

THE HARSHAW CHEMICAL COMPANY

1846 EAST 97TH STREET
CLEVELAND 6, OHIO
RANDOLPH 1-8300

January 14, 1959

Contract File
no #
Harshaw Contract
Close our
ENTEL

OH.4

United States Atomic Energy Commission
Oak Ridge, Tennessee

Attention: Mr. John W. Ruch

Subject: Refer to: OF:WJM

Overhead Computations under Contract No. W-7405-ENG-276

Dear Mr. Ruch:

For several years the Harshaw Chemical Company did business with the A. E. C. and operated according to contract which included a set of "Ground Rules". Several sets of A. E. C. auditors and G. A. O. men examined our books with no exception taken to the overhead percentage and its application which indicated a uniformity of opinion as to what was negotiated in the ground rules letter. Almost coincidentally with cessation of operations and inauguration of stand-by status the N. Y. O. O. of A. E. C. closed as far as Harshaw was concerned and Oak Ridge A. E. C. became the administrative office. The "Ground Rules" letter was only amended, as far as we were concerned, to cover the change from "operating" to "stand-by" status. Oak Ridge A. E. C. auditors then, not knowing what was originally negotiated took exception in effect, to past interpretations of A. E. C., G. A. O. auditors and Harshaw.

Mr. Homberg's letter was only intended to be a compromise.

We are disturbed at being "interpreted" out of what we had initially "negotiated". As soon as the A. E. C. inspects our building for decontamination and accepts the performance so that Harshaw can bill we will credit the billing in the amount of \$653.69.

Very truly yours,

G. R. Farnelius
G. R. Farnelius
Plant Manager

GRF/ct

94032300B3 940315
PDR ADDCK 04008724
B PDR

1959 JAN 14 1:30

OVERSEAS OPERATIONS
N.Y.C.

BUDGET, ACCTG. & FINANCE

FINAL RELEASE

Contract No. W-7405-Eng-276

Contractor THE HARSHAW CHEMICAL COMPANY

The work under Contract No. W-7405-Eng-276 dated _____ between the United States of America (represented by the Atomic Energy Commission), and the undersigned Contractor, having been (completed and finally accepted) (██████████), and in consideration of final payment thereunder, the United States of America, its officers and agents, are hereby released from all claims and demands whatsoever arising under or by virtue of said contract, except as follows:

None

Executed this 23rd day of December, 1959.

Witnesses:

Mildred F. Skull
1670 Bayliff Rd., E. Cleveland, Ohio
(Address)

Louis L. Eden
14633 Euclid Ave., E. Cleveland, Ohio
(Address)

THE HARSHAW CHEMICAL COMPANY

(Contractor)

By 

C. S. Parks, President

(Official Title)

(Two witnesses required)

ASSIGNMENT

KNOW ALL MEN BY THESE PRESENTS, that THE HANSHAW CHEMICAL COMPANY (Contractor) (a corporation organized and existing under the laws of the State of Ohio, with its principal place of business at 1015 W. 17th St., Cleveland, Ohio) has been engaged in performing work under Contract No. W-7405-Eng-276 with the UNITED STATES OF AMERICA (hereinafter called the "Government"), represented by the UNITED STATES ATOMIC ENERGY COMMISSION (hereinafter called the "Commission"), work under said contract having been (completed and finally accepted) [REDACTED], and in consideration of the terms of said contract and final payment thereunder, the undersigned contractor does hereby presently assign and transfer to the Government, to the extent not heretofore assigned or transferred to the Government, (a) any and all subcontracts, purchase orders, and other agreements entered into in the performance of the contract and all the rights and interests it may have thereunder, except those listed in Schedule "A" attached hereto, including without limitation transfer of the administration of such subcontracts, purchase orders, and other agreements; and (b) all of its rights to and interests in any refunds, rebates, allowances, accounts receivable, or other credits applicable to or in connection with any expenditures which were allowable costs under the said contract, except as specifically set forth in Schedule "B" attached hereto and hereby expressly made a part hereof.

In addition, the undersigned Contractor does hereby presently assign and transfer to the Government all rights and interests of the Contractor in any refunds, rebates or other credits, applicable to or against any expenditures which were allowable under the above-numbered contract which are not presently known but which may materialize at a later date.

The Contractor named above agrees to furnish, at the expense of the Government, any and all assistance which may be required of (it) (him) in connection with the enforcement of the rights or interests herein assigned or the settlement or defense of claims or litigation arising out of the subcontracts, purchase orders, or other agreements herein or heretofore assigned or transferred, such assistance to include furnishing any and all pertinent records, correspondence, documents, and other papers in (its) (his) possession, and the assistance of employees possessing knowledge of the facts for conference and for attendance in court as witnesses in connection with the enforcement of said rights or the settlement or defense of said claims or litigation.

The Government, for its part, does hereby assume all obligations which the Contractor may have under the subcontracts, purchase orders, and other agreements herein or heretofore assigned or transferred, to the extent that such

obligations are allowable costs under the above-numbered contract and does hereby release the Contractor from all liability and responsibility for the collection of any of said refunds, rebates, allowances, accounts receivable, or other credits herein assigned, and for the enforcement of any rights, or the defense of any claims or litigation with respect thereto, except as herein provided.

Executed this 29th day of December, 1959.

