

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-02193-RS
ADDRESS: 443 NORTH 18TH STREET

SEPTEMBER 1985

FOR

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT OFFICE

ALBUQUERQUE OPERATIONS OFFICE

DEPARTMENT OF ENERGY

BY

BENDIX FIELD ENGINEERING CORPORATION
P.O. Box 1569
Grand Junction, Colorado 81502

APPROVED BY

Michael H. Tucker
M. TUCKER
DOE PROJECT ENGINEER

DATE

September 11, 1985

REA02193:REA-713

8509270169 850912
PDR WASTE
WM-54 PDR

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-02193-RS, is a single-family residence located at 443 North 18th Street, Grand Junction, Colorado.

The purpose of this assessment is to evaluate the extent of uranium millsite contamination at this property. This assessment includes recommended remedial action, estimated volume of material to be removed, and estimated cost of the proposed action.

1.2 Evaluation and Recommendation

The action recommended is the removal of contaminated material and restoration of the property to its original condition. The identified residual radioactive material found on this property is tailings; the estimated volume is: exterior, 4 cu. yd.; interior, 0 cu. yd.

It is recommended that no remedial action be performed on a portion of Area C, as discussed in Section 4.0 of this REA.

Estimated cost to perform remedial action is \$687. Remedial action on this property will take approximately 3 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 443 North 18th Street, Grand Junction, Colorado

Zoning: Residential (RSF-8)

Lot Size: Approximately 3,000 sf (0.07 acres)

Legal Description: Lot 26, Block 3, Slocumb Addition, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 1 mile(s) north of the State of Colorado Tailings Repository. Appendix Figure 2.1 shows the property location relative to its surroundings.

Utilities: Utility locations are shown in Appendix Figure 2.2.

Electrical:	Overhead
Gas:	Underground
Telephone:	Overhead
Sewer:	Underground
Water:	Underground
Cable TV:	Overhead

Bordering Properties:

North:	Single-family residence
South:	Single-family residence
East:	North 18th Street
West:	Alley

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence
Size:	Approximately 520 sf
Construction Date:	1946
Construction:	Wood-frame with wood floor joists on grade
Foundation:	None
Footing Depth:	None
Basement:	None
Crawl Space:	None
Condition:	Good

Other Structures:

Type:	Shed
Size:	Approximately 70 sf
Construction:	Wood-frame
Foundation:	None
Condition:	Fair

General Remarks:

Structures, utilities, landscaping, and other special features of this property are included in Appendix Figure 2.2.

Historical Data:

This structure is not over 50 years old. Therefore, it does not meet the eligibility criteria for consideration of inclusion on the National Register of Historic Places.

3.0 RADIOLOGIC SURVEY

3.1 Introduction

Radiologic data were collected by Bendix at DOE ID No. GJ-02193-RS on August 16, 1985. Data collection methods were performed in accordance with procedures fully described in the Radiologic Support Operations Procedures Manual GJ-07(84) (Bendix Field Engineering Corporation, 1984). These data were evaluated to determine the areal and vertical extent of uranium mill tailings contamination at this property as well as any other contaminated material that may have originated from the millsite.

A review of the historical information available for this property was conducted to determine the areas of potential contamination identified during previous radiologic assessments.

The Bendix radiologic survey was designed to investigate the entire property, with emphasis on previously identified areas of contamination. Conclusions based upon data analyses are discussed in Section 3.5, Extent of Contamination. Photocopies of the Official Survey Report, team leader notes, deconvolution graphs, and Exterior Gamma Scan map are included in the Appendix (Section 6.0).

3.2 Gamma Exposure-Rate Surveys

3.2.1 Exterior Findings

Background Readings: 15 to 17 uR/h
Highest Outside Gamma Reading (HOG): 55 uR/h

Exterior radium-concentration measurements are presented in Appendix Table 3.1. Exterior exposure-rate survey results are shown in Appendix Figure 3.1.

3.2.2 Interior Findings

Background Readings: 14 to 16 uR/h
Highest Inside Gamma Reading (HIG): 16 uR/h

Interior gamma exposure-rate measurements are summarized in Appendix Table 3.2.

3.3 Boreholes, Soil Samples, and Other Measurements

Areas which displayed elevated gamma levels were further investigated; the locations and types of these investigations are shown in Appendix Figure 3.2. Data from these investigations are included in Appendix Table 3.1.

3.4 Radon/Radon Daughter Concentration (RDC)

The working level was not assessed by CDH. No RDC measurements were taken by Bendix.

3.5 Extent of Contamination

Appendix Figure 3.3 shows identified areas and estimated depths of contamination on this property, based on assessments of all measurements taken. As noted in this figure, areas that contain identified residual radioactive materials are:

- (Area A) Surface Material: Sparse grass
Direction From Primary Structure: East
Other Directions: Lies next to city sidewalk
Total Depth of Contamination: 12 inches
Approximate Square Footage: 24
- (Area B) Surface Material: Sparse grass
Direction From Primary Structure: East
Other Directions: Lies next to city sidewalk
Total Depth of Contamination: 6 inches
Approximate Square Footage: 22
- (Area C) Surface Material: Concrete
Direction From Primary Structure: East
Total Depth of Contamination: 12 inches
Other (height or thickness): 4-inch-thick concrete sidewalk
Comments: This area consists of the city sidewalk, curb, and gutter.
Approximate Square Footage: 83 - under sidewalk;
50 - under curb and gutter (This portion of Area C is excluded from remedial action.)

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-02193-RS, includes removal of all areas identified as containing radioactive material (as discussed in Section 3.5 and shown in Appendix Figure 3.3) and transport of removed material to the disposal site.

Remedial action will not be performed under the curb and gutter found in Area C because we do not perform remedial action in street right-of-ways where paved streets or curb and gutters will be disturbed.

After remedial action is completed, the areas involved will be restored to original condition in accordance with the Bendix drawings, Vicinity Properties General Construction Specification (Bendix Field Engineering Corporation, 1984), and Statement of Work for Construction Subcontractor.

Dislocation of the occupants will not be required for this remedial action.

4.2 Evaluation of Recommended Remedial Action

Volume calculations of the areas included for remedial action are presented in Appendix Table 4.1. Cost estimates are presented in Appendix Table 4.2.

Estimated cost of remedial action is \$687.

This remedial action will result in removal of the identified residual radioactive materials.

There is no owner preference with respect to remedial action and no legal or other complications are foreseen at this time.

5.0 REFERENCES

ARIX, A Professional Corporation, Procedures Manual for the Grand Junction Remedial Action Program, for Colorado Department of Health, Radiation Control Division, and the U.S. Department of Energy, 1983.

Bendix Field Engineering Corporation, Procedures Manual Radiologic Support Operations Grand Junction Vicinity Properties, (GJ-07), for U.S. Department of Energy, UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico, 1984.

Bendix Field Engineering Corporation, Engineering, Construction, and Land Support Manual Grand Junction Vicinity Properties Project, (GJ-08), for U.S. Department of Energy, UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico, 1984.

Bendix Field Engineering Corporation, Grand Junction Vicinity Properties Operating Manual, (GJ-16) for U.S. Department of Energy, Nuclear Energy Programs, Division of Remedial Action Projects, UMTRA, 1984.

