. A. Kimpton — Metallurgical Laboratory

Labor Priority for Special Materials Section

Reference is made to your letter of 28 February 1944. I attach herewith a copy of a letter from Mr. Keith to Mr. McWilliams indicating action on the matter. Please inform me if you hear of any further difficulties in this regard.

L. A. Kimpton
Chief Administrative Officer

mq

R

COPY

February 29, 1944

Mr. R. A. McWilliams

D. K. Keith

Service to Mr. Dave Rudolph on Special Materials

Occasionally Mr. Dave Rudolph needs a little help in loading or unloading special materials. I should appreciate your giving him every assistance in the way of laborers on such occasions.

Thank you.

DKK;jdw

D. K. Keith

cc: L. A. Kimpton
J. H. McKinley
D. Rudolph

COPY

METALLURGICAL LABORATORY

22 April 1944

TO: W. B. Harrell

FROM: L. A. Kimpton

Fire at Armory - April 20, 1944

Attached herewith please find a report from Mr. Hall on a fire in the south courtyard of the Armory on April 20, 1944. No one was injured in the fire, nor was any injury done to any part of the Armory building. It does point once again to the fact that the Area Engineer's Office must get rid of this metal powder which we have accumulated. It points also to the necessity of further training of our guard force in fire fighting and general policy.

cc: B. W. Collins

/s/ L. A. Kimpton

U

DCU#A 31318

SECRET

MUC #EC3741

This document consists of 2 pages and 0 figures.

No. 1 of 2 copies, Ser. A

THE UNIVERSITY OF CHICAGO

DATE April 5, 1944

TO A. H. Compton DEPARTMENT

FROM E. C. Creutz DEPARTMENT

IN RE:

RECEIVED JAN 17 1943 INFORMATION OFFICE

About a month ago I was pleased to have an opportunity to discuss with you something of our immediate and future plans for experimental work on the use of uranium. You pointed out that the immediate job of the laboratory is to make W operate as soon as possible. You also explained that our work is only beginning when W operation starts. Since, if it is successful, attempts to make more efficient use of uranium will be stressed, and if it is not as successful as hoped, extreme efforts must be put forth to make it or a modified process work. You said that our thinking would then develop along the lines of bismuth, beryllium, heavy water and enriched piles.

I then discussed briefly our plans to set up a general physics laboratory in the Armory, where we might have available some of the equipment, the lack of which has so many times caused delays in our work in the past. This would include a testing laboratory where there would be the usual electrical instruments found in a good ... Department including galvanometers, potentiometers, bridges, ... This apparatus would be
... ich already has a
... so, facilities for
... at work of the type
... could continue and
... oratories available
... ical physicists
... es were worth push-
... the production on a
... echnical Division.
... indicated the desir-
... fields between
... important to the

... ilding up a laboratory
... can make to me for
... form of dropping my
... ow we may secure

... ecuring such coopera-
... . Kimpton for space
... ceived some assurance
... er parts of the project
... most day by day it

co...

W...
E. ...
Capt. ...
EC File

CLASSIFICATION CANCELLED
DATE AUG 28 '62
For the Atomic Energy Commission
Jack H. Kahn for the
Chief, Declassification Branch

[redacted] information a...
... unauthorized person is prohibited [redacted]

[redacted]

SECRET

DCU# A 31398

MUC #EC81741

This document consists of 2 pages and 0 figures.
No. 1 of 2 copies, Ser. A

THE UNIVERSITY OF CHICAGO

DATE April 5, 1941

RECEIVED JAN 17 1946 INFORMATION OFFICE

TO A. H. Compton DEPARTMENT

FROM E. C. Creutz DEPARTMENT

IN RE:

About a month ago I was pleased to have an opportunity to discuss with you something of our immediate and future plans for experimental work on the use of uranium. You pointed out that the immediate job of the laboratory is to make W operate as soon as possible. You also explained that our work is only beginning when W operation starts. Since, if it is successful, attempts to make more efficient use of uranium will be stressed, and if it is not as successful as hoped, extreme efforts must be put forth to make it or a modified process work. You said that our thinking would then develop along the lines of bismuth, beryllium, heavy water and enriched piles.

