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THE AEROSPACE CORPORATION



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30 September 1985

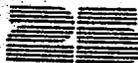
Mr. Arthur Whitman, NE-24  
Division of Facility & Site  
Decommissioning Projects  
U.S. Department of Energy  
Germantown, Maryland 20545

Dear Mr. Whitman:

AUTHORITY REVIEW - THE FORMER SUPERIOR STEEL  
CORPORATION SITE - AEC CONTRACT NO. AT(30-1)-1412

Aerospace has completed assembly and analysis of available documentation, and prepared the subject review for your consideration and determination if there is authority for remedial action under FUSRAP at the former Superior Steel Corporation facility in Carnegie, Pennsylvania.

As indicated in the attached review, the Superior Steel Corporation was one of three principal contractors involved in AEC's initial fuel element development program to fabricate strip and plate fuel elements for reactors. This work began in June 1952. Superior Steel and Metals & Controls Corporation were the principals in the rolling and cladding of uranium metal strip and plate elements. According to the Savannah River Operations Office, Superior Steel contract files have been destroyed. However, correspondence files relating to the work done by Superior Steel indicate that they rolled, cut and finished uranium metal into strip and plate under a unit price contract. Metals & Controls, operating under a cost-plus-fixed-fee contract, performed cladding and plating operations on the uranium strip and plate using their patented processes to produce the finished fuel elements. The contract with Superior Steel was terminated in September 1957. However, no documents have been discovered to indicate close-out procedures or the results of a final radiological survey and clean up of the facility, if such activities were a part of the contract close-out process. A preliminary survey of that portion of the Superior Steel facility used under the AEC contract, conducted in July 1980, indicates the presence of radioactive contamination above current guidelines and criteria at several locations on the site.



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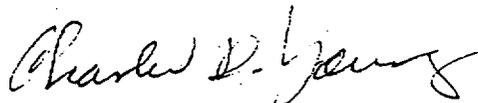
Without copies of the initial contract and subsequent modifications, the presence of indemnification provisions therein cannot be determined with certainty. However, considering the type of contract, period of performance, known circumstance and terms of the Metals and Controls contract, the presence of such provisions is unlikely.

The radioactive contamination at the site of the former Superior Steel facility was the result of DOE predecessor related operations. However, other factors considered in the authority analysis are not supportive of a finding of authority for remedial action under FUSRAP.

Based upon your authority determination, Aerospace will prepare a designation package, or a summary report to notify the State of Pennsylvania and the Environmental Protection Agency if you determine there is no authority for remedial action under FUSRAP. The attached Authority Review is being provided to Mr. S. Miller of DOE-OGC by copy of this letter.

I would be happy to respond to any questions you might have regarding the content or format of the attached authority review package.

Sincerely,



Charles D. Young  
Environmental Controls and  
Analysis Directorate  
Government Support Division

CDY/smb

Enclosures

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

AUTHORITY REVIEW  
THE FORMER SUPERIOR STEEL CORPORATION SITE  
Carnegie, Pennsylvania

INTRODUCTION

The purpose of this review is to assemble and present information pertaining to work performed under the sponsorship of the Atomic Energy Commission (AEC) and the facts and circumstances surrounding activities/events that resulted in the radioactive contamination that remains on the site formerly occupied by the Superior Steel Corporation.

The principle sources of information/documentation assembled for this review were as follows:

- a. AEC records in the custody of DOE's Oak Ridge and Savannah River Operations Offices and the Atlanta and New York Federal Archives and Records Centers.
- b. Telephone interviews with former AEC employees who had personal knowledge of AEC sponsored activities at the former Superior Steel facility.

BACKGROUND

During early 1952, there was a rapidly increasing interest and demand for flat, plate-type reactor fuel elements. It was determined that this type of element provided a far greater surface-to-volume ratio than the conventional cylindrical slug; thus making possible a more efficient use of uranium in reactors. A production procedure for the fabrication of these elements was needed. According to an AEC (New York Operations Office, Production Division) memorandum, subject: Justification For Entering into Contract No. AT(30-1)-1413 with Metals & Controls Corporation Without Formal Advertising, dated December 31, 1952; Superior Steel and Metals & Controls were successful in their bids to perform work in this area. Apparently Letter Contracts No. AT(30-1)-1412 and No. AT(30-1)-1413 were awarded to Superior Steel and Metals & Controls, respectively, in June 1952. The referenced document indicates that only a few organizations in the United States had the technical background, experience and commercial success to roll and cladd metal strip and plate. Superior Steel and Metals & Controls were two of the three firms that responded favorably to the work proposed by AEC. Therefore, it is reasonable to assume that, although somewhat different with respect to scope of work, the same "boiler plate" articles were included in the Superior Steel and Metals & Controls contracts. An extract of the Metals & Controls Contract No. AT(30-1)-1413 is attached. Copies of the Superior Steel contract have apparently been destroyed.

The facilities owned and operated by the Superior Steel Corporation during the mid-1950's when work was done for the AEC are located in the area currently occupied by the Carnegie Industrial Park on Superior and Hammond Streets, Scott Township, Pennsylvania. A records search was conducted in 1980 to identify the specific area/building within this 25 acre complex that was used to conduct work for the AEC. The large steel structure that originally housed the uranium handling facilities was owned by Lang Machinery Company, Inc. of Coraopolis, Pennsylvania and, at that time, was occupied by J.G. Industries, Inc.

One document has been discovered that indicates Superior Steel's interest in doing work for the MED/AEC as early as March 1945. This initial interest appears to have been in the area of rolling stainless steel. However, no documents have been found that would indicate that they were under contract with MED/AEC before June 1952. Except for general correspondence and one report of a 1955 health and safety inspection of that portion of the Superior Steel plant where AEC work was done, little is known of the specifics of work performed and the contractual relationship between Superior Steel and the AEC.

It should be noted that, by mid-1952 the physical characteristics of uranium metal and measures required for the protection of workers from the hazards associated with handling and/or processing uranium metal were reasonably well documented, thus relieving somewhat the necessity for strict AEC controls and technical supervision practiced during the 1940's.

#### CONTRACTS

According to information provided by the DOE Savannah River Operations Office, the effective date of AEC Contract No. AT(30-1)-1412 with Superior Steel was June 27, 1952. There were 7 amendments or modifications to the contract. The contract was terminated on or about September 30, 1957. The total payments to Superior Steel through fiscal year 1957 amounted to \$356,849.00.

According to general correspondence, work done by Superior Steel was of a developmental nature. This work was limited to the production of flat plates of uranium metal in support of the Savannah River Operations Office fuel element development program. With the exception of some special equipment provided by AEC, the facilities and equipment used in support of this program were owned and operated by the Superior Steel Corporation.

The type of contract was unit price with certain features with respect to purchase of equipment. The scope of the contract provided by the Savannah River Operations Office is quoted in part as follows:

"...by commercial methods receive uranium from supplier, inspect, straighten as required, scalp by milling, planing and/or spot grinding, preheat in molten salt, hot roll

(taking required temperature and time data), crop and shear to length, number, acid pickle (including packing for shipment to heat treating facility and receiving heat treated strip), flatten, acid pickle, machine into full length strips of specified dimensions and tolerances, deburr, gauge finish inspect, metallurgically sample (but not in excess of reasonably commercial sampling methods and not including metallurgical tests), package and prepare finished plate and furnish labor for packaging and preparing scrap for shipment."

The contract, originated by the AEC's New York Operations Office, was transferred for administration to the Oak Ridge Operations Office. On October 15, 1954, it was transferred to the Savannah River Operations Office. According to the Savannah Operations Office, the official contract file has been destroyed.

Metallurgical Laboratory and Superior Steel correspondence from the spring and summer of 1954 indicates that Superior Steel proposed an increase in contractual requirements from development to production quantities. The proposals called for minimum production quantities over a five year period at a fixed unit price of production and additional equipment and facilities. However, the AEC rejected the proposal and Superior Steel continued production on a developmental basis.

Security inspection records (3 documents) obtained from the Savannah River Operations Office indicate that Superior Steel was engaged in general work on rolling and possibly cladding of the new type fuel elements. This document indicates that the work was initiated in March 1953. One of these documents indicates that security inspections of the Superior Steel facility at Hammond and Gregg Streets, Carnegie, Pennsylvania, were conducted in May and November 1954 and 1955, in June 1956 and in January 1957. This document also indicates an authority covering receipt, storage and transmittal of classified matter categorized up to and including Secret. Another entry in the document, 11/29/57 - Deletion of Facility - apparently indicates withdrawal of authority for access to classified materials on or before that date. Superior Steel was an accountable station for handling SF material by November 1952.

Analysis of the limited amount of cost and production information on activities at the Superior Steel facilities indicate that operations in support of this contract were intermittent, for periods of from one to two days. There are also indications that the area or areas used were cleaned before and after each operation. Recollections of a former employee of the Savannah River Operations Office, who had visited the Superior Steel facility on at least two occasions to observe rolling operations, were that the facilities were only used on weekends when the plant would otherwise be idle. However, documents assembled to date indicate rolling operations were conducted during the week. He also

indicated that an AEC representative was present during each operation conducted for the AEC. Documentation indicating that such representation was a contractual requirement has not been found. However, the fact that Superior Steel was established as an accountable station for SF material would indicate some relief from the requirement for continuous AEC representation during receipt, processing, storage and shipment of uranium metal.

#### HEALTH AND SAFETY

The only indications of AEC involvement in health and safety matters at the Superior Steel facility are the provision of ventilation equipment and visits by representatives of the AEC Health and Safety Laboratory (HASL) to the facility. According to the HASL report of a visit conducted on September 19, 1955, the purpose of the visit, requested by Superior Steel and the Savannah River Operations Office, was to conduct an air hygiene survey during hot strip rolling of normal uranium slabs; to compare the results of this survey to previous HASL studies; to recommend additional controls and procedures based on the survey results; and to surface monitor the rolling mill during and after cleanup. The report indicates that prior visits had been conducted on May 13 and August 3, 1953, and on May 9, 1955. The Conclusions and Recommendations section of the report included the following statements.

"Excessive amounts of airborne contamination were found in all operational areas. The beneficial effects derived by the installation of local exhaust ventilation at the roughing roll have been more than offset by the introduction of a new dust source...."

"It is our opinion that in order to reduce the high airborne concentrations found during hot strip rolling, either some method of preventing oxidation must be used or recommendations 12 - 15 set forth in previous HASL reports (Nos. 1 and 2) should be complied with."

However, the report also indicates that after equipment used during the rolling operation was hosed down with water, only negligible surface contamination was found. This report was distributed to the Savannah River Operations Office with copies for Superior Steel.

There are no indications of AEC responsibility or involvement in monitoring the personal health of workers at the Superior Steel facility where uranium metal was processed.

## RESIDUAL RADIOACTIVE CONTAMINATION

Radiological status of the Superior Steel facility at the time AEC contract No. AT(30-1)-1412 was terminated is unknown. No documents have been found to date that would indicate that final cleanup and a radiological survey of the facility was a part of the close-out procedures that were followed prior to termination of this contract. Information contained in the report of the HASL visit conducted in September 1955 indicates a significant potential for residual radioactive contamination at the facility due to the high concentration of dust during hot rolling operations and the "wash-down" procedures used to clean the equipment at the completion of a production run.

A preliminary survey of the facility was conducted by DOE on July 31, 1980. At the time of the survey, portions of the old roughing mill remained in the area. Subfloor pits, approximately 8 feet deep over which the former mill, brushing station, finishing stands and shear were originally located were being filled with rubble. Intent at that time was to eventually cap these pits with concrete at floor level. Several areas of significant radioactive contamination were found in the mill and rolling areas and a small storage shed attached to the western side of the building. Contamination in the former mill area was in and around the subfloor pits. Gamma radiation exposure rates of up to 8 times background were measured in the pits. Fill rubble prevented access to the bottom of the pits where higher radiation levels were expected. Gamma radiation in the area where finishing stands were located was measured at or near background levels. The subfloor pits in this area had been filled and covered with concrete. Gamma radiation levels to approximately 500  $\mu$ R/hour were measured in the pits in the former rolling area. A sample taken at the bottom of one of the pits contained a uranium concentration of 5800 pCi/gram (1.4% by weight). Gamma radiation exposure rates up to 400  $\mu$ R/hour were measured in the storage shed. A soil sample taken from under the wooden floor of the shed contained approximately 1100 pCi/gram of uranium (U-238). A more comprehensive radiological survey will be required to more accurately define the extent of residual radioactive contamination and determine the need for remedial action at this facility.

In view of the fact that the site of the former Superior Steel facilities have been developed into an industrial park and the limited information that is available on the AEC contract with this firm, it is unlikely that the current owners/tenants of the industrial park were aware of the potential for radioactive contamination prior to 1980 when the DOE radiological survey activities were initiated at this site.

## AUTHORITY ANALYSIS

The determination of authority for remedial action at a candidate FUSRAP site is based upon an evaluation of the specific terms of the contract or contracts between MED/AEC and their contractors; confirmation that the residual radioactive contamination at the site did occur during

the performance of work sponsored by the MED/AEC; and the working relationship between MED/AEC or its agents and their contractors. The latter considerations specifically address ownership of facilities and equipment, the degree of control over contractor operations, and MED/AEC involvement in matters pertaining to health and safety at the contractor facilities.

The results of this review of available documentation and evaluation of factors cited above to determine DOE's authority for remedial action at the Superior Steel Corporation facility are addressed in responses to the questions that follow:

- a. Was the site/operation owned by a DOE predecessor or did a DOE predecessor have significant control over the operations on the site?

Response: The site/operations, including facilities and equipment, were owned and operated by the contractor, Superior Steel. Government furnished equipment provided to Superior Steel is believed to have been limited to ventilation equipment and facilities to reduce the potential for health hazards associated with the processing of uranium metal. Contract files have been destroyed. However, documents assembled to date indicate that control over Superior Steel operations by DOE predecessors was limited. Factors supporting this assessment of limited control are as follows:

- (1) Superior Steel was recognized as one of the few organizations in the United States with the technical background and experience and commercial success in rolling and cladding metal strip and plate.
- (2) The contract was a unit price contract with certain cost features with respect to purchase of equipment.
- (3) Security and health and safety inspections of the Superior Steel facility were conducted by the AEC. The results of health and safety inspections were presented to appropriate elements of the AEC and to Superior Steel in the form of opinions and recommendations.
- (4) By November 1952 an accountable station (SSP) was established at the Superior Steel facility. The significance of this factor is that, once established as an accountable station, the requirement for AEC representation to monitor the receipt, processing, storage and shipment of uranium metal at the facility on a continual basis was diminished.

(5) Several AEC letters and memoranda dated during the period July 1953 through February 1954 indicate that visits to the facility were controlled by the New York Operations Office and, to some degree, by Superior Steel management.

- b. Was a DOE predecessor agency responsible for maintaining or ensuring the environmental integrity of the site (i.e., were they responsible for cleanup)?

Response: No document has been found that specifically stipulates DOE predecessor agency responsibility for clean up of the site. Under terms of AEC contracts during the period, contractors were held responsible for health and safety and compliance with AEC policies and procedures directly related to maintaining the environmental integrity of the site.

Health and Safety visits were made at the Superior Steel facility and the results of inspections were transmitted to appropriate elements of the AEC and Superior Steel in the form of opinions and recommendations. Also during this period, AEC typically assumed financial responsibility for clean up of a contractor facility as a part of the contract termination process. Since copies of the contract with Superior Steel have been destroyed, precedence established by terms of contracts for similar work during the period appears to be the only means of assessing the level of AEC involvement in this area.

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

Response: Yes.

- d. Is the site in need of further clean up and was the site left in non-acceptable condition as a result of DOE predecessor related activity?

Response: No documents have been found that would indicate the radiological status of the site at the time the AEC contract was terminated. However, an AEC report of a visit to the site in September 1955 indicates a significant potential for residual radioactive contamination due to high concentrations of dust during hot rolling operations and the "wash-down" procedures used to clean equipment at the completion of a production run. Contamination apparently due to the latter was confirmed during a preliminary survey of the facility conducted in July 1980. Several areas of significant radioactive contamination were found, particularly in the sub-floor pits over which the former mill equipment was located. Based upon the results of the preliminary survey, it is apparent that remedial action is warranted.

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

Response: Unknown. However, if radiological surveys were not conducted at the time the contract was terminated, it is unlikely that Superior Steel or the current owners were aware of the radioactive contamination on the site, particularly the high concentrations of uranium found in the sub-floor pits or under the floor of the storage shed.

#### AUTHORITY ANALYSIS SUMMARY

Copies of Contract No. AT(30-1)-1412 and related documents have apparently been destroyed. Therefore, the specific terms of the contract and close-out procedures followed at contract termination are unknown.

Sufficient documentation is available to support a general assessment of the relationship between Superior Steel and the AEC with respect to operations conducted under the contract. These conditions are summarized as follows:

- a. The site/operation, including facilities and equipment, was owned and operated by the Superior Steel Corporation.
- b. Circumstances described in reports and general correspondence suggest that controls exercised by AEC representatives over operations at the Superior Steel facility were limited. The following are the principal factors that support this assessment:
  - (1) The type of contract (unit price);
  - (2) Superior Steel was experienced and proficient in the work performed under the contract;
  - (3) An accountable station for SF material, SSF, was established at the Superior Steel facility.
- c. Almost without exception, AEC contracts contained provisions for safety and accident prevention (see attached contract, Article XI) that required the contractor to take all reasonable steps and precautions to protect health and minimize danger from all hazards to life and property, and to conform to all health and safety regulations and requirements of the Commission. The AEC did visit/inspect and make recommendations with regard to radioactive contamination in the workplace.

- d. The radioactive contamination that remains on the site was the result of DOE predecessor related operations.
- e. Although unlikely, considering the period of performance, type of contract, known circumstances and terms of the contract with Metals & Controls Corporation, the presence of indemnification provisions in the Superior Steel contract cannot be determined with certainty unless a copy of the contract can be found.

## REFERENCES

1. Extract of AEC Contract No. AT(30-1)-1413 with Metals and Controls Corporation, Attleboro, Massachusetts, for research and development.
2. Extract of Proposal for Production of Uranium Strip for the Atomic Energy Commission by Superior Steel, undated.
3. MED letter, MSA 470.1 (general); from Zeitlin to District Engineer, Oak Ridge, Subject: Stainless Steel, Rolling Capacity, March 2, 1945.
4. AEC memorandum from Delagi to files, Subject: Zirconium Samples for Cladding Project, July 1, 1952.
5. AEC memorandum from Gustavson to Musser, Subject: Monthly Report for SF Material - November 1952, with one page extract from report attached, date not legible.
6. AEC memorandum from Belmore to Kelley, Subject: Justification for Entering into Contract No. AT(30-1)-1413 with Metals and Controls Corporation Without Formal Advertising, December 31, 1952.
7. AEC memorandum from Dunlap to files, Subject: Telephone Conversation with Dr. J.C. Woodhouse of DuPont, April 1, 1953.
8. National Lead Company letter from Bussert to Cuthbert, Subject: Rollings At Superior Steel Corporation, July 31, 1953.
9. AEC letter from Kaulbach to Boyer, February 9, 1954.
10. AEC memorandum from Dunlan to files, Subject: Meetings with Superior Steel Corporation on May 12 and May 26, 1954 (Contract AT(30-1)-1412), June 7, 1954.
11. Superior Steel Corporation letter, Reardon to AEC, Subject: Supplemental Proposal for the Production of Uranium Strip, January 5, 1954.
12. AEC letter, Dunlap to Woodhouse, June 10, 1954, concerning Rolled Material on Hand at Superior Steel Corporation.
13. DOE Savannah River Operations office letter from McFeely to Ramsey and Keller, Subject: Formerly Utilized MED/AEC Site Radiological Survey Program (former Superior Steel Company activities), August 28, 1979.
14. DOE letter, Mott to Cahlan, July 13, 1981, concerning Radiological Survey of the Former Superior Steel Facility with Preliminary Site Survey report attached.
15. HASL report, HASL - Superior Steel - 4, Superior Steel Company, Air Dust Monitoring of Hot Strip Rolling of Uranium, HASL Industrial Hygiene Branch, November 15, 1955.

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This document consists of 27 pages.  
No. 8 of 12 copies, Series A.

