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COMMITTEE REPORT

ON

DISPOSITION OF ST. LOUIS AIRPORT STORAGE SITE

November 5, 1965

Submitted by Airport Committee:

R. H. Miller, Chairman
E. B. Kiser, Jr., Member
W. T. Thornton, Member
E. E. Green, Member
D. L. Oakley, Legal Advisor

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I. AIRPORT COMMITTEE ASSIGNMENT

On August 18, 1965, the Airport Committee was established to formulate and - after approval - carry out a plan for:

1. Removing the residues from the St. Louis Airport Storage Site to Weldon Spring,

2. Cleaning up the Airport Site to make it available for unrestricted disposal, and

3. Disposing of the Airport Site after removal of the residues and cleanup.

The establishment of the Committee followed Commission action on AEC 194/51, Proposed Extension of Feed Plant Contracts, which included approval of the removal of the St. Louis Airport residues to Weldon Spring for processing, possible sale, or burial, and also approval of the cleanup of the Airport Site after removal of the residues to make it available for unrestricted disposal. The Committee has recognized certain other developments which perhaps were not considered in the action taken by the Commission:

1. The interest of potential purchasers, specifically United Nuclear Corporation, in acquiring the residues; and

2. The interest of the City of St. Louis and McDonnell Aircraft Corporation in acquiring the Airport Site for a parking lot.

Since the above interests involve possibilities of significant cost savings to the AEC, the Committee has included a discussion of them in this report.

II. DESCRIPTION OF SITE

The Airport Site comprises 21.74 acres. It is located just North of the St. Louis Municipal Airport and is bounded on the North and East by Brown Road, on the West by Coldwater Creek and on the South by the Wabash RR and the Airport. A location map is attached as Exhibit 1. The location of the site relative to the adjacent property is shown by the 1958 aerial view, Exhibit 2.

The following normal uranium residues are presently located at the Airport Site:

	Tons	Approx. Tons Uranium Content
Pitchblende raffinate (AM-7)	74,000	113
Colorado raffinate (AM-10)	32,500	48
Barium Sulfate Cake-Unleached (AJ-4)	1,500	22
Barium Sulfate Cake-Leached (AJ-4)	8,700	7
Miscellaneous material in Drums	350	2
C-liner slag	4,000	49 -
Total	121,050	241

The pitchblende raffinate from the Belgian Congo ore is estimated to contain about 1.8 M lbs. of cobalt
2.1 M lbs. of nickel
1.1 M lbs. of copper
plus some rare earths and other elements.

The area is inclosed by a chain link fence. It contains the following major structures:

A reinforced concrete pit consisting of floor slab and walls, 200 ft. long x 42 ft. wide by 12 ft. deep.

A storage shed consisting of a 250 ft. x 45 ft. concrete floor pad, with a concrete center wall 7 ft. high and 1 ft. thick running the length of the structure. The pad is covered with a corrugated metal and transite roof supported on wood columns and trusses. Sides and ends of the shed are open.

A railroad spur track with an adjacent steel and wood tipple.

Other structures on the site include a timber drum loading platform, a reinforced concrete wash pad for trucks, a reinforced concrete truck loading platform with ramp, and three single story wood buildings.

Residual contaminated waste and debris remain on the ground surface after previous sale and removal of about 3500 tons of contaminated metal scrap. Crushed rock haul-roads run over the area between and around the piles of residue and debris.

Attached as Exhibit 3 is a topographic map of the site showing the principal structures, the outlines of the principal residue piles and contour lines at 1 ft. interval for ground surface other than residues. Also attached as Exhibit 4 is a 1964 aerial photograph which approximates the present site situation.

III. HISTORICAL DATA

At the outset of consideration of the scope and magnitude of the task assigned to the Committee, it was obvious that a reconstruction of the historical sequence of activities at the site would be required to establish quantities of residues to be moved, and the degree of ground contamination (particularly with regard to contaminated materials below present ground level), thus providing the basis for formulating a plan and estimating the cost of the removal of residues and the cleanup of the site.

Although searches were made of the files in Oak Ridge and St. Louis Area offices to locate this information, only partial success was realized by this effort. Quantities and chemical composition of the residue materials stored above ground level were well documented, however, only sparse information existed to describe the non-residue materials that had been disposed of at the site. Discussions with personnel familiar with the site definitely confirmed the existence of sizable quantities of buried metallic scrap, and bricks, rubble, etc., from the Destrehan Street Site. Considerable uncertainty exists regarding the extent of underground contamination on the western end of the site, where extensive filling has taken place in the deep drainage ditches that existed during its early use. Records of the exact nature, quantities, and degree of contamination of the materials apparently are not in existence.

A more detailed description of the site and historical synopsis is included in Exhibit 5. The initial topography of the site is shown in the aerial photograph taken in 1948, Exhibit 6, clearly indicating the low drainage area on the western section (of the site). Exhibit 7 is a photograph showing the earth fill and reclamation of the western section. It is within this area that the greatest degree of uncertainty exists relative to the underlying contamination, and possibly the greatest potential need for removal of large quantities of contaminated material to permit unrestricted disposal.

IV. DECONTAMINATION CRITERIA

A. Unrestricted Disposal

The Committee considers that "unrestricted" disposal would eliminate the need for a license by anyone acquiring the site. To avoid restriction would require extensive decontamination of the site and compliance with the following conditions:

1. The amount of transferrable alpha contamination on surfaces* shall not exceed 1000 d/m/100 cm^2.

2. The amount of fixed or bonded alpha contamination on surfaces* shall not exceed a maximum of 25,000 d/m/100 cm^2 nor an average of 5,000 d/m/100 cm^2.

3. Beta-Gamma dose rates from surfaces* or the ground shall not exceed a maximum of 1 mrad/hr nor an average of 0.2 mrad/hr.

4. Residues, compounds, and mixtures remaining on site shall not contain greater than 0.25% by weight uranium, thorium or any combination of these. This requirement derives from 10 CFR 40, Paragraph 40.13(c)(1) which describes this quantity as unimportant in terms of health hazard. This basic criterion is also being applied in the Middlesex disposal. In applying this criterion for the Airport Site the very conservative interpretation is made that 0.25% U and/or Th represents 4,000 d/m/gm of contaminated soil. This is based on the specific activity of natural uranium neglecting daughter activities.

B. Restricted Disposal

The residual contamination resulting from residues now stored on the site (but to be removed before disposal of the site) may have to be covered under a license or otherwise restricted. Health hazards remaining after residue removal will, in our opinion, be so minimal that only nominal restrictions and control would be required. This is particularly the case if the site were used for a parking lot. Any prospective purchasers should be notified of the presence of slightly radioactive chemical residues and scrap, of the surface radioactivity levels existing, and of the need for care in the event of future excavations. If this alternative proves attractive it should be explored with appropriate regulatory authorities.

V. RADIATION SURVEY

A. Drilling and Sampling Activities

Using the information gained from the historical survey and an on-site review of residue locations, a drilling and sampling operation was undertaken to determine the extent of site contamination. This effort was limited by the difficulty of

*The term surfaces refers to walls, floors, roofs, etc. of structures located on-site.

drilling through the residue piles. Sampling points are shown in Exhibit 3. Specifically, the radiation sampling was expected to determine (1) the extent of leaching of radioactivity into the original ground, and (2) whether or not contaminated materials had been buried, as reported, in the west end of the site. Buildings and other structures on the site were surveyed for contamination.

B. Findings

1. Soil and Subsoil Contamination

Initial drilling and sampling has (1) indicated that leaching of radioactivity into the original ground is negligible but that some mixing of the residue with soil and road fill has occurred and, (2) verified that burial of contaminated materials has occurred at the west end of the site. The extent of this burial can be determined only after the residue piles are removed and additional drillings made. Data in support of these findings are tabulated in Exhibit 8. Exhibit 3 shows a division of the site, and the following is an estimate of average depths of soil to be removed from each division for unrestricted disposal:

Area 1 - 1.0 feet
Area 2 - 1.3 feet
Area 3 - 2.5 feet
Area 4 - 0.5 feet
Area 5 - 5.0 feet
Area 6 - 12.5 feet

Considerable uncertainty exists in this estimate because of the impracticability of sampling under the large residue piles. The history of the filled area on the west end of the site is also not definite enough to substantiate accurate estimates of probable dirt removal under the Colorado raffinates. It is in these areas that contaminated formerly used drainage ditches exist along with the possibility of additional burials of contaminated materials.

Subsequent to removal of the residues and prior to any site decontamination effort additional drillings should be made where residues had been located, particularly in Areas 3 and 6. A beta gamma profile of each hole should be made and alpha core samples taken every 1 to 2 feet in depth. Since a depth of from 5 to 15 feet is in question, it appears expedient to verify the existence of contamination in these uncertain areas prior to expensive dirt removal operations.

2. Structure Contamination

Data from a contamination survey of the K-65 storage shed, the concrete pit, two wooden buildings near the main gate, the fence and the concrete wash slab are shown in Exhibit 9. Decontamination tests on the concrete portions of the K-65 shed and the concrete storage pit indicate that permissible levels could probably be attained with a dilute acid scrub and high pressure water rinse. Sandblasting would certainly assure adequate decontamination of these structures. Other wooden buildings have only minimum contamination and could be decontaminated using normal custodial methods. The fence is found to be essentially free of contamination. The wash slab will require removal since contamination under the slab is highly probable. Other contaminated structures such as the tipple, railroad spur ties and bed, and various ramps would be removed.