Bendix Field Engineering Corporation, Vicinity Properties General Construction Specification, for U.S. Department of Energy, Nuclear Energy Programs, Division of Remedial Action Projects, UMTRA, 1984.

Bendix Field Engineering Corporation, Environmental Assessment of Preliminary Cleanup Activities at Offsite Properties Contaminated by Tailings from the Grand Junction Inactive Uranium Millsite, (GJ-04), for U.S. Department of Energy, UMTRA Project Office, Albuquerque Operations, Albuquerque, New Mexico, 1983.

U.S. Department of Energy, Programmatic Memorandum of Agreement (DOE No. DE-GM04-84AL28460) between the U.S. Department of Energy, the Advisory Council on Historic Preservation, and the Colorado State Historic Preservation Officer, for UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico, 1984.

U.S. Department of Energy, Vicinity Properties Management and Implementation Manual, for UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico, 1984.

U.S. Environmental Protection Agency, Standards for Remedial Action at Inactive Uranium Processing Sites (40 CFR Part 192), Washington, D.C., 1983.

6.0 APPENDIX

This Appendix contains the following:

Appendix Tables:

Table 3.1	Radium Concentrations at Exterior Locations
Table 3.2	Summary of Interior Gamma Exposure Rates
Table 4.1	Area and Volume Calculations
Table 4.2	Estimated Cost of Decontamination and Restoration

Appendix Figures:

Figure 2.1	Vicinity Map
Figure 2.2	Site Plan
Figure 3.1	Exterior Grid-Point Exposure Rates
Figure 3.2	Exterior Sample Locations
Figure 3.3	Exterior Estimated Extent of Contamination

Official Survey Report

Team Leader Notes

Deconvolution Graphs (Apparent Radium-226 Concentration)

Exterior Gamma Scan Map

Radium Concentrations at Exterior Locations

DOE ID #GJ-02193-RS

443 North 18th Street

Page 1 of 4

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
1	145253	00	DS	<1.0		*	Foundation
		03	TC	3.3		*	North of shed
		06	TC	3.5		*	DC = 0 inches
		09	TC	3.6		*	
		12	TC	3.6		*	
		15	TC	3.6		*	
		18	TC	3.6		*	
		21	TC	3.7		*	
		24	TC	3.6		*	
		27	TC	3.7		*	
		30	TC	3.6		*	
		33	TC	3.6		*	
2	152248	00	DS	1.3		*	Foundation
		03	TC	3.2		*	East of shed
		06	TC	3.5		*	DC = 0 inches
		09	TC	3.6		*	
		12	TC	3.6		*	
		15	TC	3.7		*	
		18	TC	3.7		*	
		21	TC	3.8		*	
		24	TC	3.6		*	
		27	TC	3.6		*	
3	185260	00	DS	<1.0		*	Gas line
		34	DS	1.3		*	On exposed line
4	186255	00	DS	1.1		*	West foundation
		03	TC	3.1		*	Background
		06	TC	3.5		*	
		09	TC	3.6		*	
		12	TC	3.6		*	DC = 0 inches
		15	TC	3.7		*	
		18	TC	3.5		*	
		21	TC	3.5		*	
		24	TC	3.6		*	
		27	TC	3.5		*	
5	203262	00	DS	1.8		*	Sewer line
		03	TC	3.3		*	North foundation

Radium Concentrations at Exterior Locations

DOE ID #GJ-02193-RS

443 North 18th Street

Page 2 of 4

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
5	203262	06	TC	3.5		*	DC = 0 inches
		09	TC	3.6		*	
		12	TC	3.6		*	
		15	TC	3.7		*	
		18	TC	3.8		*	
		21	TC	3.8		*	
		24	TC	3.8		*	
		27	TC	3.8		*	
		30	TC	3.8		*	
		33	TC	3.7		*	
		36	TC	3.6		*	
6	207263	00	DS	1.4		*	Water line
		03	TC	3.3		*	
		06	TC	3.5		*	DC = 0 inches
		09	TC	3.6		*	
		12	TC	3.6		*	
		15	TC	3.7		*	
		18	TC	3.7		*	
		21	TC	3.7		*	
		24	TC	3.7		*	
		27	TC	3.7		*	
		30	TC	3.7		*	
		33	TC	3.7		*	
		36	TC	3.7		*	
		39	TC	3.6		*	
7	210247	00	DS	<1.0		*	South foundation
8	231255	00	DS	1.1		*	East foundation
9	270250	00	DS	1.3		*	
		06	DS	1.4		*	
10	273252	00	DS	1.5		*	
11	274260	00	DS	10.9		*	
		06	DS	27.8		*	
		12	DS	3.4		*	
		03	TC	28.5		*	
		06	TC	40.6		*	
		09	TC	40.9		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-02193-RS

443 North 18th Street

Page 3 of 4

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
11	274260	12	TC	30.3		*	DC = 12 inches Based on all available data
		15	TC	19.6		*	
		18	TC	13.4		*	
		21	TC	9.5		*	
		24	TC	7.5		*	
		27	TC	6.7		*	
		30	TC	6.2		*	
		33	TC	6.0		*	
		36	TC	6.0		*	
		39	TC	5.6		*	
		42	TC	5.2		*	
		45	TC	4.8		*	
		48	TC	4.5		*	
12	275246	00	DS	2.9		*	
		06	DS	1.7		*	
13	277236	00	DS	6.4		*	
		06	DS	1.3		*	
14	277245	00	DS	28.6		*	Southeast city sidewalk
15	277258	00	DS	30.9		*	City sidewalk DC = 12 inches Based on the deconvolution graph
		03	TC	42.7		*	
		06	TC	52.2		*	
		09	TC	37.0		*	
		12	TC	22.6		*	
		15	TC	14.0		*	
		18	TC	10.1		*	
		21	TC	7.7		*	
		24	TC	6.5		*	
		27	TC	5.9		*	
		30	TC	5.6		*	
		33	TC	5.3		*	
		36	TC	5.2		*	
		39	TC	5.2		*	
		42	TC	4.8		*	
		45	TC	4.3		*	
		48	TC	4.2		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-02193-RS

443 North 18th Street

Page 4 of 4

In Situ Ra-226							
Loc	Grid	Depth	Meas.	(pCi/g)		Chem Ra-226	Comments
#	Location	(in.)	Type	Tot. Ct	Spectr.	(pCi/g)	

16	280250	00	DS	4.8		*	On curb

Measurement GB = GAD-6 Borehole
Types: GS = GAD-6 Surface
DS = Delta Scintillometer
TC = Total Count Borehole
SS = Soil Sample
BH = Combined GAD-6 and
Total Count Borehole

Notes: DC = Depth of Contamination
* = No Soil Sample Taken
[n] = Reading Taken n-Inches
Above Floor or Ground
Date of Survey = 08-16-85
Team Leader = CA

Table 3.2

Summary of Interior Gamma Exposure Rates

DOE ID No. GJ-02193-RS 443 North 18th Street Page 1 of 1

Location	Number of Readings Taken at Waist Level	Range at Waist Level (uR/h)	Mean at Waist Level (uR/h)	Number of Readings Taken at Surface	Range at Surface (uR/h)	Mean Surface (uR/h)
Primary Structure	*	*	*	*	14-16	*
Shed	*	*	*	*	14-16	*