CONTRACT NO. AT(30-1)-1413

CONTRACT

CONTRACTOR AND ADDRESS:

METALS & CONTROLS CORPORATION  
Attleboro, Massachusetts

CONTRACT FOR:

RESEARCH AND DEVELOPMENT

ESTIMATED COST:

\$93,000.00 (including fixed fee  
of \$5,000.00)

AMOUNT OF INITIAL  
COMMISSION OBLIGATION:

\$37,500.00

PAYMENT TO BE MADE BY:

Division of Disbursement, United  
States Treasury Department, New  
York, New York. Submit invoices to:  
United States Atomic Energy Commission,  
P. O. Box 30, Ansonia Station,  
New York 23, New York

BASIS OF AWARD:

Negotiation

In 8280

DO NOT

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THIS CONTRACT, entered into this 24th day of December, 1952, by and between THE UNITED STATES OF AMERICA (hereinafter referred to as the "Government"), as represented by the UNITED STATES ATOMIC ENERGY COMMISSION (hereinafter referred to as the "Commission"), and METALS & CONTROLS CORPORATION (hereinafter referred to as the "Contractor"), a corporation organized and existing under the laws of the Commonwealth of Massachusetts, with its principal office at Attleboro, Massachusetts;

WITNESSETH THAT:

WHEREAS, the Government desires the Contractor to perform certain research and development work and the Contractor is willing to do so; and

WHEREAS, this contract is authorized by law, including the Atomic Energy Act of 1946;

NOW, THEREFORE, the parties hereto mutually agree as follows:

ARTICLE I - PERIOD OF PERFORMANCE

The period of performance of work under this contract shall commence on July 1, 1952, and shall end on December 31, 1953.

ARTICLE II - SCOPE OF WORK

1. The Contractor shall perform, in good faith, the research work calculated to develop:
  - a. An economical and suitable procedure for fabricating composites of uranium and its alloys with zirconium, aluminum or their alloys.
  - b. A suitable practice for the rolling of flat uranium plate, 0.200" to 0.250" thick by 4" to 6" wide, by 10' long or multiples of this length, and if required by the Commission, jacketed with steel or other suitable sheathing.
  - c. An economical and suitable procedure for the production of a fuel element assembly conforming to the dimensions and description set forth in a secret letter from the Commission to the Contractor dated November 5, 1952. Said secret letter is hereby made a part of this contract with the same force and effect as if more fully set forth herein. Produce and submit samples of such fuel element assembly for examination and test.

- d. The Commission shall furnish, without expense to the Contractor, the uranium, zirconium billet and, if requested by the Contractor, the zirconium strip and other materials necessary for the proper performance of the contract work.
2. In addition to the foregoing:
- a. The Commission shall have the right to inspect in such manner and at such times as it deems appropriate all activities of the Contractor arising in the course of the work under this contract; provided, however, that until such time as the Contractor, in accordance with subparagraph b. below, submits its interim technical report on the completion of the scientific phases of the work called for in paragraph 1 a. above, or its final report under this contract, whichever report is submitted first, such right of inspection shall not be deemed to grant to the Commission access to the Contractor's novel secret processes identified by the Contractor as its "N5h Method" and its "PT Method" for purposes other than to fulfill the Commission's security and health and safety obligations under Article XII, DISCLOSURE OF INFORMATION, and Article XI, SAFETY AND ACCIDENT PREVENTION. It is understood and agreed that if the Commission is granted a license under the Contractor's novel secret processes referred to above in accordance with Article VII, PATENTS, then at the time that the Contractor submits the interim technical or final report referred to above, the Commission shall have the right to examine the Contractor's facilities for the express purpose of obtaining scientific data and know-how with respect to the said secret processes.
- b. The Contractor shall prepare and submit to the Commission the following reports with respect to its work and activities under this contract:
- (i) Monthly progress reports;

- (ii) Interim technical reports on completion of scientific phases of the work;
- (iii) Such special reports as may be requested by the Commission from time to time; and
- (iv) A final report summarizing its activities, findings and conclusions;

it being understood and agreed, however, that the Contractor shall not be required to furnish to the Commission in any of the foregoing reports any technical information, data or know-how with respect to the said secret processes unless the Contractor shall grant to the Commission a license to said secret processes in accordance with Article VI hereof, in which event such information, data, and know-how will be included in the interim technical report on the completion of the work called for in paragraph 1 a. above or in the final report whichever is submitted first.

3. In performing the work called for under this contract, the Contractor shall utilize its best efforts, know-how and ability and shall proceed as and to the extent the Commission may from time to time reasonably request. The Contractor shall place emphasis (or relative emphasis) on various phases of said work as and to the extent reasonably requested by the Commission from time to time, and shall keep the Commission fully advised of its progress hereunder and of the difficulties, if any, which it experiences. The work shall be subject to (i) the general supervision of the Commission, and (ii) the Commission authorizations and approvals hereinafter provided for in this contract.

### ARTICLE III - CONSIDERATION

1. Compensation for Contractor's Services. In full and complete compensation for its undertakings and performance under this contract the Contractor shall receive from the Government:

- a. A fixed fee of Five Thousand Dollars (\$5,000.00).
- b. Reimbursement for certain costs and expenses and provided in paragraph 2 hereof.

2. Reimbursement for Contractor's Expenditures. The Contractor shall be reimbursed in the manner hereinafter described for such of its costs incurred in the performance of the work under this contract as may be approved or ratified by the Commission, including, but not limited to, the following items:

- a. The cost of materials, tools, equipment and supplies purchased or withdrawn from the Contractor's stores for use in the performance of the Contractor's work. The cost of items withdrawn from stores for purposes of reimbursement hereunder, shall be at the price at which such items are normally liquidated from the Contractor's stores accounts.
- b. Charges for freight transportation (including recon-shipment, switching, demurrage and diversion charges) and crating, loading and unloading and storage charges for materials, tools, equipment and supplies procured in accordance with subparagraph a. above.
- c. Cost of plant rearrangements, alterations and restorations made necessary by the work hereunder, but no such cost shall be incurred without the prior written approval of the Commission.
- d. Payments in accordance with subcontracts entered into pursuant to this contract.
- e. (i) In lieu of direct reimbursement for the cost of all labor, social security and other employment taxes, all costs and expenses incurred in connection with the Contractor's employee welfare plans, all travel and insurance expenses, and all overhead or indirect charges (including elements of cost not otherwise reimbursable hereunder) the Contractor, subject to section (ii) hereof shall receive:

(1) For each hour (regardless of the time of day or the day of the week in which the hour falls) that the contract services are performed by the following classes of employees or in the following departments of the Contractor's plant, the following provisional hourly rates:

<u>Classification of Employee; Department</u>	<u>Provisional Hourly Rate</u>
Project Class Engineer	\$7.40
Intermediate Grade Engineer	\$6.45
Engineering Assistants and Technicians	\$5.65
Sendzimer Rolling Department	\$19.10
Breakdown, Intermediate & Miscellaneous	
Rolling Department	\$7.94
Slitting Department	\$7.94
Annealing Department	\$5.82
Tool Room Department	\$3.24

(2) An amount equal to the provisional rate of 24.06% of the total costs reimbursable under subsection (1) above.

(ii) The provisional rates set forth in subsections (1) and (2) of section (i) above, may be increased or decreased as hereinafter provided. Within fifteen (15) days after June 30, 1953 (or such longer period of time as the Commission may allow), or within fifteen (15) days after the completion or termination in whole of this contract, whichever date occurs first in point of time, the Contractor shall furnish to the Commission the following cost data:

- (1) Statements of experienced costs to the extent that they are available at this time;
- (2) A new estimate and breakdown of the proposed fixed rates;
- (3) An explanation of the differences, if any, between the provisional and fixed rates;
- (4) Such relevant shop and engineering data, cost records, overhead absorption reports and accounting statements as may be of assistance in determining the accuracy and reliability of the new estimate and the proposed fixed rates;
- (5) Such other statements, in such form and detail as the Commission may prescribe, it being understood and agreed that the Contractor will permit such audits and examinations of its financial books, records and accounts as the Commission may request.

Within fifteen (15) days after the receipt of such cost data (or such longer period of time as may be mutually agreed upon), the parties shall negotiate in good faith to agree upon fixed rates for all work theretofore performed and thereafter to be performed under the contract. The agreement reached shall be evidenced by a contract amendment. In the event the Commission and the Contractor fail to agree upon such fixed rates in accordance with this Article, such failure to agree shall be deemed to be a disagreement which shall be disposed of pursuant to Article XXVII, DISPUTES. It is understood and agreed, however, that until the fixed rates become effective in accordance with this paragraph 2 e., or pending disposition of any disagreement with respect to such rates, the Contractor shall continue the work called for hereunder, and shall be paid the provisional rates set forth in subsections (1) and (2) of section (1) above, subject to later revision. Any excess in payments to the Contractor for work performed to the date the fixed rates become effective, because such rates are lower than the provisional rates that were in effect shall be applied by the Contractor in reduction of the cost of the work under this contract, or if the Commission so directs, be refunded promptly to the Government. Any deficits in payments to the Contractor for work performed during such period because the fixed rates are higher than the provisional rates that were in effect shall be paid promptly by the Government to the Contractor.

#### ARTICLE IV - LIMIT OF GOVERNMENT LIABILITY

1. Estimated Cost. The estimated cost of the work under this contract, including the fixed fee set forth in paragraph 1 a. of Article III and the provisional rates provided for in paragraph 2 e. of Article III, is Ninety-Three Thousand Dollars (\$93,000.00). It is understood that neither the Government nor the Contractor guarantees the correctness of this estimate or any revision thereof, and that there shall be no adjustment in the amount of the Contractor's fixed fee by reason of any errors in the computation of estimated costs or revised estimated costs, or any difference between any estimated cost or revisions thereof and the actual cost of the work.

2. Commission Obligations. The Commission has initially obligated for this contract, from obligational authority available to it, the sum of Thirty-Seven Thousand Five Hundred Dollars (\$37,500.00). Said amount may be increased by the Commission, in its discretion, from time to time. The Contractor shall promptly notify the Commission in writing whenever it believes that the then Commission obligation for this contract is insufficient, and its notice shall contain its estimate of the amount of such insufficiency. When and if the total of amounts paid and payable to the Contractor under this contract (including the fixed fee and the actual or estimated amounts unpaid by the Contractor on all subcontracts and all other commitments on the assumption that they will be completed), shall equal the then Commission obligation for this contract, the Contractor shall not be expected to incur further expenses nor to perform further hereunder unless the Commission agrees in writing to increase said obligation for this contract in an amount sufficient to cover additional work hereunder. Notwithstanding any other provisions of this contract, the liability of the Government under this contract shall be limited to the Commission obligation specified in this paragraph, as same may be increased by the Commission from time to time by notice to the Contractor in writing.

#### ARTICLE V - PAYMENTS

1. Payment of the Fixed Fee. Payment of ninety percent (90%) of the fixed fee set forth in paragraph 1 a. of Article III shall be made by the Government monthly in amounts based on the percentage of the completion of the work hereunder, as determined from estimates submitted to and approved by the Commission.

2. Reimbursement of Cost. Reimbursement under this contract will be made by the Government upon receipt by the Commission of properly certified invoices or vouchers or such other evidence as the Commission may require. Generally, reimbursement will be made monthly, but may be made at more frequent intervals if conditions so warrant.

3. Final Payment. Upon (i) the expiration of the period of performance of the work under this contract and its final acceptance by the Government, and (ii) the furnishing by the Contractor of a release in such form and with such exception that may be approved by the Commission of all claims against the Government under or arising out of this contract, accompanied by any accounting of Government-owned property required by Article XXI, GOVERNMENT PROPERTY, the Government shall promptly pay to the Contractor the unpaid balance of the fixed fee withheld pursuant to paragraph 1 above, less deductions due under the terms of this contract and any sum required to settle any unsettled claim which the Government may have against the Contractor.

of the work set forth in Article I, SCOPE OF WORK, or at the time of the expiration of this contract, shall become the property of the Government at such time and shall thereafter be delivered to the Government or otherwise disposed of by the Contractor as the Commission shall determine and provided further that neither this Article nor any other provision of this contract shall be deemed to require the Contractor at its unallowable cost to store or preserve records which bear a security classification.

#### ARTICLE IX - TERMINATION OR COMPLETION OF WORK

1. For any reason other than the Contractor's breach or breaches, if any, with respect to this contract, the Government may, at its election and under this Article, by written notice from the Commission to the Contractor (i) from time to time terminate in part performance of work under this contract, or (ii) at any time terminate in whole performance of work under this contract.

2. This Article shall not be deemed to apply or to affect the rights or remedies, if any, of either party hereto in the event of the other party's breach with respect to this contract. Termination under this Article shall be deemed to be for the convenience of the Government and shall be without prejudice to any claims which either party may have against the other party.

3. The Contractor shall take action in accordance with this paragraph after a notice of termination has been given pursuant to this Article. The Contractor shall, except as otherwise directed by the Commission (i) discontinue the terminated work at the time specified in the notice of termination; (ii) place no further orders or subcontracts for services, supplies, materials, equipment, articles or facilities for performance of terminated work; (iii) proceed to the best of its ability to terminate all orders and subcontracts to the extent that they relate to the terminated work; (iv) assign to the Government, in the manner and to the extent directed by the Commission all the right, title and interest of the Contractor under the terminated portion of the orders and subcontracts so terminated; (v) settle, with the approval or ratification of the Commission, all subcontracts, obligations, commitments, liabilities and claims related to the terminated work, the cost of which would be reimbursable in accordance with the provisions of this contract; (vi) continue performance of such part of the contract work, if any, as shall not have been terminated; and (vii) take such other action with respect to the terminated work as may be required under other Articles of this contract, and subject to the approval or ratification of the Commission, as may be otherwise appropriate, including, but not limited to, action for the protection and preservation of Government-owned property.

4. In the event of completion of the work under this contract without prior termination thereof in whole pursuant to this Article, the Contractor shall promptly take such pertinent action with respect to the contract as may be required under other Articles of this contract and, subject to the approval or ratification of the Commission, as may be otherwise appropriate, including, but not limited to, action for the protection and preservation of Government-owned property.

5. In the event of any and every termination pursuant to this Article, the Contractor's costs and expenses arising out of performance in the close-out of the terminated work, reimbursable in accordance with Article II hereof, shall be deemed to include, in each instance, those items incidental to the termination, such as, but not limited to, legal, accounting and clerical costs or expenses, which are approved or ratified by the Commission.

6. With respect to and upon termination in whole pursuant to this Article of work performance under this contract, the Contractor shall receive from the Government such portions of the fixed fee covering the work so terminated as the work actually performed under the contract bears to the total work called for thereunder, less payments previously made on account of such fee. If this contract is terminated for the default of the Contractor, no further payment of the fixed fee shall be made.

7. In the event of any and every partial termination pursuant to this Article, the Contractor and the Commission shall promptly negotiate in good faith to agree upon an equitable adjustment of the pertinent fixed fee hereunder because of such termination. After each negotiation the agreement reached, if any, shall be incorporated in a supplemental agreement to this contract; provided, however, that after the start of negotiations and in the absence of the execution and delivery of a supplemental agreement covering the matter for negotiation, either the Commission or the Contractor may give notice to the other that it considers a reasonable time for agreement has elapsed, in which event, upon expiration of ten (10) days after the giving of said notice and in the continued absence of the execution and delivery of a supplemental agreement covering the matter for negotiation, a dispute shall be deemed to exist as to such matter and shall be determined in accordance with Article XXVII hereof.

8. The obligation of the Government to make any of the payments or reimbursements provided for under this Article or under any other Articles of this contract shall, in event of (i) each termination in whole pursuant to this Article, or (ii) completion of the work under this contract without prior termination thereof in whole pursuant to this Article, be subject to any unsettled claims in connection with this contract which the Government may have against the Contractor.

9. Any other provisions of this contract to the contrary notwithstanding, the Contractor and the Commission may agree upon the whole or any part of the amount or amounts which the Contractor is to receive upon and in connection with (i) each termination pursuant to this Article, or (ii) completion of the work under this contract without prior termination thereof in whole pursuant to this Article. Any agreement so reached shall be evidenced by a supplemental agreement to this contract which shall be final and binding upon the parties with regard to their respective claims against each other concerning this contract except as therein otherwise expressly provided.

10. Prior to final payment under this contract and as a condition thereof, the Contractor shall furnish the Government with a release of all claims against the Government arising under and by virtue of this contract, other than (i) such claims, if any, as may be specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein, or in estimated amounts where the amounts are not reasonably susceptible of exact statement, and (ii) any claim based upon the responsibility of the Contractor to third parties arising out of the performance of this contract not known to the Contractor at the time of furnishing the release. The Contractor shall promptly notify the Commission of any claims of the type described in clause (ii) of this paragraph which are asserted subsequent to the execution of the release.

#### ARTICLE X - SPECIAL REQUIREMENTS

1. Except as otherwise directed by the Commission in writing, the Contractor, in performing the work called for in this contract, agrees to do the following:

- a. Bonds and Insurance. Except as otherwise specially provided, the Contractor shall exert all reasonable efforts to procure and maintain such bonds and insurance policies as are required by law, or required by the Commission. Except as otherwise directed by the Commission, in every instance where the premium on a bond or insurance policy is a reimbursable cost under the contract, the bond or insurance policy shall contain endorsements or other recitals (i) excluding, by appropriate language, any claim on the part of the insurer or obligor to be subrogated, on payment of a loss or otherwise, to any claim against the United States, and (ii) providing for at least thirty (30) days prior written notice by registered mail to the United States Atomic Energy Commission of bond or policy cancellation, as the case may be. It is understood and agreed that in the event the Contractor

fails to procure and maintain insurance of the types and in the amounts required by this contract, or should any such insurance be cancelled or altered in any way whatsoever, the Commission shall have the right to require the Contractor to suspend operations under this contract. At any time thereafter, within the term of the contract, the Commission shall have the right to require the Contractor to assume any such operations so suspended.

b. Permits. Procure all necessary permits and licenses; abide by all applicable laws, regulations and ordinances having the effect of law or expressly provided for in this contract, of the United States of America, the state, territory, or political subdivision in which the work is done, and of any other duly constituted public authority.

c. Claims and Litigation. (i) The Contractor shall give the Commission immediate notice of any claim against the Contractor or suit or action filed or commenced against the Contractor arising out of or connected with the performance of this contract, irrespective of whether or not the cost or expense of such claim, suit or action, is to be borne wholly or in part by the Government hereunder and irrespective of whether the Contractor is insured against any risks which may be involved. The Contractor shall furnish immediately to the Commission copies of all pertinent papers received by the Contractor.

(ii) Insofar as the following shall not conflict with any policy or contract of insurance, and to the extent requested by the Commission, the Contractor, with respect to any claim, suit or action, the cost and expense of which would be reimbursable in accordance with Article II hereof, shall promptly do any and all things

to effect an assignment and subrogation in favor of the Government of all the Contractor's rights and claims, except as against the Government, arising from or growing out of any such claim, suit or action, and shall promptly authorize representatives of the Government to settle, defend, or otherwise handle any such claim, suit or action and to represent the Contractor in, and take charge of, any litigation resulting therefrom, or shall diligently handle any such claim, suit or action or defend or initiate any litigation in connection with any such claim, suit or action and in so doing, shall consult with the Commission as to the steps to be taken and shall otherwise endeavor in good faith to subserve the interests of the Government.

(iii) Subject to the provisions of subparagraph (ii) above, the Contractor shall diligently handle any claim whatsoever arising out of the performance of this contract and shall promptly defend or initiate any litigation in connection with any such claim, consulting with the Commission as to the steps to be taken.

(iv) With respect to any claim, matter or litigation arising out of the performance of this contract, the handling of which is undertaken by an insurance carrier or by a representative or representatives of the Government, the Contractor shall furnish all reasonable assistance and cooperation that may be requested by the Commission.

(v) "Litigation", for the purposes of this subparagraph d., is defined to include proceedings before administrative agencies.

#### ARTICLE XI - SAFETY AND ACCIDENT PREVENTION

The Contractor shall initiate and take all reasonable steps and precautions to protect health and minimize danger from all hazards to life and property, and subject to paragraph 2 of Article II hereof pertaining to inspections and reports, shall make all reports and permit all inspections as required by the Commission, and shall conform to all health and safety regulations and requirements of the Commission.

9. In the event the Contractor is indemnified, reimbursed or compensated for any loss or destruction of or damage to Government property, other than as provided in Article II hereof, it shall equitably reimburse the Government. The Contractor shall do nothing to prejudice the Government's right to recover against third parties for any such loss, destruction or damage and, upon the request of the Commission, shall furnish to the Government all reasonable assistance and cooperation (including prosecution of suit and the execution of instruments of assignment in favor of the Government) in obtaining recovery.

#### ARTICLE XXII - SOURCE AND FISSIONABLE MATERIALS

The Contractor agrees to conform to all regulations and requirements of the Commission with respect to accounting for source and fissionable materials (defined in the Atomic Energy Act of 1946).

#### ARTICLE XXIII - LETTER CONTRACT

This contract merges and supersedes the letter contract, as amended, between the Contractor and the Commission, No. AT(30-1)-1413, dated June 27, 1952. Insofar as any provisions of this contract differ from any provisions of said Letter Contract, and the modifications to same, the provisions herein contained shall govern.