THE HANSHAW CHEMICAL COMPANY

Contractor

WITNESSES:

By: 

C. S. Parks, President

Official Title

Mildred L. Shull

1870 Parkfield Rd. E. Cleveland, Ohio
(Address)

David L. Eden

14633 Euclid Ave, E. Cleve. 12, Ohio
(Address)

ACCEPTANCE BY UNITED STATES OF AMERICA

BY: U. S. ATOMIC ENERGY COMMISSION

TITLE: _____

If the Contractor is a corporation, the following certificate will be executed: John W. Ruch, Director Feed Materials Division

CORPORATE CERTIFICATE

I, W. H. Brown, certify that I am the _____ Secretary of the corporation executing the foregoing assignment; that C. S. Parks, who signed the said document on behalf of the assignor, was then President (officer) of said corporation; that I know his signature, and his signature thereto is genuine; and that said assignment was duly signed, sealed, and attested for and in behalf of said corporation by authority of its governing body.

(Corporate Seal)



Modification No. 85
Supplemental Agreement to
Contract No. W-7405-Eng-276

SUPPLEMENTAL AGREEMENT

THIS SUPPLEMENTAL AGREEMENT, entered into the 25 day of June 1958, by and between the UNITED STATES OF AMERICA (hereinafter referred to as the "Government"), represented herein by the UNITED STATES ATOMIC ENERGY COMMISSION (hereinafter referred to as the "Commission"), and the HARSHAW CHEMICAL COMPANY (hereinafter referred to as the "Contractor"), a corporation organized and existing under the laws of the State of Ohio, with its principal office in Cleveland, Ohio;

WITNESSETH THAT:

WHEREAS, the Government and the Contractor entered into Contract No. W-7405-Eng-276, dated May 27, 1944, providing for the design, equipping and operation of a plant by the Contractor; and

WHEREAS, the said contract has been amended heretofore by Modifications Nos. 1 - 84; and

WHEREAS, Modification No. 84 expressed the agreement of the parties with respect to certain matters, including the decontamination of equipment to be transferred to the Contractor and the Contractor's premises, involved in closing out the said contract; and

WHEREAS, the parties now desire to further amend the contract with respect to certain of the aforementioned matters; and

WHEREAS, this Supplemental Agreement is authorized by and executed under the Atomic Energy Act of 1954 in the interest of the common defense and security;

NOW, THEREFORE, said Contract No. W-7405-Eng-276 is modified in the following respects, but in no others:

1. In Article II-A - Operation And/Or Use Of Plant C By Government, delete subparagraph c. of Paragraph 6 and substitute the following new subparagraph c. therefor:

"c. Decontamination.

The Contractor shall decontaminate all equipment transferred to it pursuant to subparagraph d. of this paragraph and its own premises used in the performance of this contract. Such decontamination shall be in accordance with the recommendations contained in the document

entitled "Attachment To Modification No. 85", which is hereby made a part of this contract. The Contractor shall also comply with the said recommendations as they concern the handling, use or ultimate disposition of any of the equipment transferred to it. The Contractor shall endeavour to complete decontamination of its premises not later than June 15, 1958, after which an inspection to determine remaining radiation shall be made by the Commission. The Contractor shall promptly take any additional steps deemed necessary by the Commission, upon the basis of its inspection, to reduce contamination of the premises to acceptable levels. The Commission shall furnish technical advice and assistance to the Contractor with respect to the accomplishment and the sufficiency of the required decontamination work. All uranium and uranium compounds accumulated in the course of the decontamination work shall remain the property of the Government and shall be removed from the Contractor's premises as soon as practicable after completion of all decontamination work. Upon completion and approval by the Commission of decontamination of the premises, the Commission shall promptly pay to the Contractor the lump sum of \$4,875 as its full share of the cost of such work. The Contractor shall be solely responsible for all costs in excess of that amount incurred by it in connection with the decontamination of its premises and for all costs incurred by it in connection with the decontamination of equipment hereunder."

IN WITNESS WHEREOF, the parties hereto have executed this Supplemental Agreement the day and year first above written.

THE UNITED STATES OF AMERICA

BY: U. S. ATOMIC ENERGY COMMISSION

BY: John R. Brown
(Contracting Officer)

WITNESSES:

Claudia C. Tucker
Claudia C. Tucker
3159 W. 11th Street Clevs.(9)
(Address)

Robert L. Doland
Robert L. Doland
245 Meadowlane, Seven Hills,
(Address)
Cleveland 31, Ohio

THE HARSHAW CHEMICAL COMPANY

BY:

GR Feenebiss
TITLE: Plant Manager

RADIOACTIVE CONTAMINATION SURVEY
OF URANIUM REFINERY AT
Harshaw Chemical Company
1000 Harvard Boulevard
Cleveland, Ohio

Survey conducted on November 21, 1957

1. Introduction

This is a report of a contamination survey of the buildings which formerly housed the uranium refinery and associated activities, after all equipment had been removed except for the Rockwell furnace, two denitration pots and some process vessels in the recovery area. Some floor surfaces had already been extensively decontaminated and the walls had been steam cleaned. The purpose of the survey was not specifically to define the residual contamination levels in detail but to locate those areas where residual contamination was of such magnitude that it might represent a potential radiation or contamination control problem which would require that restrictions be imposed on the subsequent use of the building.

The general comments (Item 2) which follow define the conditions of the survey, the basis for evaluation, and offer guidance pertinent to subsequent use or disposition of the building and equipment. The specific recommendations (Item 3) are designed to eliminate potential hazards associated with the presently contemplated use of the building. These recommendations are intended primarily to provide a basis for considering what is necessary to restore the building to a usable condition.

Any questions which require the evaluation of health hazards to personnel and are not covered by this report should be referred to a competent authority on radiation protection for interpretation.