* Gamma scans were performed to confirm the absence of interior contamination.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-02193-RS

Page 1 of 1

<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
EXTERIOR					
	Concrete				
C	3.3 x 25 =	83	x 0.3 =	25	
				<hr/>	
	Volume of Concrete			= 25 =	25/27 = 1
	Contaminated Fill				
A	2 x 12 =	24	x 1.0 =	24	
B	2 x 11 =	22	x 0.5 =	11	
C	3.3 x 25 =	83	x 0.7 =	58	
				<hr/>	
	Volume of Fill			= 93 =	93/27 = 3
					<hr/>
	TOTAL VOLUME - EXTERIOR				= 4

See Appendix Figure 3.3 For Areas

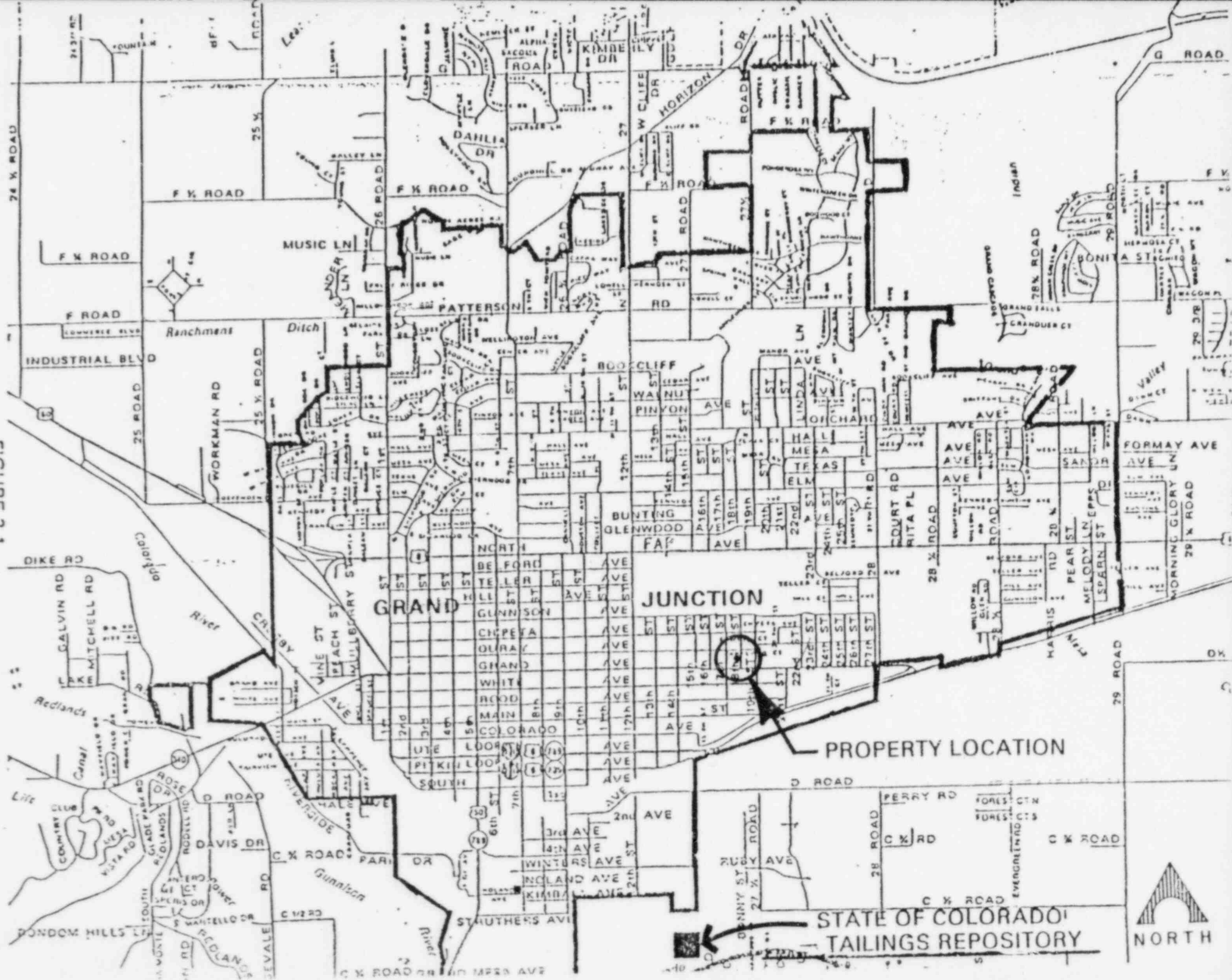
EXTERIOR

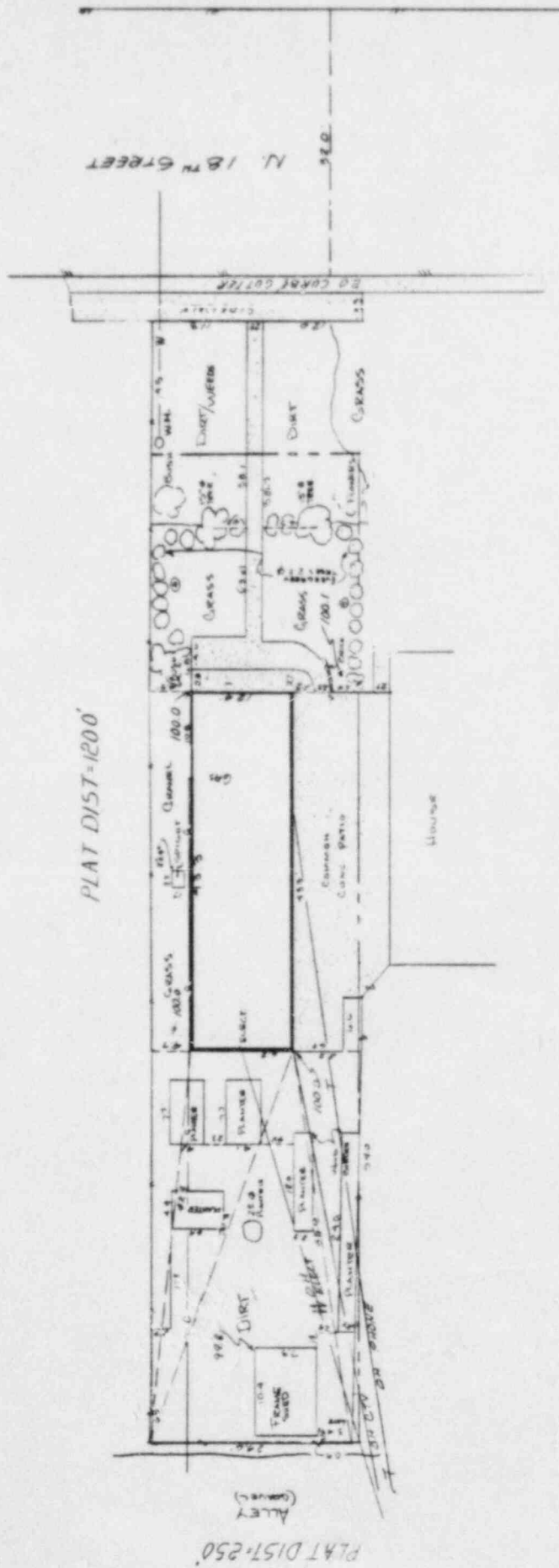
Remove/replace concrete sidewalk 83 sf @ \$3/sf	\$ 249
Remove identified residual radioactive material 3 cy @ \$14.50/cy	44
Replace area with sod 46 sf @ \$.50/sf	23
	<hr/>
TOTAL EXTERIOR	\$ 316
TOTAL INTERIOR	0
ACCESS CONTROL	100
	<hr/>
SUBTOTAL	\$ 416
CONTINGENCY @ 10%	42
	<hr/>
SUBTOTAL	\$ 458
CONTRACTOR OVERHEAD & PROFIT @ 50%	229
	<hr/>
GRAND TOTAL	\$ 687

