

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-11061-RS  
ADDRESS: 419 BELFORD AVENUE

JUNE 1985

FOR

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT OFFICE

ALBUQUERQUE OPERATIONS OFFICE

DEPARTMENT OF ENERGY

BY

BENDIX FIELD ENGINEERING CORPORATION  
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DATE June 13, 1985

REA11061:REA-605

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## **1.0 EXECUTIVE SUMMARY**

### **1.1 Introduction**

The location, DOE ID No. GJ-11061-RS, is a single-family residence located at 419 Belford Avenue, 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, 10 cu. yd.; interior, 0 cu. yd.

Estimated cost to perform remedial action, including dislocation when applicable, is \$782. Remedial action on this property will take approximately 3 days to complete.

## 2.0 PROPERTY DESCRIPTION

### 2.1 General Description

Address: 419 Belford Avenue

Zoning: Residential (RMF-32)

Lot Size: Approximately 6,250 sf (0.1 acre)

Legal Description: Lot 5 and Lot 6, Block 15, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 2 miles northwest 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:	Belford Avenue
South:	Alley
East:	Single-family residence
West:	Single-family residence

### 2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence
Size:	Approximately 912 sf
Construction Date:	1909
Construction:	Wood-frame
Foundation:	Concrete grade beam
Footing Depth:	Approximately 51" to bottom of grade beam from grade
Basement:	Yes (partial)
Crawl Space:	Yes (partial)
Condition:	Good



Other Structures:

Type:	Garage
Size:	Approximately 223 sf
Construction:	Wood-frame
Foundation:	Concrete grade beam
Condition:	Fair

Type:	Shed
Size:	Approximately 48 sf
Construction:	Wood-frame
Foundation:	None (mud-sill)
Condition:	Fair

General Remarks:

Front and rear yards are landscaped and well maintained. Structures, utilities, landscaping, and other special features of this property are included in Appendix Figure 2.2.

Historical Data:

This structure is over 50 years old. Therefore, it does meet the eligibility criteria for consideration of inclusion on the National Register of Historic Places.

Alterations to Structure: A front and rear porch have been added to main structure.

Architectural Significance: None

Historical Significance: None

### 3.0 RADIOLOGIC SURVEY

#### 3.1 Introduction

Radiologic data were collected by Bendix at DOE ID No. GJ-11061-RS on April 11, 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 historical information from the files of the Colorado Department of Health (CDH) and the inclusion data from Oak Ridge National Laboratory (ORNL) was conducted. These records indicate contamination in the backyard by the alley.

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, Memo of Understanding, team leader notes, and deconvolution graphs are included in the Appendix (Section 6.0).

#### 3.2 Gamma Exposure-Rate Surveys

##### 3.2.1 Exterior Findings

Background Readings: 15 to 16 uR/h  
Highest Outside Gamma Reading (HOG): 56 uR/h

Exterior radium-concentration measurements are presented in Appendix Table 3.1. Grid-point survey results are shown in Appendix Figure 3.1. Appendix Figure 3.2 presents the ranges of elevated gamma readings and indicates areas of possible contamination.

##### 3.2.2 Interior Findings

Background Readings: 13 to 16 uR/h  
Highest Inside Gamma Reading (HIG): 16 uR/h

Interior radium-concentration measurements are presented in Appendix Table 3.2. Interior gamma exposure-rate measurements are summarized in Appendix Table 3.3. Appendix Figures 3.3a and 3.3b show interior exposure rates and locations of these measurements.

### 3.3 Boreholes, Soil Samples, and Other Measurements

Areas which displayed elevated gamma levels were further investigated; these areas are shown in Appendix Figures 3.3a and 3.3b. Data from these investigations are included in Appendix Tables 3.1 and 3.2.

### 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 3.5 shows identified areas and estimated depths of contamination on this property, based on assessments of all measurements taken. As noted in this figure, areas recommended for remedial action that contain identified residual radioactive materials are:

- (AREA A) A deposit located south of the primary structure and north of the alley is contaminated to a depth of 12 inches (approximately 220 sf).
- (AREA B) In the southwest corner of the property, along the fence line, contamination extends to a depth of 6 inches (approximately 27 sf).
- (AREA C) North of Area B, along the fence line, contamination is 9 inches deep (approximately 40 sf).