VI. ADDITIONAL CONSIDERATIONS

A. Sale of Residues

Subsequent to the Commission action of July 29, 1965, on AEC 194/51 several proposals were received to acquire residues. On September 9, 1965, the Manager, ORO, authorized the Area Manager, St. Louis Area, to negotiate a contract with United Nuclear Corporation for sale of all the residues except the C-liner. United Nuclear's proposal was conditioned to allow them 90 days to sample and analyze residues and to verify their capability for processing these residues. The Area Manager has notified United Nuclear of AEC's willingness to negotiate on the basis of their proposal and has given them 90 days from September 13, 1965, for their investigation. United Nuclear proposed to pay AEC $35,000 plus royalties on recovered copper, cobalt and nickel. The royalty payments are considered minimal. If a contract of this type could be negotiated it could save AEC the estimated cost of approximately $400,000 for removal of residues to Weldon Spring.

B. Restricted Disposal

On several occasions the McDonnell Aircraft Corporation has expressed an interest in acquiring the Airport Site for a parking lot. On October 15, 1965, the Airport Commission, City of St. Louis, wrote the Area Manager that it was definitely interested in acquiring the site. Subsequent discussions have developed that the Airport Commission is interested in using the site for a parking lot and is agreeable to providing at its expense a paving adequate to confine the contamination.

It would be feasible to convert the site to a parking lot following removal of the residues. Residual contamination would be effectively controlled by removal or decontamination of existing contaminated structures and by covering the surface area with a paving or other suitable cover.

Removal of the residues would probably be necessary to either restricted or unrestricted disposal of the site. Levelling and stabilization of residues in place for a restricted disposal of the site is not considered feasible based on a study in 1960 which showed that this would cost as much or more than removal of residues and cleanup of the site for unrestricted disposal. In addition, it would definitely reduce the possibility of a restricted disposal and preclude accessibility of residues for future processing.

The possibility of a restricted disposal without costly decontamination of the site merits serious consideration because of the aerial easement which AEC granted the City of St. Louis in 1962 and which prevents the construction of anything on the site above elevation 550. This elevation is about 8 feet above existing ground level at the east end of the site and about 30 feet above ground level at the west end of the site. Since the aerial easement severely restricts the height of buildings which may be placed on the property, it is probable that a prospective buyer would not consider the property suitable for free and unrestricted commercial and industrial use. Thus, decontamination would probably not achieve the desired object of unrestricted disposal.

VII. ALTERNATE APPROACHES

In considering a possible sale of residues to United Nuclear and a possible restricted disposal of a contaminated site, 4 basic approaches are indicated for removal of residues and cleanup and disposal of the site.

A. Unrestricted Disposal

Case 1 - AEC removal of residues and major cleanup of site. This case involves the following actions:

1. Remove C-liner to Fernald and remaining residues to Weldon Spring.

2. Explore site after removal of residues to determine location and extent of contaminated metal scrap and other subsurface contamination to be removed.

3. Remove or decontaminate structures.

4. Remove other surface and subsurface contaminated material for unrestricted disposal.

5. Grade for backfill and surface drainage, deep plow and seed.

6. Declare excess to GSA for unrestricted disposal subject to aerial easement.

Case 1 is estimated to cost $859,000 and to require 18 months for completion.

Case 2 involves the same actions as Case 1 except that residues other than C-liner would be sold for removal to United Nuclear.

Case 2 is estimated to cost $461,000, disregarding nominal revenue from sale, and require 30 months for completion.

B. Restricted Disposal

Case 3 - AEC removal of residues and minor cleanup of site. This case involves the following actions:

1. Remove C-liner to Fernald and remaining residues to Weldon Spring.

2. Remove or decontaminate structures.

3. Grade for backfill and surface drainage.

4. Declare excess to GSA for restricted disposal.

Case 3 is estimated to cost $492,000 and to require 15 months for completion.

Case 4 involves the same actions as Case 3 except that residues other than C-liner would be sold for removal to United Nuclear.

Case 4 is estimated to cost $87,000, disregarding nominal revenue from sale, and require 26 months for completion.

VIII. PLANS

The following plans cover the more significant actions required in the various approaches. Detailed planning is subject to uncertainty depending on the eventual approach to be followed and circumstances existing at that time. Therefore, flexibility should be retained for development of detailed planning in connection with contracting and other specified actions for carrying out the final approach.

Responsibilities suggested in the following plans are intended to follow normal assignments of responsibility within ORO. On this basis, the Area Manager, St. Louis Area, would have the basic responsibility for execution of an approved plan with normal assistance, review and approval by the Staff and Manager at Oak Ridge. The Committee construes its assignment for carrying out a plan after approval as one of generally following and coordinating the initiation and execution of the various phases and assisting those with normal assigned responsibilities to maintain an effective effort.

In the following alternates disposal planning is developed only to the point of making a declaration of excess to GSA and making the site available for disposal. While maintenance of the property in AEC custody would be required for some period of time pending actual disposal by GSA, such maintenance would be quite minimal. Otherwise, action required by the AEC would effectively cease with the declaration of excess to GSA and AEC would not be involved in an actual disposal by that agency.

A. Unrestricted Disposal

Case 1 - AEC removal of residues and major cleanup of site.

1. The Area Manager, with assistance and review by ORO staff, invites bids and lets a fixed price contract for removal of residues. The Area Manager administers the contract with MCW assistance on radiation control.

   The contract work is estimated to cost $454,000 and require 12 months.

2. The Area Manager arranges for site exploration after removal of residues, including contracting for drilling and sampling. Research and Development Division supervises radiation monitoring and sample analysis, with field assistance from MCW, and determines extent of exploration.

   The exploration is estimated to cost $6,000. Consideration may be given to providing in the residue removal contract for priority removal of AM-7 Colorado raffinates so that exploration of the west end of the site may be initiated and carried out simultaneously with removal of other residues. On this basis site exploration could be completed essentially within the removal contract period.

3. The Area Manager invites bids and lets a contract with fixed prices for the various features of the work involving decontamination or demolition of structures, loading and hauling contaminated materials to the Weldon Spring quarry, and

grading, plowing and seeding the site. The Research and Development Division supervises radiation control with assistance from MCW and certifies that the site is within permissible limits for unrestricted disposal.

This work is estimated to cost $399,000 and to require 6 months for completion.

4. The Area Manager and the Supply Division jointly reach initial agreement with GSA on planning and procedures, obtain from Corps of Engineers title and other necessary information, and arrange for submission of AEC declaration of excess to GSA for unrestricted disposal of the site.

   This activity would not involve additional cost nor additional time. The declaration of excess could be submitted to GSA with an estimated date of availability in advance of actual completion of site cleanup work.

5. The above work would be done with operating funds. Assuming a determination that a contract could not be negotiated for sale of residues to United Nuclear and assuming availability of funds and a decision to proceed by about January 1, 1966, the following approximate time and budget schedule would apply:

Work	Time Period	Cost FY 1966	Cost FY 1967
Residue Removal:			
Prepare invitation, invite bids and award	Jan.-March 1966		
Removal contract	Apr.-Dec. 1966	$151,000	$303,000
Site Exploration	July-Dec. 1966		$ 6,000
Site Cleanup:			
Prepare invitation, invite bids and award	Dec.1966-Feb.1967		
Cleanup Contract	Mar.-June 1967		$399,000
Subtotals	18 Months	$151,000	$708,000
Total Cost			$859,000

Case 2 - Sale of residues to United Nuclear, AEC removal of C-liner and cleanup of site.

Planning for this approach is the same as for Case 1, except for the following:

1. The Area Manager negotiates and executes a contract with United Nuclear for the sale and removal of residues other than C-liner.

Based on United Nuclear's proposal, this contract would result in a nominal revenue on the order of $35,000 and would require 20 months to complete.

2. Site exploration could probably not be initiated until completion of the United Nuclear contract, since United appears to be primarily interested in the AM-10 pitchblende raffinates and would probably not agree to removal of AM-7 Colorado raffinates until last.

   The exploration would therefore require an estimated 3 months after the removal contract. Estimated cost of $6,000 would not change.

3. Removal of C-liner would be added to the contract for site cleanup. (Removal of C-liner would not appear to be a significant prerequisite to site exploration and development of the cleanup contract.)

   Removal of C-liner would increase the estimated cost of cleanup to $455,000 and would increase the time to 7 months for completion.

4. Assuming that a contract could be negotiated with United Nuclear by about January 1, 1966, the following time and budget schedule would apply:

Work	Time Period	Cost FY 1966	Cost FY 196
United Nuclear Contract	Jan.1966-Aug.1967	$35,000 revenue	
Site Exploration	Sept.-Nov. 1967		$ 6,000
Site Cleanup:			
Prepare invitation, invite bids and award Cleanup Contract	Dec.1967-Feb.1968 Mar.-June 1968		$455,000
Total	30 Months	$35,000 revenue	$461,000

B. Restricted Disposal

Case 3 - AEC removal of residues and minor cleanup of site.

Planning for this approach would be the same as for Case 1, except that extensive site exploration and cleanup would be eliminated. Cleanup after removal of residues would be limited to decontamination or removal of structures and grading for backfill and drainage.