2. General Comments

A. Building

The building walls have been washed so that the residual contamination can generally be regarded as fixed. There were some locations where the wall cleaning was not totally effective and loose contamination was evident. Generally speaking, the residual contamination on the walls is not of sufficient magnitude to constitute a health hazard and can be effectively covered and controlled by the application of a coat of paint wherever this is deemed desirable.

It is not possible to speculate regarding the extent to which existing floor contamination is either loose or fixed, especially since the ground

floor, which bore the higher contamination levels, was littered, dirty, and in some places, wet. It is presumed, however, that some fraction of this floor contamination is not fixed and could be removed by a general floor cleaning and washing.

All sumps and drainage trenches must be presumed to be contaminated. It is understood that decontamination of these sumps and trenches has not been attempted nor is it contemplated. Some of the sumps are partially filled with water and it is quite likely that many of them have held up a quantity of contaminated sludge. This water and sludge must be regarded as contaminated and its disposal must be appropriately controlled.

B. Equipment

In addition to those equipment items which have been surveyed and are known to be contaminated, any items of equipment which are known or assumed to have contained uranium, and are not readily accessible with survey instruments, must be presumed to be contaminated. This might include exhaust ducts, vent lines, vacuum lines, drain lines, process vessels, etc. Several items of contaminated equipment remain in the plant area. The process vessels in the recovery area are of particular interest in this regard. The subsequent use of any of these items should be carefully evaluated and controlled, with the extent of control dependent upon the degree to which contamination is successful and residual contamination fixed. The concern here might or might not be for the potential health hazards that are involved, depending upon the nature and contemplated use of the chemicals processed in these vessels. However, in any event, there would be concern for the introduction of radioactivity into the chemicals processed in these vessels from the standpoint of chemical purity. This is particularly true of chemicals which may subsequently be used in the production or processing of photographic film.

The disposal of any contaminated equipment items should be accomplished in accordance with AEC Manual Chapter 5170-1410 and 1411. It may be necessary to regard the Rockwell furnace and the denitration pots as scrap and dispose of them in accordance with the provisions of AEC Manual Chapter 5182, since the residual uranium contamination of inner parts of this equipment appears to be of such magnitude that decontamination to a safe level may not be feasible. These and other items which are similarly contaminated should be handled as contaminated waste.

Any attempts to decontaminate equipment items should be properly controlled and the decontaminating agents should be handled as contaminated waste. Proper ventilation and/or respiratory protection during sand blasting or grinding on contaminated surfaces of the equipment and similar safety practices would be included in proper controls.

C. Contamination Levels

The results of the contamination survey have been furnished to the Contractor. Uranium alpha contamination levels below 2,000 d/m/100 cm² may be regarded as not significant. Surfaces and equipment contaminated at or below this level may, for all practical purposes, be regarded as uncontaminated from the standpoint of health protection.

Fixed alpha contamination levels between 2,000 and 15,000 d/m/100 cm² in this particular case are undesirable but do not constitute a radiation or health hazard.

Alpha contamination levels above 15,000 d/m/100 cm² represent uranium deposits in excess of 10 mgs/100 cm² which is sufficient to produce measurable beta radiation dose rates. Where it is likely that personnel will remain in close proximity to such areas for extended periods, efforts should be made to reduce the residual contamination below this level.

3. Recommendations

First Floor (Sketches showing area number designations referenced below have been furnished to the Contractor)

A. The concrete floor in area 15, the recovery area, is grossly contaminated and the concrete is pitted which prevents further decontamination. This floor should be resurfaced to reduce contamination to acceptable levels.

B. Visible spills on floors, and contaminated floor surfaces which exceed 15,000 d/m/100 cm² in areas 1, 4, 5 and 10 should be re-washed to assure that residual contamination is fixed.

C. The floor under the denitration pots in area 5 appears to be highly contaminated with uranium which has seeped under the walkway platform. This area will require extensive decontamination and probably some additional surface treatment when these pots have been removed.

D. Floors in areas 5 and 11 are littered and some of the litter appears to be contaminated. A general clean-up is required.

E. A thorough floor cleaning is required in the pilot plant areas 2, 3, and 4.

Second Floor

A. The green salt spill in area 21 requires additional decontamination.

B. A lead sink, bench tops and an assortment of used equipments parts are in area 21 (the laboratory) and are obviously contaminated. The lead sink should be discarded, the equipment to be reused should be cleaned and repainted if necessary and the floor in this area should be thoroughly cleaned.

Third Floor

A. The floors on this level require decontamination.

B. There are visible spills on the metal pans that cover holes in the floor. These pans require decontamination and perhaps painting will be necessary.

4. General

The floor in areas 10, 26, 27, and 33 need to be resurfaced to restore them to usable condition either because they are presently broken up or they contain tank wells. There is visible contamination in the tank wells and the floor in area 33 is in a condition which prohibits an adequate survey. If the floors are to be resurfaced, this will adequately control the contamination which remains, otherwise additional decontamination is required.

s/ Arthur Schoen

Arthur Schoen, Health Physicist
Research and Development Division
U. S. Atomic Energy Commission
Post Office Box E
Oak Ridge, Tennessee

OH.4

[Handwritten initials]
Return to
Contract Section

SUPPLEMENTAL AGREEMENT

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WITNESSETH THAT:

WHEREAS, the Government and the Contractor entered into Contract No. W-7405-Eng-276, dated May 27, 1944, providing for the design, equipping and operation of a plant by the Contractor; and

WHEREAS, the said contract has been amended heretofore by Modifications Nos. 1 - 84; and

WHEREAS, Modification No. 84 expressed the agreement of the parties with respect to certain matters, including the decontamination of equipment to be transferred to the Contractor and the Contractor's premises, involved in closing out the said contract; and