#### ARTICLE XXIV - RENEGOTIATION

1. This contract shall be deemed to contain all the provisions required by Section 104 of the Renegotiation Act of 1951 (Public Law 9, 82nd Congress).

2. The Contractor agrees to insert the provisions of this Article, including this paragraph 2, in all subcontracts specified in Section 103(g) of the Renegotiation Act of 1951; provided, that the Contractor shall not be required to insert the provisions of this Article in any subcontract excepted by or pursuant to Section 106 of the Renegotiation Act of 1951.

#### ARTICLE XXV - COMPLIANCE WITH LAWS

Except as otherwise directed by the Commission and subject to the provisions of Article XIX, STATE AND LOCAL TAXES, the Contractor shall procure all necessary permits and licenses; obey and abide by all applicable laws, regulations, ordinances, and other rules of the United States of America, of the State, territory, or political subdivision thereof, wherever the work is done, or of any other duly constituted public authority.

Contract No. W-7405-eng-26

Health and Safety Research Division

PRELIMINARY SITE SURVEY REPORT FOR THE  
FORMER SUPERIOR STEEL MILL AT  
CARNEGIE, PENNSYLVANIA

T. E. Myrick  
C. Clark

Work performed  
as part of the  
REMEDIAL ACTION SURVEY AND  
CERTIFICATION ACTIVITIES

April 1981

OAK RIDGE NATIONAL LABORATORY  
Oak Ridge, Tennessee 37830  
operated by  
UNION CARBIDE CORPORATION  
for the  
DEPARTMENT OF ENERGY

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PRELIMINARY SITE SURVEY REPORT FOR THE  
FORMER SUPERIOR STEEL MILL AT CARNEGIE, PENNSYLVANIA\*

Introduction

A portion of the former Superior Steel Company facility, located in Carnegie, Pennsylvania, was utilized under contract with the Atomic Energy Commission from 1952 to 1957 for the handling and milling of uranium metal. This processing consisted of a combination of salt bathing, rolling, brushing, shaping, cutting, stamping and coiling, depending on the desired final product. A schematic of the operations conducted in 1955 is presented in Fig. 1. Due to this treatment and handling, large quantities of radioactive dust (principally uranium) were generated during operation. Ventilation of this airborne material was provided to varying degrees during the operational life of the plant, although the system was probably not adequate to prevent contamination of the working environment. No details of the post-operative facility decontamination are available.

At the request of the Department of Energy, a preliminary radiological survey at the former Superior Steel plant was conducted on July 31, 1980, by members of the Health and Safety Research Division at Oak Ridge National Laboratory (ORNL). The site visit was intended to provide information on the present condition and use of the former mill area and to determine the need for a detailed survey.

Site Description

The building that originally housed the uranium-handling facilities is owned by Lange Machinery of Coraopolis, Pennsylvania. The site manager is Bob Cahlan. The large steel structure (see Fig. 2) is divided into three basic areas, the former mill area (area A), the former motor room (area B), and the former rolling area (area C) as shown in Fig. 3.

Area A (Figs. 4 and 5, approximately 24,000 sq. ft.) originally contained the salt bath, roughing mill, brushing station, finishing stands and shear, and was the location where the majority of the uranium metal handling and shaping is believed to have occurred. Only portions of the roughing (breakdown) mill were intact during this survey, all other machinery had been removed and sold or scrapped in previous years. The roughing mill has since been removed. Subfloor pits (approximately 8 ft. deep) over which the former mill, brushing station, finishing stands and shear were originally located are presently being filled in with rubble, with final plans for concreting the surfaces over at floor level.

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\*The survey was performed by members of the Off-Site Pollutant Measurements Group of the Health and Safety Research Division at Oak Ridge National Laboratory, under DOE contract W-7405-eng-26.

The former mill area is presently being utilized in the rebuilding of coke oven doors. During the rebuilding process, significant quantities of fine coke is removed, part of which becomes airborne and settles out on surrounding surfaces. Years of this operation have resulted in coating the north end of the building with a layer of this material (up to 2 inches thick on the floor).

Area B (Fig. 6) housed the former motor room and control panels for the mill. This area (approximately 8250 sq. ft.) contained the large motors that provided power to the mill equipment in the adjacent room (area A). This area was considered the "clean" side of the mill, where the atmosphere was controlled to provide proper conditions for motor and instrument operation. The area is now being used for storage purposes.

Area C (Figs. 7 and 8, approximately 12,000 sq. ft.) was originally the location of the tail end of the mill process where the metal was rolled for shipping, or prior to further handling. Two pits at the south end of the building (Fig. 9) indicate the prior locations of the bliss downcoiler and upender. Both pits are currently being filled in with rubble, with plans to concrete to floor level upon completion. The area is sealed off from the former mill area (area A) by a sheet-metal wall, and is used primarily for storage purposes. A small storage shed is attached to the west side of the building at the south end (Fig. 10).

Several parts of the original roughing mill and shear were located in a storage warehouse at the industrial park, also owned by Lange Machinery. This machinery was being stored prior to shipment to buyers. A list of the known buyers of the original mill equipment is provided in Table 1.

### Survey Procedures

The preliminary radiological survey of the former uranium mill facility consisted of: 1) an external gamma-ray scan of floor and lower wall surfaces in all buildings, 2) fixed alpha measurements on floor and wall surfaces at random locations in all areas, 3) beta-gamma dose rate measurements at selected locations, 4) external gamma radiation and fixed alpha measurements on original machinery surfaces, and 5) sampling and analysis of mill residues. The present conditions at the facility (coke dust, debris in pits, stored materials covering floor) reduced the extent of the survey in certain locations. Future, more detailed surveys, could only be performed after a significant amount of building cleanup had been completed.

The instrumentation utilized in the performance of this survey included a gamma scintillation survey meter, a beta-gamma sensitive GM tube (with open/closed window option), and an alpha scintillation survey meter.

## Survey Results

### Area A (Former Mill Area)

The gamma-ray scan of this area indicated evidence of low-level contamination in the former roughing mill area, in and around the open pits (see Fig. 11). Gamma-ray exposure rates 2 to 8 times the background level for the building were measured in this area (up to 50  $\mu\text{R}/\text{h}$  in open pit). Gamma radiation levels tended to increase toward the bottom of the pits, although, in this area, the bottom could not be reached due to the presence of fill rubble. Gamma radiation levels in the former finishing stands area where the pits had been concreted over were at background values. Beta-gamma measurements in the pit area ranged from 0.01 to 0.04 mrad/h. Fixed alpha levels on walls, floors, and machinery in area A showed no evidence of significant radioactive contamination, with a maximum recorded reading of approximately 50 dpm/100  $\text{cm}^2$ .

### Area B (Former Motor Room)

The gamma-ray scan of this area showed no evidence of radioactive contamination. All measurements were at the background level, except for stacks of bagged cement material which read up to 30  $\mu\text{R}/\text{h}$  at the surface. This slightly elevated activity is attributed to natural radioactivity present in the cement. Random fixed alpha measurements on walls and floor showed no signs of alpha contamination (<10 dpm/100  $\text{cm}^2$ ).

### Area C (Former Rolling Area)

Two areas of significant radioactive contamination were located by the gamma-ray scan of this area (see Fig. 11). The open pits exhibited gamma-ray exposure levels 2 to 50 times the building background, with a maximum reading of approximately 500  $\mu\text{R}/\text{h}$  observed at the bottom of the bliss downcoiler pit. The beta-gamma dose rate at this point was determined to be 0.8 mrad/h, with a beta component of 0.3 mrad/h. The direct alpha measurements on this dirt surface yielded 640 dpm/100  $\text{cm}^2$ . A sample of the residues present at the bottom of the pit at this location was taken and returned to ORNL for analysis. The sample was a combination of steel shavings, soil, and various other unidentified materials. The uranium content of the sample was determined to be 5800 pCi/g  $^{238}\text{U}$  (1.4% by wt.). No other radionuclides were present in sufficient quantities to be detected. Alpha measurements taken in the area surrounding the pit also showed evidence of low-level contamination (up to 100 dpm/100  $\text{cm}^2$ ). In the upender pit, gamma radiation levels of up to 75  $\mu\text{R}/\text{h}$  were recorded, although access to the bottom of the pit was restricted by rubble.

The other area where contamination was found was in the small storage shed attached to the western side of the building. This shed (as shown in Fig. 10) has a wooden floor with fill dirt under the floor. The gamma-ray scan of the shed indicated floor surface exposure rates varying from 75 to 400  $\mu\text{R}/\text{h}$ , with a measurement at 1 m in the center of the room of approximately 90  $\mu\text{R}/\text{h}$ . At the point of maximum gamma, the beta-gamma dose rate was determined to be 0.25 mrad/h (open-to-closed window ratio of 1:1). Direct alpha contamination at this point was

50 dpm/100 cm<sup>2</sup>. Outside the structure, gamma radiation levels dropped off rapidly away from the shed walls, with a maximum exposure rate of about 200  $\mu$ R/h nearest the corner with maximum indoor readings. Based on this information, it was suspected that the fill under the floor was the source of radioactive contamination and a sample of the material was collected from the only accessible location (not the point of gamma maximum) for laboratory analysis. The results of this analysis indicate that the material under the floor of the shed was similar in makeup to that found in the downcoiler pit. The <sup>238</sup>U concentration in the sample was determined to be approximately 1100 pCi/g. No other radionuclides were detected.

#### Equipment in Storage

Several portions of the former roughing mill and shear that were currently in storage were gamma-ray scanned and spot checked for fixed alpha. None of the equipment showed evidence of alpha contamination, although the gamma readings were 2 to 3 times the background level (up to 30  $\mu$ R/h).

#### Conclusions

Based on the results of the preliminary radiological survey of the former uranium-handling facilities of Superior Steel Corporation, it was determined that residual uranium contamination from former mill operations exists in several areas of the remaining structures. Evidence of this contamination was found in the former mill room, the rolling area, and in a storage shed adjacent to the rolling area. The extent of the contamination in these areas, in particular in the floor pits below previous machinery locations, could not be adequately determined due to conditions of the buildings at the time of the survey.

Under present operating conditions, average radiation exposures to individuals working in the buildings are below the current federal guidelines for continuous exposure. In only two areas, the bliss downcoiler pits and storage shed (both in Area C), is the potential for exposure significant. Contact with the mill residues present in these locations should be minimized. In addition, time spent in the storage shed should be reduced to a minimum until a more detailed assessment of the radiological conditions in this area can be undertaken.

Prior to additional, more comprehensive radiological surveying, significant building cleanup would need to be performed. Included in this action could be the removal of rubble from the open pit areas. This operation would need to be supervised to control the potential spread of radioactive materials suspected to be interspersed within the rubble. The rubble would need to be checked upon removal for possible surface contamination, and handled accordingly.

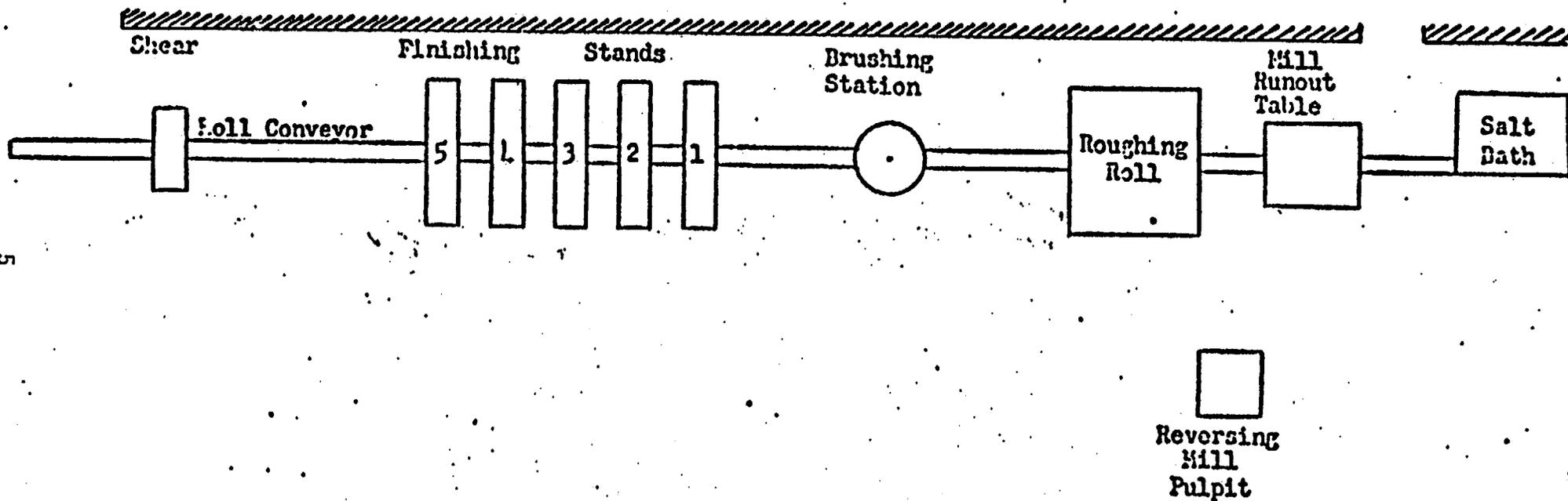


Fig. 1. Layout of hot strip uranium mill operation at Superior Steel Corporation, 1955. (Figure adapted from HASL-Superior Steel 4 report November 15, 1955.)

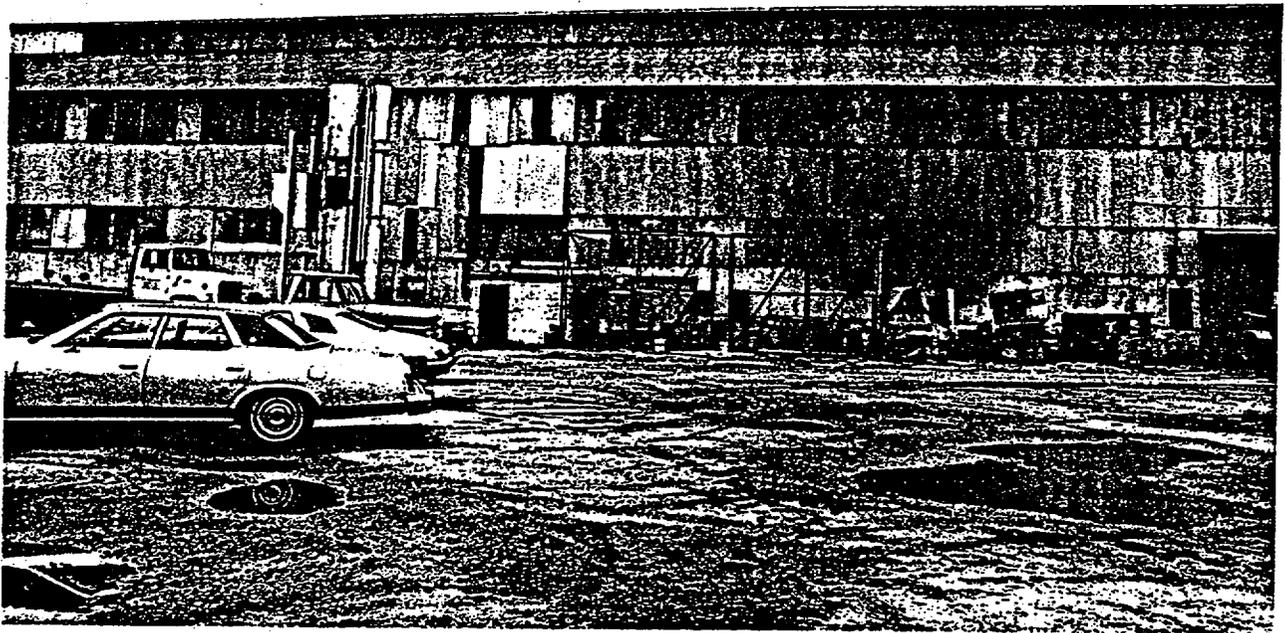


Fig. 2. Exterior view of the former uranium-handling facility at the Superior Steel Corporation Plant in Carnegie, Pennsylvania.

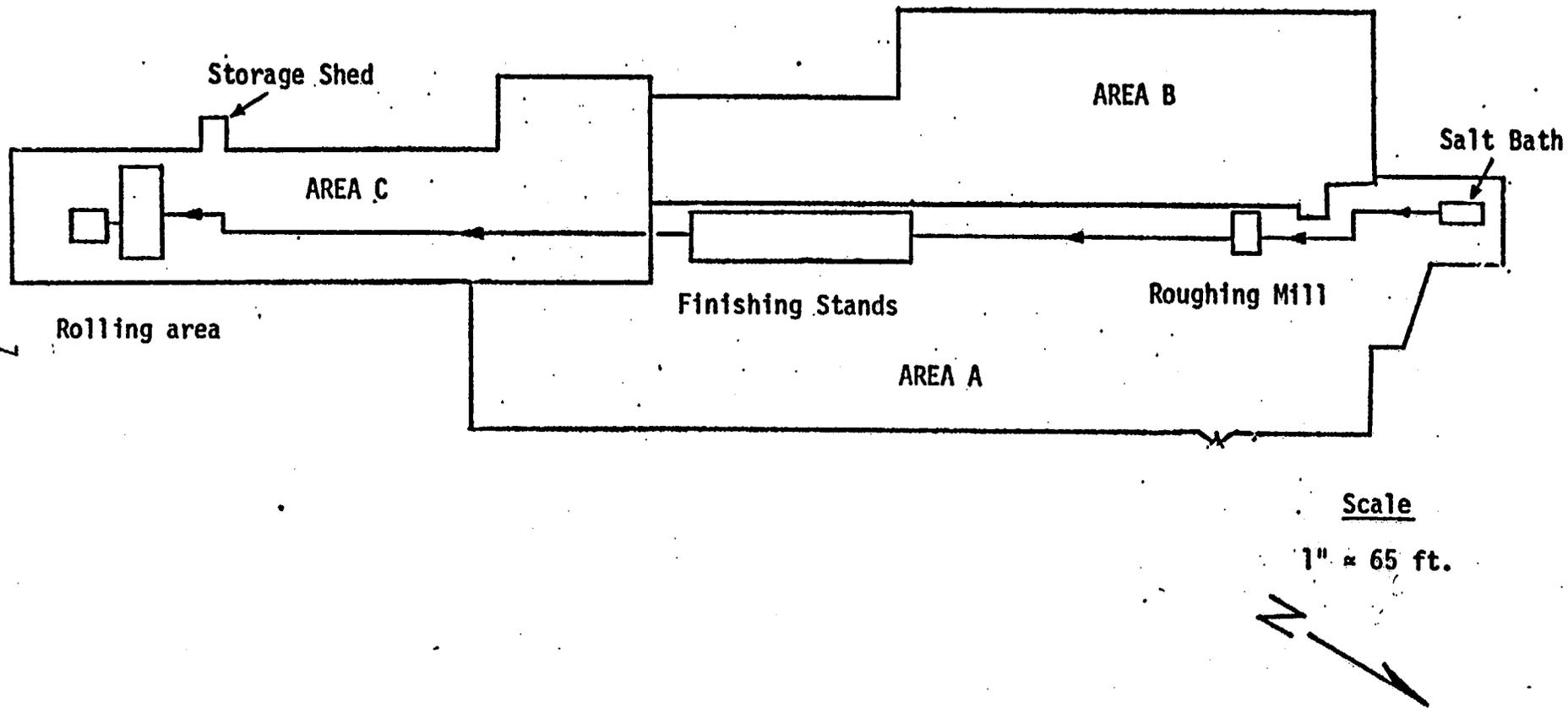


Fig. 3. Layout of former Superior Steel Facility, showing area designations and approximate locations of process line machinery.