Assuming availability of funds and a decision to proceed by about January 1, 1966, the same as for Case 1, the following approximate time and budget schedules would apply:

Work	Time Period	Cost FY 1966	Cost FY 1967
Residue Removal:			
Prepare invitation, invite bids and award	Jan.-March 1966		
Removal Contract	Apr.-Dec. 1966	$151,000	$303,000
Cleanup	Jan.-Mar. 1967		38,000
Subtotals	15 Months	$151,000	$341,000
Total Cost			$492,000

Case 4 - Sale of residues to United Nuclear, AEC removal of C-liner and cleanup of site.

Planning for this approach is the same as for Case 2, except that extensive site exploration and cleanup would be eliminated. Cleanup would be the same as for Case 3.

Assuming that a contract could be negotiated with United Nuclear by about January 1, 1966, the same as for Case 2, the following approximate time and budget schedule would apply:

Work	Time Period	Cost FY 1966	Cost FY 19
United Nuclear Contract	Jan.1966-Aug.1967	$35,000 revenue	
Removal of C-liner, cleanup of structures and grading:			
Prepare invitation, invite bids and award	June-Aug. 1967		
Contract Work	Sep.1967-Feb.1968		$ 87,0
Total	26 Months	$35,000 revenue	$ 87,0

IX. COST COMPARISONS

A. Obviously, Case 1 - AEC removal of residues and major site cleanup for unrestricted disposal - represents the greatest cost to AEC, $859,000. Conversely, Case 4 - Sale of residues and minor site cleanup for restricted disposal - represents the least cost to AEC, $87,000.

A total saving of about $770,000 from Case 1 costs might therefore be possible. Regardless of whether the site disposal is restricted or unrestricted, about $400,000 can be saved by a sale of residues

of the type proposed by United Nuclear rather than AEC removing them to Weldon Spring. Also, regardless of the method of removing the residues, about $370,000 can be saved by a minor site cleanup for restricted disposal rather than by a major site cleanup for unrestricted disposal. The derivation of these possible cost savings is indicated by the comparative costs shown in the following tabulations:

1. Cost Savings Through Sale of Residues

Unrestricted Disposal	Estimated Cost
Case 1 - AEC removal of residues	$859,000
Case 2 - AEC sale of residues	461,000
Cost savings	$398,000

Restricted Disposal	
Case 3 - AEC removal of residues	$492,000
Case 4 - AEC sale of residues	87,000
Cost savings	$405,000

2. Cost Savings Through Restricted Rather Than Unrestricted Disposal

AEC Removal of Residues	
Case 1 - Unrestricted disposal	$859,000
Case 3 - Restricted disposal	492,000
Cost savings	$367,000

AEC Sale of Residues	
Case 2 - Unrestricted disposal	$461,000
Case 4 - Restricted disposal	87,000
Cost savings	$374,000

B. Operating funds are not provided for in the ORO budget to cover costs of any of the cases outlined.

X. CONCLUSIONS AND RECOMMENDATIONS

A. Sale of Residues

On November 1, 1963, the Area Manager was advised by United Nuclear that it was withdrawing its proposal to enter into a contract of sale of the residues. Although there might still

develop some new industrial interest in acquiring the residues which may warrant consideration, there does not now appear to be any definitive interest which could be pursued with any hope of success.

It is concluded that, although a sale of residues could result in significant savings, the possibility of a sale is now remote and Cases 2 and 4 may be eliminated from present consideration.

B. Restricted Disposal

The Committee's consideration of the possibility of a restricted disposal of the site resulted in the development of a plan identified in Section VIII.B. of this report under Case 3. It is estimated to cost $492,000 and require about 15 months to complete.

As previously stated in this report, minor site cleanup for a restricted disposal under Case 3 would cost about $367,000 less than major site exploration and cleanup for unrestricted disposal under Case 1, which is estimated to cost $859,000 and require about 18 months to complete. Also, the aerial easement would impose a continued restriction on potential uses of the property even though the site were decontaminated. Finally, both the City of St. Louis Airport Commission and McDonnell Aircraft Corporation are definitely interested in acquiring the site even with residual contamination after removal of residues. However, the Committee's consideration of a restricted disposal has included neither detailed discussions with GSA and potential purchasers to confirm the feasibility of such a disposal nor an exploration with the Director of Regulation as to what specific licensing requirements would be applicable to anyone who acquired the site.

It is concluded that a restricted disposal of the site under Case 3 is warranted by potential cost savings, the aerial easement restriction, and current interests in acquiring the site.

It is recommended that AEC Headquarters be requested to authorize ORO to proceed under Case 3 to remove the residues and dispose of the site on a restricted basis.

XI. EXHIBITS

Exhibit No.	Name
1	Location Map
2	1958 Aerial Photo
3	Topo Map
4	1964 Aerial Photo
5	Historical Synopsis
6	Aerial Photo (before fill)
7	Aerial Photo (after fill)
8	Radiation Data - Soil and Subs[illegible]
9	Radiation Data - Structures

EXHIBIT 1

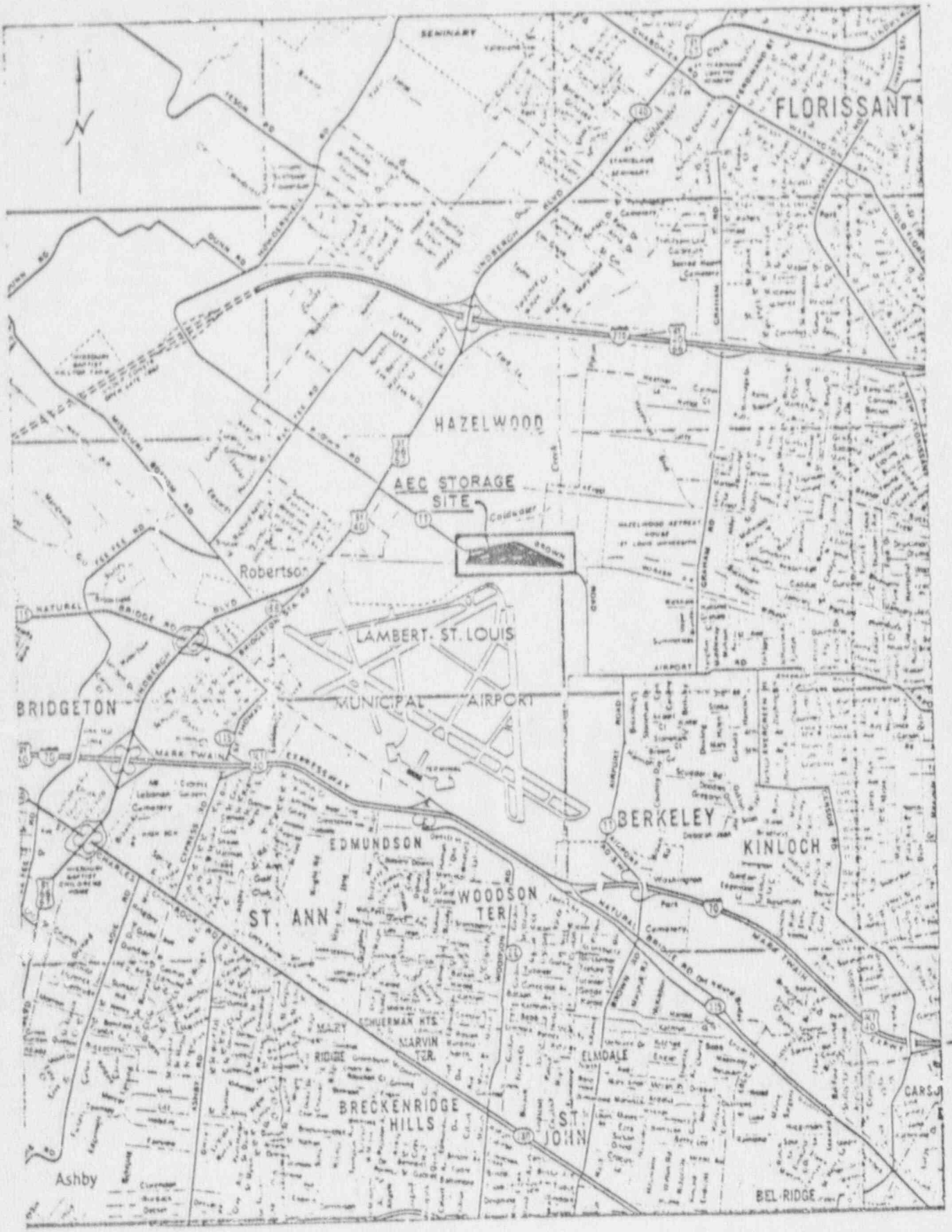
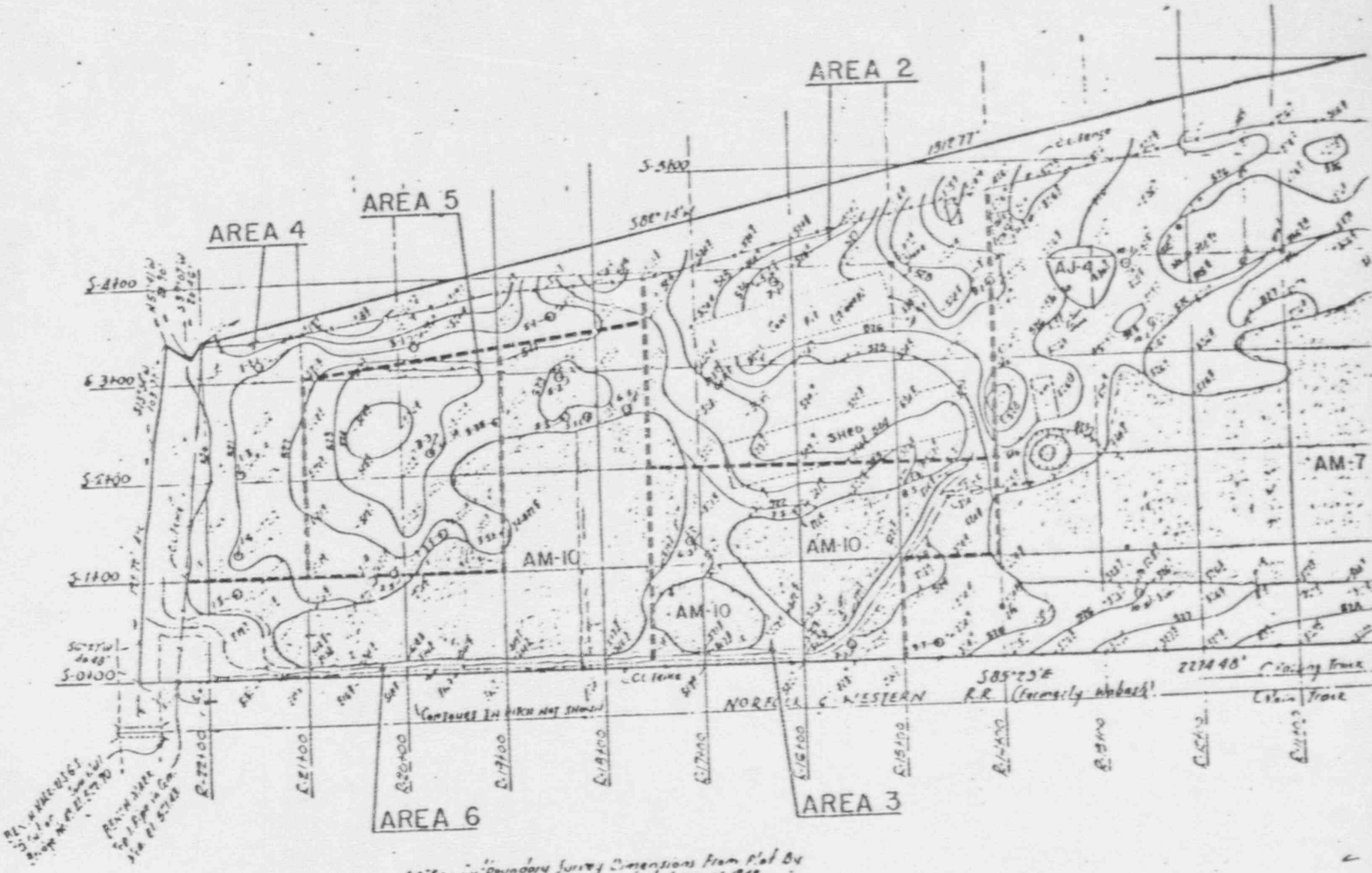