#### 4.0 RECOMMENDED REMEDIAL ACTION

##### 4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-11061-RS, includes removal of all areas identified as containing radioactive material (as discussed in Section 3.5 and shown in Appendix Figure 3.5) and transport of removed material to the disposal site.

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 \$782.

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	Radium Concentrations at Interior Locations
Table 3.3	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 Gamma Scan
Figure 3.3a	Interior Gamma Exposure Rates and Sample Locations
Figure 3.3b	Interior Gamma Exposure Rates - Ground Floor
Figure 3.4	Exterior Sample Locations
Figure 3.5	Estimated Extent of Contamination

Official Survey Report

Memo of Understanding

Team Leader Notes

Deconvolution Graphs (Apparent Radium-226 Concentration)



## Radium Concentrations at Exterior Locations

DOE ID #GJ-11061-RS

419 Belford Avenue

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
3	153274	03	TC	4.1		*	Northeast property next to sidewalk DC = 0 inches
		06	TC	4.4		*	
		09	TC	4.5		*	
		12	TC	4.2		*	
		15	TC	4.0		*	
		18	TC	3.8		*	
		21	TC	3.8		*	
		24	TC	3.9		*	
		27	TC	3.8		*	
		30	TC	3.9		*	
		33	TC	4.0		*	
		36	TC	4.1		*	
4	155274	00	DS	<1.0		*	Front sidewalk
5	185242	03	TC	2.9		*	Next to primary structure on north side DC = 0 inches
		06	TC	3.3		*	
		09	TC	3.5		*	
		12	TC	3.6		*	
		15	TC	3.6		*	
		18	TC	3.6		*	
		21	TC	3.6		*	
		24	TC	3.7		*	
		27	TC	3.7		*	
		30	TC	3.7		*	
		33	TC	3.6		*	
		36	TC	3.7		*	
		39	TC	3.6		*	
		42	TC	3.7		*	
		45	TC	3.7		*	
		48	TC	3.9		*	
		51	TC	3.9		*	
		54	TC	4.0		*	
		57	TC	4.1		*	
		60	TC	4.1		*	
		63	TC	4.1		*	
6	200235	03	TC	3.1		*	West side next to primary structure DC = 0 inches
		06	TC	3.4		*	
		09	TC	3.6		*	
		12	TC	3.7		*	
		15	TC	3.7		*	
		18	TC	3.8		*	
		21	TC	3.7		*	

## Radium Concentrations at Exterior Locations

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
6	200235	24	TC	3.7		*	
		27	TC	3.7		*	
		30	TC	3.7		*	
		33	TC	3.7		*	
		36	TC	3.8		*	
		39	TC	4.0		*	
		42	TC	4.1		*	
		45	TC	4.2		*	
		48	TC	4.2		*	
		51	TC	4.2		*	
		54	TC	4.3		*	
		57	TC	4.2		*	
7	208260	03	TC	3.5		*	East side next to primary structure DC = 0 inches
		06	TC	3.7		*	
		09	TC	3.9		*	
		12	TC	3.9		*	
		15	TC	3.9		*	
		18	TC	3.8		*	
		21	TC	3.8		*	
		24	TC	3.8		*	
		27	TC	3.8		*	
		30	TC	3.9		*	
		33	TC	3.8		*	
		36	TC	3.8		*	
		39	TC	3.8		*	
		42	TC	3.8		*	
		45	TC	3.8		*	
		48	TC	3.8		*	
		51	TC	3.7		*	
8	223239	00	DS	<1.0		*	Gas line DC = 0 inches
		22	DS	1.1		*	
9	229242	03	TC	3.3		*	Sewer line DC = 0 inches
		06	TC	3.6		*	
		09	TC	3.6		*	
		12	TC	3.7		*	
		15	TC	3.7		*	
		18	TC	3.7		*	
		21	TC	3.7		*	
		24	TC	3.7		*	