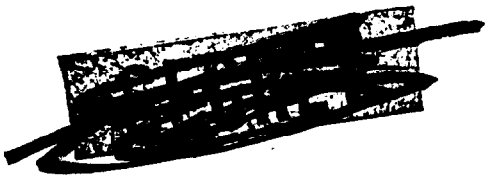
I then discussed briefly our plans to set up a general physics laboratory in the Armory, where we might have available some of the equipment, the lack of which has so many times caused delays in our work in the past. This would include a testing laboratory where there would be the usual electrical instruments found in a good University Physics Department including galvanometers, potentiometers, bridges, meters, calibrating equipment for thermocouples, etc. This apparatus would be used in connection with a precision measurements laboratory which already has a good start under Mr. Kratz, now at Site B. There would be, also, facilities for pioneering in the fields of fabrication of new materials so that work of the type carried on by my group during the early months of the project could continue and be applied to other types of construction. There would be laboratories available for trying to answer any questions that might help the theoretical physicists determine in a minimum time whether thoughts along certain lines were worth pushing or not. Most of this work would be quite independent of the production on a proven scheme which presumably would be handled through the Technical Division. I believe there are several instances in the past which have indicated the desirability of carrying on such pioneering work in the borderline fields between chemistry, physics and metallurgy which have turned out to be important to the project.

I should like to inform you of some of our difficulties in building up a laboratory of this sort. I shall greatly appreciate any suggestions you can make to me for a solution to these difficulties, whether they shall take the form of dropping my plans for such work or whether they shall be suggestions of how we may secure better cooperation from the Army and the administration.

I should like to acquaint you briefly with our attempts at securing such cooperation. On February 12th we first made our request through Mr. Kimpton for space at the Armory. This was a rather detailed request and we received some assurance that it would be granted. As requirements for space for other parts of the project became more evident our plans were considerably changed. Almost day by day it

SECRET

This d[redacted] its con[redacted] unauthorized person is prohibited by law.



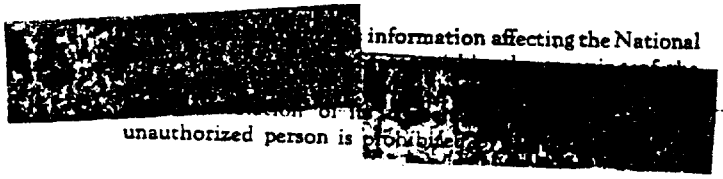
became evident that the space originally assigned to us was not going to be available, nor were facilities going to be provided as rapidly as we had hoped. By March 14th, since absolutely nothing had materialized in the way of power or facilities, we asked for a different assignment of space which we hoped would be prepared sooner. During the next week layouts were prepared in consultation with Capt. Ware and members of my section. On April 1st I asked Capt. Ware why nothing had been done about providing facilities and he informed me that he must obtain permission from the Adjutant General of the State of Illinois. I understand that a meeting is to take place with the State authorities today where it will be decided what facilities may be installed. Capt. Ware informs me that after this decision is made about six weeks will be required to install the facilities.

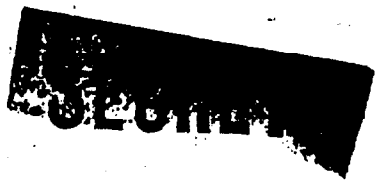
I shall appreciate any comments or suggestions you may have, but particularly should like to have your ideas on how we may hope to carry out research at an accelerated rate when it requires three months for the unravelling of the red tape to prepare a site for a laboratory. I am sure, and I believe you may agree, that with the push behind it that the project deserves we could have had laboratories and facilities prepared in a small fraction of this time.

E. Creutz

sf/

cc: S. K. Allison
L. A. Kimpton
W. W. Watson
E. P. Wigner
Capt. Ware
EC File





Metallurgical Laboratory

May 17, 1944

To: R. A. McWilliams

From: W. O. Christy

Subject: Exhaust System for Carpenter Shop in 124th Field Artillery Armory

In accordance with your verbal request to Mr. Maloney of May 15 we are submitting the following specifications for the exhaust system to be installed in the carpenter shop at the 124th Field Artillery Armory. We have indicated on the attached print of your drawing MA-50 a schematic layout of the exhaust system to serve the items of woodworking machinery listed below.

	Pipe Size in Diam.	
	Existing	Standard
24" Planer	6-1/2"	6"
16" Rip Saw	4"	4"
12" Jointer	5"	4-1/2"
16" Jointer	none	5"
14" Swing Cut-off Saw	4"	4"
14" Cut-off Saw	none	4"
36-3/4" Band Saw	none	2-4"
8" Transite Saw	5"	4"
Bench Grinder, 2-6" Diam. x 1" wheels	2-1" sq.	3"

It is our understanding that all but two items of the equipment shown on your drawing are now located in the carpenter shop at West Stands. The 8" transite saw was omitted from your drawing MA-50 and we have located this item of equipment according to instructions from Mr. Grimmer. The exhaust fan and dust collector now located in the carpenter shop at West Stands are to be relocated in the new carpenter shop at the Armory between the 14" swing cut-off saw and the wall. Although the proposed location of the exhaust fan is not indicated on your drawing, Mr. Grimmer states that this fan will be mounted adjacent to the dust collector at approximately the same elevation that it is now located at West Stands shop. The proportions of the main duct to accommodate the branch pipes have been marked on the attached print of your drawing. These pipe sizes are listed below.