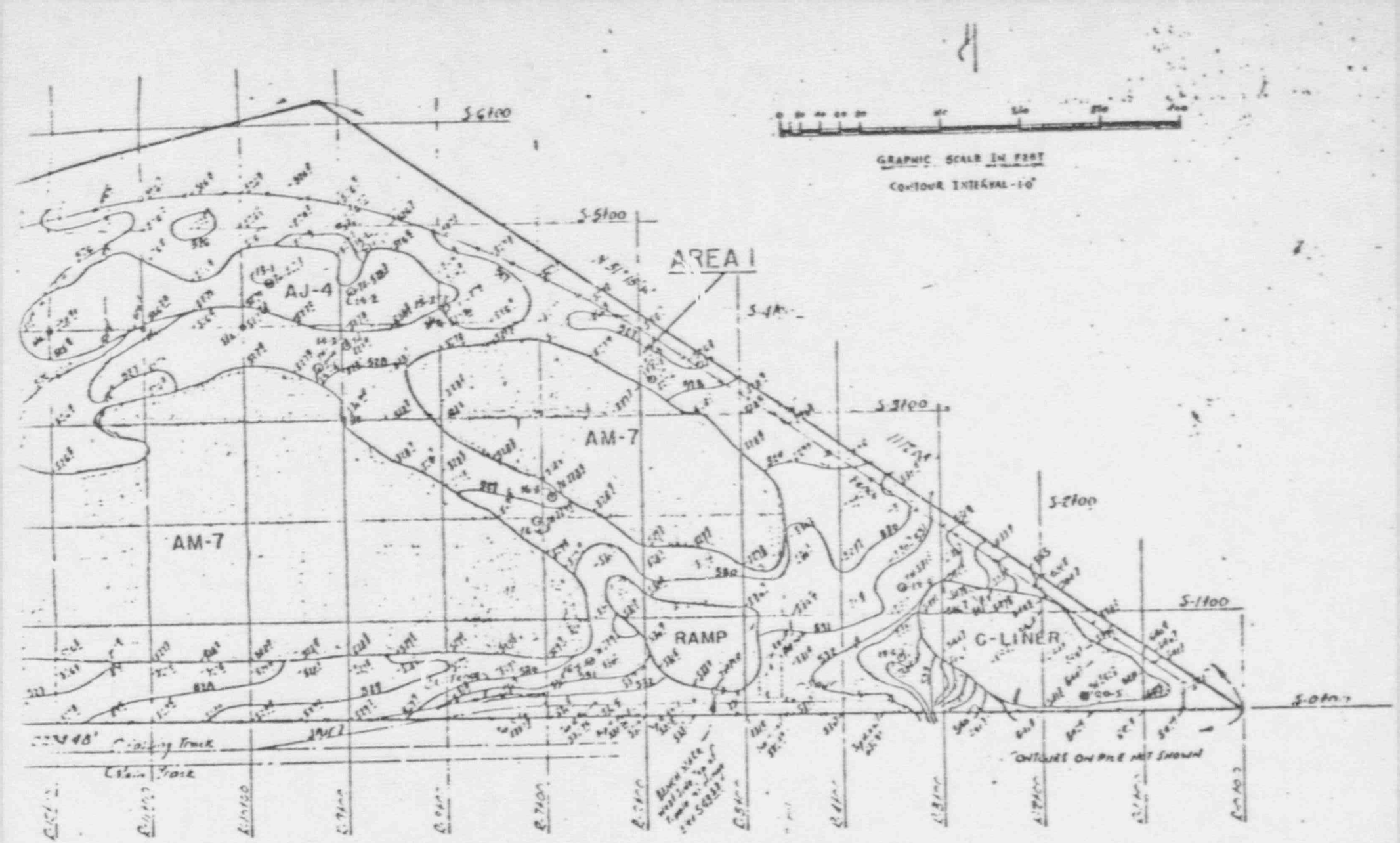
EXHIBIT 1

EXHIBIT 2



Note: Boundary Survey Dimensions From Plat By Simmons-Brewer Dated June 14, 1949

Grid Lines Identical & Thus Shown on Survey by Courland Surv. Co. Dated July 1955



This is to certify that at the request of Mallinckrodt Chemical Works a Survey was executed during the month of Sept. 1965 for the purpose of obtaining topographic elevations and locating waste piles on the AEC dump site at Robertson, Mo.

Sept 30, 1965
E Edmiston Deputy

ORDER 13480

Surveying Company
16 S. Central Ave.
Clayton 5, Mo.
By Eugene R. Rowland
President

EXHIBIT 3
MCW FILE NO.
G-1403-2

EXHIBIT 4

HISTORICAL SYNOPSIS

I. THE AIRPORT SITE

The Commission maintains a 21.74 acre residue storage site adjacent to the St. Louis, Missouri, municipal airport. The site lies approximately 15 miles northwest of downtown St. Louis. It is bounded by Brown Road to the North and East, the Wabash Railroad main line on the South, and Coldwater Creek on the West (which is also the property line of McDonnell Aircraft Corporation). South of the Wabash Railroad right-of-way lies Lambert-St. Louis Municipal Airport and an area occupied by the McDonnell Aircraft Corporation. Aircraft take-off and landing patterns cross the property. A location map is attached as Exhibit 1. An aerial photograph, Exhibit 2, locates the site with respect to adjoining property.

The site is completely fenced; there is a roadway access gate on the North side and a railroad gate on the South side, allowing Wabash Railroad service to the plant via a spur line off the main line track. The complete area, with its mounds of raffinate residues, stacks of drums, hodge-podge of scrap and temporary type structures, has the appearance of a typical spoil area common to chemical industries having residue storage problems.

Consent to use and occupy the tract was obtained by the Manhattan Engineer District on March 2, 1946. Title was acquired to the property on January 3, 1947, by condemnation proceedings for $20,000. The property was acquired for the purpose of storing residues from the Destrehan Street Refinery and the Metals Plant. The major capital improvements to the site were a concrete pit, 202 ft. x 42 ft. x 16 ft., constructed to store radium-bearing residues (though it was never used for this purpose), a covered concrete pad 45 ft. x 250 ft. for the storage of drummed materials and a railroad siding with loading tipple. A detailed description of the structures on site is given as the last section of this Exhibit.

The site was operated by the Manhattan Engineer District and the Commission from 1946 until July 1953, when the operation was turned over to Mallinckrodt Chemical Works. Guards were maintained at the site from 1946 to 1951.