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REA02193/REA-713/AP

FIGURE 2.1
VICINITY MAP





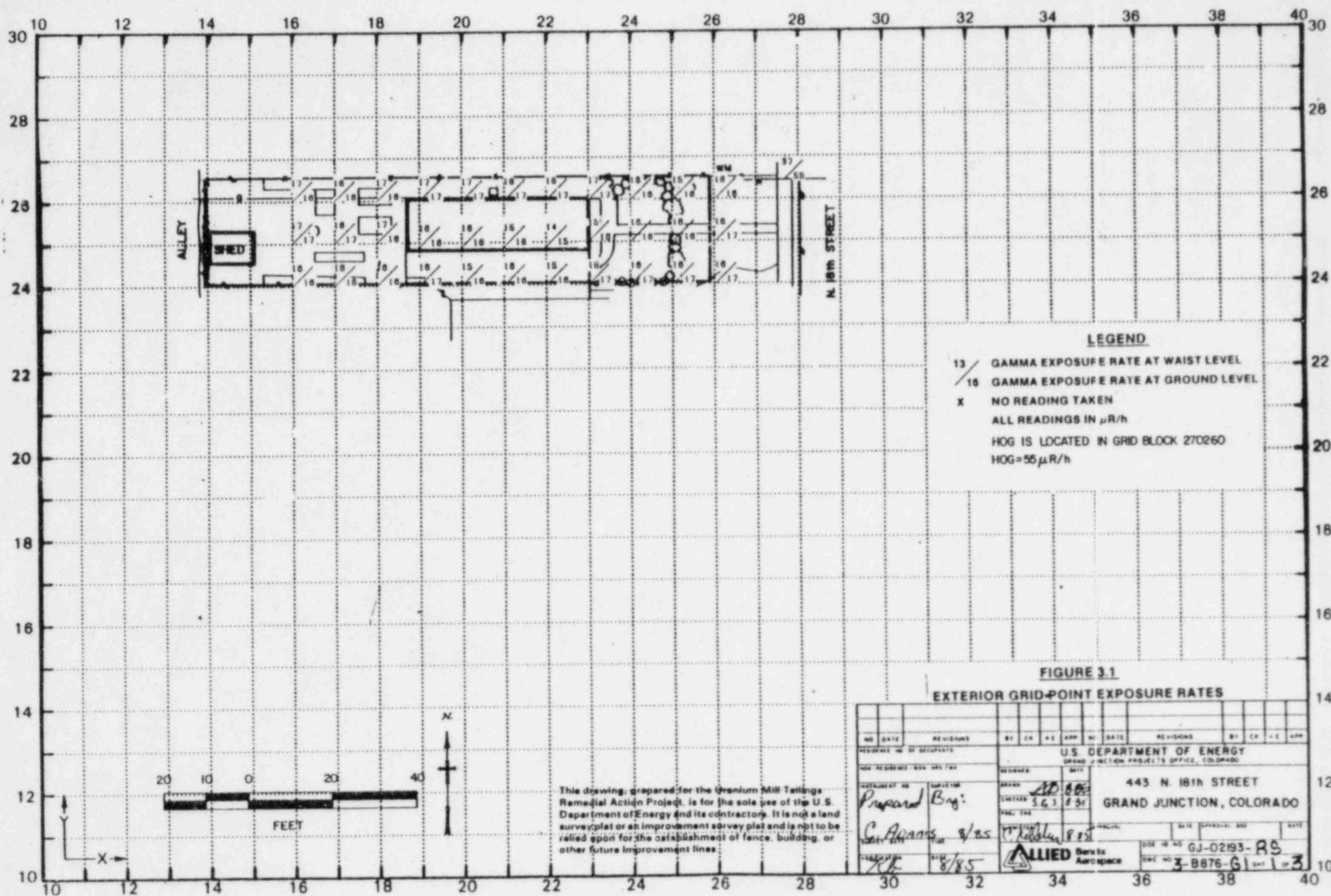
LOT 26 BLOCK 3 SLOCUMB ADDITION
MESA COUNTY COLORADO