24" Planer to Main Duct - 6-1/2" Diam.

8" Transite Saw to 4" Branch Line from 16" Rip Saw - 5" Diam.

Junction of 4" Branch Line of 16" Rip Saw to Main Duct - 7" Diam.

Main Duct from 7" Branch Line to 16" Jointer - 10" Diam.

Main Duct enlarged to 11-1/2" Diam.

Junction of 5" Diam. Branch Line from 12" Jointer enlarged to 12-1/2" Diam.

Main Duct enlarged to 14-3/4" Diam. at Junction of Branch Line from shop east of wall partition.

Main Duct enlarged to 15" Diam. at Junction of 3" Branch Line from Bench Grinder.

Main Duct enlarged to 15-3/4" Diam. at Junction of 4" Branch Line from 14" Swing Cut-off Saw.

Main Duct enlarged to 19" Diam. to suit suction of existing exhaust fan.

Two 4" Diam. Branch Lines are to be provided from the 36-3/4" Band Saw.

A 6-1/4" Diam. Duct is to receive these two 4" Diam. Branch Lines.

6-1/4" Diam. Duct to be enlarged to 7-3/4" Diam. to receive 4" Diam. Branch Line from 14" Cut-off Saw.

7-3/4" Diam. Branch Line to be connected to Main Duct at 14-3/4" Diam. Section.

The 36-3/4" Band Saw is to be provided with two 4" Diam. pipes, one with hood on front of saw, one at a point near the floor on the up-run side of lower wheel. The entire lower wheel is to be enclosed to form a hood.

The existing bench grinder has a hood over each grinding wheel with 1" sq. opening. These 1" sq. openings are to be connected to a 3" exhaust pipe.

According to information furnished by Mr. Grimmer the 16" jointer and 14" cut-off saw do not have exhaust hoods. An exhaust hood similar in design to that which is located on the 12" jointer at West Stands is to be provided on the 16" jointer. An exhaust hood similar to the one located on the 14" swing cut-off saw now located at West Stands is to be provided on the 14" deVolf cut-off saw now located in the east section of the carpenter shop at the Armory.

All branch pipes should be connected into the main duct at an angle not exceeding 45 degrees in direction of air flow. The branch pipes should not project into the main duct. Each branch pipe should be equipped with a blast gate or shut-off damper but not more than 25% of these should be closed at any one time as long as any part of the system is in operation.

All enlargements in main duct are to be made on an easy taper and to be located just before each entering branch line. The sizes of main duct given above are such that the area of each section is 20% greater than the combined area of all branches discharging through it.

The 14" Diam. duct used as a vent from the Cyclone dust collector can be directed through a window in the east wall of the Armory.

TECHNICAL DIVISION
General Engineering Section
J. O. Maloney, Section Chief

W. O. Christy

by W. O. Christy

WOC:z
cc - Reading File
TDGE

July 14, 1944

L. C. Furney

J. J. Nickson

cc: L. A. Kimpton
Readers File

On 6-28-44 Mr. Tourek took air samples near the furnace in the South Court of the Armory while the metal was being converted to the oxides. The samples taken indicated tolerance amounts of material in air or less than tolerance amounts of material in air. Thus it would appear that under the conditions prevailing on the above date the operation of this piece of equipment does not constitute a hazard to personnel.

This instrument will be checked from time to time in the future.

J. J. Nickson, M.D.

JJN:dg

Metallurgical Laboratory

August 9, 1944

To: L. A. Ohlinger

From: W. O. Christy

In Re: Installation of Drawbench at the Armory

In reference to your recent inquiry as to whether the drawbench would be completely installed by the scheduled date of August 15th, we regret to say that this is no longer possible.

Two important items of equipment required, the fluid motor and the fluid pump, will not be received in time to meet this scheduled date. Mr. Byers, of Procurement, has taken all possible steps, in his opinion, to speed up the delivery of these items from Vickers, Inc.

The present outlook regarding delivery is as follows. The fluid motor originally to have been shipped August 5th was found defective, did not pass inspection, and will have to be rebuilt. The new promised delivery date on this item is August 15th. The fluid pump is being delayed due to the critical situation regarding the bearings which are used in its construction. Vickers, Inc. will not even go to the point of giving us a definite promise on this item but, at best, a tentative shipping date is August 18th.

In view of these facts, it seems wise to anticipate completion of the drawbench no earlier than August 24th. You may rest assured that all possible measures will be taken to expedite construction.