II. SOURCE OF RESIDUES ON SITE

The Destrehan Refinery started operations in 1946, utilizing pitchblende ores and continued on this feed until early in 1955.

The procurement contract for these ores with African Metals Corporation required the United States to store both the pitchblende raffinate (AM-7), which contains metal values other than uranium, such as nickel, cobalt, and copper, as well as the radium-bearing residues (K-65), as African Metals retained ownership of all material except its uranium content. African Metals subsequently transferred ownership of the AM-7 raffinate to the Government.

A large concrete pit was constructed to store the radium-bearing residue (K-65) but was not used for this purpose due to health reasons. Instead, this residue was stored in drums at the site, from 1946 until early in 1948. It was then transferred to the Lake Ontario Storage Area, Model City, New York, in 1948 and 1949. The AM-7 was stored on the ground in the open where it remains today, except for about 350 tons of pitchblende raffinate (AM-7) which were processed in a small pilot plant facility at Destrehan Street to recover ionium. This material was processed in 1955-1957 and returned to the original raffinate storage at the site.

The raffinate (AM-10) produced from subsequent operations using non-pitchblende feeds was stored separately. A barium cake residue (K-4) produced by the refinery is also stored at the site; this residue resulted from the precipitation of digest liquor with barium carbonate to reduce its sulphate content. Both of these materials are stored on open ground.

The residues generated by the refinery aggregate to greater than 95% of the material presently stored at the Airport Site.

The other major components of residues were generated as slag from the reduction step of the metal operations at Destrehan Street. Two types of this material have been generated. Initially the reduction bombs were lined with dolomite. The used dolomite liner (C-liner) was shipped from Destrehan Street and stored at the Airport Site in bulk on the ground. Shipments of the dolomite slag started in March 1946 and continued until early in 1953 when the dolomite liner was replaced by a recycle magnesium fluorine liner. Approximately half of the C-liner has since been shipped to FMPC for recovery of the uranium content.

In 1955 an Interim Residue Plant was constructed at Destrehan Street to scalp the uranium content from the magnesium fluoride slag produced in the Metals Plant. Tailings from this operation (C-701) were stored in the concrete pit at the Airport Site, and since have all been shipped to FMPC for recovery of the contained uranium.

By 1960 there also had accumulated at the storage site approximately 50,000 empty drums and 3500 tons of contaminated steel and alloy scrap. However, by 1962 the bulk of these materials had been disposed of for the metal salvage values.

Approximately 2400 drums remain in the area; these contain miscellaneous residues, Japanese uranium-containing sand and contaminated scrap materials.

Material presently stored at the site is summarized below:

	Gross Tons	Approx. Tons U
Pitchblende Raffinate (AM-7)	74,000	113
Raffinate (AM-10)	32,500	48
Barium Cake (AJ-4)	10,200	29
Other Miscellaneous Residues and Captured Japanese U Precipitates	350	2
C-liner slag	4,000	49

III. TOPOGRAPHY OF SITE

The original ground purchased in 1946 was very uneven and contained a low drainage area on the western section of the site. The land had a drainage slope from East to West, with all surface drainage directed to the Coldwater Creek at the western edge of the property. The initial topography of the site is shown in the aerial photograph, Exhibit 3.

It has been extremely difficult to reconstruct precisely the sequence and location of contaminated materials and residues deposited on site. The Committee has collected from various files and from McDonnell Aircraft Corporation a series of aerial photographs which depict the transition at the original site to its present state. Various reports, drawings and sketches were also located which contributed to a general understanding of the degree of contamination of the site. Numerous individuals associated with the Airport Storage Site have been contacted; however, since such a time has lapsed since the active operation of the site, much of the information obtained by these verbal inquiries is qualified by uncertainties of memory. Also, many of the people who were intimately associated with the site during its early operation are no longer available.

Judging from the knowledge gleaned from the above sources, it appears that with respect to the western part of the site, early dispositions of contaminated scrap metal were located in the low areas then existing on the western end of the property. The scrap metal and other debris were later covered (in 1952) with dirt received (gratis) from McDonnell Aircraft Corporation and worked with heavy equipment to make a level storage area (see Exhibit 7). The reclaimed area is now occupied by AM-10 raffinate, drums of Japanese sand and contaminated rubble and other waste from Destrehan Street.

The existence of buried contaminated metal below the present [illegible] of the western section of the site was confirmed by test d[illegible]l described elsewhere in this report. Underground contaminat[illegible] is reported to be on the order of magnitude of 50 to 60 truc[illegible] plus one contaminated vehicle.

The eastern two-thirds of the site presently is covered with mov[illegible] of C-liner slag, raffinate (AM-7), and barium cake (AJ-4). Thes[illegible] mounds of residue rise to approximately 20 feet above normal grou[illegible] level. Drainage from the mounds and the adjoining areas is directed to the Coldwater Creek.

Drainage waters from the storage area have, in the past, produced some minor contamination in Coldwater Creek. Continued monitoring of th[illegible] complete area and the creek waters, however, has indicated that significant levels have never been reached and that all radiation readings are well within permissible and acceptable limits presently prescribed by AEC directives and manuals.

A topographic survey map of the site (Exhibit 3) shows the existing limits of residue stockpiles, the general topography of the remaining area on the basis of one foot contour intervals and the location of principal structures at the site. The aerial photograph, Exhibit 4, shows the site essentially as it exists today.

IV. INVENTORY OF STRUCTURES

The area is inclosed by a chain link fence. It contains the following structures:

A reinforced concrete pit consisting of floor slab and walls, 200 ft. long x 42 ft. wide by 12 ft. deep.

A storage shed consisting of a 250 ft. x 45 ft. concrete floor pad, with a center wall 7 ft. high and 1 ft. thick running the length of the structure. The pad is covered with a corrugated metal roof supported on wood columns and trusses. Sides and ends of the shed are open.

A single track railroad spur which enters the south fence near the east end of the site.

A steel and wood tipple is located along the spur.

A timber drum loading platform, 18½ ft. x 8 ft. x 3½ ft. high, with stone fill ramp, is located just east of the tipple.

A reinforced concrete wash pad for trucks, measuring 51½ ft. x 35½ ft. is located east of the Storage Shed.

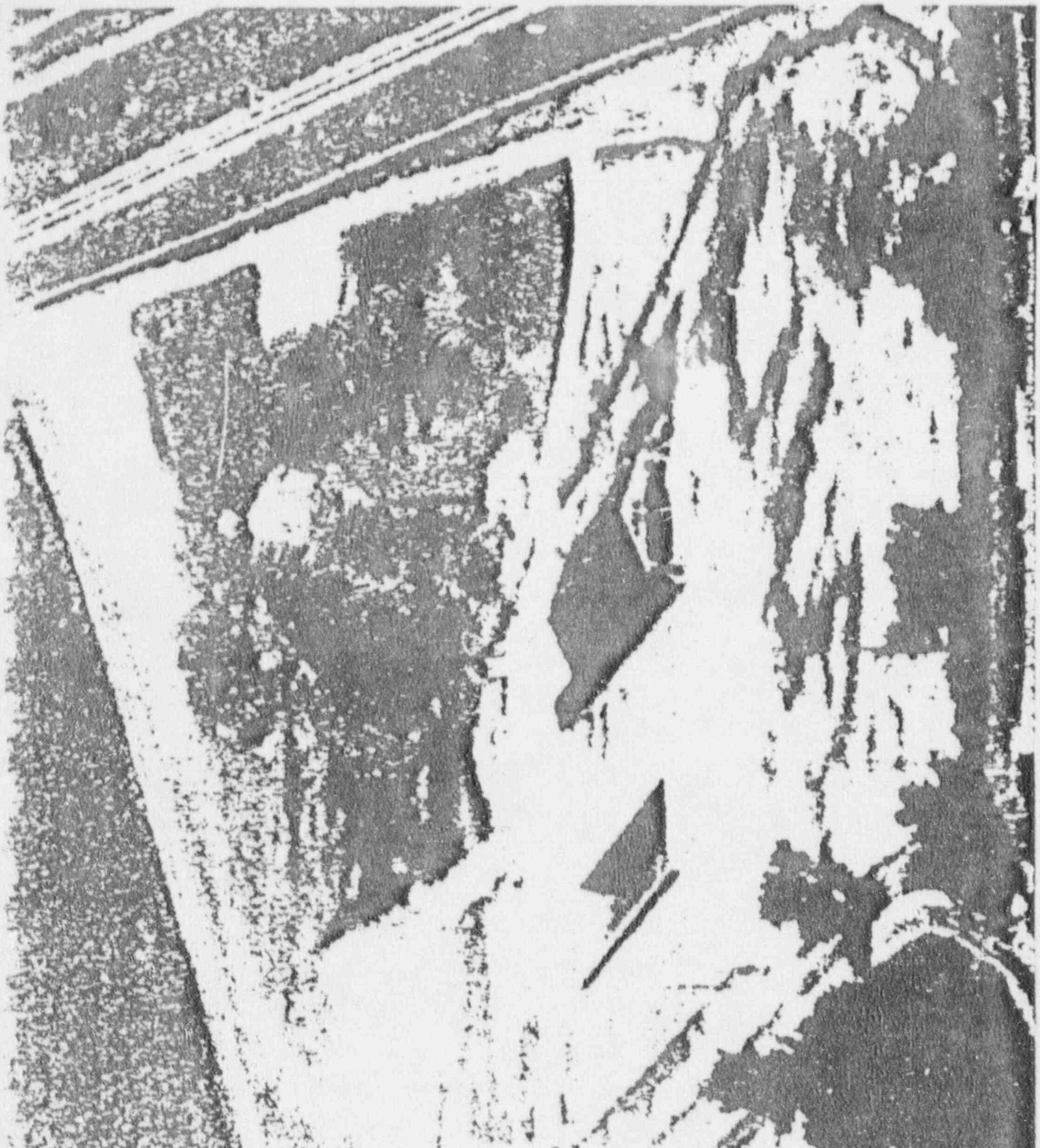
A reinforced concrete truck loading platform with ramp is located north of the wash pad and adjacent to the west end of the Barium Sulfate residue. It is T-shaped, measuring 24 ft. long x 65½ ft. wide at the north side x 18½ ft. wide at the south side.