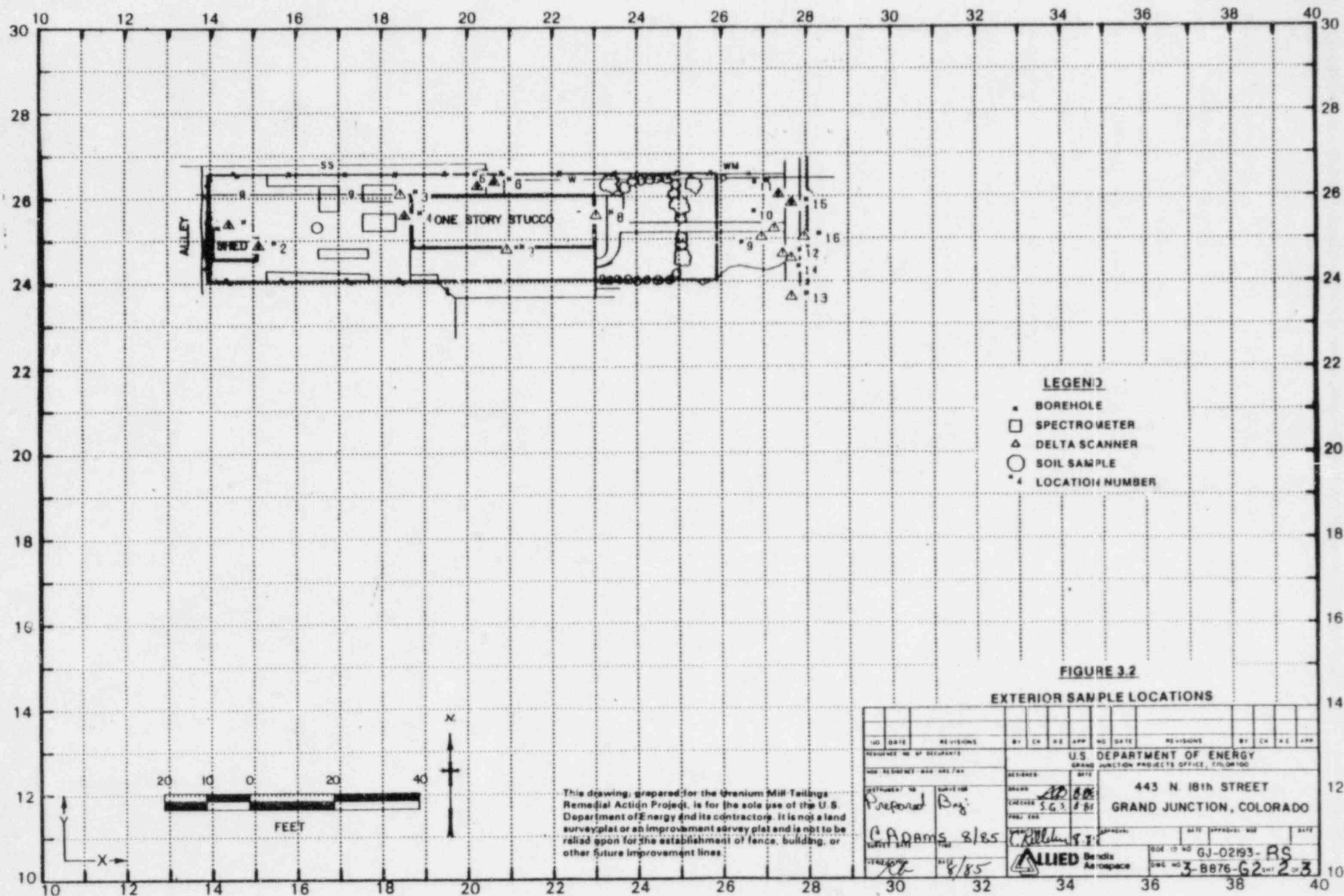
FIGURE 2.2 SITE PLAN

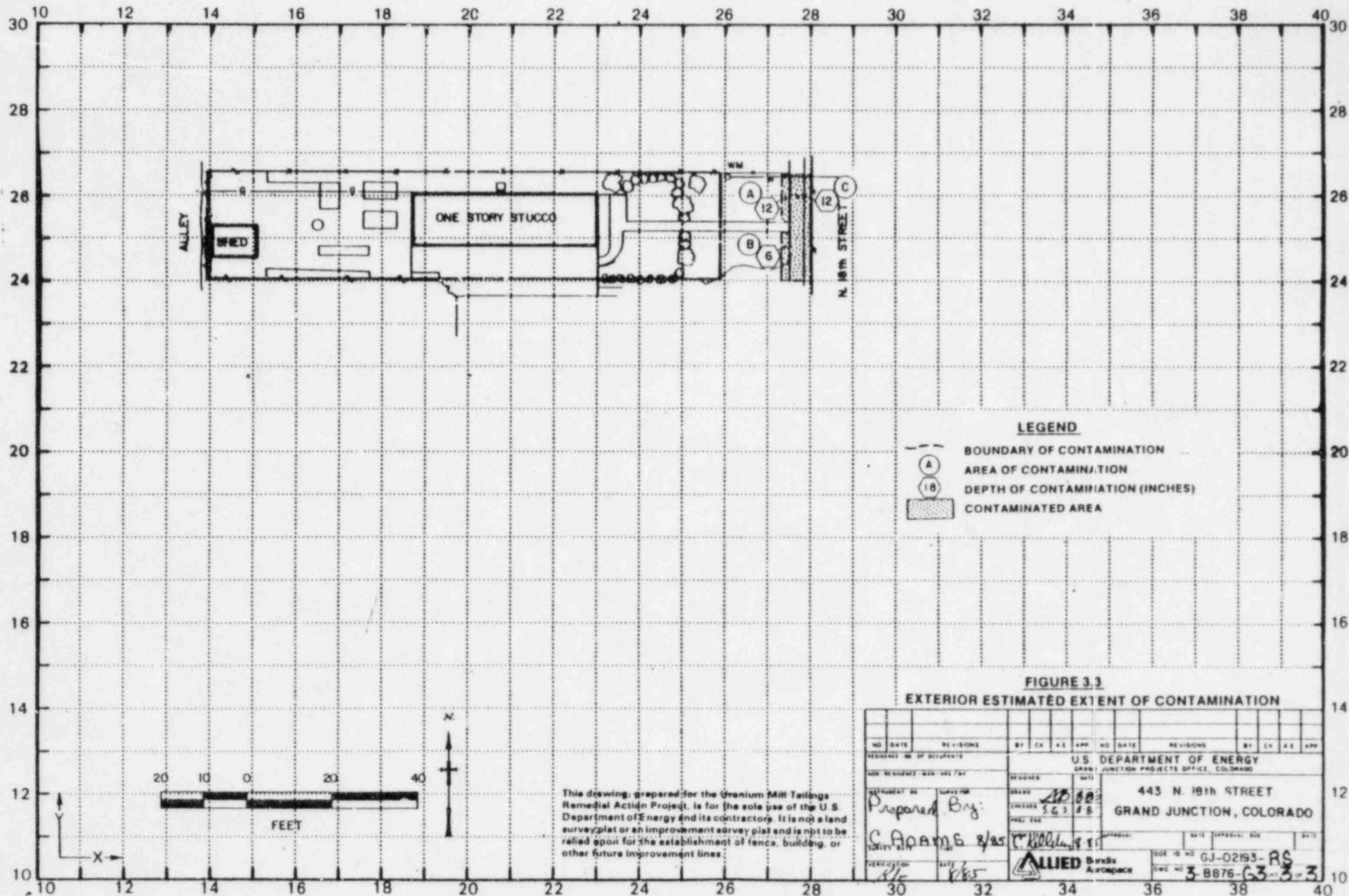


This drawing prepared for the Uranium Mill Tailings Remedial Action Project, is for the site use of the U.S. Department of Energy. It is not to be used for any other purpose without the written consent of the U.S. Department of Energy. This drawing is not a survey plat or an improvement survey plat and is not to be relied upon for the establishment of fence, building, or other future improvement lines.

U.S. DEPARTMENT OF ENERGY		DOE ID NO.
URANIUM REMEDIATION PROJECT OFFICE, COLORADO		GJ-02193-RS
ADDRESS 443 N 19th ST		
GRAND JUNCTION, COLORADO		
SURVEY	SL 8188 RS	ON 8-8-85
DRAWING NO.	3-C-874 (F)	SHEET 1 OF 1







3/85

DOE ID NO. GJ-02193-RS Date August 20, 1985

U.S. DEPARTMENT OF ENERGY
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT
GRAND JUNCTION VICINITY PROPERTIES

Official Survey Report

Property Address 443 North 18th Street

Property Owner George D. Fleetwood

Address of Owner (if different from above) Same as above

Report Prepared By Cordell Adams

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

1 1 No evidence of residual radioactive material on surveyed property.

1 XX 1 Residual radioactive materials found at the following locations:

1 XX 1 In open areas.

1 XX 1 Under or around exterior improvements.

1 1 Under or around a typically nonoccupied structure.

1 1 Under or around a typically occupied structure.

II. RESULTS OF RADIOLOGIC ASSESSMENT

1 1 Levels of radiation from residual radioactive materials, if any, do not exceed EPA Standards and no action is required under the Uranium Mill Tailings Remedial Action Project.