TECHNICAL DIVISION
General Engineering Section
W. O. Christy, Assoc. Section Chief
W. O. Christy

per S. D. Zweigoron

SDZ:rpr
cc: E.C.C.
C.M.C.
R.F. (2)
TDCM

MUC-HG-639
This document consists of 1 pages and figures
No. 4 of 6 copies, Series A

Navy # 06452

SECRET

August 10, 1944

To: Edward Creutz

From: J. J. Nickson, M.D.

In re: Tuballoy contamination in Room 201-E, Armory

On July 31, 1944 samples were taken for the determination of the amount of tuballoy dust in the air in the above room. The following samples were obtained:

(1) Next to the small cut-off machine about 2 3/4 feet from the machine, 1904 micrograms/cubic meter of air.

(2) Sanding machine 8 inches from the machine, value 10,500 micrograms of tuballoy/cubic meter of air.

(3) Grinder, one foot from the grinder, 15,800 micrograms/cubic meter of air.

(4) Large cut-off wheel, two feet from the machine, 4,900 micrograms tuballoy/cubic meter of air.

(5) Polishing wheel, 2½ feet from machine, 490 micrograms/cubic meter of air.

All of these readings are above the tolerance figure which has been tentatively set for tuballoy dust in air. This figure is 150 micrograms tuballoy dust/cubic meter of air. In consequence it is the recommendation of the Health Division that ventilation be installed which will reduce the amount of tuballoy dust in air which will reduce the above tolerance figures.

If the identification of the sampling sites given above is not sufficient for your needs, please let me know. I will have Mr. Tourek who took the samples inform you or one of your men the precise location in which the above samples were taken.

J. J. Nickson

J. J. Nickson, M.D.

jcp

cc: Shank
Stone
Readers File (2) ✓

[redacted]

an unauthorized person is prohibited by law

CLASSIFICATION CHANGED
TO: NOT CLASSIFIED
12-9-54
Authority of: USAEC
E M Null 5-27-57

[redacted]

Folder H-566-6
MD-W-7401
ENG-37

[redacted] No. 1 of 4 copies, series ___

ARMY SERVICE FORCES
UNITED STATES ENGINEER OFFICE
MANHATTAN DISTRICT
CHICAGO AREA OFFICE
P. O. BOX 6140 A
CHICAGO 80, ILLINOIS

IN REPLY REFER TO EIDM CGA 311

IL.5

File 10/26/45

17 October 1945

Subject: The 124th Field Artillery Armory Building, Chicago, Illinois

To: The District Engineer, U. S. Engineer Office, Manhattan District, Oak Ridge, Tennessee

Attention: Contract Section

1. Under date of 15 September 1943, The University of Chicago entered into a lease agreement with the State of Illinois for the rental of a portion of the building, situated at 5200 Cottage Grove Avenue, Chicago, Illinois, and known as the 124th Field Artillery Armory. It was later determined that a portion of the Metallurgical Project would be housed within the premises, and in accordance with the terms specified in the attached papers, a sub-lease was entered into for the maintenance of the Area Engineer's office and Metallurgical Laboratory.

2. The lease agreement between The University of Chicago and the State of Illinois was thereafter terminated and the United States Government leased the entire Armory Building from the State of Illinois for use by the Area Engineer's office and the Metallurgical Laboratory.

3. This office was instructed by Captain McCauley to obtain photostatic copies of the lease agreement between The University of Chicago and the State of Illinois to substantiate Bureau Voucher No. 1804 in the amount of $5,000.62, submitted for reimbursement by The University of Chicago covering rental of premises prior to the Government assuming responsibility for the lease of the Armory. The request from this office for photostatic copies was not complied with as The University of Chicago maintained their agreement with the State of Illinois had no bearing on the sub-lease agreement with the Government.

4. The attached papers in triplicate are forwarded for review, and if adequate to justify reimbursement to The University of Chicago, it is requested they be accepted in lieu of photostatic copies of the original agreement.

J. H. McKINLEY
Captain, Corps of Engineers,
Area Engineer

4 Incls.: Series B of
Cys. 1, 2 & 3 ltr. dtd 8-31-43 fr.WCMunnecke
Cys. 1, 2 & 3 ltr. dtd 1-31-44 fr.WCMunnecke
Cys. 1, 2 & 3 ltr. dtd 10-14-43 fr.LAKimpton
Cys. 1, 2 & 3 ltr. dtd 3-9-44 fr.HBMatthews

MD-W-7401 Chicago R.E.

SE[redacted]

Classification Cancelled
~~Or Changed To~~
By Authority Of DOC
By Ted Davis Date 8-9-85

SECRET This document consists of ... No. 1 of 5 copies, series ...