WHEREAS, the parties now desire to further amend the contract with respect to certain of the aforementioned matters; and

WHEREAS, this Supplemental Agreement is authorized by and executed under the Atomic Energy Act of 1954 in the interest of the common defense and security;

NOW, THEREFORE, said Contract No. W-7405-Eng-276 is modified in the following respects, but in no others:

1. In Article II-A - Operation And/Or Use Of Plant C By Government, delete subparagraph c. of Paragraph 6 and substitute the following new subparagraph c. therefor:

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The Contractor shall decontaminate all equipment transferred to it pursuant to subparagraph d. of this paragraph and its own premises used in the performance of this contract. Such decontamination shall be in accordance with the recommendations contained in the document

[Handwritten signature: Alice Brown]

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entitled "Attachment To Modification No. 85", which is hereby made a part of this contract. The Contractor shall also comply with the said recommendations as they concern the handling, use or ultimate disposition of any of the equipment transferred to it. The Contractor shall endeavour to complete decontamination of its premises not later than June 15, 1958, after which an inspection to determine remaining radiation shall be made by the Commission. The Contractor shall promptly take any additional steps deemed necessary by the Commission, upon the basis of its inspection, to reduce contamination of the premises to acceptable levels. The Commission shall furnish technical advice and assistance to the Contractor with respect to the accomplishment and the sufficiency of the required decontamination work. All uranium and uranium compounds accumulated in the course of the decontamination work shall remain the property of the Government and shall be removed from the Contractor's premises as soon as practicable after completion of all decontamination work. Upon completion and approval by the Commission of decontamination of the premises, the Commission shall promptly pay to the Contractor the lump sum of \$4,875 as its full share of the cost of such work. The Contractor shall be solely responsible for all costs in excess of that amount incurred by it in connection with the decontamination of its premises and for all costs incurred by it in connection with the decontamination of equipment hereunder."

IN WITNESS WHEREOF, the parties hereto have executed this Supplemental Agreement the day and year first above written.

THE UNITED STATES OF AMERICA

BY: U. S. ATOMIC ENERGY COMMISSION

BY: /s/ John R. Moore
(Contracting Officer)

WITNESSES:

THE HARSHAW CHEMICAL COMPANY

BY: /s/ G. R. Fernelius
TITLE: Plant Manager

/s/ Claudia C. Tucker
Claudia C. Tucker
3159 W. 11th Street Cleve.(9)
(Address)

/s/ Robert L. Doland
Robert L. Doland
245 Meadowlane, Seven Hills,
(Address)
Cleveland 31, Ohio

MOD. 83

MOD.

FOIA Office Memorandum • UNITED STATES GOVERNMENT

TO : J. W. Gould, Jr., Assistant General Counsel

DATE: April 28, 1958

FROM : John R. Moore, Director, Contract Division

SUBJECT: CONTRACT NO. W-7405-ENG-276 WITH HARSHAW CHEMICAL COMPANY

RE: ACC:RE

Please prepare a Modification No. 85 to the subject contract in accordance with the attached memorandum dated April 25, 1958, from the Director, Feed Materials Division. Although representatives of the Contract Division have not participated directly in these latest negotiations with Harshaw, Ralph Elson of this office, along with your J. C. Winkles, has discussed the matter on various occasions with the Feed Materials Division. We feel that the lump sum settlement, which has been negotiated on the basis of cost estimates, is entirely satisfactory, and is actually considerably lower than had been anticipated some time ago. Modification No. 84 to the contract provided that the AEC would stand one-half of Harshaw's costs of decontamination, such costs to be determined in accordance with the ground rules letter which at that time was governing reimbursements. That modification further provided that there would be no need for a further modification. The reason for that provision was actually to assure everyone that the contract was being closed out, except for decontamination, and there were at that time no definite estimates on which to base any lump sum amount for such decontamination. It is quite apparent now that the procedure proposed by the Feed Materials Division is more appropriate and that the contract should be so modified in order that prompt close out may be effected in the most simple, expeditious and least costly fashion.

As indicated above, Mr. Winkles of your office is thoroughly familiar with this matter.

John R. Moore

Enclosure:
Memo w/attachs. dtd. 4-25-58

CC: John W. Ruch

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Office Memorandum • UNITED STATES GOVERNMENT

John R. Moore, Director, Contract Division

DATE: April 25, 1958

FROM: John W. Ruch, Director, Feed Materials Division

H 4/25
Ed [unclear] 4/28
Believe
this is
your [unclear]

SUBJECT: REQUEST FOR MODIFICATION OF CONTRACT NO. W-7405-ENG-276, HARSHAW CHEMICAL COMPANY

SYMBOL: OF:WJM

Reference is made to subject contract, Modification No. 84, Article II-A, Paragraph 6.c., which provides for decontaminating the premises and equipment of Harshaw's Harvard-Denison Plant "C", 1000 Harvard Avenue, Cleveland, Ohio. Reference is also made to the following enclosures:

1. "Radioactive Contamination Survey of Uranium Refinery at Harshaw Chemical Company," by Mr. A. A. Schoen, dated November 21, 1957.
2. Attachment "A" to above survey, "Contamination Survey Measurements."
3. Attachment "B" to above survey, "Plant C Floor Plans."
4. "Estimate of Costs for Final Decontamination of Plant C."

Under the provisions of Modification No. 84, the Contractor is obligated to decontaminate, at his expense, all remaining equipment which has been transferred to the Contractor. The Contractor is also obligated to decontaminate the plant premises used in performing the work under subject contract and the Commission is obligated to reimburse the Contractor for one-half of the actual cost incurred by such decontamination. The Commission's obligation to furnish technical advice and assistance to the Contractor has been accomplished for the most part as reflected by Enclosures 1, 2 and 3. However, a final radiation inspection will be necessary upon completion of the decontamination work.