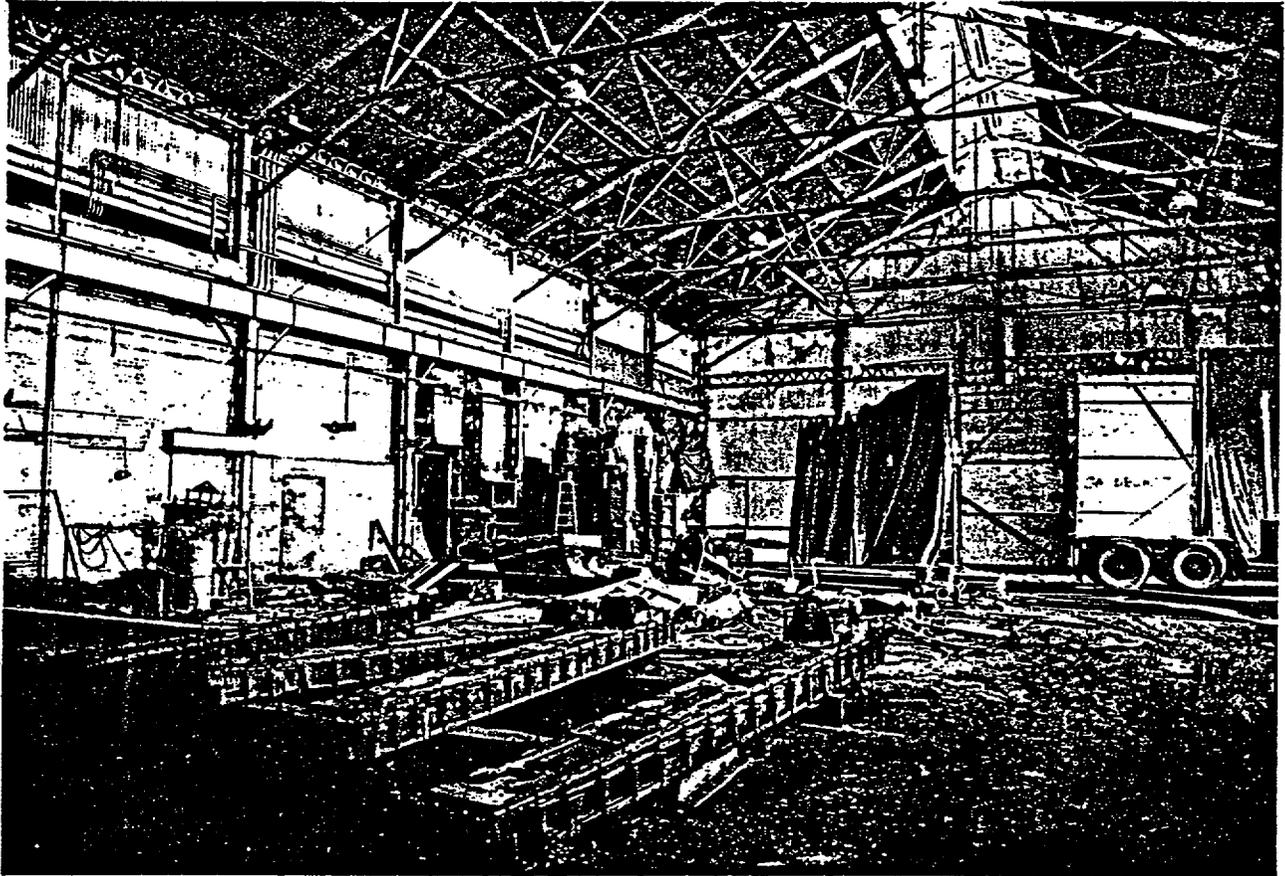


Fig. 4. Interior of former mill area (Area A), looking north.  
Note the remains of the roughing mill just left of center against the wall.



Fig. 5. Interior of former mill area (Area A), looking south.



Fig. 6. Interior of former motor room (Area B), looking south.  
Wall at left adjoins Area A.



Fig. 7. Inside view of former rolling area (Area C), looking north.



Fig. 8. Inside view of former rolling area (Area C), looking south.



Fig. 9. Pit locations in Area C. Note the use of rubble in filling of pit.

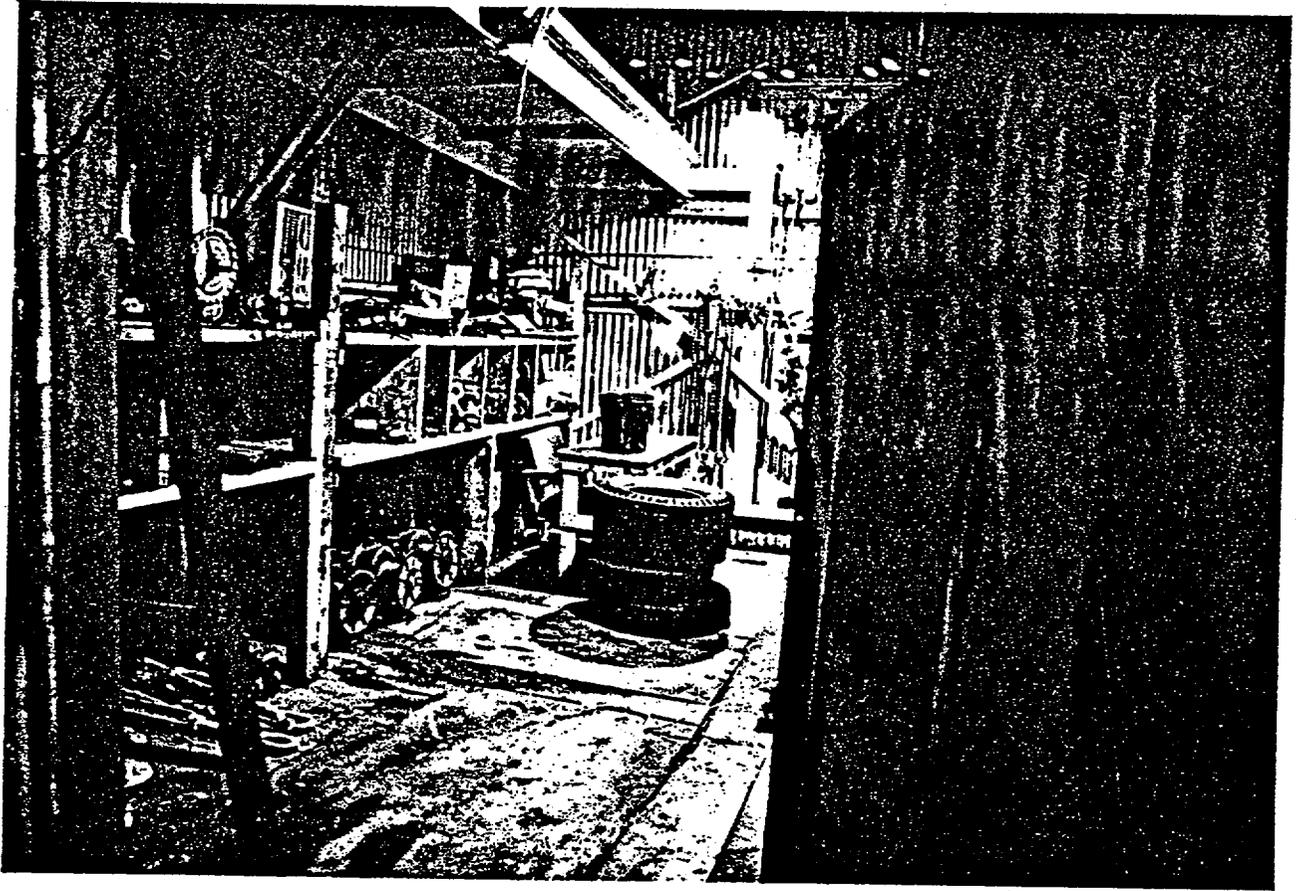


Fig. 10. Storage shed on west side of Area C.

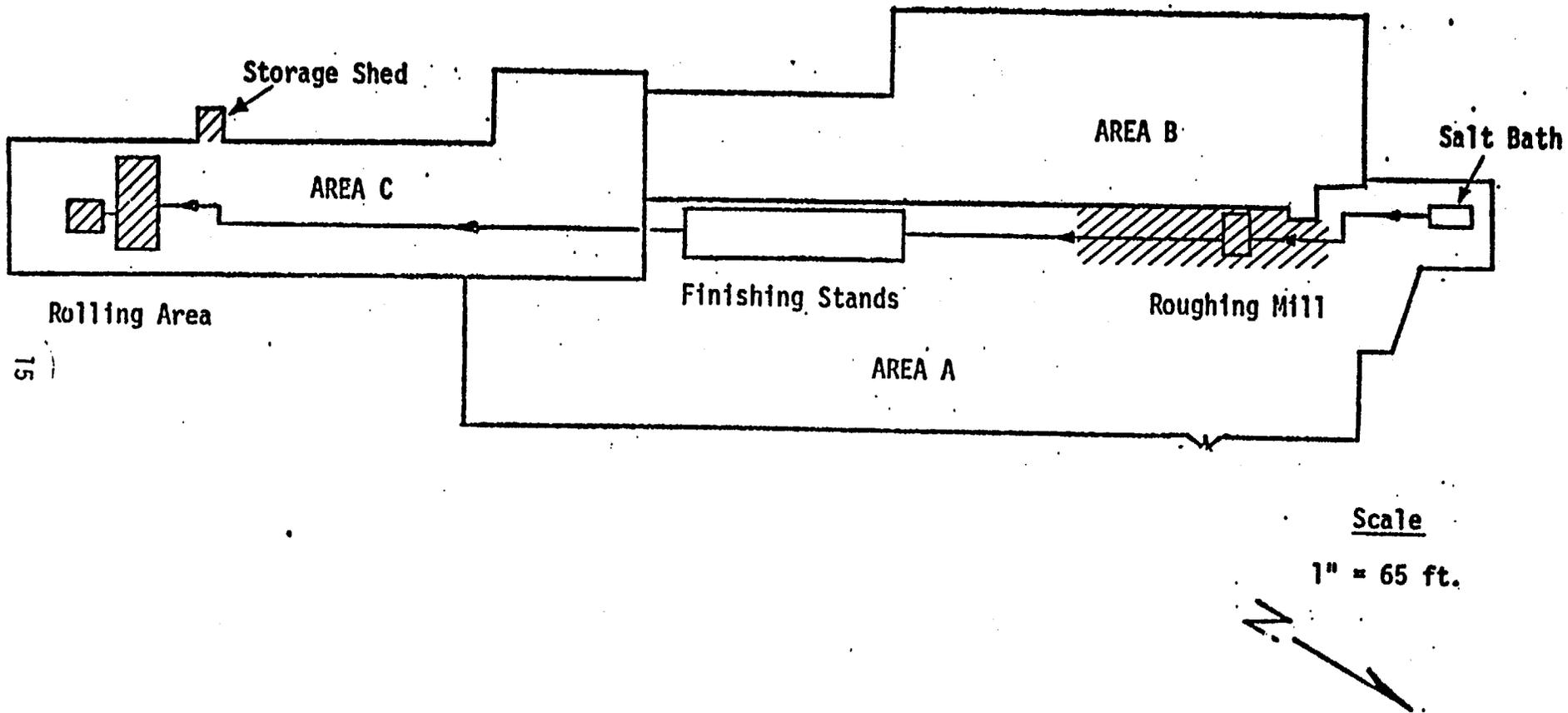


Fig. 11. Location of contaminated areas found during the 1980 preliminary survey.

Table 1. Known Buyers of Original Mill Equipment

<u>Equipment</u>	<u>Buyer</u>
Finishing Stands (5)	Tippins Machinery Co., Inc. 435 Butler Street P.O. Box 9547 Pittsburgh, Pennsylvania 15223 (412) 781-7600
29" Roughing (Breakdown) Mill	Casey Equipment P.O. Box 215 Cheswick, Pennsylvania 15024 (412) 767-5316

*PA.3*

*5/13/81 → Art Whitman*  
*Art - Paul on hot.*

*Copy Attached.*

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY  
**UNION CARBIDE CORPORATION**  
NUCLEAR DIVISION



POST OFFICE BOX X  
OAK RIDGE, TENNESSEE 37830

*B3103*

April 29, 1981

R. W. Barber  
Environmental and Safety  
Engineering Division  
U.S. Department of Energy  
MS-E201  
Washington, D.C. 20545

Dear Bob:

RASCA - Preliminary Site Survey Report for the  
Former Superior Steel Mill at Carnegie, Pennsylvania

Enclosed are four copies of the final version of the subject report, revised per comments received on April 16. As indicated in our original transmittal letter, August 25, 1980, a formal survey of this facility should be carried out. Your attention is directed to the fact that significant building cleanup will be required prior to the initiation of any survey effort. This cleanup would consist of removing coke dust from vertical and horizontal surfaces, removal or rearrangement of stored materials to provide adequate survey access, and removal of rubble located in subfloor pits to allow for investigation of the lower walls and floors of those pits. Such cleanup activities will be expensive, and would need to be supervised to minimize the potential for personnel exposure. In addition, the coke dust and other debris would need to be sampled and otherwise monitored to ensure that no radioactivity was inadvertently directed to a clean landfill. Service contracts for site cleanup will need to be negotiated prior to final scheduling of this survey.

In addition, inspection surveys of original mill equipment that has left the site (see Table 1 of preliminary survey report) should be conducted to determine the current status of this equipment. Contact should be made with the owners of this equipment to obtain consent forms for a survey. These surveys, which could be arranged by us, could be conducted during the same time period as the survey at Superior Steel.

*5/4/81*

## THE AEROSPACE CORPORATION



20030 Century Blvd., Germantown, Maryland 20767, Telephone: (301) 428-2700

7848-02.80.aw.08  
February 26, 1980

Dr. William E. Mott  
Director  
Environmental Control Technology  
Division  
U. S. Department of Energy  
Germantown, Maryland 20767

Dear Dr. Mott:

SUPERIOR STEEL OWNER IDENTIFICATION

As per the request of Dr. Whitman, of your staff, Aerospace reviewed the Superior Steel records and contacted the Treasurer and Tax Collector's office of Scott Township, Pennsylvania, in order to identify owners of this facility. The attached map indicates the location of the site. The old Superior Steel Corporation facility was acquired by Copper Weld, Inc., in 1957, and subsequently sold to a number of different companies. The 25 acre facility is used as an Industrial Park occupied by about 20 companies that are listed in the attachment.

It appears that the area used for the AEC work (the hot rolling mill) was located at Lot and Block 102J210 and is currently used by the J.G. Industries, Inc. The property is owned by Lang Machinery, Box 167, Caraopolis, Pennsylvania, 15108.

This information appears correct, however, it was not possible to verify it all over the telephone and the tax collector's office could not send copies of the plot maps; they recommended we make a trip to their facility if we need additional information.

I understand ORNL is awaiting permission from the owner in order to conduct a site visit scheduled for February or March. Therefore, if you want Aerospace to follow-up on this owner investigation prior to

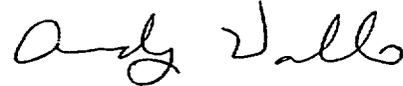
SUPERIOR STEEL OWNER IDENTIFICATION

7848-02.80.aw.08  
February 26, 1980

contact of the owner by your staff, please contact me as soon as possible.

Very truly yours,

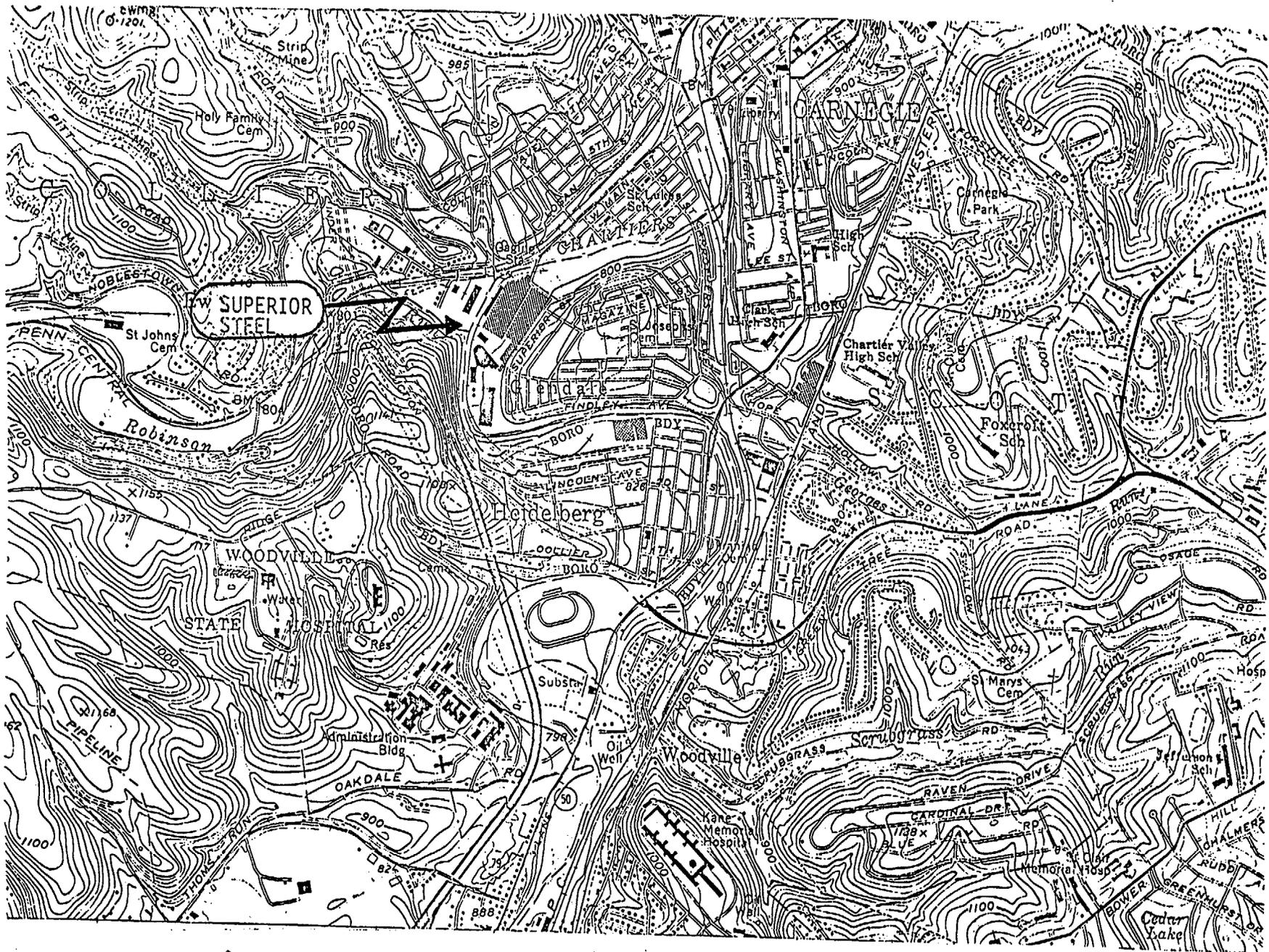
THE AEROSPACE CORPORATION



Andrew Wallo, III  
Environmental Controls and  
Analysis Directorate  
Eastern Technical Division

AW/mb  
Encl.

cc: L. Brazley  
J. Counts  
C. D. Jackson  
D. D. Mayhew  
~~A. Whitman~~



SITE LOCATION

Dacar Chemical Products Co.  
107 McCartney Street  
Pittsburgh, PA 15220

Heat Exchange & Transfer, Inc.  
500 Superior St.  
Carnegie, PA 15106

Jet Net Corp.  
Keystone Drive  
Carnegie, PA 15106

Keystone Casing Supply, Inc.  
Keystone Drive, Rear  
Carnegie, PA 15106

Lang Machinery Co., Inc.  
Box 167  
Coraopolis, PA 15108

Pitt Manufacturing Co.  
Gregg & Hammon Sts.  
Carnegie, PA 15106

B & G Fabricating Co., Inc.  
P.O. Box 511  
Hammond & Gregg Sts.  
Carnegie, PA 15106

C & G Fabricating Co., Inc.  
P. O. Box 442  
Hammond & Gregg Sts.  
Carnegie, PA 15106

Capitol Pipe & Steel Products, Inc.  
730 Superior St.  
Carnegie, PA 15106

Carnegie Manufacturing Co.  
P. O. Box 176  
Carnegie, PA 15106

Expert Flooring, Inc.  
Superior Street  
Carnegie, PA 15106

Industrial Steel Co.  
P. O. Box 504  
Carnegie, PA 15106

Munroe R. & Sons Mfg. Corp.  
Superior St.  
Carnegie, PA 15106

Nassau Corp.  
Superior Street  
Carnegie, PA 15106

A. J. Noce & Associates, Inc.  
P. O. Box 176  
Carnegie, PA 15106

Pittsburgh Design Service, Inc.  
P. O. Box 469  
Carnegie, PA 15106

Thepitt Manufacturing Co.  
Gregg & Hammond Sts.  
Carnegie, PA 15106

J. H. Young Co.  
Superior Street  
Carnegie, PA 15106

Vince & Pat Zottola  
404 Keystone Drive  
Carnegie, PA 15106

J. G. Industries, Inc.  
Rented from: Lang Machinery  
Coraopolis, PA 15108

THE AEROSPACE CORPORATION



20030 Century Blvd., Germantown, Maryland 20767, Telephone: (301) 428-2700

7848-02.80.aw.08  
February 26, 1980

*AW*  
*Please review*  
*re this*  
*wh*

PA.03

Dr. William E. Mott  
Director  
Environmental Control Technology  
Division  
U. S. Department of Energy  
Germantown, Maryland 20767

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I understand ORNL is awaiting permission from the owner in order to conduct a site visit scheduled for February or March. Therefore, if you want Aerospace to follow-up on this owner investigation prior to

*Request Analysis to follow up on  
owner of said site immediately*

*Not indicated that if Aerospace  
has to make trip and  
that is ok (or played to  
indy will) 3/26/80  
*[Signature]**

An Equal Opportunity Employer

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

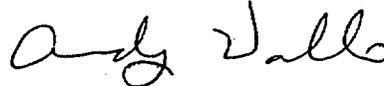
SUPERIOR STEEL OWNER IDENTIFICATION

7848-02.80.aw.08  
February 26, 1980

contact of the owner by your staff, please contact me as soon as possible.