THE UNIVERSITY OF CHICAGO

31 August 1943

To: Mr. A. V. Peterson — Dept. Area Engineer

From W. C. Munnecke — Dept. Associate Project Director for Administration, Metallurgical Project.

In re: Approval from the Area Engineer's Office of the sub-lease of a part of the Illinois State Armory by the Metallurgical Project.

The Area Engineer's Office and the Administrative Office of the Metallurgical Laboratory are in agreement upon the necessity of establishing a centralized property warehouse and receiving room. The chief difficulty in accomplishing this end has been the prohibitive cost of constructing a building of adequate size. We have investigated the possibility of enclosing a portion of the North Stands, but the smallest estimate we could obtain was $55,000. To construct, even on a jerry-built basis, an entire building of sufficient area to house the property and receiving room of the Project, would cost approximately 40 cents a cubic foot or about $90,000 for the amount of space required. Construction of a substantial type would run about 60 cents a cubic foot or $135,000. Heat, light and water would have to be added to this estimate. It has become increasingly evident that the only possibility for attaining our mutually agreed upon objective is to rent all or part of a building located near the University.

The University of Chicago plans to rent, in the very near future, from the State of Illinois, the State Armory located at 5200 Cottage Grove Avenue to house, mess, and train Army Specialized Training Program Unit. The University will not need the entire space of the Armory, and we wish to propose to the University that the Metallurgical Project sub-lease a segregated space on the ground floor of this armory. The location is convenient, all security requirements can be adequately met, and the nature of the building, its size, and its use by the Army Specialized Training Program will prevent our own operations from being conspicuous.

We wish to sub-lease from the University a total of 22,225 square feet of ground floor space, of which 19,825 square feet will be used for stock rooms, warehouse, receiving and shipping rooms, and truck storage, and 2,400 square feet will be used for offices. In negotiating rental terms with the University, we arrived at the figure of 60 cents per square foot per year, including heat, light and water, as an equitable and, at the same time, reasonable figure upon which to compute our rental charge. It should be remembered in this connection that the University contracts with the Army for a Training Program upon an actual cost basis, and our portion of the rental along with the University's goes directly to the State of Illinois. The overall monthly cost of the area to us in terms of the above rental charge would be $1,111.25, including light, heat and water. Building alterations to house and arrange the property of the Project in accordance with the attached plan would cost approximately $3,000; it

SECRET

Classification Cancelled
~~Or Changed To~~ ...
By Authority Of OSC
By Jed Davis Date 8-9-85

would cost approximately $1,000.00 to restore the building to its original state. In sub-leasing this area from the University, we incur no long-time obligation; we should participate in the University's agreement with the State of Illinois whereby the former may cancel the lease within sixty days from the time of notice. We may obtain occupancy by September 15; building alterations will be completed with a week; and we feel entirely justified in assuring you that we could begin operations from the new property center by October 1, 1943.

It is our recommendation that this area be sub-leased from the University for the purpose and at the price above-mentioned. To the best of our knowledge and belief this building is the most readily available and suitable space in this general area at a rental charge which we regard as fair and reasonable. It is our considered judgment that the rental of a portion of this Armory will prove to be far more economical than the construction and maintenance of a building of like area, and that the problems of security and convenience are adequately met by this proposal. In accordance with the terms of Contract No. W-7401 eng-37, Article VI, we request herewith your approval of the proposal to sub-lease.

W. C. Munnecke

By /s/ L. A. Kimpton
L. A. Kimpton
Assistant to Mr. Munnecke

APPROVED: /s/ Arthur V. Peterson
Major, C.E.

CERTIFIED TRUE COPY

Paul Baranowsky

PAUL BARANOWSKY
Captain, Corps of Engineers

...ment consists of ... pages
No. ... of ... copies, series ...

31 August 1943

To: Mr. A. V. Peterson — Dept. Area Engineer

From W. C. Munnecke — Dept. Associate Project Director for Administration, Metallurgical Project.

In re: Approval from the Area Engineer's Office of the sub-lease of a part of the Illinois State Armory by the Metallurgical Project.

The Area Engineer's Office and the Administrative Office of the Metallurgical Laboratory are in agreement upon the necessity of establishing a centralized property warehouse and receiving room. The chief difficulty in accomplishing this end has been the prohibitive cost of constructing a building of adequate size. We have investigated the possibility of enclosing a portion of the North Stands, but the smallest estimate we could obtain was $55,000. To construct, even on a jerry-built basis, an entire building of sufficient area to house the property and receiving room of the Project, would cost approximately 40 cents a cubic foot or about $90,000 for the amount of space required. Construction of a substantial type would run about 60 cents a cubic foot or $135,000. Heat, light and water would have to be added to this estimate. It has become increasingly evident that the only possibility for attaining our mutually agreed upon objective is to rent all or part of a building located near the University.