On April 2, 1958, A. A. Schoen of ORO's Research and Development Division, and W. J. Moore of this division met with Harshaw's Dr. G. R. Fernelius, E. P. Dolesh, and L. P. Barclay to review

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RADIOACTIVE CONTAMINATION SURVEY
OF URANIUM REFINERY AT
Harshaw Chemical Company
1000 Harvard Boulevard
Cleveland, Ohio

OH.4

Survey conducted on November 21, 1957

1. Introduction

This is a report of a contamination survey of the buildings which formerly housed the uranium refinery and associated activities, after all equipment had been removed except for the Rockwell furnace, two denitration pots and some process vessels in the recovery area. Some floor surfaces had already been extensively decontaminated and the walls had been steam cleaned. The purpose of the survey was not specifically to define the residual contamination levels in detail but to locate those areas where residual contamination was of such magnitude that it might represent a potential radiation or contamination control problem which would require that restrictions be imposed on the subsequent use of the building.

The general comments (Item 2) which follow define the conditions of the survey, the basis for evaluation, and offer guidance pertinent to subsequent use or disposition of the building and equipment. The specific recommendations (Item 3) are designed to eliminate potential hazards associated with the presently contemplated use of the building. These recommendations are intended primarily to provide a basis for considering what is necessary to restore the building to a usable condition.

Any questions which require the evaluation of health hazards to personnel and are not covered by this report should be referred to a competent authority on radiation protection for interpretation.

2. General Comments

A. Building

The building walls have been washed so that the residual contamination can generally be regarded as fixed. There were some locations where the wall cleaning was not totally effective and loose contamination was evident. Generally speaking, the residual contamination on the walls is not of sufficient magnitude to constitute a health hazard and can be effectively covered and controlled by the application of a coat of paint wherever this is deemed desirable.

It is not possible to speculate regarding the extent to which existing floor contamination is either loose or fixed, especially since the ground

floor, which bore the higher contamination levels, was littered, dirty, and in some places, wet. It is presumed, however, that some fraction of this floor contamination is not fixed and could be removed by a general floor cleaning and washing.

All sumps and drainage trenches must be presumed to be contaminated. It is understood that decontamination of these sumps and trenches has not been attempted nor is it contemplated. Some of the sumps are partially filled with water and it is quite likely that many of them have held up a quantity of contaminated sludge. This water and sludge must be regarded as contaminated and its disposal must be appropriately controlled.

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In addition to those equipment items which have been surveyed and are known to be contaminated, any items of equipment which are known or assumed to have contained uranium, and are not readily accessible with survey instruments, must be presumed to be contaminated. This might include exhaust ducts, vent lines, vacuum lines, drain lines, process vessels, etc. Several items of contaminated equipment remain in the plant area. The process vessels in the recovery area are of particular interest in this regard. The subsequent use of any of these items should be carefully evaluated and controlled, with the extent of control dependent upon the degree to which contamination is successful and residual contamination fixed. The concern here might or might not be for the potential health hazards that are involved, depending upon the nature and contemplated use of the chemicals processed in these vessels. However, in any event, there would be concern for the introduction of radioactivity into the chemicals processed in these vessels from the standpoint of chemical purity. This is particularly true of chemicals which may subsequently be used in the production or processing of photographic film.

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C. Contamination Levels

The results of the contamination survey have been indicated in Attachment 2. Uranium alpha contamination levels below 2,000 d/m/100 cm² are regarded as

below this level may, for all practical purposes, be regarded as uncontaminated from the standpoint of health and safety.

Fixed alpha contamination levels between 2,000 and 15,000 d/m/100 cm² in this project are regarded as areas of concern for contamination or health and safety.

Alpha contamination levels above 15,000 d/m/100 cm² represent uranium deposits in excess of 10 mg/100 cm² which is sufficient to produce measurable beta radiation dose rates. Where it is likely that personnel will remain in close proximity to such areas for extended periods, efforts should be made to reduce the residual contamination below this level.

3. Recommendations

(The following recommendations are based on the survey data and information that have been furnished to the Contractor)

A. The concrete floor in area 25, the process area, is grossly contaminated and the concrete is pitted which prevents further decontamination. This floor should be resurfaced to reduce contamination to acceptable levels.

B. Visible spills on floors, and contaminated floor surfaces which exceed 15,000 d/m/100 cm² in areas 3, 4, 5 and 10 should be re-washed to assure that residual contamination is fixed.

C. The floor under the denitration pots in area 5 appears to be highly contaminated with uranium which has seeped under the walkway platform. This area will require extensive decontamination and probably some additional surface treatment if the pots have been removed.

D. Floors in areas 5 and 10 are littered and some of the litter appears to be contaminated. A general clean-up is required.