Three single-story wood buildings are also located on the site:

A 32 ft. x 18½ ft. office building at the main gate on the north side of the area.

A 24½ ft. x 12 ft. guard house also at the main gate.

A 9 ft. x 7 ft. portable guard house located near the south fence, midway of the property.



RADIATION SURVEY - SOIL AND SUB-SOIL

TEST HOLE #	TYPE OF RAD. 1/	BKG. RAD. @ 3' ABOVE HOLE	DEPTH WHICH MEASUREMENT WAS MADE 0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	DEPTH AS INDICATED
1-1	α	-	-	-	-	-	-	250 d/m-cm.					
	β-γ	3500 c/m	2500 c/m	450 c/m	200 c/m	200 c/m	200 c/m	200 c/m					
	γ	3000 c/m	2000 c/m	350 c/m	-	-	-	-					
1-3	α	-	-	-	-	-	N.D. 2/						
	β-γ	600 c/m	500 c/m	300 c/m	200 c/m	200 c/m	250 c/m						
	γ	450 c/m	300 c/m	100 c/m	100 c/m	-	-						
1-4	α	-	-	-	-	-	-	N.D.					
	β-γ	3500 c/m	3000 c/m	550 c/m	400 c/m	300 c/m	300 c/m	300 c/m					
	γ	3000 c/m	2500 c/m	150 c/m	200 c/m	200 c/m	150 c/m	150 c/m					
1-5	α	-	-	-	-	-	-	1400 d/m-cm.	-	-	-	250 d/m-cm.	
	β-γ	3000 c/m	3000 c/m	1800 c/m	1000 c/m	600 c/m	600 c/m	600 c/m	700 c/m	600 c/m	650 c/m	700 c/m	
	γ	2100 c/m	2000 c/m	450 c/m	300 c/m	200 c/m	150 c/m	200 c/m	200 c/m	-	-	-	
2-5	α	-	-	-	-	-	-	-	-	-	-	-	250 d/m-cm @ 11'
	β-γ	3000 c/m	4000 c/m	15000 c/m	52000 c/m	20000 c/m	4500 c/m	500 c/m	500 c/m	500 c/m	-	-	
	γ	1500 c/m	2000 c/m	6000 c/m	50000 c/m	20000 c/m	2500 c/m	400 c/m	200 c/m	200 c/m	-	-	
3-1	α	-	-	-	200 d/m-cm.	600 d/m-cm.	-	-	-	-	-	-	
	β-γ	600 c/m	-	300 c/m	300 c/m	300 c/m	300 c/m	300 c/m	250 c/m	250 c/m	200 c/m	100 c/m	100 d/m-cm @ 12
	γ	-	-	-	-	-	-	-	-	-	-	-	
3-3	α	-	-	-	-	-	-	250 d/m-cm.	-	-	-	-	
	β-γ	3000 c/m	3500 c/m	2000 c/m	1000 c/m	250 c/m	350 c/m	350 c/m	400 c/m	400 c/m	-	-	N.D. @ 13'
	γ	-	-	-	-	-	-	-	-	-	-	-	
3-3 E	α	-	-	-	-	-	-	625 d/m-cm.	-	-	-	-	
	β-γ	3000 c/m	5000 c/m	5800 c/m	1000 c/m	300 c/m	300 c/m	450 c/m	400 c/m	250 c/m	250 c/m	-	250 d/m-cm @ 15'
	γ	2500 c/m	2500 c/m	3200 c/m	400 c/m	200 c/m	300 c/m	450 c/m	300 c/m	250 c/m	200 c/m	150 c/m	
3-5	α	-	-	-	-	-	500 d/m-cm.	400 d/m-cm.	-	-	200 d/m-cm.	-	
	β-γ	2500 c/m	-	1000 c/m	600 c/m	600 c/m	300 c/m	300 c/m	300 c/m	200 c/m	200 c/m	-	
	γ	1200 c/m	-	300 c/m	-	200 c/m	-	200 c/m	-	-	100 c/m	-	
3-5 E	α	-	-	-	-	-	-	500 d/m-cm.	-	-	N.D.	100 d/m-cm.	100 d/m-cm. @ 13
	β-γ	2500 c/m	-	3600 c/m	1000 c/m	600 c/m	250 c/m	400 c/m	300 c/m	250 c/m	400 c/m	-	
	γ	-	-	-	-	-	-	-	-	-	-	-	
5-1	α	-	-	750 d/m-cm.	-	-	-	200 d/m-cm.	-	-	-	100 d/m-cm.	100 d/m-cm. @ 13
	β-γ	-	-	600 c/m	700 c/m	700 c/m	500 c/m	300 c/m	200 c/m	200 c/m	200 c/m	200 c/m	
	γ	-	-	-	-	-	-	-	-	-	-	-	
5-2	α	-	18000 d/m-cm.	-	400 d/m-cm.	-	900 d/m-cm.	-	-	-	-	-	100 d/m-cm. @ 15
	β-γ	1000 c/m	-	2800 c/m	2500 c/m	3500 c/m	6500 c/m	15000 c/m	10000 c/m	4000 c/m	3500 c/m	3500 c/m	
	γ	-	-	700 c/m	-	-	-	7000 c/m	-	-	-	400 c/m	

1/ Beta-Gamma Data in this table may be related to unrestricted decontamination criteria by the following relationships: 4000 c/m = 1 mrad/hr. or 800 c/m = 0.2 mrad/hr. (β-γ values are in c/m on G-M Meter) Alpha: 4000 d/m - cm. = Permissable limit (all alpha values are in d/m-cm units).

2/ N.D. signifies that the measurement is below the detectable limit of 100 d/m-cm.

EXHIBIT B

TEST HOLE #	TYPE OF RAD. 1/	BKG. RAD. @ 3' ABOVE HOLE	DEPTH AT WHICH MEASUREMENT WAS MADE 0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	DEPTH AS INDICATED
B-3	α	-	-	-	-	-	-	-	-	-	-	-	400 d/m-gm @15'
	β-γ	3500 c/m	4000 c/m	4000 c/m	1500 c/m	1000 c/m	1800 c/m	3700 c/m	2500 c/m	2400 c/m	2200 c/m	2600 c/m	-
	γ	2400 c/m	-	3500 c/m	-	800 c/m	-	2500 c/m	1500 c/m	500 c/m	-	400 c/m	-
B-3 E	α	-	-	-	-	-	-	-	-	13000 d/m-gm.	-	-	N.D. @15' 2/
	β-γ	3000 c/m	4500 c/m	5800 c/m	4000 c/m	2500 c/m	7000 c/m	25000 c/m	12000 c/m	8000 c/m	5000 c/m	4000 c/m	3000 c/m @11'
	γ	1500 c/m	2000 c/m	-	2000 c/m	-	5000 c/m	-	10000 c/m	4000 c/m	2000 c/m	-	-
B-5	α	-	-	-	-	-	-	600 d/m-gm.	-	-	250 d/m-gm.	-	-
	β-γ	2200 c/m	-	4000 c/m	600 c/m	350 c/m	350 c/m	350 c/m	350 c/m	350 c/m	350 c/m	-	-
	γ	1300 c/m	-	2500 c/m	600 c/m	250 c/m	250 c/m	250 c/m	250 c/m	250 c/m	250 c/m	-	-
B-6	α	-	-	-	20000 d/m-gm.	-	750 d/m-gm.	500 d/m-gm.	100 d/m-gm.	-	-	-	-
	β-γ	1500 c/m	1000 c/m	2500 c/m	17000 c/m	45000 c/m	-	-	-	-	-	-	-
	γ	500 c/m	600 c/m	2000 c/m	17000 c/m	40000 c/m	-	-	-	-	-	-	-
7-1	α	-	-	-	-	N.D.							
	β-γ	600 c/m	400 c/m	400 c/m	300 c/m	300 c/m							
	γ	200 c/m	200 c/m	200 c/m	200 c/m	200 c/m							
7-5	α	-	-	-	-	-	-	250 d/m-gm.					
	β-γ	2500 c/m	4000 c/m	4500 c/m	1300 c/m	300 c/m	-	-					
	γ	2000 c/m	2000 c/m	2000 c/m	400 c/m	200 c/m							
7-7	α	-	-	N.D.	N.D.	250 d/m-gm.	250 d/m-gm.						
	β-γ	1000 c/m	1700 c/m	1700 c/m	300 c/m	250 c/m	700 c/m						
	γ	500 c/m	600 c/m	500 c/m	300 c/m	200 c/m	200 c/m						
8-5	α	-	-	-	-	-	250 d/m-gm.						
	β-γ	3500 c/m	5500 c/m	4700 c/m	500 c/m	300 c/m	-						
	γ	2500 c/m	3000 c/m	2200 c/m	300 c/m	200 c/m	-						
9-1	α	-	-	-	100 d/m-gm.	250 d/m-gm.	250 d/m-gm.						
	β-γ	1300 c/m	1800 c/m	1200 c/m	500 c/m	300 c/m	350 c/m						
	γ	400 c/m	600 c/m	500 c/m	300 c/m	150 c/m	150 c/m						
9-7	α	-	-	-	100 d/m-gm.	250 d/m-gm.	100 d/m-gm.						
	β-γ	1000 c/m	1300 c/m	800 c/m	500 c/m	400 c/m	-						
	γ	500 c/m	500 c/m	200 c/m	200 c/m	100 c/m	-						
10-1	α	-	-	N.D.	100 d/m-gm.	250 d/m-gm.	-						
	β-γ	10000 c/m	15000 c/m	4000 c/m	3500 c/m	-							
	γ	7000 c/m	7000 c/m	2000 c/m	500 c/m	-							
10-2	α	-	-	-	-	-	500 d/m-gm.						
	β-γ	1700 c/m	3000 c/m	600 c/m	400 c/m	300 c/m	500 c/m						
	γ	1300 c/m	500 c/m	200 c/m	100 c/m	100 c/m	100 c/m						
10-3	α	-	-	250 d/m-gm.	100 d/m-gm.	100 d/m-gm.	500 d/m-gm.						
	β-γ	3500 c/m	4700 c/m	3000 c/m	600 c/m	200 c/m	-						
	γ	2000 c/m	2000 c/m	1200 c/m	250 c/m	150 c/m	-						