The University of Chicago plans to rent, in the very near future, from the State of Illinois, the State Armory located at 5200 Cottage Grove Avenue to house, mess, and train Army Specialized Training Program Unit. The University will not need the entire space of the Armory, and we wish to propose to the University that the Metallurgical Project sub-lease a segregated space on the ground floor of this armory. The location is convenient, all security requirements can be adequately met, and the nature of the building, its size, and its use by the Army Specialized Training Program will prevent our own operations from being conspicuous.

We wish to sub-lease from the University a total of 22,225 square feet of ground floor space, of which 19,825 square feet will be used for stock rooms, warehouse, receiving and shipping rooms, and truck storage, and 2,400 square feet will be used for offices. In negotiating rental terms with the University, we arrived at the figure of 60 cents per square foot per year, including heat, light and water, as an equitable and, at the same time, reasonable figure upon which to compute our rental charge. It should be remembered in this connection that the University contracts with the Army for a Training Program upon an actual cost basis, and our portion of the rental along with the University's goes directly to the State of Illinois. The overall monthly cost of the area to us in terms of the above rental charge would be $1,111.25, including light, heat and water. Building alterations to house and arrange the property of the Project in accordance with the attached plan would cost approximately $3,000; it

Classification Cancelled
or Changed To
By Authority Of DOC
By Ted Davis Date 8-9-85

would cost approximately $1,000.00 to restore the building to its original state. In sub-leasing this area from the University, we incur no long-time obligation; we should participate in the University's agreement with the State of Illinois whereby the former may cancel the lease within sixty days from the time of notice. We may obtain occupancy by September 15; building alterations will be completed with a week; and we feel entirely justified in assuring you that we could begin operations from the new property center by October 1, 1943.

It is our recommendation that this area be sub-leased from the University for the purpose and at the price above-mentioned. To the best of our knowledge and belief this building is the most readily available and suitable space in this general area at a rental charge which we regard as fair and reasonable. It is our considered judgment that the rental of a portion of this Armory will prove to be far more economical than the construction and maintenance of a building of like area, and that the problems of security and convenience are adequately met by this proposal. In accordance with the terms of Contract No. W-7401 eng-37, Article VI, we request herewith your approval of the proposal to sub-lease.

W. C. Munnecke

By /s/ L. A. Kimpton
L. A. Kimpton
Assistant to Mr. Munnecke

APPROVED: /s/ Arthur V. Peterson
Major, C.E.

CERTIFIED TRUE COPY

Paul Baranowsky

PAUL BARANOWSKY
Captain, Corps of Engineers

[redacted]

[redacted]

31 January 1944

This document consists of 1 pages
No. 1 of 5 copies, series A.

Area Engineer

W. C. Munnecke

Rental of Additional Space in Armory

Request is made for the rental of the space marked "1", "2", "3" and "4" on the attached map of the south end of the Armory Building at 5200 Cottage Grove Avenue. The reasons for such a request follows:

1. The maintenance by the Area Engineer's Office of Metallurgical Laboratory automobiles in the Armory requires that we give up space at present allotted to storage of materials.

2. The recent acquisitions of additional automobiles by the Laboratory and the Area necessitates more storage space for such equipment.

3. The laying in of large supplies of stock materials for the Metallurgical Laboratory necessitates more storage space than was originally planned.

4. The termination of certain scientific programs, combined with the crowded conditions of Site B have necessitated the temporary storage of large amounts of scientific apparatus in the Armory.

We should like to request this space as of February 10, 1944. It consists of 2486 square feet at a rental of 60¢ per year per square foot, or 05¢ per month per square foot. Our present monthly rental bill at the Armory is $1,321.37 and this addition will make an increase of $124.30 per month. Our total monthly rental, after February 10, 1944, for all space used by the Metallurgical Laboratory will be $1445.67 per month.

The additional space referred to will have easy access by truck through the truck entrance on the east side of the Armory. Steel doors can effectively close off the areas, and it is planned to make doorways through the back walls of these rooms directly into our present occupied area. Such an arrangement has the approval of Mr. Hall, the Metallurgical Laboratory Security Division Director.

If the rental of this additional area is approved, please sign the attached third copy of this letter and return it to this office.