Very truly yours,

THE AEROSPACE CORPORATION

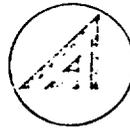


Andrew Wallo, III  
Environmental Controls and  
Analysis Directorate  
Eastern Technical Division

AW/mb  
Encl.

cc: L. Brazley  
J. Counts  
C. D. Jackson  
D. D. Mayhew  
A. Whitman

THE AEROSPACE CORPORATION



20030 Century Blvd., Germantown, Maryland 20767, Telephone: (301) 428-2700

7848-02.80.aw.08  
February 26, 1980

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Environmental Control Technology  
Division  
U. S. Department of Energy  
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*An Equal Opportunity Employer*

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

AUG 2 5 1981

EP-32

ORNL/RASCA Program - Former Superior Steel Mill, Carnegie, Pennsylvania

William R. Bibb, Director  
Research Division  
Oak Ridge Operations Office

In response to your memorandum of July 2, 1981, and based on Dr. William A. Goldsmith's correspondence with Mr. Robert Barber, dated August 6, 1981, it appears prudent to schedule a radiological survey in that part of the mill that would be accessible for such a survey and delay the survey of the inaccessible part of the mill until it is more convenient for the tenant of the mill and with the owner of the site. Since the potential for radiation exposure to the workers is low, the site should be given a low priority for a comprehensive radiological survey.

Inasmuch as the ORNL/RASCA group has had a continuing dialogue with the representatives of the site owners, it would be advisable for them to maintain this contact for scheduling the appropriate surveys.

Original signed by:

William E. Mott  
Office of Operational  
Safety (EP-32)

bcc:  
Aerospace  
A. J. Whitman, EP-32

EP-32:AJWhitman:d1m:353-5439:8/24/81:EP-14-81-218:EP-32-81-254:DF-86

*[Handwritten signature]*  
8/24/81

CONCURRENCES	
RTG. SYMBOL	EP-32
INITIALS/SIG.	WEMott
DATE	8/25/81
RTG. SYMBOL	
INITIALS/SIG.	
DATE	
RTG. SYMBOL	
INITIALS/SIG.	
DATE	
RTG. SYMBOL	
INITIALS/SIG.	
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DATE	
RTG. SYMBOL	
INITIALS/SIG.	
DATE	



OCT 19 1981

EP-32

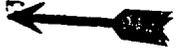
Superior Steel, Carnegie, Pennsylvania

William R. Bibb, Director  
Research Division  
Oak Ridge Operations Office

*Jerry Counts for*

In response to the request in your memorandum of September 17, 1981, for guidance relative to the Superior Steel site, we agree that any further radiological surveys at this low priority site should be postponed.

*Jerry Counts*  
*for* William E. Mott  
Office of Operational  
Safety (EP-32)

bcc:  
Aerospace  
A. Whitman, EP-32 

EP-32:AJWhitman:d1m:353-5439:10/16/81:DF-70  
*[Signature]*  
*10/19/81*

CONCURRENCE:		
RTG. SYMBOL	EP-32	
INITIALS/SIG.	WEMott	
DATE	10/19/81	
RTG. SYMBOL		
INITIALS/SIG.		
DATE		
RTG. SYMBOL		
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INITIALS/SIG.		
DATE		
RTG. SYMBOL		
INITIALS/SIG.		
DATE		

Edward E. Stevens

*Superior Steel*

TREASURER AND TAX COLLECTOR - TOWNSHIP OF SCOTT  
COLLECTOR OF SPECIAL TAXES - CHARTIERS VALLEY SCHOOL DISTRICT.  
(SCOTT TOWNSHIP AREA)  
MUNICIPAL BUILDING • 301 LINDSAY ROAD • CARNEGIE, PENNA. 15106

PHONE OFFICE:  
276 - 5302  
276 - 5306

OFFICE HOURS  
9:00 - 5:00 DAILY  
9:00 - 8:00 P.M. WEDNESDAY

June 22, 1978

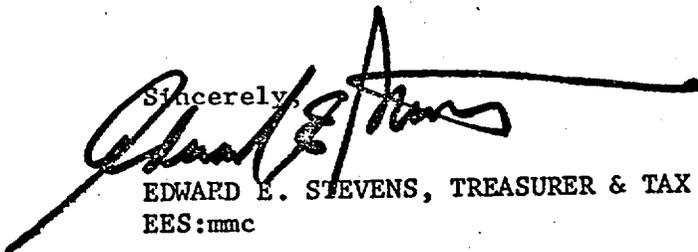
William T. Thornton  
Dept. of Energy  
Oakridge, Tenn., 37830

Dear Sir.

Enclosed you will find the information you had requested  
on the old Superior Mill properties.

I hope it will be of some assistance.

Sincerely,



EDWARD E. STEVENS, TREASURER & TAX COLLECTOR  
EES:mmc

Dacor Chemical Products Co.  
107 McCartney St.  
Pittsburgh, Pa. 15220

Lot & Block 102-J-300

Heat Exchange & Transfer, Inc.  
500 Superior St.  
Carnegie, Pa. 15106

Lot & Block 102-J-180

Jet Net Corp.  
Keystone Drive  
Carnegie, Pa. 15106

Lot & Block 102-E-160

Keystone Casing Supply, Inc  
Keystone Drive, Rear  
Carnegie, Pa. 15106

Lot & Block 102-F-110

Lang Machinery Co., Inc.  
Box 167  
Coraopolis, Pa. 15108

Lot & Block 102-J-190  
102-J-210

Pitt Manufacturing Co.  
Gregg & Hammond Sts.  
Carnegie, Pa. 15106

Lot & Block 102-E-125

B & G Fabricating Co., Inc.  
P.O. Box 511  
Hammond & Gregg Sts.  
Carnegie, Pa. 15106

C & G Fabricating Co., Inc.  
P.O. Box 442  
Hammond & Gregg Sts.  
Carnegie, Pa. 15106

Capitol Pipe & Steel Products, Inc.  
730 Superior St.  
Carnegie, Pa. 15106

Carnegie Manufacturing Co.  
P.O. Box 176  
Carnegie, Pa. 15106

Expert Flooring, Inc.  
Superior Street  
Carnegie, Pa. 15106

Industrial Steel Co.  
P.O. Box 504  
Carnegie, Pa. 15106

Munroe R. & Sons Mfg. Corp.  
Superior St.  
Carnegie, Pa. 15106

Nassau Corp.  
Superior Street  
Carnegie, Pa. 15106

A. J. Noce & Associates, Inc.  
P.O. Box 176  
Carnegie, Pa. 15106

Pittsburgh Design Service, Inc.  
P.O. Box 469  
Carnegie, Pa. 15106

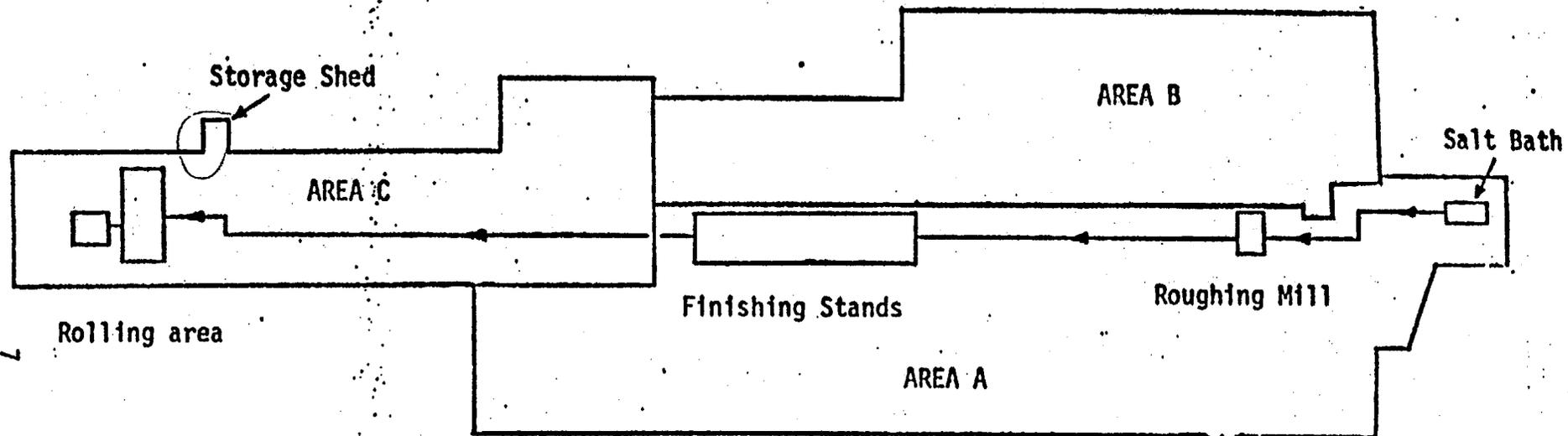
Thepitt Manufacturing Co.  
Gregg & Hammond Sts.  
Carnegie, Pa. 15106

J. H. Young Co.  
Superior Street  
Carnegie, Pa. 15106

Vince & Pat Zottola  
404 Keystone Drive  
Carnegie, Pa. 15106

J. G. Industries, Inc. is located where the hot rolling mill had been.  
Rented from Lang Machinery, Coraopolis, Pa. 15108





Scale

1" = 65 ft.

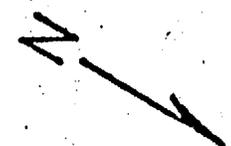


Fig. 3. Layout of former Superior Steel Facility, showing area designations and approximate locations of process line machinery.

326-73A-2027

Box: 34

FOLDER: Formal Proposal  
(Black binder)

FRC #41

4N N 326-8501

PROPOSAL FOR

PRODUCTION OF URANIUM STRIP

FOR THE

ATOMIC ENERGY COMMISSION

BY

SUPERIOR STEEL CORPORATION

SPECIAL REREVIEW  
FINAL DETERMINATION  
UNCLASSIFIED

*Ka Walter*

*7/21/80*

*Jed Davis*

*7/25/80*

# INTRODUCTION

Calculations and experiments to date have indicated that uranium strip, hot rolled under carefully controlled, but experimental, conditions on Superior Steel Corporation's continuous hot strip mill, has many of the necessary dimensional, structural, and surface characteristics required by the Atomic Energy Commission in the furtherance of their studies. Material produced from the rolling of August 3rd, 1953, upon examination for dimensions, structure and surface, was of such quality that further production by the system employed at that time appears to be warranted. However, it is realized by all concerned, that changes and additions to equipment are in order so that greater uniformity in thickness, more uniform structure and better surface may be realized.

a. Dimensional uniformity, it is agreed, is of prime importance to meet the requirements of the reactors. Tolerances must be held, in the light of present knowledge, to plus or minus two-thousandths of an inch but more important, the mean gage of all the strip produced must be held constant at a predetermined value. Material rolled on August 3rd was, in the main, within the tolerance mentioned but the mean gage of the various strips varied within certain narrow limits. This condition should and can be corrected.

b. The structure of the material is determined by careful control of starting and finishing temperatures and the drafting on the mill. Certain equipment changes are indicated to insure proper heating, soaking and timing through the several stands of the hot mill.

c. The surface of the uranium strip must be smooth, clean and free from pits, scratches, scabs, slivers, excessive scale and all other defects that would be detrimental to successful "canning". Minor changes in equipment to insure these conditions should be made.

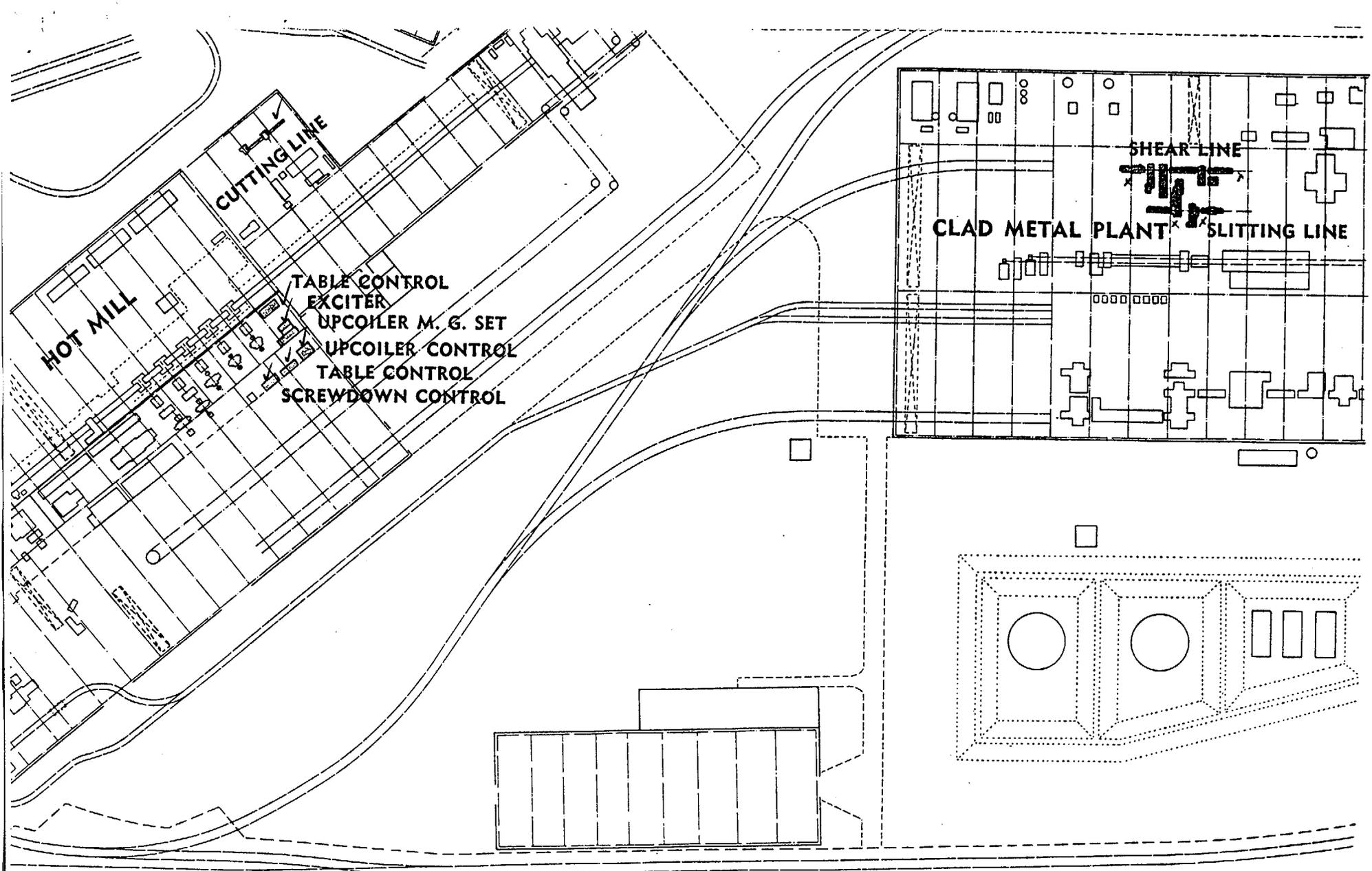
d. Smooth, continuous, uninterrupted production of uranium strip is important in obtaining high quality material. Delays must be eliminated. Material must be taken away from the finishing end of the mill rapidly so that the heating and rolling cycles may be maintained at the predetermined rate. Timing is important to uniformity and to the production of given quantities in the shortest possible rolling period, which of course, will reflect in unit costs. Certain new equipment and changes to present equipment, described herein

e. All precautions recommended by the Health and Safety Division of the Atomic Energy Commission must be followed to insure protection to the operators, supervisors and observers of the various pieces of equipment used in the production of this material. Observance of these recommendations require installation of ventilating systems, use of protective clothing and so on.

## NEW FACILITIES REQUIRED

In order to accomplish the above objectives, it will be necessary to install the following equipment and make changes to present equipment:

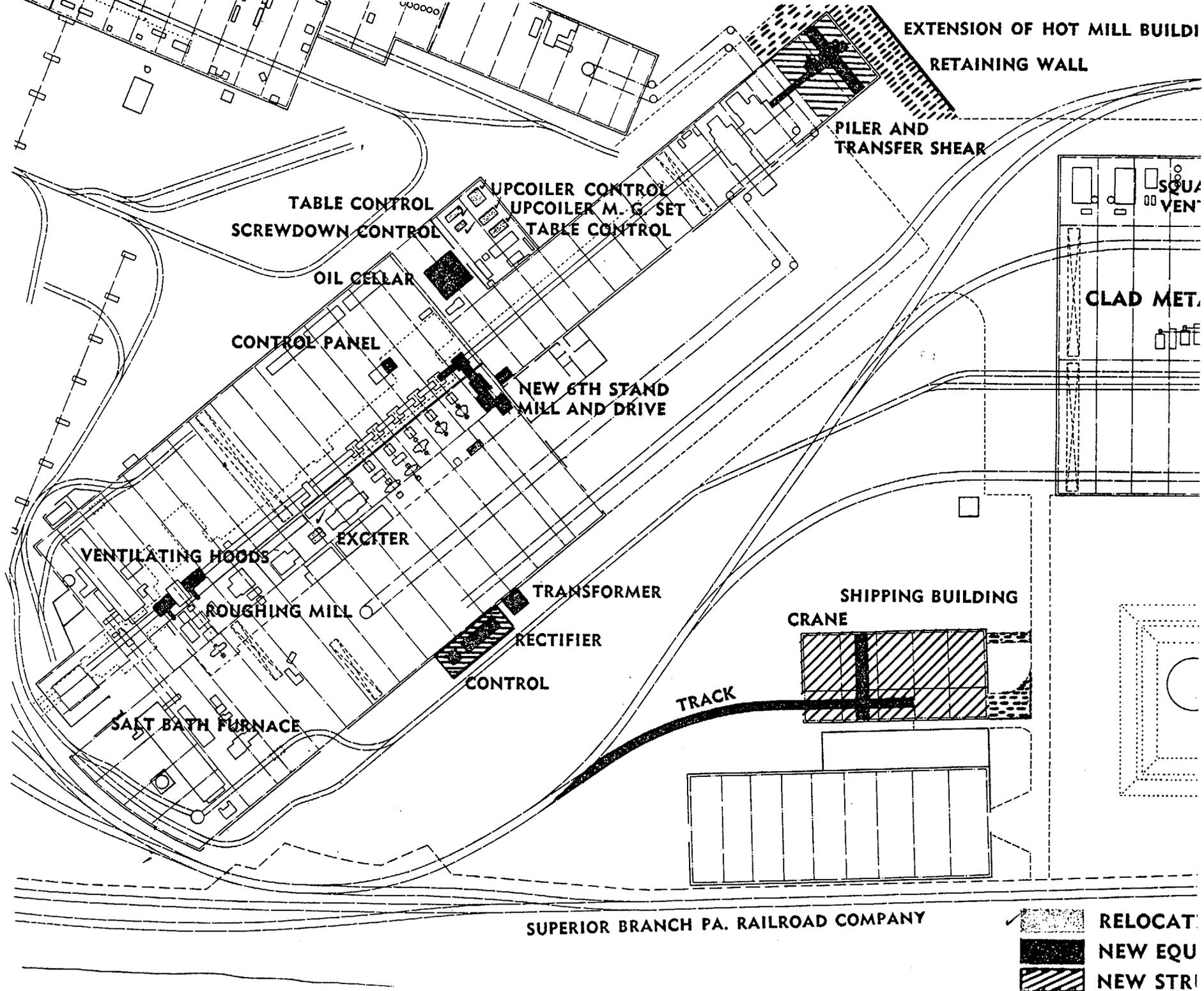
- A. New handling devices are being installed at the Salt Bath Furnace to increase its capacity.
- B. Suitable devices are being installed at the Rolling Mill and Finishing Stands to eliminate water from Work Rolls and insure more adequate protection against scaling by maintaining the salt coating on the strip during rolling.
- C. A new sixth stand at the Finishing Mill is required to insure uniformity of "Mean Gauge" as well as closed tolerances throughout strip. This unit of equipment has been designed, checked by outside consulting engineer and estimate of cost prepared.
- D. A new rapid cutting-to-length shear and take-off equipment is required at the finishing end of the Mill. This equipment has been designed and estimate of cost prepared.
- E. Flattening equipment is now being installed at the Clad Metal Plant which will be suitable for flattening this material.
- F. Equipment for shearing to width is being provided under present contract.
- G. Provide building for receiving, storing and shipping material to fulfill "accountability" requirements. Also provide suitable transportation equipment such as buggies, roller tables, etc.
- H. Install recommended ventilation and safety equipment on