1 XX 1 Levels of radiation from residual radioactive materials exceed EPA Standards such that Remedial Action is recommended and will be accomplished, with your consent, as soon as budget and schedule permit.

cc:

G. A. Franz, III, GJ/CDH

J. Themelis, Mgr. UMTRA Proj. Off.

HIG = 16 uR/h
HOG = 55 uR/h

ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado

Date: August 15, 1985

To: Files

From: Cordell Adams

Subject: Team Leader Notes - GJ-02193-RS

Address: 443 North 18th Street

Owner: George D. Fleetwood

Occupancy: One

Built: 1946

Weather: Warm and sunny

Date of Survey: August 15, 1985

Team Members

C. Adams (Team Leader)
L. Kula
S. Garcia

M. Rangel
P. Tuhey
R. Beltz

Instruments

Scintillometers: C-1205, C-1250, C-1206
Total Count Meters: C-4097, C-3956
Deltas: C-4069, C-3935

Interior:

This house is a small 12- by 43-foot ranch style. It sits on a city lot approximately 25- by 140-feet. The interior of the house was

walk scanned the day before the exterior was. No elevated readings were encountered. The range for the house was 90 to 120 counts per second (cps).

All utilities were located. The gas line was investigated with a surface and subsurface delta at a 34-inch depth, which is the depth of the gas line. The water and sewer lines were investigated with surface deltas and auger holes, which were then logged by the PRS-1. All the utility lines proved to be free of contamination.

The foundation of the house was investigated by performing deltas and/or auger holes. The house does not have a crawl space. The floor rests on top of the ground.

Exterior:

The property was laid out in 10- by 10-foot grid blocks. A gamma scan was performed over the entire property. Grid points were taken 30-feet out from around the house and in the contaminated area, which extended more than 30-feet from the house.

Our survey showed contamination to be associated with the city sidewalk on the east side of the property. Auger holes, surface, and subsurface deltas were performed to prove the presence of contamination. No other elevated areas were encountered on the property.

Spillover contamination continues to the north and south of the property. Consent for access forms were signed by both homeowners and will be turned in for inclusion in the Uranium Mill Tailings Remedial Action Program.

No injuries occurred during the survey of this property, nor were there any instrument failures encountered.

The property was visited by the Health and Safety department and by Quality Assurance. Both departments appeared to be pleased by what they observed during their visit. The investigation was completed shortly after 11:00 AM.

All team members were alpha scanned before leaving the property.

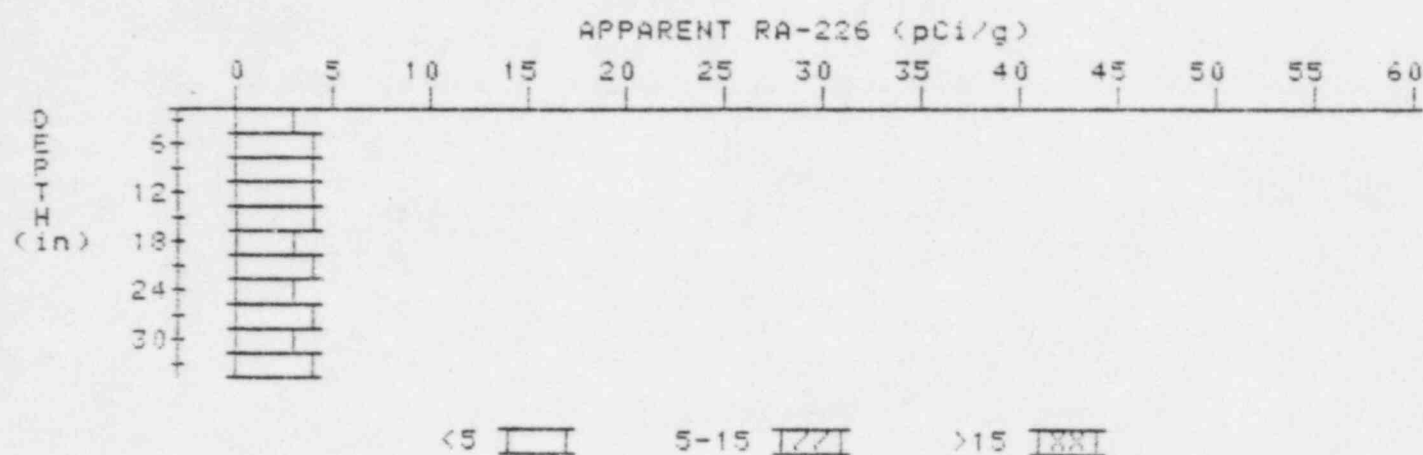
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

1

PROPERTY NUMBER: GJ-02193-RS

HOLE NUMBER: 1

LOCATION: 145253



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.3	3.3
6	3.5	3.7
9	3.6	3.8
12	3.6	3.6
15	3.6	3.6
18	3.6	3.4
21	3.7	4.1
24	3.6	3.2
27	3.7	4.1
30	3.6	3.4
33	3.6	3.6

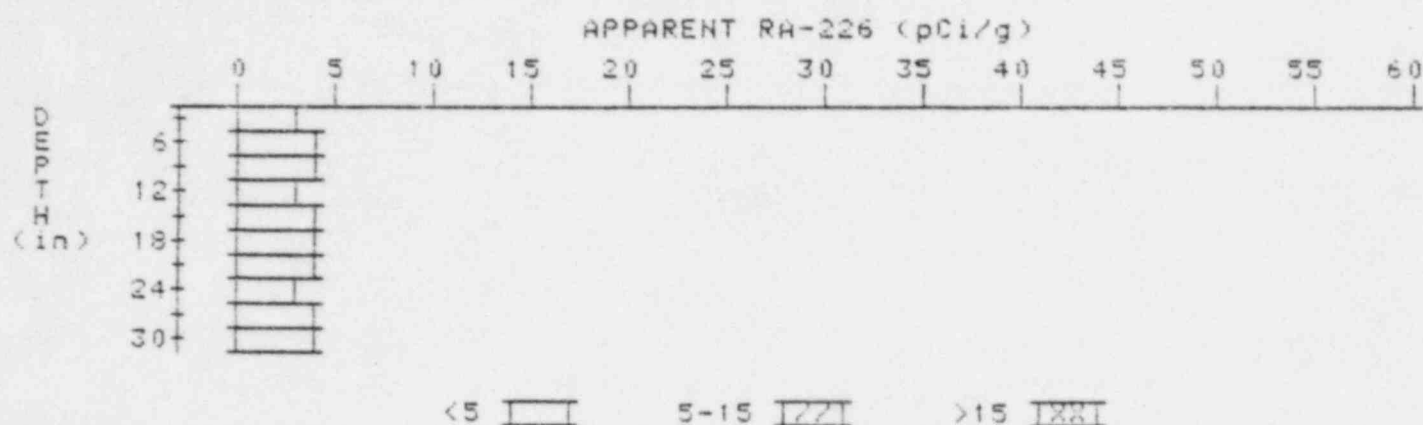
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