E. A thorough floor cleaning is required in the pilot plant areas 2, 3, and 4.

Second Floor

A. The green salt spill in area 21 requires additional decontamination.

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4. General

The floor in areas 10, 26, 27, and 33 need to be resurfaced to restore them to usable condition either because they are presently broken up or they contain tank wells. There is visible contamination in the tank wells and the floor in area 33 is in a condition which prohibits an adequate survey. If the floors are to be resurfaced, this will adequately control the contamination which remains, otherwise additional decontamination is required.

s/ Arthur Schoen

Arthur Schoen, Health Physicist
Research and Development Division
U. S. Atomic Energy Commission
Post Office Box E
Oak Ridge, Tennessee

NOV 1954

ATTACHMENT A.
CONTAMINATION SURVEY MEASUREMENTS

<u>Location</u>	<u>Alpha Contamination</u> (disintegration/min/100cm ²)
<u>1st Floor</u>	
<u>Area 1</u>	
floor (general)	2,000 - 5,000
(visible spill in sample area)	max. 20,000
30 SQ. FT.	(15 mrep/hr beta)
(filter press area)	max. 20,000
20 SQ. FT.	(15 mrep/hr beta)
walls	<2,000
<u>Areas 2 & 3</u>	
floor	5,000 - 15,000
walls 600 SQ. FT.	<2,000
<u>Area 4</u>	
floor (general)	15,000 - 20,000
(visible spill) ¹	25,000
walls (general)	(15 mrep/hr beta)
(visible spill on N. wall) ¹	<2,000
	7,000
<u>Area 5</u>	
digester area (east end)	
floor 400 SQ. FT. To Repair	max. 30,000
walls	(max. 15 mrep/hr beta)
denitration pot area floor	max. 25,000
Rockwell furnace area (spotty contamination)	2,000 - 10,000
JG ₃ packaging area floor 1200 SQ. FT.	2,000 - 10,000
	max. 30,000
mixer-settler area floor	(15 mrep/hr beta)
(visible spills vicinity of floor drain) ¹	<2,000
compressor area floor	max. 30,000
(visible spill vicinity of sump) ¹	2,000 - 5,000
central vacuum area	20,000
(UF ₄ spill in S. W. corner) ¹	2,000 - 10,000
walls 1400 SQ. FT.	
mezzanine floor	2,000 - 5,000
walls	2,000 - 5,000
	<2,000
<u>Areas 6, 7, 8, 11, 13 & 14 & offices above Areas 7 & 8</u>	
walls & floors	<2,000
<u>Area 9</u>	
floor (west half) ²	<2,000
walls	<2,000
(visible spill on N. wall) ¹	max. 3,000

	Alpha Contamination (disintegration/min/100cm ²)
<u>ation (cont'd)</u>	
<u>ea 10</u>	
floor (west half except for tank wells) ²	<2,000
tank wells ³ 300 SQ. FT.	max. 30,000 (max. 15 mrep/hr beta)
<u>ea 12</u>	
floor	1,000 - 5,000
walls 600 SQ. FT.	<2,000
(visible spill on west wall) ¹	15,000
visible spill on west face of steel column ¹	12,000
<u>ea 15 - Recovery Area</u>	
floor (grossly contaminated)	max. 150,000 (~120 mrep/hr)
walls 2,500 SQ. FT.	<2,000
<u>nd Floor</u>	
<u>ea 21</u>	
floor (general)	<2,000
green salt (spill in front of reactors)	125,000
green salt load stand area	20,000
walls 3300 SQ. FT.	max. 2,500
<u>ea 22 - Laboratory</u>	
floor	4,000 - 20,000
walls 2000 SQ. FT.	<2,000
lead sink	20,000
<u>ea 23 & 24 (locker rooms)</u>	
floors & walls	<2,000
<u>ea 25</u>	
floor	<2,000
walls (general)	<2,000
(spill on west wall) ¹	6,000 - 8,000
<u>ea 26</u> 600 SQ. FT.	
floor (west half) ²	2,000 - 5,000
(tank wells) ³	30,000 (15 mrep/hr beta)
<u>ea 27</u>	
walls	<2,000
<u>condition of floor did not permit a survey</u>	
<i>This refers to area 33</i>	

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Alpha Contamination.
(disintegration/min/100cm²)

Location (cont'd)

Third Floor

Area 31
floor
walls

1500 sq. ft.