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2/ N.D. signifies that the measurement is below the detectable limit of 100 d/m-gm.

EXHIBIT B

TEST HOLE #	TYPE OF RAD. 1/	BKG. RAD. @ 3' ABOVE HOLE	DEPTH AT WHICH MEASUREMENT WAS 0'	1'	2'	3'	4'	5'	7'	8'	9'	DEPTH AS INDICATED
13-1	α	-	-	-	-	750 d/m-am.	-	500 d/m-am.				
	β-γ	10000 c/m	25000 c/m	60000 c/m	65000 c/m	23000 c/m	20000 c/m	22000 c/m				
	γ	6500 c/m	15500 c/m	38000 c/m	45000 c/m	12000 c/m	2500 c/m	2700 c/m				
14-1	α	-	-	1000 d/m-am.	-	8000 d/m-am.						
	β-γ	15000 c/m	30000 c/m	25000 c/m	25000 c/m	-						
	γ	8000 c/m	15000 c/m	13000 c/m	3000 c/m	-						
14-2	α	-	-	-	-	4000 d/m-am.	-	2500 d/m-am.				
	β-γ	17000 c/m	23000 c/m	20000 c/m	27000 c/m	10000 c/m	13000 c/m	13000 c/m				
	γ	8000 c/m	12000 c/m	16000 c/m	14000 c/m	7000 c/m	1500 c/m	1400 c/m				
14-3	α	-	-	200 d/m-am.	-	400 d/m-am.						
	β-γ	4500 c/m	6500 c/m	3000 c/m	2500 c/m	-						
	γ	3500 c/m	2500 c/m	600 c/m	250 c/m	-						
14-4	α	-	-	70000 d/m-am.	-	700 d/m-am.	400 d/m-am.					
	β-γ	2000 c/m	2000 c/m	4000 c/m	1200 c/m	600 c/m	-					
	γ	800 c/m	600 c/m	1500 c/m	500 c/m	300 c/m						
15-2	α	-	-	200 d/m-am.	-	100 d/m-am.	N.D. 2/					
	β-γ	6500 c/m	12000 c/m	5500 c/m	1500 c/m	700 c/m	-					
	γ	4500 c/m	4500 c/m	3700 c/m	800 c/m	300 c/m	-					
16-3	α	-	-	400 d/m-am.	-	500 d/m-am.	-	200 d/m-am.				
	β-γ	3500 c/m	5000 c/m	6000 c/m	600 c/m	600 c/m	500 c/m	-				
	γ	2000 c/m	2000 c/m	2200 c/m	200 c/m	150 c/m	150 c/m	800 c/m				
16-4	α	-	-	-	-	-	-	250 d/m-am.				
	β-γ	2000 c/m	1500 c/m	1500 c/m	1300 c/m	600 c/m	300 c/m	400 c/m				
	γ	1500 c/m	300 c/m	400 c/m	500 c/m	300 c/m	150 c/m	800 c/m				
16-5	α	-	-	-	-	-	250 d/m-am.					
	β-γ	2000 c/m	1300 c/m	600 c/m	400 c/m	300 c/m	300 c/m					
	γ	600 c/m	450 c/m	350 c/m	300 c/m	150 c/m	150 c/m					
17-1	α	-	-	8000 d/m-am.	-	400 d/m-am.	-	500 d/m-am.				
	β-γ	2700 c/m	2200 c/m	700 c/m	400 c/m	400 c/m	400 c/m	-				
	γ	1500 c/m	500 c/m	250 c/m	100 c/m	100 c/m	100 c/m	-				
19-4	α	-	-	250 d/m-am.	-	-	-	400 d/m-am.				
	β-γ	1500 c/m	2000 c/m	400 c/m	500 c/m	200 c/m	-	-				
	γ	300 c/m	300 c/m	250 c/m	150 c/m	100 c/m	150 c/m	-				
19-6	α	-	-	250 d/m-am.	-	250 d/m-am.						
	β-γ	1500 c/m	1500 c/m	300 c/m	400 c/m	-						
	γ	400 c/m	200 c/m	200 c/m	200 c/m	-						
20-5	α	-	-	-	-	250 d/m-am.						
	β-γ	1000 c/m	1500 c/m	1000 c/m	600 c/m	-						
	γ	300 c/m	200 c/m	200 c/m	100 c/m	-						

1/ Beta-Gamma Data in this table may be related to unrestricted decontamination criteria by the following relationship: 4000 c/m = 1 mrad/hr or 800 c/m = 0.2 mrad/hr. (β-γ values are in c/m on G-M Meter) Alpha: 4000 d/m - am. = Permissable Limit (All alpha values are in d/m-am Units).

2/ N.D. signifies that the measurement is below the detectable limit of 100 d/m-am.

EXHIBIT B

SUMMARY OF RADIATION SURVEY DATA FOR BUILDINGS AND OTHER STRUCTURES

The following data are the result of a survey conducted September 15, 1965, and are considered adequate to indicate general levels of contamination found on these structures:

1. K-65 Storage Shed

   Concrete floor and center wall

   alpha - 15,000 d/m/100^2, avg.
   30,000 d/m/100^2, max.
   beta-gamma - 1.5 mr/hr., avg.

   Wooden superstructure

   alpha - 5,000 d/m/100 cm^2, avg.
   beta-gamma - 1 mr/hr., avg.

2. Concrete Pit

   alpha - 5,000 d/m/100 cm^2, max.

3. Wooden Buildings near Main Gate

   alpha - 3,500 d/m/100 cm^2, max.

4. Fence

   alpha - 300 - 500 d/m

5. Wash Slab

   alpha - 3,000 d/m/100 cm^2, avg.
   4,500 d/m/100 cm^2, max.

Note: Beta-Gamma readings are subject to general background caused by residue storage.

EXHIBIT 9

St. Louis
Airport

Contract No. AT-(23-2)-[illegible]

#13

BILL OF SALE

FOR AND IN CONSIDERATION of the sum of One Hundred Twenty-six Thousand, Five Hundred Dollars ($126,500.00) cash in hand, receipt of which is hereby acknowledged, the UNITED STATES OF AMERICA (hereinafter called the "Government"), acting by and through the UNITED STATES ATOMIC ENERGY COMMISSION (hereinafter called the "Commission"), hereby bargains, sells, and conveys to CONTINENTAL MINING & MILLING CO., a Delaware corporation, whose principal office is located at 208 S. LaSalle Street, Chicago, Illinois (hereinafter called the "Purchaser"), the following described personal property presently stored on a Government-owned site located at 50 Brown Road, Robertson, Missouri, immediately north of St. Louis Airport, subject to the terms and conditions outlined herein:

Description	Approximate Quantity
Pitchblende Raffinate	74,000 tons
Colorado Raffinate	32,500 tons
Barium Sulfate Cake	1,500 tons
Barium Cake	8,700 tons
Miscellaneous Residues	350 tons (stored in deteriorated drums)

SALE TERMS AND CONDITIONS

1. Quantities to Be Removed

a. All materials lying within the cross-hatched areas shown on Drawing No. 6-1403-19, which is attached hereto and made a part hereof, shall be removed by the Purchaser. If advantageous to the Purchaser, any residues lying immediately outside the cross-hatched areas may be removed.

b. All residues above ground level shall be removed within the cross-hatched areas. In case of disagreement on ground level elevations, they shall be established by producing 2' contours from elevations taken along perimeter fence and assuming there is uniform change in elevations along the north-south grid lines. If advantageous to the Purchaser, residues and/or contaminated earth below determined ground level may be removed.

DUPLICATE

B/10

c. Stone and other debris contained in the residue piles may be left on the site in designated areas established by the Contracting Officer. Upon completion of the Purchaser's removal operation, the area shall be left in a graded condition providing drainage to the west end of the property.