/s/ W. C. Munnecke
Associate Project Director
Administration

APPROVED:
/s/ C. L. KARL
Captain, Corps of Engineers

CERTIFIED TRUE COPY
Paul Baranowsky
PAUL BARANOWSKY
Captain, Corps of Engineers

Classification Cancelled
~~Or Changed To~~
By Authority Of DoC
By Ted Davis Date 8-9-85

[redacted]
21

[redacted] This document consists of 1 pages
No. 1 of 4 copies, series 19

THE UNIVERSITY OF CHICAGO

Date 3-9-44

To: Mr. Daines Department Comptroller

From: H. B. Matthews Department Assistant Business Manager

In re:

Please refer to my memorandum of Jan. 26, 1944 requesting charge of $1,111.25 per month to Metallurgy for space occupied at 124th Field Artillery Armory.

In the second paragraph of my memorandum I referred to an additional charge of $210.12 per month beginning October 1, 1943, making the total monthly rental $1,321.37. This total rental is acknowledged by attached copy of Mr. Munnecke's letter to the Area Engineer, dated 31 January 1944, approved by Captain Karl. Details of the total charge of $1,321.37 are contained in enclosed copy of my letter of 10-13-43 to Mr. Munnecke.

Will you please, therefore, charge Requisition 69029 on a/c 4810-3 for the additional amount of $210.12 per month for the five months October, 1943 through February, 1944, and credit same to a/c 183.

You may disregard the references in Mr. Munnecke's letter of 31 January 1944 to an additional charge of $124.30 per month as of February 10, 1944. This latter space was not made available to Metallurgy in February.

/s/ H. B. Matthews

HBM: H
enclosures

cc - The Area Engineer
Mr. Kimpton
Mr. Vatter

Classification Cancelled
~~Or Changed To~~
By Authority Of DOC
By Ted Davis Date 8-9-85

CERTIFIED TRUE COPY

Paul Baranowsky

PAUL BARANOWSKY
Captain, Corps of Engineers

[redacted]

August 21, 1946

Action
Recd. AUG 22 1946 NH
Ans.
File

To: W. Branch — Ryerson

From: C. A. Tregillus — Argonne

Re: Additional Guards

On August 1, 1946, authority was granted to recruit an additional six guards to cover the Museum quarters and the Armory as well as the movement of property from one site to another. Since that date, it has been decided to continue the occupancy of the present offices in the Armory Battery rooms.

In view of this, it is considered necessary to add an additional two to three guards to properly cover all space occupied, making a total of nine guards in place of the six asked for in my memo of July 31, 1946. It is requested that authority to recruit this number be granted.

ARGONNE NATIONAL LABORATORY

By: C. A. Tregillus

C. A. Tregillus
Plant Superintendent

CAT:ln
cc: C. A. Young
Reading File

27 August 1946

Noted
Action
Recd. AUG 27 1946 NH
Ans.
File

Mr. J. H. McKinley

L. C. Furney

Surplus Material at Armory

I have completed a cursory examination of material located at the Armory, in compliance with your suggestion to Dr. W. H. Zinn on August 16, 1946.

I examined the aluminum tubing and graphite located there. The aluminum tubing generally speaking is in very good condition and should not be discarded as scrap. However, there is a small pile of soft aluminum which has been bent and damaged. This could be disposed of without further authority from this office.

The graphite is being stored at the Armory for use by the Site B shop and the Metallurgy Division and should not be declared surplus. It is of a special type and shape and was procured for the purpose of making graphite molds for uranium castings.

Mr. Heffernan and Mr. Norman Frank informed me that they knew nothing of the pipe flanges and valves referred to in your letter.

On the basis of the examination it appears that the only thing that can be declared surplus at the present time is the bent and damaged aluminum scrap.

ARGONNE NATIONAL LABORATORY

By L. C. Furney
L. C. Furney
Ass't. to the Director

LCF:eib

cc: Mr. Heffernan
COPY FOR Reading File
File

Rec'd. OCT 7 1946 NH
Ans.
File

October 4, 1946

To: R. A. McWilliams

From: J. E. Rose

Re: Decontamination of the Armory

With reference to your memorandum of September 16, 1946, regarding decontamination of the Armory, I hope that the following will serve as clarification of the reports and surveys which you have received thus far.

After discussing the matter with S. M. Crain, it is my understanding that you and he agreed recently that it would be inadvisable to conduct a thorough survey of the first floor of the Armory until such time when the groups now located there will have been transferred elsewhere. Since the space is still occupied, in particular by the Special Materials section, a comprehensive survey is being postponed.

The second floor of the Armory is now in the process of being resurveyed.

The third and fourth floors are considered suitable for return to public use, and no further surveys will be required. On the original surveys the only rooms reported were those where decontamination of areas containing low levels of contamination was deemed necessary. However, all the rooms on both floors were surveyed, and those rooms not listed were rooms in which no contamination was detected.