2

PROPERTY NUMBER: GJ-02193-RS

HOLE NUMBER: 2

LOCATION: 152248



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.2	3.2
6	3.5	3.9
9	3.6	3.8
12	3.6	3.4
15	3.7	3.9
18	3.7	3.5
21	3.8	4.3
24	3.6	3.2
27	3.6	3.6
30	3.6	3.6

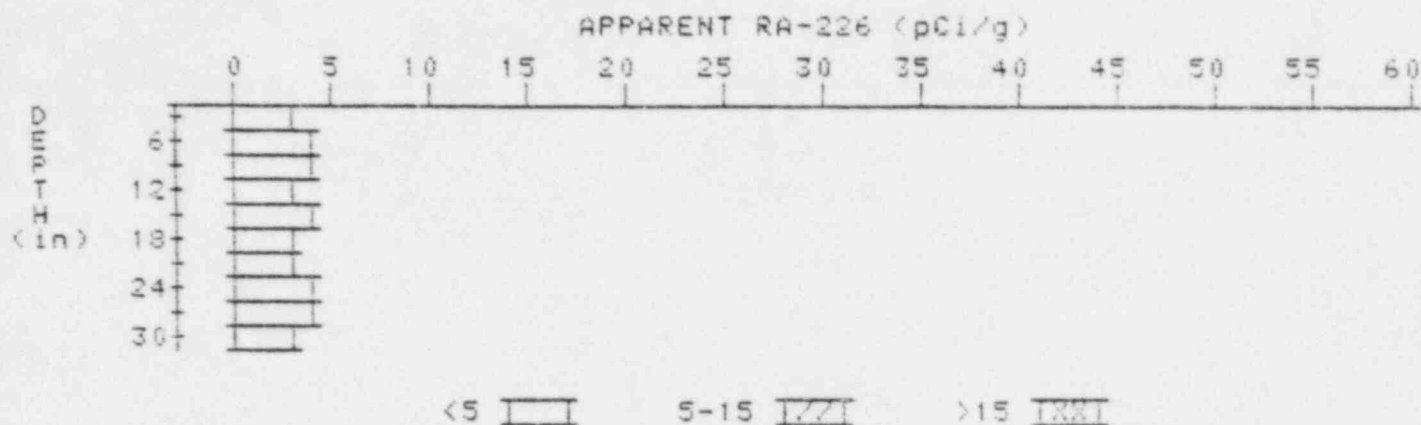
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

4

PROPERTY NUMBER: GJ-02193-RS

HOLE NUMBER: 4

LOCATION: 186255



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.1	3.1
6	3.5	4.0
9	3.6	3.8
12	3.6	3.4
15	3.7	4.2
18	3.5	3.1
21	3.5	3.3
24	3.6	4.0
27	3.5	3.5
30	3.4	3.4

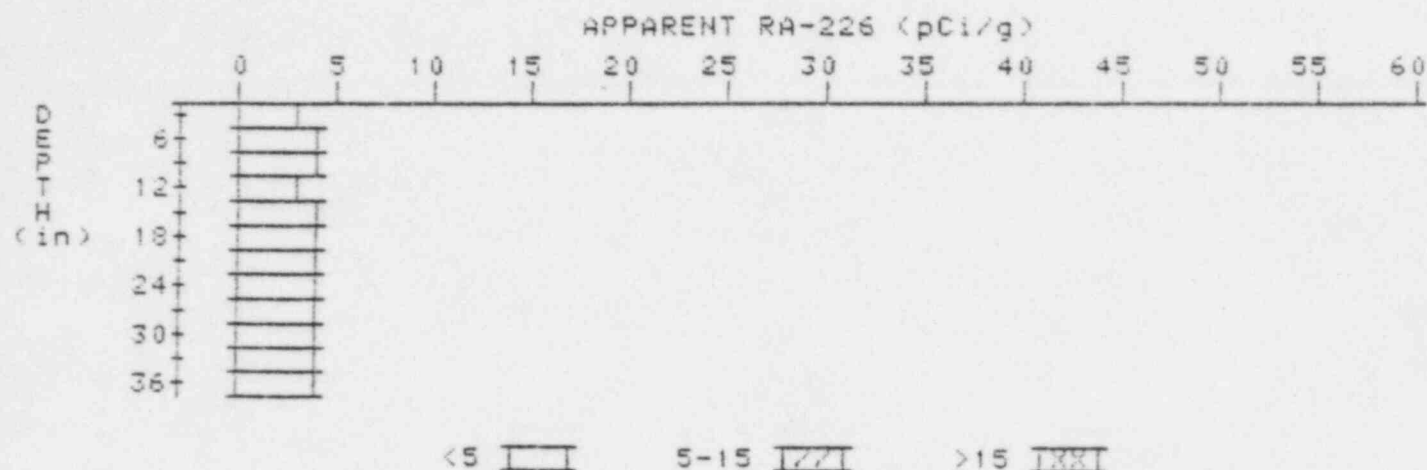
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

5

PROPERTY NUMBER: GJ-02193-RS

HOLE NUMBER: 5

LOCATION: 203262



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.3	3.3
6	3.5	3.7
9	3.6	3.8
12	3.6	3.4
15	3.7	3.7
18	3.8	4.0
21	3.8	3.8
24	3.8	3.8
27	3.8	3.8
30	3.8	4.0
33	3.7	3.7
36	3.6	3.6

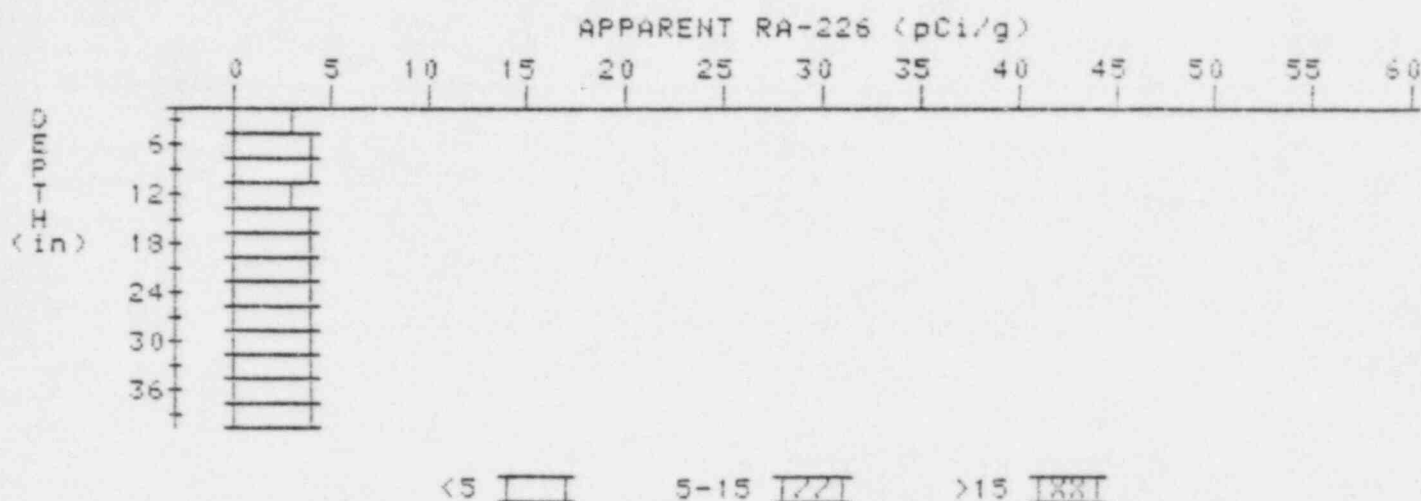
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