## Radium Concentrations at Exterior Locations

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
9	229242	27	TC	3.8		*	
		30	TC	3.8		*	
		33	TC	3.7		*	
		36	TC	3.8		*	
		39	TC	3.8		*	
		42	TC	3.9		*	
		45	TC	3.9		*	
		48	TC	4.0		*	
		51	TC	4.1		*	
		54	TC	4.0		*	
10	252225	00	DS	3.8		*	West side of
		06	DS	1.8		*	backyard near fence DC = 6 inches
11	255245	00	DS	1.0		*	Background
		00-06	SS			4.0	DC = 0 inches
		03	TC	3.1		*	
		06	TC	3.4		*	
		09	TC	3.7		*	
		12	BH	3.8	1.2	*	
		15	TC	3.9		*	
		18	TC	3.9		*	
		21	TC	4.0		*	
		24	BH	4.0	<1.0	*	
12	264225	27	TC	3.9		*	
		00	DS	6.7		*	West side of back-
		06	DS	2.3		*	yard near fence
		00-06	SS			15.7	DC = 9 inches
		03	TC	5.1		*	Based on the
		06	TC	5.4		*	deconvolution graph
		09	TC	5.0		*	
		12	TC	4.5		*	
		15	TC	4.3		*	
		18	TC	4.2		*	
13	270225	21	TC	4.1		*	
		24	TC	4.1		*	
		00	DS	1.2		*	West side of back- yard near fence

## Radium Concentrations at Exterior Locations

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
14	272258	00	DS	1.1		*	Backyard
15	275249	00	DS	<1.0		*	Backyard
16	276254	00	DS	<1.0		*	Backyard
17	280225	00	DS	3.0		*	Southwest corner
		06	DS	1.4		*	of yard
		00-06	SS			7.3	DC = 6 inches
18	282243	00	DS	20.1		*	Backyard near
		06	DS	18.4		*	south fence
		12	DS	2.0		*	DC = 12 inches
19	282247	03	TC	26.2		*	Backyard, 4 feet
		06	TC	25.7		*	from alley fence
		09	TC	18.4		*	DC = 12 inches
		12	BH	10.6	4.2	*	Based on the
		15	TC	7.2		*	deconvolution graph
		18	TC	5.4		*	
		21	TC	4.5		*	
		24	BH	4.1	1.9	*	
		27	TC	4.0		*	
20	282258	00	DS	1.6		*	South fence
21	283251	03	TC	15.5		*	Backyard by alley
		06	TC	15.6		*	DC = 12 inches
		09	TC	11.7		*	Based on the
		12	TC	7.7		*	deconvolution graph
		15	TC	5.7		*	
		18	TC	4.8		*	
		21	TC	4.1		*	
		24	TC	3.9		*	
		27	TC	3.7		*	
		30	TC	3.7		*	