ARGONNE NATIONAL LABORATORY

J. E. Rose,
Director, Health Physics Division

Geraldine Steffee
By: Geraldine Steffee, Secretary

gbe
cc - S. M. Crain
- Reading File ✓

Action
Recd. JAN 6 1947 NH
Ans.
File

January 3, 1947

Mr. W.E. Heffernan

J. Graff

Property Records

Biology

Discarded Animal Farm Equipment.

Since the Storage space at the Armory had to be abandoned and our animal farm equipment stored elsewhere, Dr. Lisco and several members of the Biology Group inspected, one by one, each cage, tank, and cage racks, in "Biology Storage."

This equipment was divided into three Groups: Site B Storage, West Stands Storage, and Discard. The discard group is composed of equipment which is no longer suitable for use and cannot be salvaged; this group was left for your disposal.

Adm. Liaison Officer

/fs

cc: Reading File ✓
File

APPENDIX B. DOE FUSRAP PROCEDURE FOR ASSIGNING SITE PRIORITIES

The assessment of potential health effects and the ranking of contaminated sites are complex and must take into account many influencing factors. The major hazard due to radiological contaminants is their potential to increase either the long or short term risk of cancer. The nature of these contaminants must be clearly defined. Furthermore, the risk from all pathways to an exposed individual or population group, as well as such exposure parameters as occupancy factors associated with the contaminated living or working areas and the population density around a contaminated site must be evaluated. Potential for migration of contaminants to the surrounding environs either through the air, water, soil, and the ecosystem and ultimately to man is of major importance.

Analyses to date have identified no site under current use conditions where there is an immediate health hazard; however, over the long term, the potential for accumulated exposure and unacceptable increases in risk do exist.

The Department is using a three-category system for ranking contaminated sites based on health effects.

High — o Ranking a site as a high priority indicates that the site is contaminated above guidelines, and

---

(a) An unacceptable increase has been tentatively defined as a 2 percent increased risk of getting a fatal cancer. The alternate test criteria, used in most cases, is 5 chances in 100,000 per year of exposure. The values represent the approximate increase in risk of contracting a fatal cancer as a result of continuous exposure to the recommended guidelines (500 mrem/y) value for short term exposure (DOE-85) using a dose risk conversion factor of 10^{-7} effects/mrem of dose (ICRP-26). Because this procedure assumes risk to be proportional to dose, the equivalent whole body dose calculated as the sum of weighted internal and external doses (recommendation ICRP-26) can be directly compared to the 500 mrem limit to determine a priority.

- there is potential for individuals at a site under present use conditions to receive an unacceptable increase in cancer risk,[(a)] or

- there is significant potential for a larger group of individuals not directly associated with a site to be exposed to levels of radiation that could increase the number of expected cancers to an unacceptable level,[(b)] or

- there is extensive migration or there is significant potential for extensive migration of the contamination into the surrounding environs.

Medium

o Ranking a site as medium priority indicates the site is contaminated above guidelines, and

- there is no immediate hazard to individuals at a site under current use conditions, but there is potential (due to possible change in use or occupancy) for individuals to be exposed to levels of radiation that may increase the risk of cancer above an acceptable level,[(a)] or

---

(a) See Note (a) on previous page

(b) An unacceptable increase to a group of individuals has been tentatively defined as a 1 percent increased risk above normal risk of getting a fatal cancer. This value, as the similar one defined for individual risk, is preliminary; it is based on the increased risk that would occur if a group of persons were exposed to the standard for large groups (170 mrem/y, FRC* 1960) over their entire lives. An alternate value is 2 chances in 100,000 per.year of getting a fatal cancer. This is the approximate annual risk estimated using the 170 mrem/y standard and a dose risk conversion factor of 10^{-7} effects/mrem of dose from ICRP-26. Because the procedure assumes risk to be proportional to dose, the equivalent whole body dose calculated as recommended in ICRP-26 (the sum of weight internal and external doses) can be directly compared to the 170 mrem dose limit to determine priorities.

*Recommendations of the Federal Radiation Counsel.

- there is potential for a site to be exposed to levels of radiation that could increase the number of cancers to an unacceptable level[(b)] if the present use conditions of the site were to change, or

- there is a moderate possibility that contamination may migrate offsite and result in exposure to individuals around the site.

Low

o Ranking a site as low priority indicates that the site is contaminated above guidelines; however,

- the exposure level is very close to the level where no discernible increase in cancer risk to individuals under current or near term (10 year period) future use of the site is expected, or

- there is no foreseeable chance of the surrounding population being exposed to levels of radiation that would increase their risk of cancer, or

- there is little or no chance of, or little significance in, migration of contamination from the site.