SUPERIOR BRANCH PA. RAILROAD COMPANY

- x EQUIPMENT UNDER CONSTRUCTION
- ✓ EQUIPMENT TO BE RELOCATED

CHARTIERS CREEK



EXTENSION OF HOT MILL BUILDING  
RETAINING WALL

PILER AND TRANSFER SHEAR

TABLE CONTROL  
SCREWDOWN CONTROL  
UPCOILER CONTROL  
UPCOILER M. G. SET  
TABLE CONTROL

OIL CELLAR

CONTROL PANEL

NEW 6TH STAND  
MILL AND DRIVE

EXCITER

VENTILATING HOODS

ROUGHING MILL

TRANSFORMER

RECTIFIER

CONTROL

SHIPPING BUILDING

CRANE

SALT BATH FURNACE

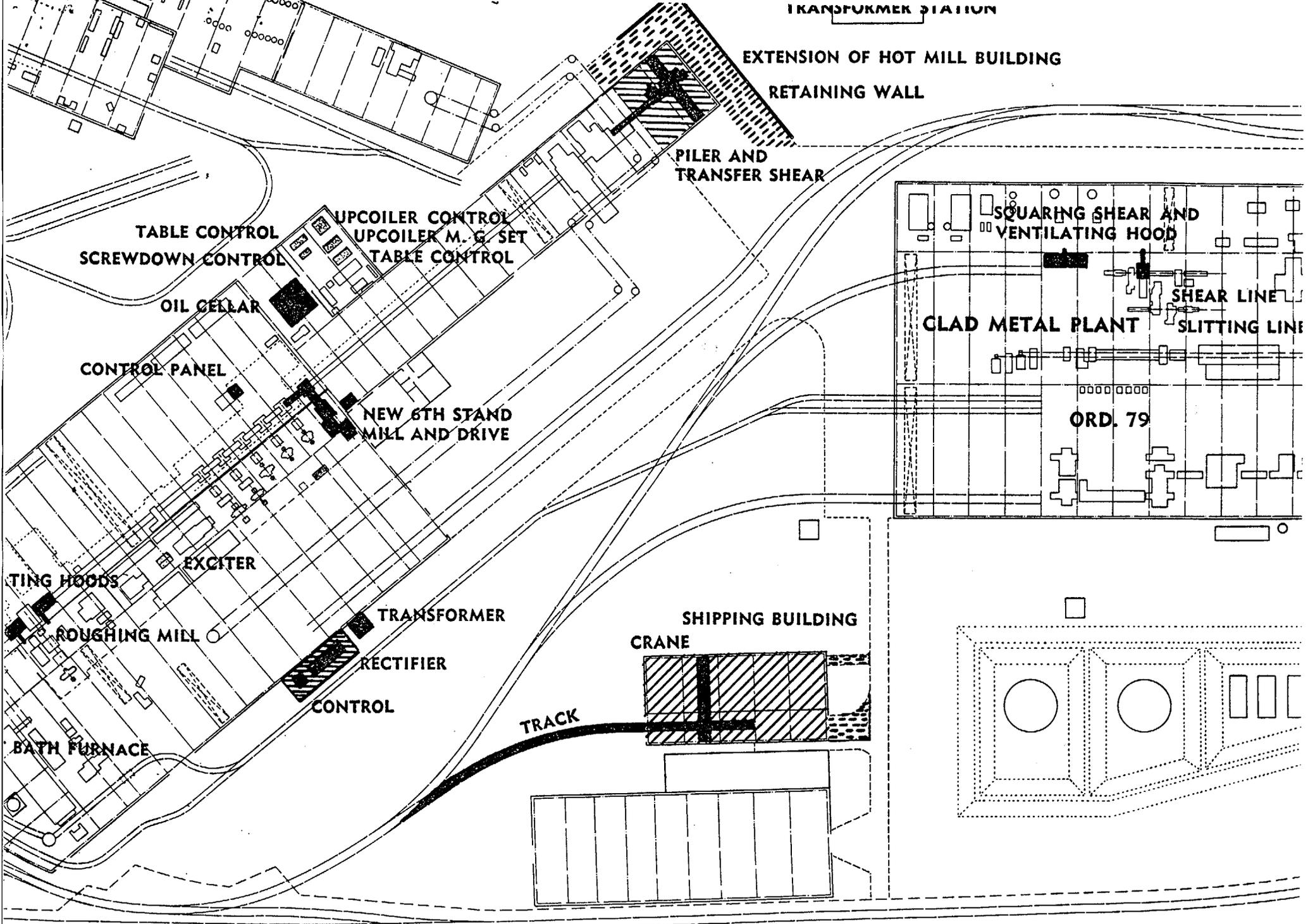
TRACK

CLAD METAL

SQUARED VENT

SUPERIOR BRANCH PA. RAILROAD COMPANY

- RELOCATED
- NEW EQUIPMENT
- NEW STRUCTURE



TRANSFORMER STATION

EXTENSION OF HOT MILL BUILDING

RETAINING WALL

PILER AND TRANSFER SHEAR

SQUARING SHEAR AND VENTILATING HOOD

SHEAR LINE

SLITTING LINE

CLAD METAL PLANT

ORD. 79

SHIPPING BUILDING

CRANE

TRACK

SUPERIOR BRANCH PA. RAILROAD COMPANY

RELOCATED EQUIPMENT  
NEW EQUIPMENT

TABLE CONTROL  
SCREWDOWN CONTROL

UPCOILER CONTROL  
UPCOILER M. G. SET  
TABLE CONTROL

OIL CELLAR

CONTROL PANEL

NEW 6TH STAND  
MILL AND DRIVE

EXCITER

TING HOODS

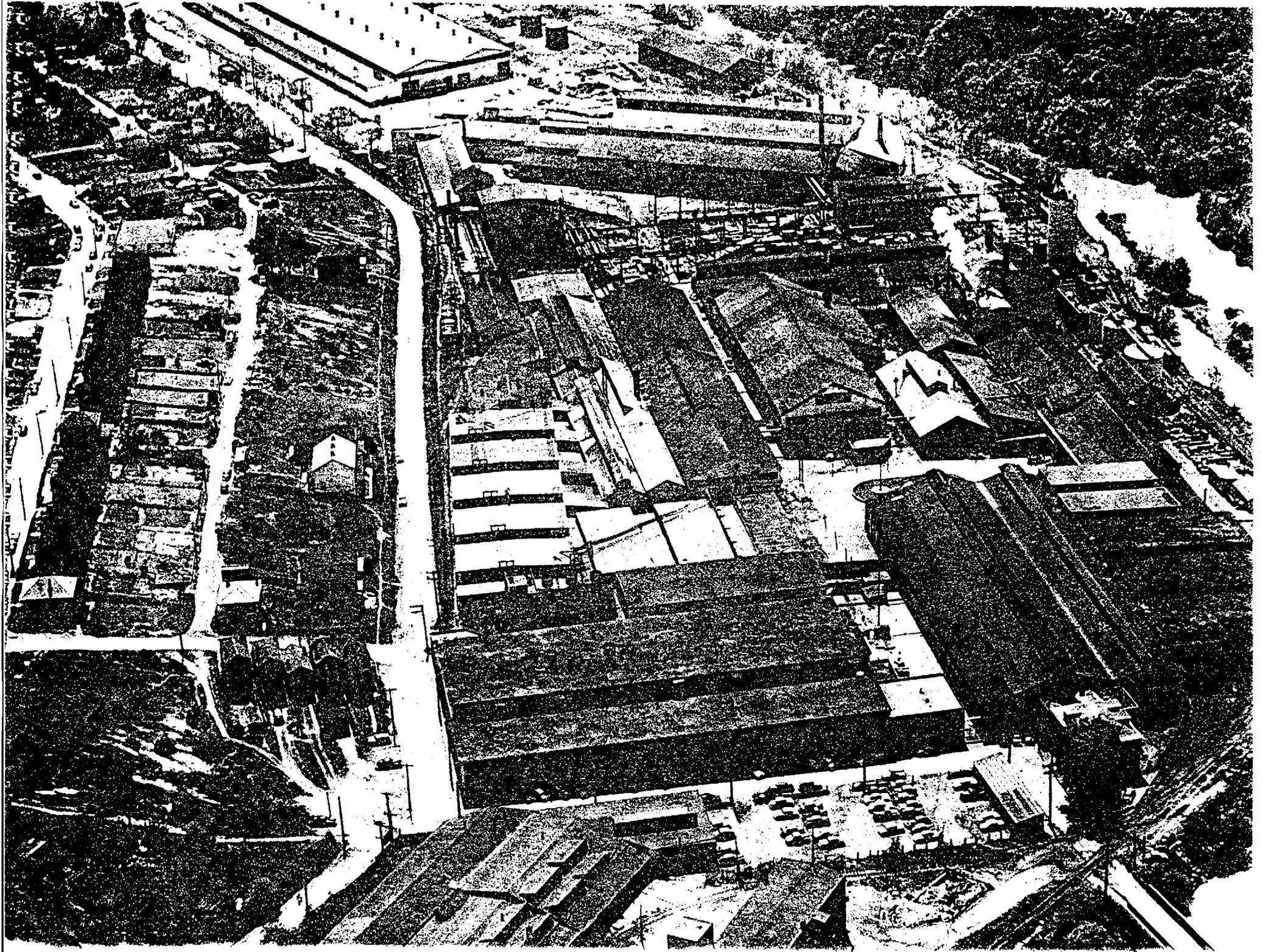
ROUGHING MILL

TRANSFORMER

RECTIFIER

CONTROL

BATH FURNACE



BOROUGH OF CARNEGIE

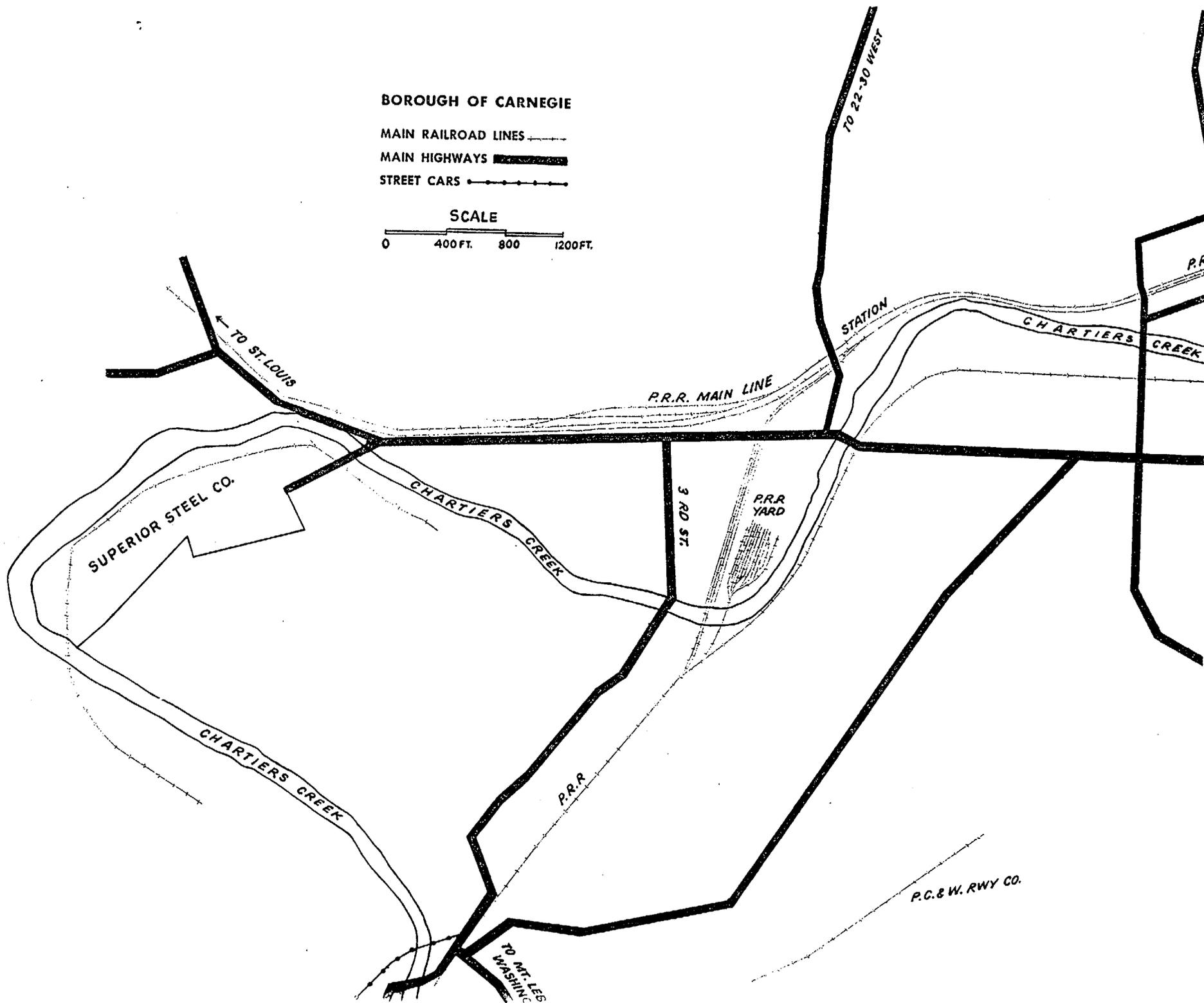
MAIN RAILROAD LINES

MAIN HIGHWAYS

STREET CARS

SCALE

0 400 FT. 800 1200 FT.



B0313

Chow =  
Superior  
Steel

AUG 3 1978

C. Keller, OR

SUPERIOR STEEL CO., CARNEGIE, PENNSYLVANIA SITE LOCATION

Information provided by Carol Steele, PEFC, indicates that after the Superior Steel Site was sold, it was developed into what is now known as the Carnegie Industrial Park, located on Superior and Hammond Streets, Scott Township. There are about ten businesses on about 25 acres of land. Apparently, there is no longer any central office for this industrial park but each business owns a portion of the former site.

You are requested to identify the current property owners in this industrial park as soon as possible and contact each concerning a visit to determine any further radiological survey needs. Enclosed is a rough map indicating the general location of the site. Please keep me informed of your plans.

William E. Mott, Director  
Division of Environmental  
Control Technology

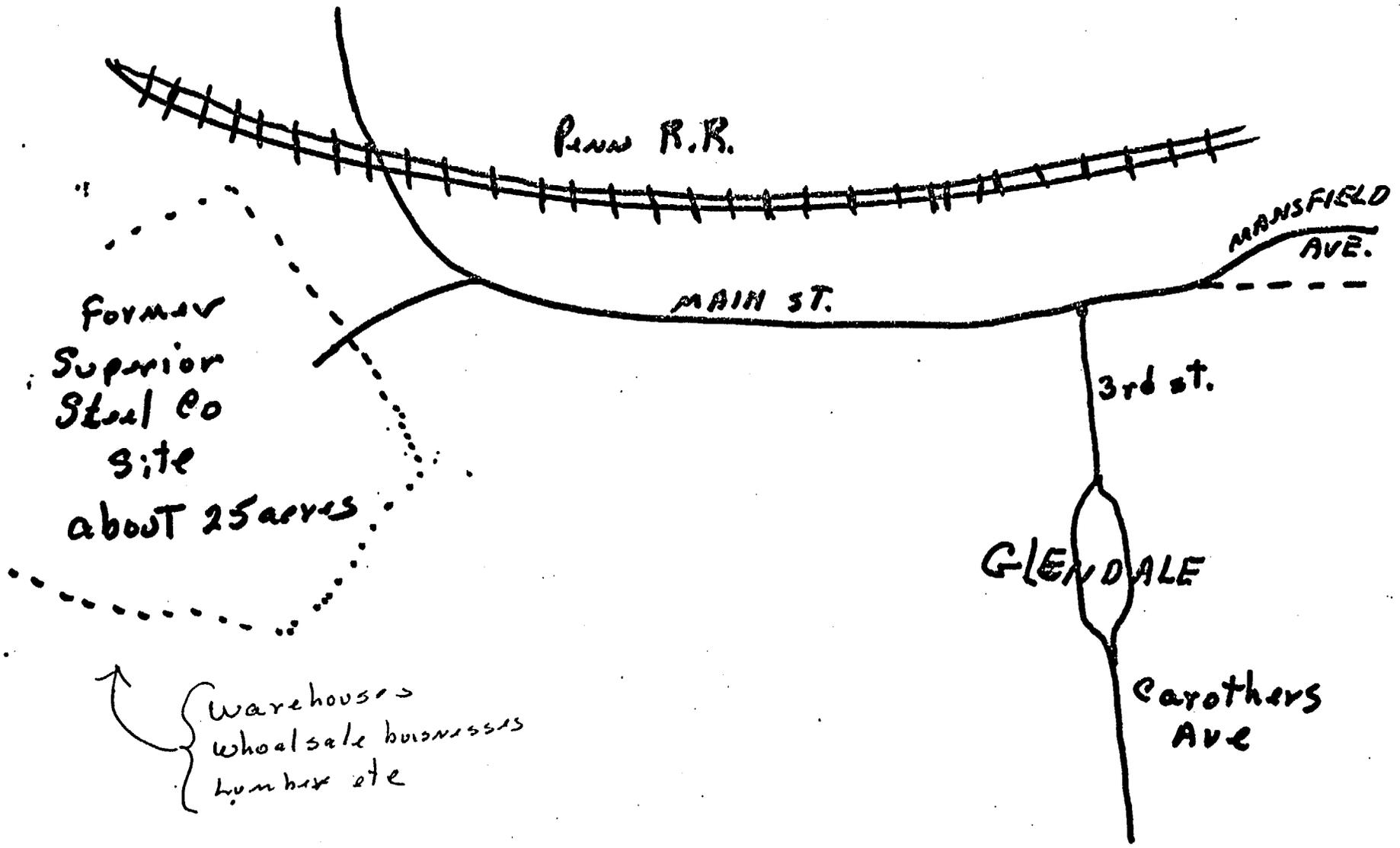
Enclosure:  
As stated

bcc: Aerospace ←  
W. L. Brown  
P. Garon  
L. Arzt

ECT  
REAL:lc  
7/28/78

ECT AD/N  
RW Ramsey  
8/2/78

ECT DIR  
WEMott  
8/2/78





Department of Energy  
Savannah River Operations Office  
P.O. Box A  
Aiken, South Carolina 29801

AUG 28 1979

Cy: Whitman  
Aerospace  
Mott  
Ramsey

PA. 03

(R. W. Ramsey, Environmental Control Technology Division, HQ, EV-131  
E. C. Keller, Director, Technical Services Division, OR

FORMERLY UTILIZED MED/AEC SITE RADIOLOGICAL SURVEY PROGRAM (FORMER  
SUPERIOR STEEL COMPANY ACTIVITIES)

Reference is made to Ruth C. Clusen's memo dated August 13, 1979, subject as above. We have again reviewed our files for information pertaining to Superior Steel Company. Our files on Superior Steel were destroyed in accordance with the Records Disposition Schedule. We are enclosing, however, a brief outline of the contract which contains the scope of work, contract term, contract amounts, etc. In addition, we are enclosing copies of information contained in our security files. This information was transmitted to Ms. Clusen on February 6, 1979, and to Mr. Keller on May 2, 1979. If additional information is located, we will be glad to transmit it to you.

R. A. McFeely, Director  
Contracts and Services Division

CC:EM:bho

Enclosures





CONTRACT NO. A1-(30-1)-1112

COMPANY CLEARANCE DATE

DATE INITIATION OF WORK 10/14/54

SCHEDULED COMPLETION DATE Indefinite

FACILITY SECURITY AGENT Kenneth W. Massey

*Luther R. Taylor*

NATURE OF WORK

general fabrication

work to be performed includes/machining of uranium for fuel elements.

Security interests cover the receipt, storage and transmittal of classified matter categorized up to and including Secret.

Per FDR to Washington 11/30/54, responsible area office changed from WAO to PAO, and Material changed from Confidential to Category III. \*

FDR 11/3/56 PAO - CAP - Access Permit 564. - Confidential PD.

FDR 3/26/57 Change Sec. Impt. Rating Class B to Class C.

FDR 1/6/58 - Wash - Deletion of Facility 11/29/57.

Certificate on file Non Possession

HIGHEST CLASSIFICATION			
CONTRACT	Uncl.		
WORK	Conf.		
MATERIAL	Conf.		
DOCUMENTS	Secret		
RECLASSIFICATION DATE			
INSPECTIONS MADE			
NO.	54	55	56
JAN.			
FEB.			
MAR.			
APR.			
MAY	X	X	
JUNE			X
JULY			
AUG.			
SEPT.			
OCT.			
NOV.	X	X	
DEC.			