## Radium Concentrations at Exterior Locations

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=====
Loc  Grid      Depth  Meas.      In Situ Ra-226      Chem Ra-226
#    Location  (in.)  Type      (pCi/g)      Spectr.      (pCi/g)      Comments
-----
22   288249    00     DS       <1.0                *           Next to alley
=====
```

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 = 04-11-85

Team Leader = TDH

## Radium Concentrations at Interior Locations

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
1		00	DS	<1.0		*	Basement entry Dirt floor
2		00	DS	<1.0		*	Basement north of entry

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 = 04-11-85  
Team Leader = TDH

Table 3.3

## Summary of Interior Gamma Exposure Rates

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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)
BASEMENT	04	15-16	16	04	16-18	17
CRAWL SPACE	00	-	-	10	15-16	16
GROUND FLOOR	*	*	*	*	14-16	*
GARAGE	09	15-15	15	09	15-16	15
SHED	05	15-15	15	05	15-15	15

\* The CDH and ORNL data indicates the absence of interior contamination at this property. This information was investigated by performing a walking gamma scan of the ground floor of the primary structure. This area and the range of gamma measurements are shown in Appendix Figure 3.3b. Exposure rates in the crawl space, basement, garage, and shed are shown in Appendix Figures 3.3a and 3.3b.

Table 4.1  
Area and Volume Calculations  
DOE ID No. GJ-11061-RS

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<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