6

PROPERTY NUMBER: GJ-02193-RS

HOLE NUMBER: 6

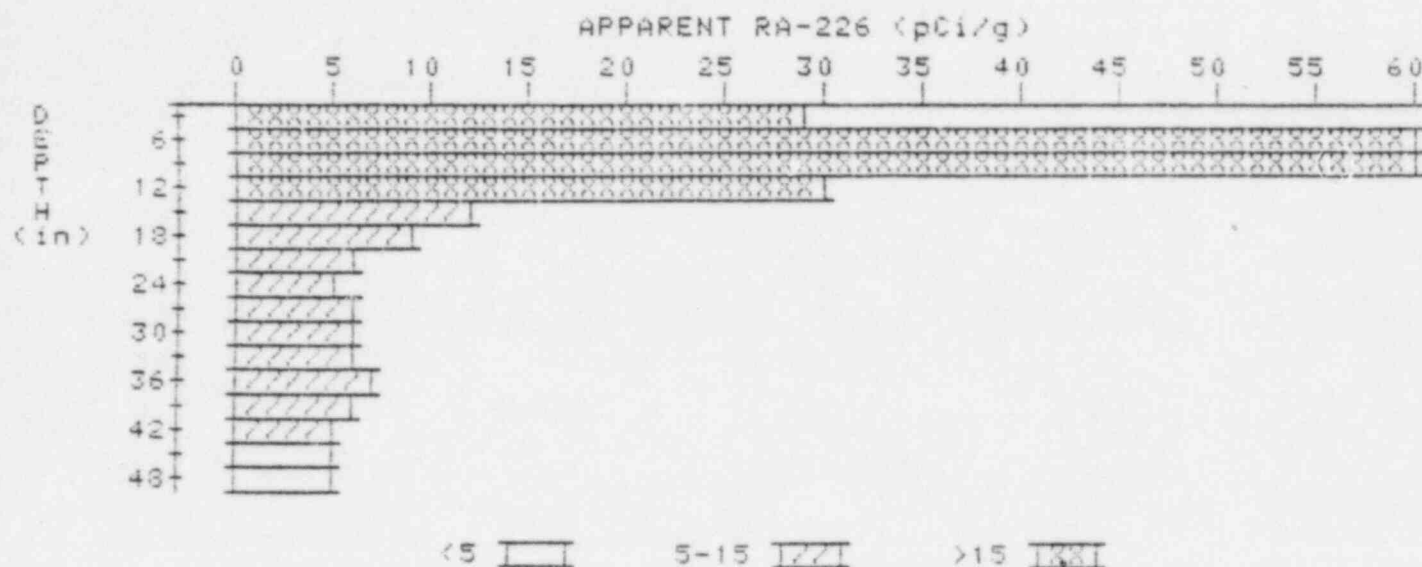
LOCATION: 207263



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.3	3.3
6	3.5	3.7
9	3.6	3.8
12	3.6	3.4
15	3.7	3.9
18	3.7	3.7
21	3.7	3.7
24	3.7	3.7
27	3.7	3.7
30	3.7	3.7
33	3.7	3.7
36	3.7	3.9
39	3.6	3.6

APPARENT RADIUM-226 CONCENTRATION 11 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-02193-RS
HOLE NUMBER: 11
LOCATION: 274260



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	28.5	28.5
6	40.6	61.6
9	40.9	60.3
12	30.3	30.5
15	19.6	11.6
18	13.4	9.3
21	9.5	6.1
24	7.5	5.4
27	6.7	6.2
30	6.2	5.7
33	6.0	5.6
36	6.0	6.7
39	5.6	5.6
42	5.2	5.2
45	4.8	4.6
48	4.5	4.5

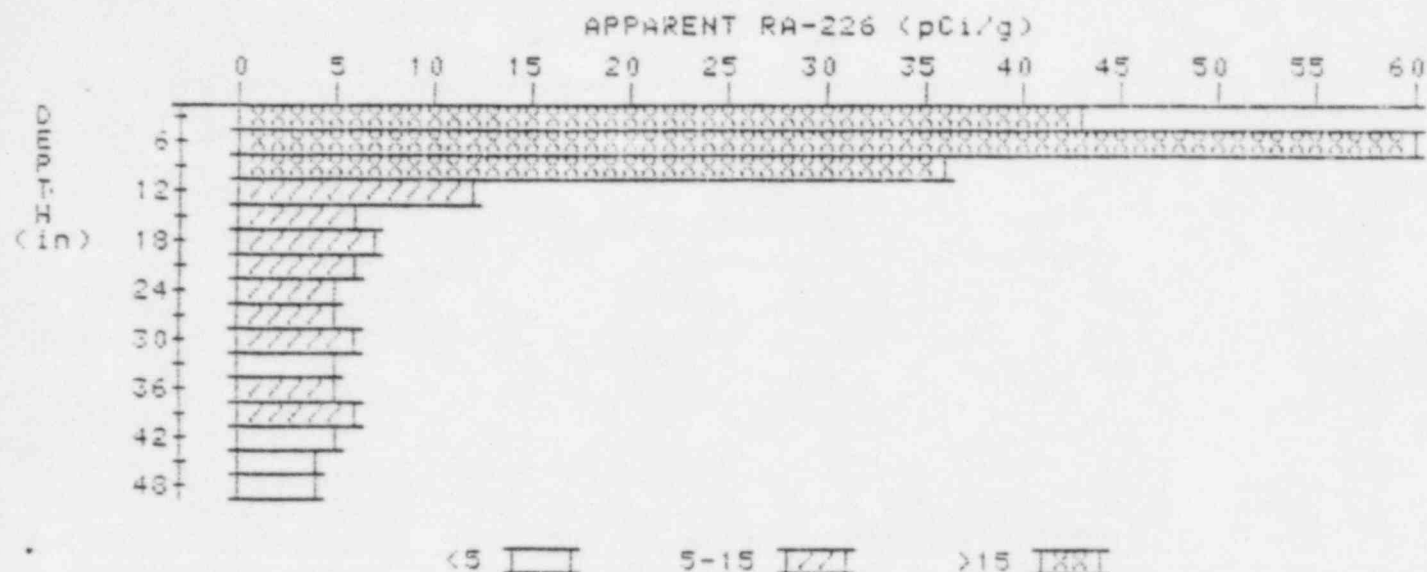
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

15

PROPERTY NUMBER: GJ-02193-RS

HOLE NUMBER: 15

LOCATION: 277258



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	42.7	42.7
6	52.2	96.1
9	37.0	35.6
12	22.6	12.3
15	14.0	5.6
18	10.1	7.4
21	7.7	5.6
24	6.5	5.4
27	5.9	5.4
30	5.6	5.6
33	5.3	4.9
36	5.2	5.0
39	5.2	5.9
42	4.9	5.0
45	4.3	5.6
48	4.2	4.2