1,000 - 12,000
2,000 - 5,000

Area 32
floor
walls

1,000 - 5,000
<2,000

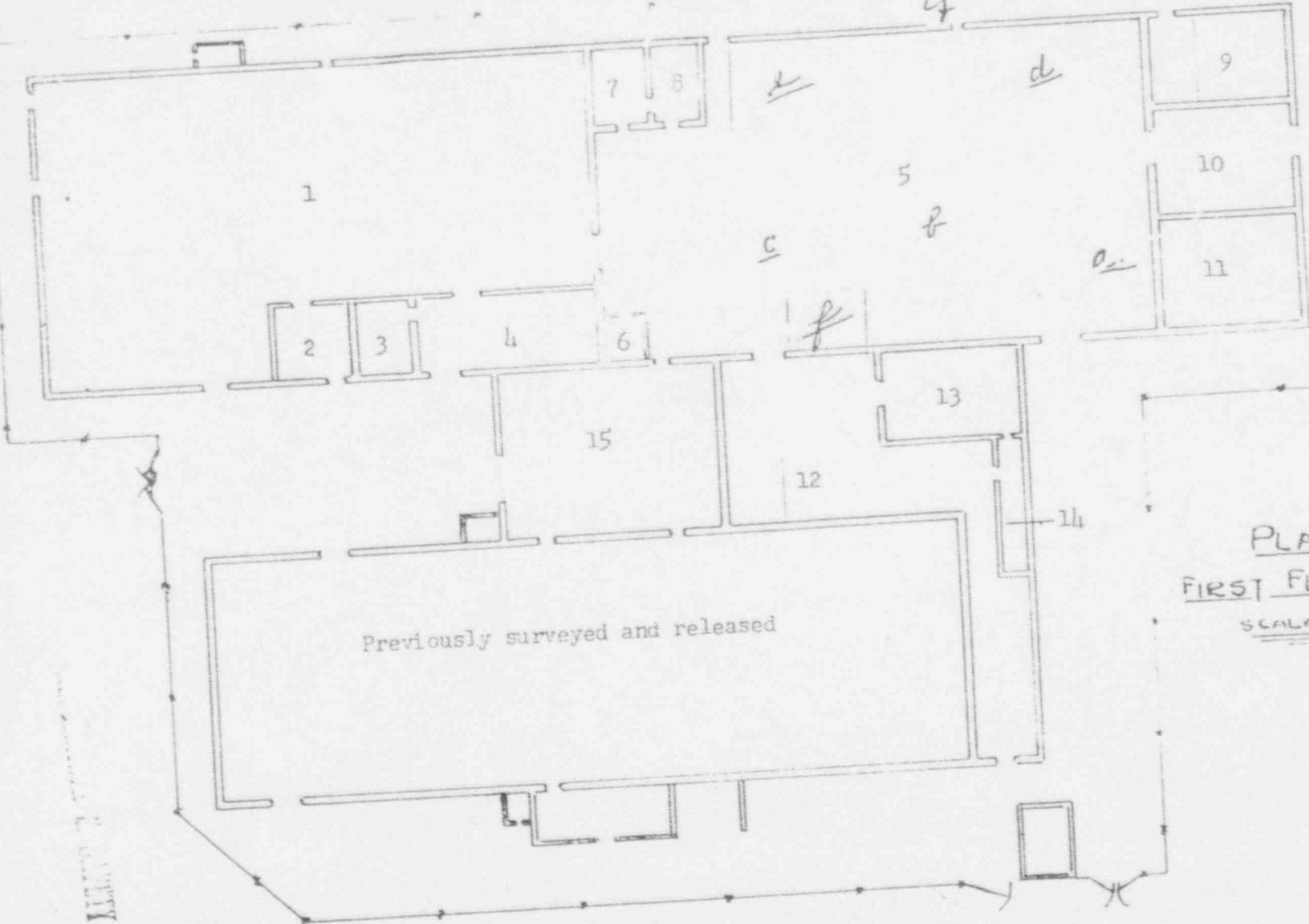
Area 33
floor
walls

600 sq. ft.

5,000 - 10,000
<2,000

1. These are small areas which are visibly stained as a result of a leak or a spill, and which may or may not have been decontaminated.
2. The east half of the floor in areas 8, 9, 10, 26 & 27 has been resurfaced in connection with the recent installation of rotary kilns and is therefore free of contamination.
3. Tank wells are depressions in the floor which are 3 to 4 feet in diameter and 2" to 6" deep and which formerly accommodated process vessels of some kind.

g ABOVE
4



ATTACHMENT B

PLANT C
FIRST FLOOR PLAN

SCALE - 40' = 1"

ELEV. 0'-0"