16-58342-2

ADDED ACTIVE TRANSFERRED INACTIVE

REMARKS:

Facility transferred to OROO per FDR 7/30/54. Transferred to SROO 10/14/54 - per FDR to Wash. 1/12/55.

*1/10 destroyed 1/10/67*

JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
FACILITY					ADDRESS						
Superior Steel Corporation					Hammond and Gregg Streets, Carnegie, Pennsylvania						

INSPECTION RECORD

DATE	BY	RATING								COMP.	REMARKS
		A	B	C	D	E	F	G	H		
5/15/54	J. J. Tatur									S	NYOO
11/54	RHSolomons									S	SFOO
5/23/55	G. W. Goodrow									S	PAO
11/17/55	G. W. Goodrow									S	PAO
6/50	O. W. Schraver									S	Div. of Security, Wash.

SAVANNAH RIVER OPERATIONS OFFICE

1. Name and Address

Superior Steel Corporation  
Grant Building  
Pittsburgh 19, Pennsylvania

2. Contract Number

AT(30-1)-1412

3. Scope of Work

The contract was originated by NYOO and was transferred to OROO. On October 15, 1954, it was transferred from OROO to SROO.

The Contractor, in accordance with instructions, product specifications and any metallurgical and chemical information considered essential to correct processing which may be furnished the Contractor by the Commission, and in an efficient and workmanlike manner shall by commercial methods receive uranium from supplier, inspect, straighten as required, scalp by milling, planing and/or spot grinding, preheat in molten salt, hot roll (taking required temperature and time data), crop and shear to length, number, acid pickle (including packing for shipment to heat treating facility and receiving heat treated strip), flatten, acid pickle, machine into full length strips of specified dimensions and tolerances, deburr, gauge finish inspect, metallurgically sample (but not in excess of reasonably commercial sampling methods and not including metallurgical tests), package and prepare finished plate and furnish labor for packaging and preparing scrap for shipment.

When and to the extent requested by the Contracting Officer, the Contractor agrees to perform the following services in addition to those specified in above paragraph.

- a. special in-process visual inspection of uranium flats not included in above paragraph.
- b. beta treating of uranium slabs.

4. Term of Contract

Effective date - June 27, 1952  
Completion date - September 30, 1957 (see "Remarks")

5. Type of Contract

Unit price with certain cost features with respect to purchase of equipment.

Superior Steel Corporation

6. Basis of Award

Open solicitation was not considered advantageous from standpoint of time and cost in view of the highly specialized field of metal fabrication. Only a very few organizations in the United States possess the technical background and experience for such undertakings. Several firms were invited to submit proposals, of which three responded favorably.

7. Amount of Contract

	<u>Commission Obligation</u>
Original Amount	\$ 36,000
Amendment No. 1 (Increase)	219,000
Amendment No. 2        "	None
Amendment No. 3        "	None
Amendment No. 4        "	None
Amendment No. 5        "	65,153
Amendment No. 6        "	<u>60,000</u>
Total	\$380,153

8. Payments made as of 6/30/57

Paid by NYOO for FY 1954	\$ 46,294
Paid by OROO for FY 1955	21,019
Paid by SROO for FY 1955	17,658
Paid by SROO for FY 1956	217,246
Paid by SROO for FY 1957	<u>54,632</u>
Total	\$356,849

9. Remarks

The contract period was extended for three months, from July 1, 1957, through September 30, 1957, to permit sufficient time for close-out of the work and disposition of Government property. Modification No. 7 to the contract is under preparation. This modification will cover formal extension of the agreement.

PA.03

APR 13 1981

EP-141

ORNL RASCA Program - Former Superior Steel Corporation, Carnegie, Pennsylvania

William Bibb, OR

We received a draft of the Preliminary Site Survey Report for the former Superior Steel Corporation facility from ORNL and agree with the conclusion by ORNL that a formal survey of the facility is needed. In performing the survey ORNL should include the floor drains that received runoff from "hose-down" decontamination efforts (mentioned in the 1955 HASL report), the ventilation systems, and ground around the building, particularly near the ventilation exhaust. As ORNL suggested in the subject report, we have discussed with the site manager, Robert Cahlan, the need for a formal survey and the need to delay plans to fill and concrete the floor pits at the facility. In a telephone conversation on March 26, 1981, he stated that one of the pits had already been filled, but he would delay filling of any of the other pits until ORNL performed the radiological survey. I note that the ORNL survey is scheduled for this spring. Please inform us if this schedule changes.

Please transmit the following comments on the preliminary survey report to ORNL. In the future ORNL should not include a Recommendations section in these reports but include such information in the transmittal letter. However, the reports should contain a Conclusions section. This report should be revised by deleting the first and last sentences of the Recommendations section and changing the title to Conclusions. We consider the report to be comprehensive and well written however, a paragraph should be added that discusses the potential health effects of the continued present-day use of the facility. ORNL should also address the need to survey the equipment removed from the facility to Pittsburgh and Cheswick, Pennsylvania and finalize the report by late April so that copies can be sent to the facility owner.

Original signed by:

William E. Mott, Director  
 Environmental and Safety  
 Engineering Division (EP-14)  
 Office of Environmental Protection,  
 Safety, and Emergency Preparedness

cc: F. Haywood, ORNL

bcc: A. Whitman, EP-141  
Aerospace

EP-141:GTuri:ph:353-2766:4/13/81:EV72547:DF-86

CONCURRENCE
RTG. SYMBOL EP-141
INITIALS/SIG. Barber
DATE 4/7/81
RTG. SYMBOL EP-14
INITIALS/SIG. Mott
DATE 4/7/81
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OAK RIDGE NATIONAL LABORATORY

OPERATED BY  
UNION CARBIDE CORPORATION  
NUCLEAR DIVISION



POST OFFICE BOX X  
OAK RIDGE, TENNESSEE 37830

August 25, 1980

Mr. Arthur Whitman  
Environmental and Safety  
Engineering Division  
U. S. Department of Energy  
MS-E201  
Washington, D. C. 20545

Dear Art:

Subject: RASCA - Preliminary Site Survey Report for the Former Superior  
Steel Mill at Carnegie, Pennsylvania

Enclosed are four copies of the letter report for the subject preliminary survey conducted on July 31, 1980. As you can see, this site requires a formal survey, and should be scheduled for sometime in FY-1981. One problem with which we will have to deal is the physical condition of the site. There are several floor pits partially filled with rubble. From our measurements, some or all of these pits may be contaminated. To survey these pits will require removal of the fill material. Also, parts of the building are covered with a thick layer (up to two inches) of fine coke dust. In order to survey the surfaces adequately, this material would need to be removed.

Please let us know your comments on this draft so that we can prepare a final draft and initiate plans for a formal survey.

Sincerely,

A handwritten signature in cursive script, appearing to read "W. A. Goldsmith" or similar, with a flourish at the end.

F. F. Haywood  
RASCA Program Manager

FFH:vsw

cc: W. R. Bibb, w/enclosure(2)  
C. Clark, w/o enclosure  
S. V. Kaye, w/enclosure  
T. E. Myrick, w/o enclosure  
P. S. Rohwer, w/enclosure  
A. Wallo, w/enclosure

725/47

*Arthur Whitman  
Request  
Comments*

PRELIMINARY SITE SURVEY REPORT FOR THE  
FORMER SUPERIOR STEEL MILL AT CARNEGIE, PENNSYLVANIA

T. E. Myrick, C. Clark

Introduction

A portion of the former Superior Steel Company facility, located in Carnegie, Pennsylvania, was utilized under contract with the Atomic Energy Commission from 1952 to 1957 for the handling and milling of uranium metal. This processing consisted of some combination of salt bathing, rolling, brushing, shaping, cutting, stamping and coiling, depending on the desired final product. A schematic of the operations conducted in 1955 is presented in Figure 1. Due to this treatment and handling, large quantities of radioactive dust (principally uranium) were generated during operation. Ventilation of this airborne material was provided to varying degrees during the operational life of the plant, although the system was probably not adequate to prevent contamination of the working environment. No details of the post-operative facility decontamination are available.

At the request of the Department of Energy, a preliminary radiological survey at the former Superior Steel plant was conducted on July 31, 1980, by members of the Health and Safety Research Division at Oak Ridge National Laboratory (ORNL): The site visit was intended to provide information on the present condition and use of the former mill area and to determine the need for a detailed survey.

Site Description

The building that originally housed the uranium handling facilities is owned by Lange Machinery of Coraopolis, Pennsylvania. The site manager is Bob Cahlan. The large steel structure (see Figure 2) is divided into three basic areas, the former mill area (area A), the former motor room (area B), and the former rolling area (area C) as shown in Figure 3.

Area A (Figs. 4 and 5, approximately 24,000 sq. ft.) originally contained the salt bath, roughing mill, brushing station, finishing stands and shear, and was the location where the majority of the uranium metal handling and shaping is believed to have occurred. Only portions of the roughing (breakdown) mill were intact during this survey, all other machinery had been removed and sold or scraped in previous years. The roughing mill has since been removed. Subfloor pits over which the former mill, brushing station, finishing stands and shear were originally located (approximately 8 ft. deep) are presently being filled in with rubble, with final plans for concreting the surfaces over at floor level.

The former mill area is primarily being utilized in the rebuilding of coke oven doors. During the rebuilding process, significant quantities of fine coke is removed, part of which becomes airborne and settles out on surrounding surfaces. Years of this operation have resulted in coating the north end of the building with a layer of this material (up to 2 inches thick on the floor).

Area B (Fig. 6) housed the former motor room and control panels for the mill. This area (approximately 8250 sq. ft.) contained the large motors that provided power to the mill equipment in the adjacent room (area A). This area was considered the "clean" side of the mill, where the atmosphere was controlled to provide proper conditions for motor and instrument operation. The area is now being used for storage purposes.

Area C (Figs. 7 and 8, approximately 12,000 sq. ft.) was originally the location of the tail end of the mill process where the metal was rolled for shipping or prior to further handling. Two pits at the south end of the building (Fig. 9) indicate the prior locations of the bliss downcoiler and upender. Both pits are currently being filled in with rubble, with plans to concrete to floor level upon completion. The area is sealed off from the former mill area (area A) by a sheet-metal wall, and is used primarily for storage purposes. A small storage shed is attached to the west side of the building at the south end (Fig. 10).

Several parts of the original roughing mill and shear were located in a storage warehouse at the industrial park, also owned by Lange Machinery. This machinery was being stored prior to shipment to buyers. A list of the known buyers of the original mill equipment is provided in Table 1.

### Survey Procedures

The preliminary radiological survey of the former uranium mill facility consisted of: 1) an external-gamma scan of floor and lower wall surfaces in all buildings, 2) fixed alpha measurements on floor and wall surfaces in random locations in all areas, 3) beta-gamma dose rate measurements at selected locations, 4) external gamma and fixed alpha measurements on original machinery surfaces, and 5) sampling and analysis of mill residues. The present conditions at the facility (coke dust, debris in pits, stored materials covering floor) reduced the extent of the survey in certain locations. Future, more detailed surveys, could only be performed after a significant amount of building clean-up had been completed.

The instrumentation utilized in the performance of this survey included a gamma scintillation survey meter, a beta-gamma sensitive GM tube (with open/closed window option), and an alpha scintillation survey meter.

## Survey Results

### Area A (Former Mill Area)

The gamma-scan of this area indicated evidence of low-level contamination in the former roughing mill area, in and around the open pits (see Fig. 11). Gamma exposure rates 2 to 8 times the background level for the building were measured in this area (up to 50  $\mu\text{R/hr}$  in open pit). Gamma levels tended to increase towards the bottom of the pits, although, in this area, the bottom could not be reached due to presence of fill rubble. Gamma levels in the former finishing stands area where the pits had been concreted over were at background values. Beta-gamma measurements in the pit area ranged from 0.01 to 0.04 mrad/hr. Fixed alpha levels on walls, floors, and machinery showed no evidence of significant radioactive contamination, with a maximum recorded reading of approximately 50 dpm/100  $\text{cm}^2$ .

### Area B (Former Motor Room)

The gamma-scan of this area (Fig. 11) showed no evidence of radioactive contamination. All measurements were at the background level, except for stacks of bagged cement material which read up to 30  $\mu\text{R/hr}$  at the surface. Random fixed alpha measurements on walls and floor showed no signs of alpha contamination (0 to 10 dpm/100  $\text{cm}^2$ ).

### Area C (Former Rolling Area)

Two areas of significant radioactive contamination were located by the gamma scan of this area (see Fig. 11). The open pits exhibited gamma exposure levels 2 to 50 times the building background, with a maximum reading of approximately 500  $\mu\text{R/hr}$  observed at the bottom of the bliss downcoiler pit. The beta-gamma dose rate at this point was determined to be 0.8 mrad/hr, with a beta component of 0.3 mrad/hr. The direct alpha measurement on this dirt surface yielded 640 dpm/100  $\text{cm}^2$ . A sample of the residues present at the bottom of the pit at this location was taken and returned to ORNL for analysis. The sample was a combination of steel shavings, soil, and various other unidentified materials. The uranium content of the sample was determined to be 5800 pCi/g  $^{238}\text{U}$  (1.4% by wt.). No other radionuclides were present in sufficient quantities to be detected. Alpha measurements taken in the area surrounding the pit also showed evidence of low-level contamination (up to 100 dpm/100  $\text{cm}^2$ ). In the upender pit, gamma radiation levels of up to 75  $\mu\text{R/hr}$  were recorded, although access to the bottom of the pit was restricted by rubble.

The other area where contamination was found was in the small storage shed attached to the western side of the building. This shed (as shown in Fig. 10) has a wooden floor with fill dirt under the floor. The gamma scan of the shed indicated floor surface exposure rates varying from 75 to 400  $\mu\text{R/hr}$ , with a measurement at 1 m in the center of the room of approximately 90  $\mu\text{R/hr}$ . At the point of maximum gamma, the beta-gamma dose rate was determined to be 0.25 mrad/hr

(open-to-closed window ratio of 1:1). Direct alpha contamination at this point was 50 dpm/100 cm<sup>2</sup>. Outside the structure, gamma levels dropped off rapidly away from the shed walls, with a maximum exposure rate of about 200 µR/hr nearest the corner with maximum indoor readings. Based on this information, it was suspected that the fill under the floor was the source of radioactive contamination and a sample of the material was collected from the only accessible location (not the point of gamma maximum) for laboratory analysis. The results of this analysis indicate that the material under the floor of the shed was similar in makeup to that found in the downcoiler pit. The <sup>238</sup>U concentration in the sample was determined to be approximately 1100 pCi/g. No other radionuclides were detected.

#### Equipment in Storage

Several portions of the former roughing mill and shear that were currently in storage were gamma scanned and spot checked for fixed alpha. None of the equipment showed evidence of alpha contamination, although the gamma readings were 2 to 3 times the background level (up to 30 µR/hr).

#### Recommendations

Based on the results of the preliminary radiological survey at the former uranium handling facilities of Superior Steel Corporation, it is recommended that a formal, detailed survey of the building be conducted. Evidence of residual uranium contamination was found in the former mill room, the rolling area, and in a storage shed adjacent to the rolling area. The extent of the contamination in these areas, in particular in the floor pits below previous machinery locations, could not be determined due to present conditions in the building.

Prior to a formal survey, significant building clean-up must be performed. Included in this action would be the removal of rubble from the open pit areas. This operation would need to be supervised to control the potential spread of radioactive materials suspected to be interspersed within the rubble. The rubble would need to be checked upon removal for possible surface contamination and handled accordingly.

The current facility owner should be informed of the need for a formal survey, and should be cautioned to delay plans to fill and concrete the floor pits in the affected areas.

MAR 24 1978

C. Keller, OR

FORMERLY UTILIZED SITE ASSESSMENT

In review of the list of formerly utilized sites, one site, the Superior Steel Co., Carnigie, Pennsylvania, was not assigned for field evaluation. It is requested that OR initiate actions ASAP to contact the current owners of this site and determine the need for further radiological survey efforts by ORNL.

This site was first identified during the 1977 file review at EML. Enclosed is a copy of the 1955 survey report found in the HASL files.

By copy of this memorandum we are requesting Robert A. McFeely, SR, to provide your office with any contractual records or information they may have in their files regarding this former contractor.

ORIGINAL SIGNED BY  
R. W. RAMSEY

William E. Mott, Director  
Division of Environmental  
Control Technology

ECT  
RW Ramsey  
3/23/78

Enclosure:  
As stated

cc: R. A. McFeely, SR, w/encl.  
bcc: Aerospace  
Dr. Mott

ECT Allen  
Rallen:le  
3/23/78  
ECT Mott  
WEMOTT  
3/ 178  
KET

HASL-SUPERIOR STEEL

6  
SUPERIOR STEEL

SUPERIOR STEEL COMPANY

AIR DUST MONITORING OF HOT STRIP ROLLING OF URANIUM

by

Industrial Hygiene Branch  
Health and Safety Laboratory

Issued: November 15, 1955

Distributions:

- 1-W.B. Harris, HASL, NYOO
- 2-G.H. Giboney, SROO (THRU: P.J. Hagelston, SROO)
- 3-Superior Steel (THRU: SROO)
- 4-Superior Steel (THRU: SROO)
- 5-R.E. Albert, B&H, AEC, Wash.
- 6-File, HASL, NYOO

U. S. Atomic Energy Commission  
New York Operations Office  
Health and Safety Laboratory

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RESULTS	3
METHODS OF STUDY	4
OPERATING PROCEDURES	4
DISCUSSION	4
CONCLUSIONS AND RECOMMENDATIONS	6
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TABLE II - COMPARISON OF GENERAL AIR-PROCESS SAMPLE-BREATHING ZONES	9
FIGURE I - LAYOUT OF HOT STRIP MILL	

## INTRODUCTION AND PURPOSE

At the request of the Superior Steel Company and the Savannah River Operations Office, a visit was made by members of the Industrial Hygiene Branch to the Superior Steel Company Hot Strip Mill, Carnegie, Pennsylvania, on September 19, 1955 to:

1. Conduct an air hygiene survey during hot strip rolling of normal uranium slabs.
2. Compare the results of this survey to previous HASL studies.
3. Recommend additional controls and procedures based on the survey results.
4. Surface monitor the rolling mill during and after cleanup.

## RESULTS

The results of this survey show continued high dust concentrations throughout the Hot Strip Mill Area. Although ventilation has been installed at the roughing roll, improvement in dust control in that area has been more than offset by the introduction of slab brushing.

Brushing of the oxide loaded dry salt coating not only makes considerable  $U_3O_8$  airborne, but it exposes the bare metal to air oxidation throughout the remainder of the rolling. This oxide, which flakes off during finish rolling, becomes airborne and was also spread extensively along the length of the slab conveyor line increasingly adding to the air dust concentrations.

The ventilation which was installed at the shear station proved to be ineffective in controlling the air dust generated by the shearing. The mechanism of air contamination is the same as that described above.

High dust concentrations were found during slab stamping and handling operations. Loose oxide formed by oxidation of the metal also became airborne during these operations.

A radiation survey of the conveyor and roll areas after the completion of rolling operations indicated alpha surface contamination in excess of  $50,000 \text{ d/m}^2$  at many surface spots. Thorough hosing down of these areas with water proved to be an effective method of decontamination, reducing all surface contamination to negligible quantities.

Only a few of the recommendations made in previous Superior Steel survey reports have been complied with to date.

The survey results and recommendations were transmitted by phone to Mr. G. H. Giboney, SROO, on October 24, 1955 at his request.

## METHOD OF STUDY

The method of study is the same as reported in survey report Superior Steel No. 1. Thirty uranium slabs were processed during this study.

## OPERATING PROCEDURES

The following changes in procedures and facilities since the last survey were noted:

1. Installation of ventilation at the roughing rolls.
2. Brushing of rough-rolled slabs at conveyor area midway between roughing and finishing rolls.
3. Passing of brushed slab through 1, 4, and 5 finishing stands, numbers 2 and 3 being inoperative. This procedure was adopted to allow for a greater degree of cooling before final finish rolling.
4. Ventilation of shear.

## DISCUSSION

Table I contains the results of process, general air, and breathing zone samples taken to determine airborne dust contamination. Process and general air results are also shown in Figure 1.

Table II shows a comparison of the results obtained with those of previous surveys.

A summary of the main factors associated with the overall unsatisfactory state of dust control follows:

### 1. Roughing Mill

Adequate ventilation facilities have been provided at the feed and discharge sides of the roughing mill since the last survey. Face velocity measurements taken at various areas of the hooding ranged from 400-600 ft/min. Test smoke generated in the mill area at the roller conveyor level was completely controlled and effectively removed. Nevertheless, results of process samples taken at the feed and discharge sides averaged 325 d/w/m<sup>3</sup> and 195 d/w/m<sup>3</sup> respectively. It is believed that these high results reflect contamination of the air in the roughing mill area by other remote sources.