2. Site Facilities. The existing railroad spur, loading dock and tipple, covered storage area, office and changehouse will be available for use by the Purchaser without charge. Electric power and water are available at the site at the Purchaser's expense.

3. Condition of Material. All material listed herein is sold "as is". The description of the material is based on the best information available to the Government. However, the Government makes no warranty, express or implied, as to quantity, kind, character, quality, weight, size, or description of the material, or as to the content of rare earths, uranium, or other metals. Neither the Government, the Commission, nor persons acting on behalf of the Commission warrant the materials sold to the Purchaser under this contract (i) will not result in injury or damage when used for any purpose, or (ii) are of merchantable quality, or (iii) are fit for any particular purpose.

4. License Requirements. The material sold hereunder contains more than 0.05% uranium and therefore constitutes source material subject to licensing requirements and regulations promulgated by the Commission pursuant to the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011). Accordingly, the Purchaser must obtain a license and comply with regulations pertaining to source material as published in 10 Code of Federal Regulations, Parts 20 and 40, prior to taking possession of the material sold hereunder.

5. Notice to Proceed with Removal and Time for Removal

a. The Government will issue a notice to proceed with removal of the material sold hereunder upon payment of the purchase price, the furnishing of a performance bond as required herein, and the securing of a license by the Purchaser as required by Paragraph 4 hereof. The Purchaser shall not be entitled to possession of the material until issuance of the notice to proceed.

b. After issuance of the notice to proceed the Purchaser shall remove the material sold hereunder at the rate of not less than 1% within 100 calendar days (calculated from such date of issuance); 50% within 200 calendar days; 75% within 300 calendar days; and 100% within 400 calendar days, unless otherwise approved by the Commission.

c. It is understood that the barium cake may be removed prior to removal of the remaining residues, but that the remainder of the residues will be removed pursuant to a reasonable schedule so as to eliminate the possibility of removal of only the residues which contain the more valuable materials.

6. Performance Bond. The Purchaser shall furnish a Performance Bond in the penal sum of $50,000 with good and sufficient sureties acceptable to the Commission on United States Standard Form No. 25.

7. Payment. Payment of the purchase price in full shall be made by the Purchaser to the United States Atomic Energy Commission upon execution and delivery of this Bill of Sale.

8. Title. Title to the material sold hereunder shall pass to the Purchaser upon payment of the purchase price and the furnishing of Performance Bond as required herein.

9. Loading and Removal. As is provided herein, the material sold hereunder is sold "as is, where is", and all of the costs of loading, removal, and site cleanup shall be borne by the Purchaser.

10. Responsibility for Property. The Purchaser assumes full responsibility for the care and custody of the material sold hereunder after passage of title.

11. Entire Agreement. The materials sold hereunder are the same materials previously offered for sale under United States Atomic Energy Commission Invitation For Bid No. AT-(23-2)-53, dated August 3, 1964, Invitation For Bid No. AT-(23-2)-52, dated January 10, 1964, and Invitation For Bid No. AT-(23-2)-46 dated March 7, 1962, in response to which a bid in the amount of $126,500 was received from Contemporary Metals Corporation, a wholly owned subsidiary of the Purchaser hereunder. This Bill of Sale, however, is a negotiated sale and is not executed in response to said invitations for bid. It is expressly understood

DUPLICATE

agreed by the Purchaser that this Bill of Sale constitutes the entire agreement; that there are no prior agreements, understandings, or covenants between the Government and the Purchaser of any kind, nature, or description, express or implied, oral or written, which are not set forth herein; and that this document cannot be altered, modified, amended, or changed, nor any provision thereof waived or abrogated except by mutual agreement of the parties.

12. Sale of Personal Property Only. Nothing herein shall be deemed to convey any right, title, or interest in the Government-owned land on which the materials sold hereunder are stored other than the permission to utilize and occupy said land for the purpose of removal of the material sold hereunder during the period of time allowed for said removal, or any authorized extension of said period.

13. Covenant Against Contingent Fees. Purchaser warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Purchaser for the purpose of securing business. For breach or violation of this warranty, the Government shall have the right to annul this contract without liability or in its discretion to recover from the Purchaser the amount of such commission, percentage, brokerage, or contingent fee, in addition to the consideration herein set forth.

14. Officials Not to Benefit. No member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

15. Disputes

a. Except as otherwise provided in this contract, any dispute concerning a question of fact arising under this contract which is not disposed

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by agreement shall be decided by the Contracting Officer who shall reduce his decision to writing and mail or otherwise furnish a copy thereof to the Purchaser. The decision of the Contracting Officer shall be final and conclusive unless, within thirty (30) days from the date of receipt of such copy, the Purchaser mails or otherwise furnishes to the Contracting Officer a written appeal addressed to the Commission. The decision of the Commission or its duly authorized representative for the determination of such appeals shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, or capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence. In connection with any appeal proceeding under this clause, the Purchaser shall be afforded an opportunity to be heard and to offer evidence in support of its appeal. Pending final decision of a dispute hereunder, the Purchaser shall proceed diligently with the performance of the contract and in accordance with the Contracting Officer's decision.

b. This Disputes clause does not preclude consideration of law questions in connection with decisions provided for in Paragraph a, above; provided, that nothing in this contract shall be construed as making final the decision of any administrative official, representative, or board on a question of law.

16. Default. It is agreed by the parties that removal of the ore residues to which title is herein transferred to the Purchaser from the site is of the essence of this sale contract. If the Purchaser breaches the contract by failing to remove such material as required by the terms of the contract, the Government may send the Purchaser a thirty- (30) day written notice of default (calculated from the date of mailing). Upon Purchaser's failure to cure such default within such period (or such further period as the Government may allow) the Government, at its discretion, is authorized to sell the ore residues for the account of the Purchaser, less expenses incident to sale, or to effect the removal of the Purchaser's property at the cost and expense of the Purchaser, including, but not limited to, the cost

of transportation, cartage, and storage. In the event of removal, the Government shall have a lien on such property for all costs resulting from such removal. Such removal may be made to a site or sites owned by the Government or acquired under rental or lease agreement for the purpose of storing said residues. In either event, the Purchaser agrees to pay a reasonable rental for such site. In any event, if the Purchaser fails to remove the property regardless of where it is located within a period of twelve (12) months from the date of notice of default (or such further time as the Government may allow), the Government may at its option, exercised by notice to the Purchaser, take title to the property and the Purchaser shall lose all right, title, and interest in and to the property as to which default has occurred. This Default article shall not be construed to waive any other rights or remedies as may be provided by law for default.

17. Definitions. As used in this Bill of Sale:

a. The term "Contracting Officer" means the person executing this document on behalf of the Government and includes his successors or any duly authorized representative of such person.

b. The term "Commission" means the United States Atomic Energy Commission or any duly authorized representative thereof, including the Contracting Officer, except for the purpose of deciding an appeal under Paragraph 15 hereunder entitled "Disputes".

c. The words "residues", "property", and "materials" are used interchangeably throughout this document and refer to the personal property described on page 1 in the introductory paragraph of this document.

IN WITNESS WHEREOF, the United States Atomic Energy Commission has caused this Bill of Sale to be executed in the name of and on behalf of the Government by its duly authorized representative this 25th day of February, 1966.

UNITED STATES OF AMERICA

BY: UNITED STATES ATOMIC ENERGY COMMISSION

BY: _____

F. H. Belcher
Area Manager
St. Louis Area Office

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STATE OF MISSOURI)
COUNTY OF ST. CHARLES)

Before me, [illegible], a Notary Public of the State and County aforesaid, personally appeared E. H. Belcher, with whom I am personally acquainted, and who, upon oath, acknowledged himself to be a duly authorized representative of the United States Atomic Energy Commission, an Agency of the United States of America, and that he as such authorized representative, being duly authorized so to do, executed the foregoing instrument for the purposes therein contained by signing the name of the United States of America by the United States Atomic Energy Commission, by himself as such authorized representative.

Witness my hand and seal at office in Weldon Spring, St. Charles County, Missouri, this [illegible] day of [illegible], 1966.

[signature]
Notary Public

My commission expires the [illegible] day of [illegible], 19[illegible].

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Accepted this 14 day of Feb., 1966 on the terms and conditions hereinabove set forth.

CONTINENTAL MINING & MILLING CO.

By _____
J. J. Donovan, Executive Vice President

ATTEST:

_____
D. Glenn Orsthun, Assistant Secretary

STATE OF ILLINOIS)
) SS.
COUNTY OF COOK)

I, _____ a Notary Public in and for the County and State aforesaid, DO HEREBY CERTIFY that J. J. DONOVAN and D. GLENN ORSTHUN, personally known to me to be Executive Vice President and Assistant Secretary, respectively, of CONTINENTAL MINING & MILLING CO., and known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that they signed, sealed and delivered the said instrument as their free and voluntary act, and as the free and voluntary act and deed of said Corporation for the uses and purposes therein set forth; and the said D. GLENN ORSTHUN, Assistant Secretary of said Corporation, did then and there acknowledge and declare that he had affixed thereto the corporate seal of said Corporation under the authority granted to him by the by-laws of said Corporation.

GIVEN under my hand and notarial seal this 14th day of February, 1966.

_____
Notary Public

My Commission Expires:

April 3 1967

C.

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below

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DUPLICATE