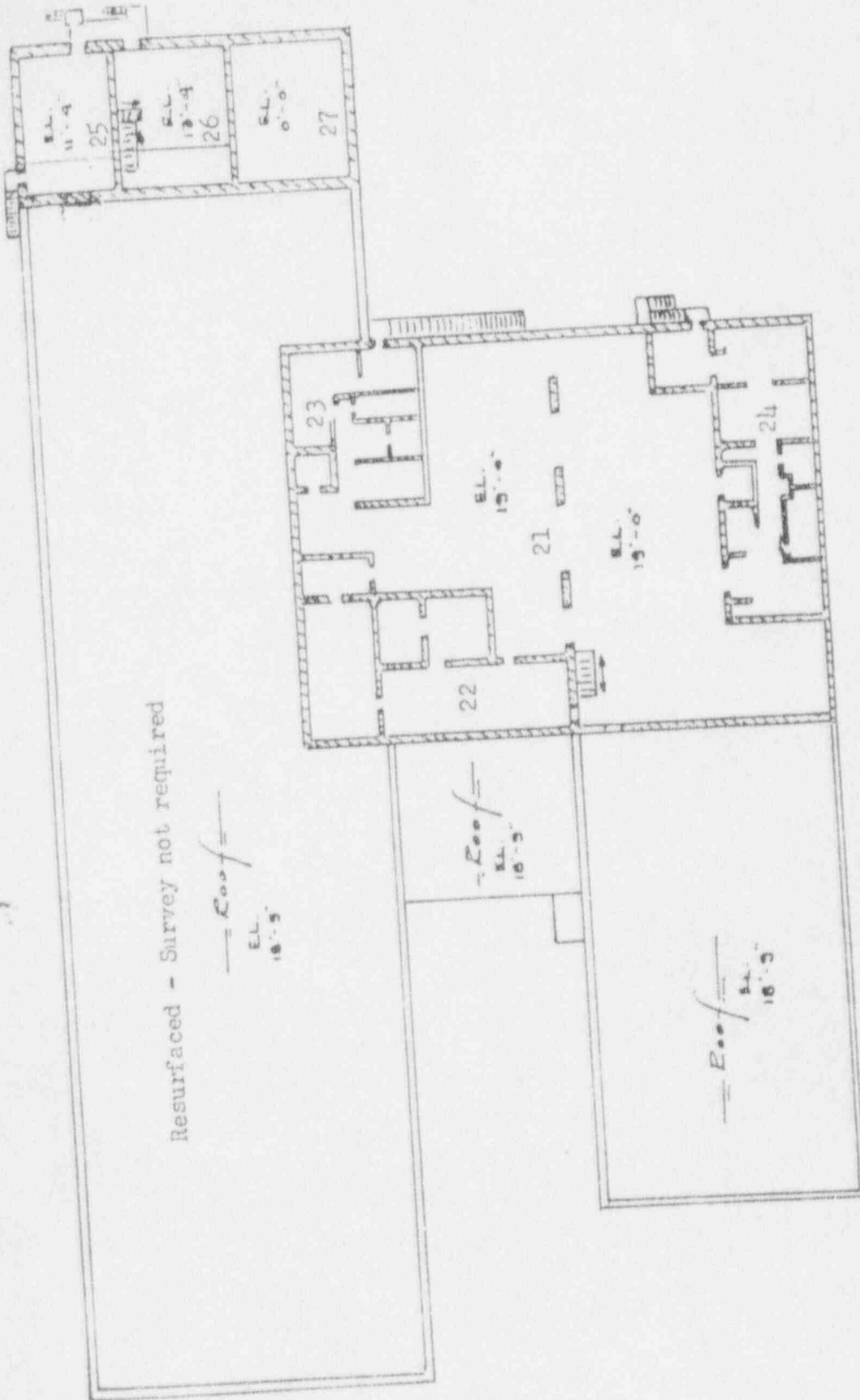
Previously surveyed and released

SKETCH 0-02, 00, 45

11/11/45

N

ATTACHMENT B²



Resurfaced - Survey not required

Roof
E.L. 18'-5"

Roof
E.L. 18'-3"

Roof
E.L. 18'-3"

PLANIC
SECOND FLOOR PLAN
Scale - 4" = 1'

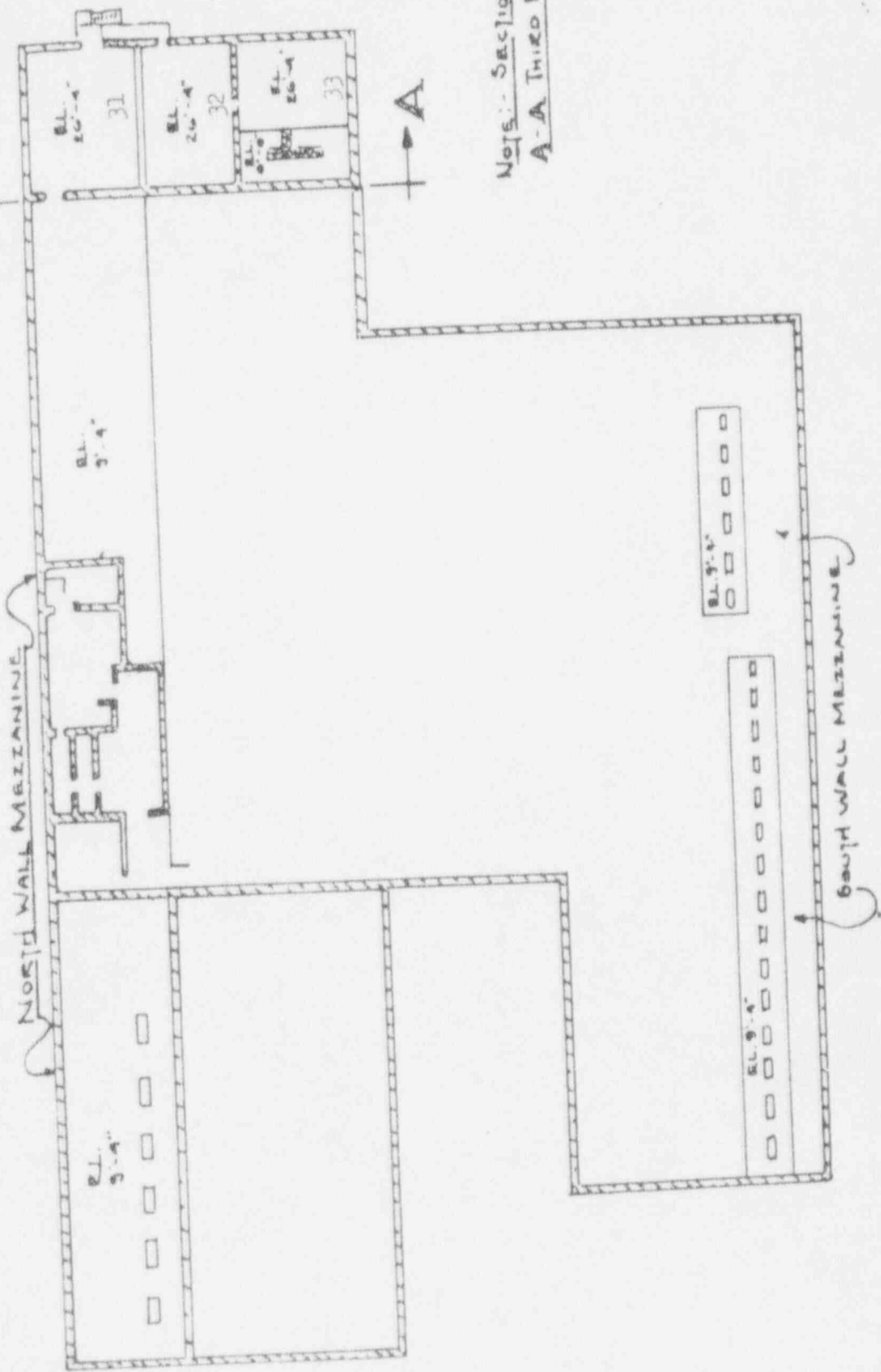
2 648070-C PLANS

NOTES: SECTION EAST of B
A-A THIRD FLOOR PLAN

N

A

A



NORTH & SOUTH WALL MEZZANINES & THIRD FLOOR PLAN

SCALE: 1/4" = 1'-0"