### 2. Brushing Station

A brushing station was installed between the roughing mill and finishing rolls since the last survey. The purpose of this

brushing is to remove the MgO-KCl salt coating which is claimed to result in surface pitting. Large clouds of dust were observed to spread rapidly in all directions during brushing operations. Results of 3 process samples taken at the brushing station averaged  $553 \text{ d/m}^3$ , ranging from  $250 \text{ d/m}^3$  to  $920 \text{ d/m}^3$ . An average of  $2680 \text{ d/m}^3$  was obtained from 3 process samples collected downwind from the brushing, at a point midway between the brushing station and the roughing roll. Exposure of the hot metal surface to the atmosphere has created a new and serious dust source which has counteracted any improvements in dust control caused by the installation of costly ventilation facilities at the roughing mill.

It is of interest to compare the general air uranium concentration ( $553 \text{ d/m}^3$ ) at the brushing station with the quantity of uranium collected on the respirator filters of the brushing operator ( $0.70 \text{ mg}$ ).

The brushing station operator wore the respirator for approximately 2 hours. Assuming a breathing rate of  $10 \text{ m}^3$  in an 8 hour day, the equivalent calculated breathing zone concentration is  $392 \text{ d/m}^3$ .

### 3. Finishing Rolls

There has been a significant rise in airborne dust around the finishing rolls. Airborne dust was very noticeable all along the finishing roll area and discharge conveyor area leading to the shearing station. Average results of process samples taken between finishing rolls 1, 3, 4, 5 and beyond were respectively  $797 \text{ d/m}^3$ ,  $564 \text{ d/m}^3$ ,  $480 \text{ d/m}^3$  and  $900 \text{ d/m}^3$ . Removal of the salt coating from the uranium slab at the brushing station exposed the surface to rapid oxidation in air. Vigorous working of the metal in the finishing rolls and the subsequent temperature rise causes the oxide to flake and become airborne. Airborne dust subsequently carried away local air currents, and local spalling has contaminated the entire mill area. Alpha surface readings taken at these conveyors were in excess of  $50,000 \text{ d/m}^2/100 \text{ cm}^2$ .

### 4. Shearing Operation

Ventilation facilities have been installed at the shear feed and discharge since the last survey. Velometer measurements taken at the slot openings ranged from 300-400 ft/min. However, the slot locations were so distant from the area of operation as not to permit effective dust control. A velometer reading at the work showed an air flow less than ambient (25 LFM). Average air dust concentrations of  $1743 \text{ d/m}^3$  and  $1840 \text{ d/m}^3$  were obtained respectively at the feed and discharge ends of the shear.

### 5. Stamping Operation

Minor stamping operations were done annually as during previous surveys. The entire rolled slab was observed to be covered with

loose oxide. Voluminous clouds of dust were generated during stamping operations. This is reflected by the high general air concentration (1770 d/m<sup>3</sup>) and breathing zone concentrations (8950 d/m<sup>3</sup>) obtained during these operations.

#### 6. Manual Slab Handling Operations

Handling techniques were very poor. Plates were moved carelessly from the stamping tables and scrap was tossed at random into a drum with the production of dust clouds. Results of 3 breathing zone samples taken during these operations averaged 2260 d/m<sup>3</sup>.

#### 7. Decontamination Operations

After slab rolling operations were completed, the roughing rolls, finishing rolls, and conveyers were hosed down with water. Thereafter a radiation survey of these areas was conducted using a Juno and 2610 beta-gamma survey meters. The results obtained indicated negligible surface contamination of the areas after wash-down.

#### CONCLUSIONS AND RECOMMENDATIONS

Excessive amounts of airborne contamination were found in all operational areas. The beneficial effects derived by the installation of local exhaust ventilation at the roughing roll have been more than offset by the introduction of a new dust source. The salt coat, which prevents oxide formation, is now brushed off after rolling. The effect of brushing has been to expose the hot metal slab to rapid air oxidation. Vigorous mechanical working of the bared metal then causes the oxide scale to flake off, contaminating the mill bed and the atmosphere.

It is our opinion that in order to reduce the high airborne concentrations found during hot strip rolling, either some method of preventing oxidation must be used or recommendations #2-15 set forth in previous HASL reports (Nos. 1 and 2) should be complied with.

TABLE I  
RESULTS OF OPERATIONAL AIR SAMPLES

Type Sample	Location and Description	Remarks	No. of Samples	Alpha Conc. d/m <sup>3</sup> /hr		
				Low	High	Over
Process	At discharge end of salt bath near runout table	--	2	14	360	187
Process	At feed end of rough roll between runout and rough roll	--	2	19	64	42
Process	At rough roll-feed side	3 passes	2	260	390	325
Process	At rough roll-discharge side	3 passes	2	190	200	195
Process	At discharge end of rough roll between roll and brushing station		2	122	363	213
Process	Midway between roughing roll hood and newly installed brushing station	during lunch 3 passes	1 3	18 1500	18 3320	18 2680
Process	At brushing station	during lunch 3 passes	1 3	11 250	11 920	11 583
Process	At feed end of #1 finishing roll		2	0.5	718	360
Process	At discharge end of #1 finishing roll	during lunch 3 passes	1 3	28 585	28 1100	28 797
Process	Between #3 & 4 finishing rolls	3 passes	2	527	600	564
Process	Between #4 & 5 finishing rolls	during lunch 3 passes	1 3	4.2 330	4.2 670	4.2 480
Process	At discharge end of #5 finishing roll	3 passes	2	520	1281	900
Process	Feed side of shear	during lunch 3 passes	1 3	250 1167	250 2382	250 1743
Process	Discharge side of shear	--	1	--	--	1840
General Air	Discharge end of stamping table	--	3	1158	2600	1768

TABLE I (Cont'd)

Type Sample	Location and Description	Remarks	No. of Samples	Alpha Conc. d/m <sup>3</sup> *		
				Low	High	Over
Breathing Zone	Stamping 3 sections of plate	--	3	4220	18,000	8950
Breathing Zone	Handling 1 plate	--	3	450	5750	2257

\*d/m<sup>3</sup> = Disintegrations per minute per cubic meter of air  
 100 d/m<sup>3</sup> = MAC - Maximum allowable concentration tentatively used by NYOO

TABLE II

## COMPARISON OF GENERAL AIR-PROCESS SAMPLE - BREATHING ZONES

Type Sample	Location and Description	Alpha Concentration $\mu\text{Ci}/\text{m}^3$				No. of Samples
		May 13, 1953	Aug 31, 1953	May 9, 1955	Sept 19, 1955	
	Vicinity of salt bath	—	250	42	187	2
	West of Mill runout table	29	861	44	—	1
	East of Mill runout table	39	1514	78	42	2
	South West of Roughing Roll (15' away)	2350	1254	—	—	1
	Directly at roughing roll (feed)	1280	38,520	330	325	2
	Directly at roughing roll (discharge)	2150	1660	336	195	2
Process Air	North East of roughing roll (15' away)	1400	98	—	243	2
	West of flying shear	11	—	—	—	1
	West of brushing station	—	—	—	—	1
	At brushing station	—	—	—	2680	1
	North West of finishing stand #1	—	—	—	553	1
	Between Finishing stands 1 and 2	310	—	—	360	1
	Between finishing stands 2 and 3	—	—	—	797	1
	Between finishing stands 3 and 4	660	150	—	—	1
	Between finishing stands 4 and 5	375	1263	212	564	2
	Directly east of finishing stand 5	7200	262	121	480	1
	North west of shear	7600	1950	86	800	1
	North east of shear	—	—	954	1743	1
General Air	Discharge end of stamping table	—	—	—	1840	1
Breathing Zones	Cutting 1 plate into 3 sections at shear	—	—	—	1768	1
	Stamping 3 sections of plate	—	—	9150	—	1
	Handling plate and tossing scrap into drum	—	—	20,170	8950	3
		—	—	2044	2257	2

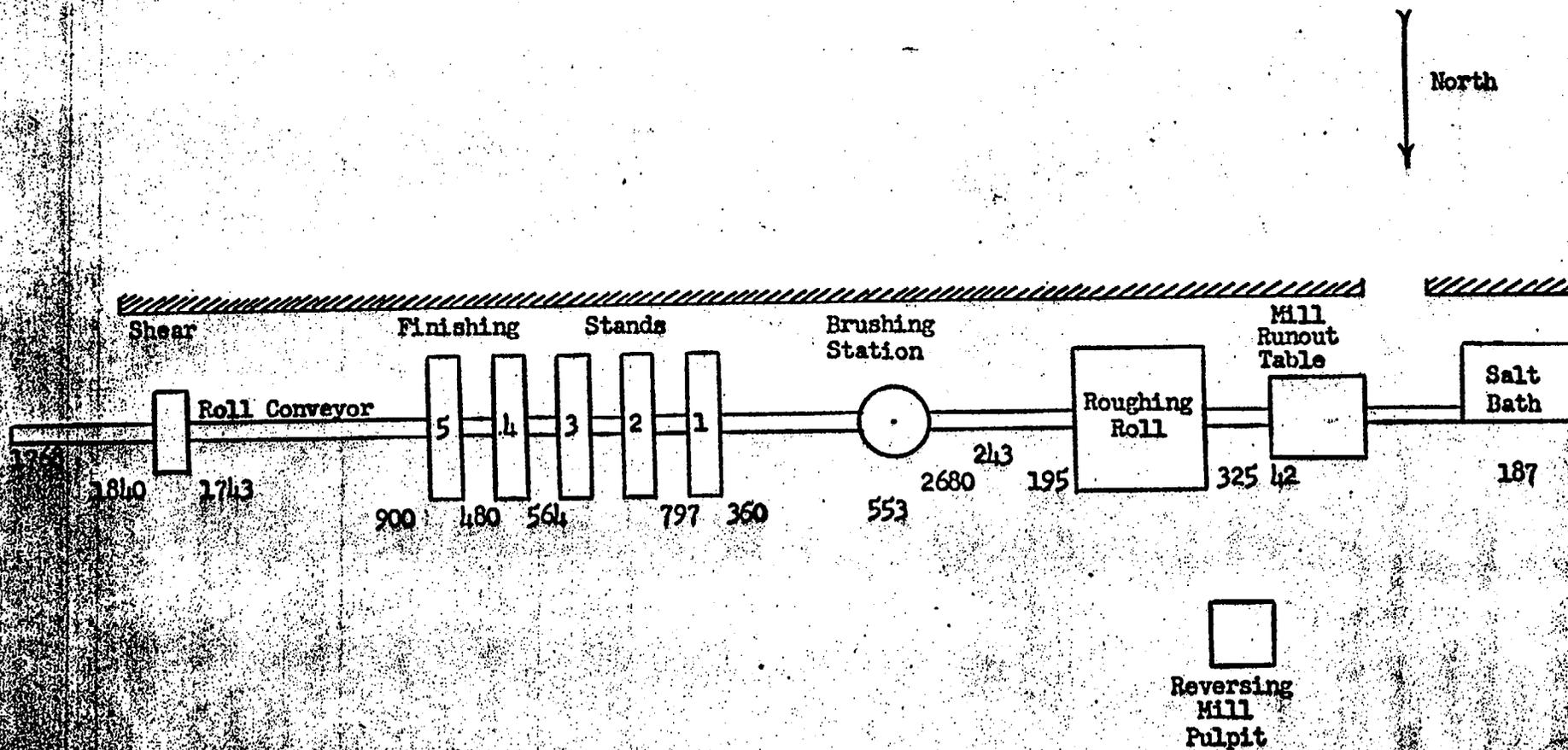


Figure 1

Superior Steel Company-Carnegie, Pa.

Layout of Hot Strip Mill Showing  
Location of Average Operational  
Dust Samples

Note: Average dust concentration  
expressed as dis/min/cu. meter

AUG 3 1978

C. Keller, OR

SUPERIOR STEEL CO., CARNEGIE, PENNSYLVANIA SITE LOCATION

Information provided by Carol Steele, PEEC, indicates that after the Superior Steel Site was sold, it was developed into what is now known as the Carnegie Industrial Park located on Superior and Hammond Streets, Scott Township. There are about ten businesses on about 25 acres of land. Apparently, there is no longer any central office for this industrial park but each business owns a portion of the former site.

You are requested to identify the current property owners in this industrial park as soon as possible and contact each concerning a visit to determine any further radiological survey needs. Enclosed is a rough map indicating the general location of the site. Please keep me informed of your plans.

William E. Mott, Director  
Division of Environmental  
Control Technology

Enclosure:  
As stated

bcc: Aerospace  
W. L. Brown  
P. Garon  
L. Arzt  
W. Mott

ECT  
REALien:lc  
7/28/78

ECT AD/N  
RW Ramsey  
8/2/78

ECT DIR  
WEMott  
8/2/78

MAR 24 1978

C. Keller, OR

FORMERLY UTILIZED SITE ASSESSMENT

In review of the list of formerly utilized sites, one site, the Superior Steel Co., Carnegie, Pennsylvania, was not assigned for field evaluation. It is requested that OR initiate actions ASAP to contact the current owners of this site and determine the need for further radiological survey efforts by ORNL.

This site was first identified during the 1977 file review at EML. Enclosed is a copy of the 1955 survey report found in the HASL files.

By copy of this memorandum we are requesting Robert A. McFeely, SR, to provide your office with any contractual records or information they may have in their files regarding this former contractor.

ORIGINAL SIGNED BY  
R. W. RAMSEY

William E. Mott, Director  
Division of Environmental  
Control Technology

ECT  
RW Ramsey  
3/23/78

Enclosure:  
As stated

cc: R. A. McFeely, SR, w/encl.

bcc: Aerospace  
Dr. Mott

ECT  
RAllen:le  
3/23/78  
ECT  
WEMott  
3/ / 78  
KKT

**OAK RIDGE NATIONAL LABORATORY**

OPERATED BY  
**UNION CARBIDE CORPORATION**  
NUCLEAR DIVISION



POST OFFICE BOX X  
OAK RIDGE, TENNESSEE 37830

April 29, 1981

R. W. Barber  
Environmental and Safety  
Engineering Division  
U.S. Department of Energy  
MS-E201  
Washington, D.C. 20545

Dear Bob:

RASCA - Preliminary Site Survey Report for the  
Former Superior Steel Mill at Carnegie, Pennsylva

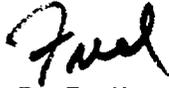
Enclosed are four copies of the final version of the report, revised per comments received on April 16. As indicated in our original transmittal letter, August 25, 1980, a formal survey of this facility should be carried out. Your attention is directed to the fact that significant building cleanup will be required prior to the initiation of any survey effort. This cleanup would consist of removing coke dust from vertical and horizontal surfaces, removal or rearrangement of stored materials to provide adequate survey access, and removal of rubble located in subfloor pits to allow for investigation of the lower walls and floors of those pits. Such cleanup activities will be expensive, and would need to be supervised to minimize the potential for personnel exposure. In addition, the coke dust and other debris would need to be sampled and otherwise monitored to ensure that no radioactivity was inadvertently directed to a clean landfill. Service contracts for site cleanup will need to be negotiated prior to final scheduling of this survey.

In addition, inspection surveys of original mill equipment that has left the site (see Table 1 of preliminary survey report) should be conducted to determine the current status of this equipment. Contact should be made with the owners of this equipment to obtain consent forms for a survey. These surveys, which could be arranged by us, could be conducted during the same time period as the survey at Superior Steel.

R. W. Barber, DOE  
Page 2  
April 29, 1981

Please let us know if you concur in these plans. Also, if further information concerning the subject report is required, let us know. Details of the proposed survey effort at Superior Steel will be forthcoming soon.

Sincerely,



F. F. Haywood  
RASCA Program Manager, ORNL

FFH:ror

cc: W. R. Bibb, DOE-ORO  
P. S. Rohwer

JUN 8 1981

EP-141

RASCA - Preliminary Site Survey Report for the Former Superior Steel Mill, Carnegie, Pennsylvania

William Bibb, OR

The plans and recommendations as presented in Dr. Fred Haywood's letter to Mr. R. Barber, dated April 29, 1981, were reviewed by this office, as was the subject report, and are satisfactory for implementation after contact by this office with the respective owners of property and equipment.

Original signed by Robert W. Barber

William E. Mott, Director  
Environmental and Safety  
Engineering Division (EP-14)  
Office of Environmental Protection,  
Safety, and Emergency Preparedness

cc: J. Berger, ORAU  
W. Goldsmith, ORNL

bcc: A. J. Whitman, EP-141  
Aerospace

EP-141:AJWhitman:dr:353-5439:6/4/81:EP-14-81-152:DF-86

*Landis Perry - owner  
412-923-2611  
412-266-8570*

*Bob Calahan  
412-923-2422  
412-276-5320  
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po 49!  
Caryn. Pa 15/06*

CONCURRENCE	
RTG. SYMBOL	EP-141
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DATE	6/8/81
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JAN 17 1979

*Superior Steel*  
*DE-80*

EV-1

**REQUEST FOR INFORMATION ON FORMER SUPERIOR STEEL COMPANY ACTIVITIES**

**Nathaniel Stetson, Manager, SR**

In our review of formerly utilized Manhattan Engineer District and Atomic Energy Commission (MED/AEC) sites, we have identified the Superior Steel Company, Carnegie, Pennsylvania, as a former SR contractor during the 1950's. We have been unable to locate any specific information on the operations conducted at this site for AEC-SR other than a Health and Safety Laboratory (HASL), New York, survey report dated November 15, 1955.

It is requested that all available information on AEC contract operations at the Superior Steel Company, Carnegie, Pennsylvania, in SR files be made available to this office for review. If this is not possible, the most specific information needed is the exact locations (buildings) where radioactive materials were stored and handled in the Superior Steel Complex and the approximate quantities and types of radioactive materials handled in the operations.

We have recently determined that the former Superior Steel Company site has been sold several times and is now an Industrial Park with individual owners of each of the former buildings. Before we initiate contact with the current owners regarding further review of the site, we need information on exactly which of the buildings were involved with the AEC-SR contract operations.

Your expeditious assistance in this matter would be appreciated.

Original signed by  
Ruth C. Clusen  
Assistant Secretary for Environment

Ruth C. Clusen  
Assistant Secretary for Environment

*bcc: Aarnopare*  
*Dr. Matt*

*vm*

ECT:NP	ECT:NP	ECT:PIR	OEGO	ONS	DASEV	ASEV
REAllen:cc	RWRamsey	WEMott	RJCatlin	JWhitnah	JLLiverman	RCClusen
1/11/79	1/11/79	1/12/79	1/12/79	1/15/79	1/16/79	1/17/79

AUG 18 1979

B1023

EV-131

2.26.3

Formerly Utilized MED/AEC Site Radiological Survey Program

N. Stetson, Manager, SR

During the period of approximately 1954 to 1960, the Superior Steel Company, Carnegie, Pa., performed certain special services for the Savannah River Plant programs of fuel development. We believe that Superior Steel's scope of work under these contracts included the heat treatment and rolling of uranium metal into plates, rods, and other forms for use in reactor operations at Savannah River.

The site of these early operations is included in the Formerly Utilized Sites Remedial Action Program (FUSRAP) as one for which a radiological survey may be required. In order for the Oak Ridge National Laboratory to proceed with plans to visit this site and determine the need for a formal survey, it would be helpful to review the contracts or other pertinent documents which describe Superior Steel's work. Therefore, we request that a search be made to locate pertinent documents or to document recollections of such activities and to transmit copies of such documents or prepared descriptions to Mr. Robert W. Ramsey, Jr., Environmental Control Technology Division, and to Mr. E. C. Keller, Director, Technical Services Division, DOE, Oak Ridge, TN 37830.

Original signed by  
Ruth C. Clusen  
Assistant Secretary for Environment  
Ruth C. Clusen  
Assistant Secretary for Environment

bcc: Aerospace ←  
W. E. Mott, ECT

27890 LWS  
91 LWS

CONCURRENCES	
RTG. SYMBOL	EV-131
INITIALS/ SIG.	RWRamsey
DATE	8/6/79
RTG. SYMBOL	EV-13
INITIALS/ SIG.	WEMott
DATE	8/1/79
RTG. SYMBOL	EV-10
INITIALS/ SIG.	TFrangos
DATE	8/1/79
RTG. SYMBOL	EV-50
INITIALS/ SIG.	JWhitna
DATE	8/1/79
RTG. SYMBOL	EV-5
INITIALS/ SIG.	CE
DATE	8/10/79
RTG. SYMBOL	EV-3
INITIALS/ SIG.	LBrothers
DATE	8/1/79
RTG. SYMBOL	EV-1
INITIALS/ SIG.	RCClus
DATE	8/1/79
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