EXTERIOR					
A	11 x 20 =	220	x 1.0 =	220	
B	9 x 3 =	27	x 0.5 =	14	
C	20 x 2 =	40	x 0.8 =	32	
TOTAL VOLUME - EXTERIOR				= 266 =	266/27 = 10

See Appendix Figure 3.5 For Areas

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Table 4.2  
Estimated Cost of Decontamination and Restoration  
DOE ID No. GJ-11061-RS Page 1 of 1

Remove identified residual radioactive material		
2 cy @ \$44/cy (manual-open)	\$	88
8 cy @ \$14.50/cy (machine-open)		116
Replace compacted roadbase		
1 cy @ \$11.50/cy		12
Replace topsoil		
9 cy @ \$9.50/cy		86
Replace sod		
241 sf @ \$.30/sf		72
		<hr/>
TOTAL EXTERIOR	\$	374
TOTAL INTERIOR		0
ACCESS CONTROL		100
		<hr/>
SUBTOTAL	\$	474
CONTINGENCY @ 10%		47
		<hr/>
SUBTOTAL	\$	521
CONTRACTOR OVERHEAD & PROFIT @ 50%		261
		<hr/>
GRAND TOTAL	\$	782

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FAV053185  
REAL1061/REA-605/LMR



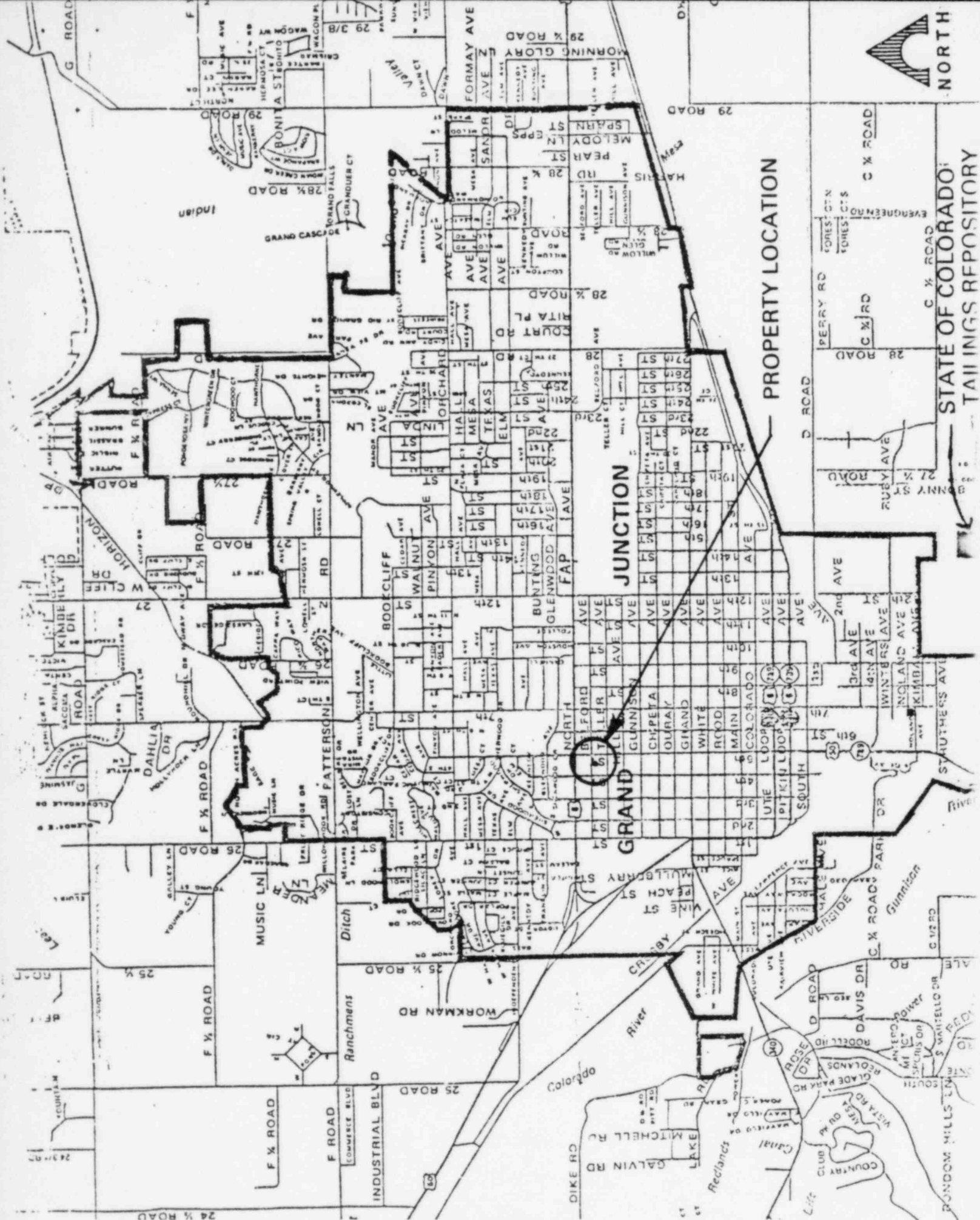
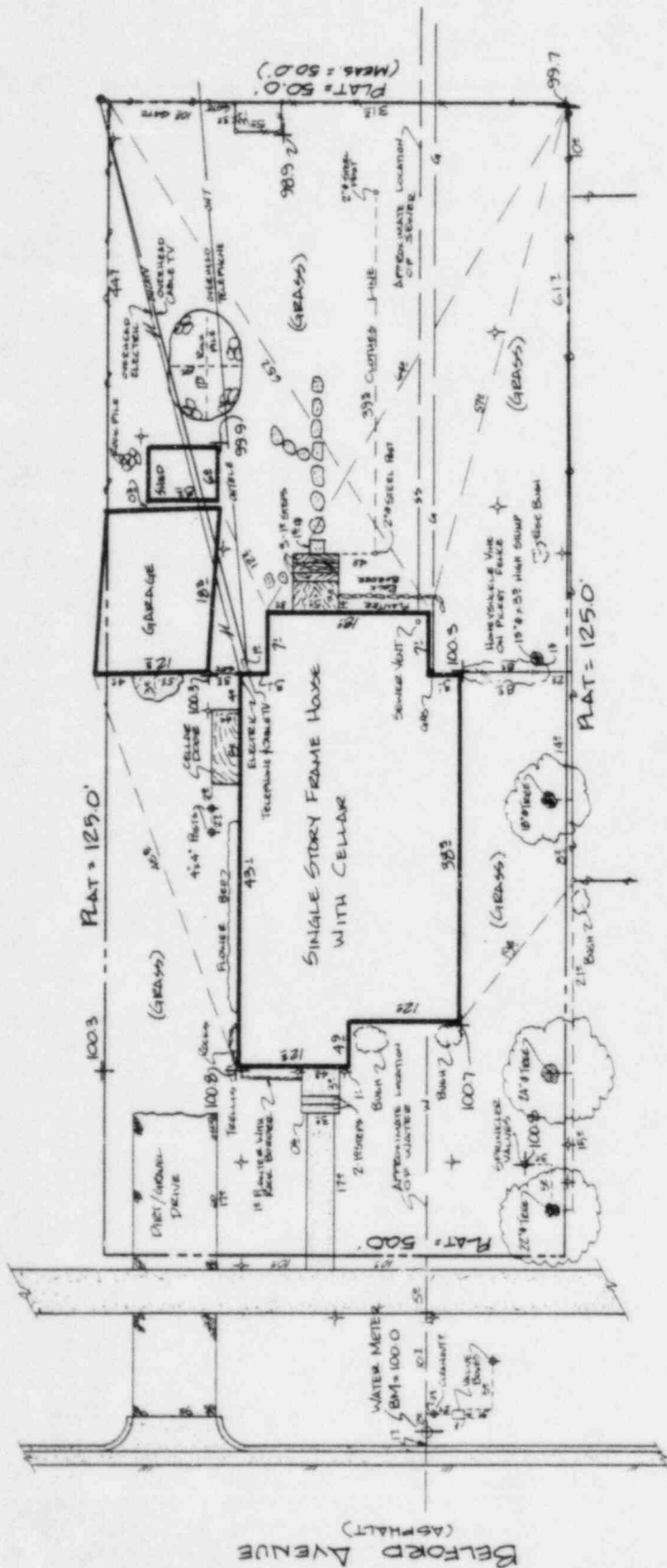


FIGURE 2.1  
VICINITY MAP



LOTS 5 AND 6 BLOCK 15,  
CITY OF GRAND JUNCTION,  
MESA COUNTY, COLORADO.

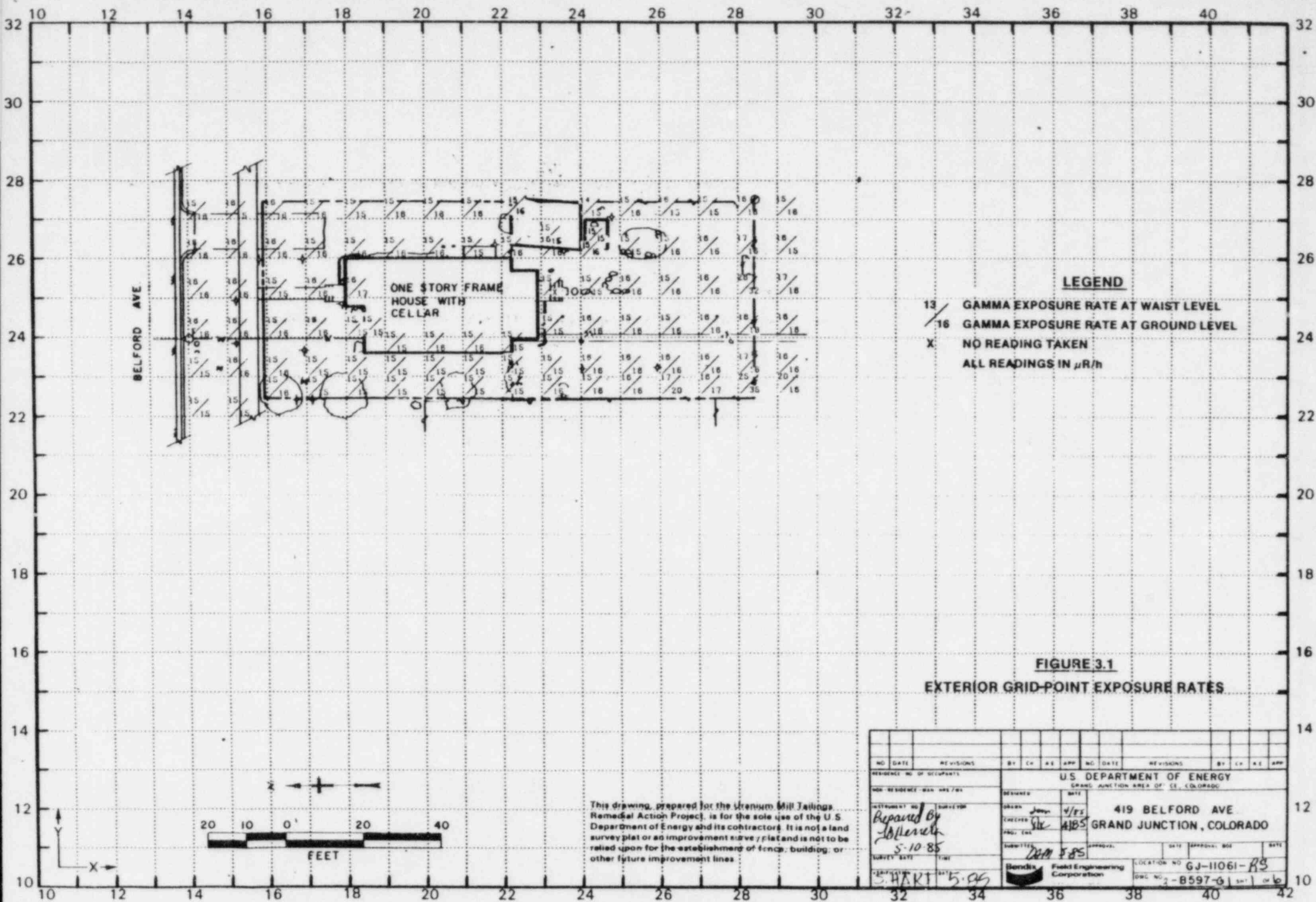


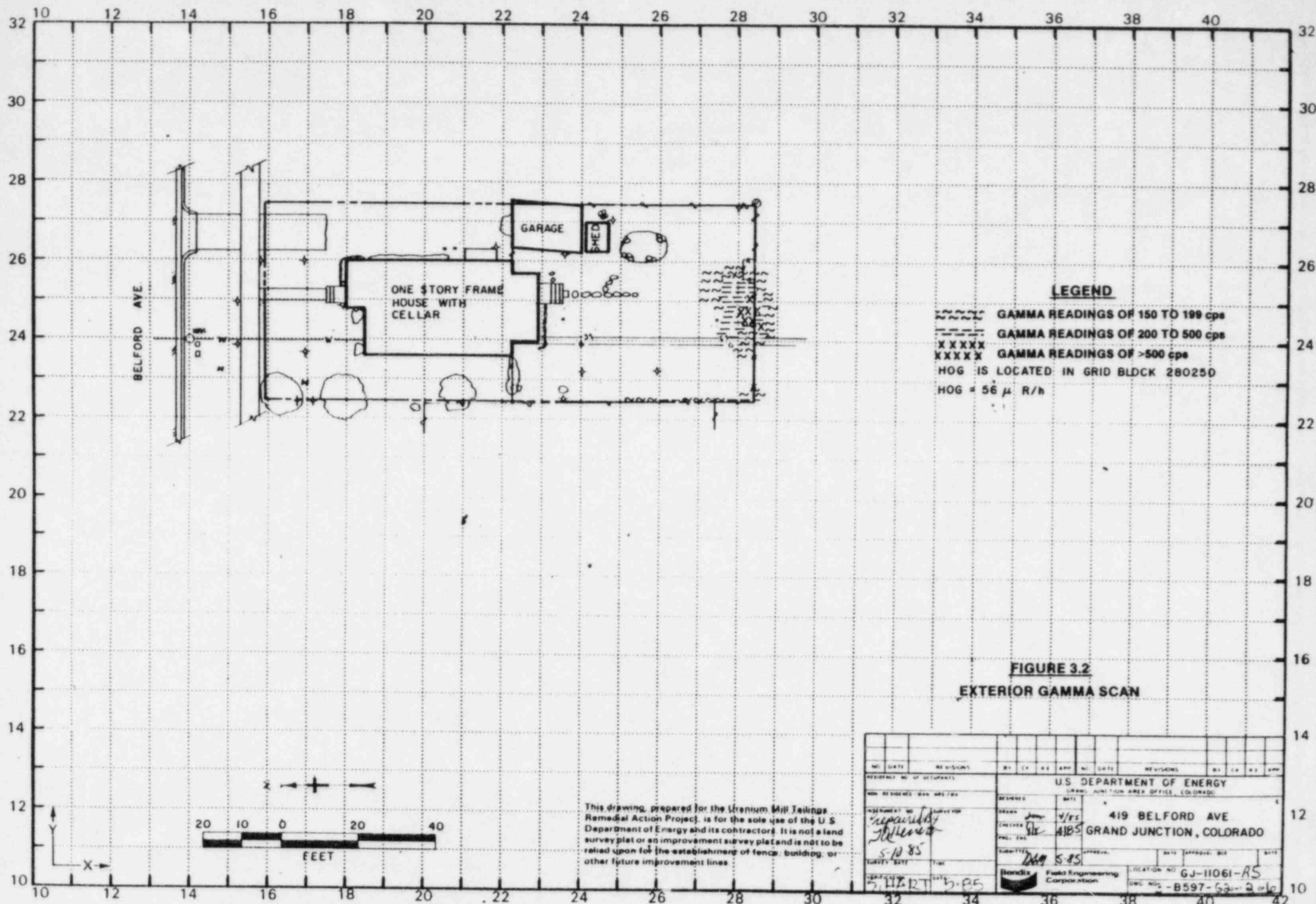
10 5 0 10 20  
SCALE IN FEET

FIGURE 2.2 SITE PLAN

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION PROJECT OFFICE, COLORADO	DOE FILE NO. GJ1106125
ADDRESS 419 BELFORD AVENUE GRAND JUNCTION, COLORADO SURV. RLB/3.28.85 DRAFT RSK/4.1.85	ALIBD Master Field Engineering Corporation Grand Junction, Colorado DATE 4-1-85
DRAWING NO. 3 C 597 F1	SHEET 1 OF 1

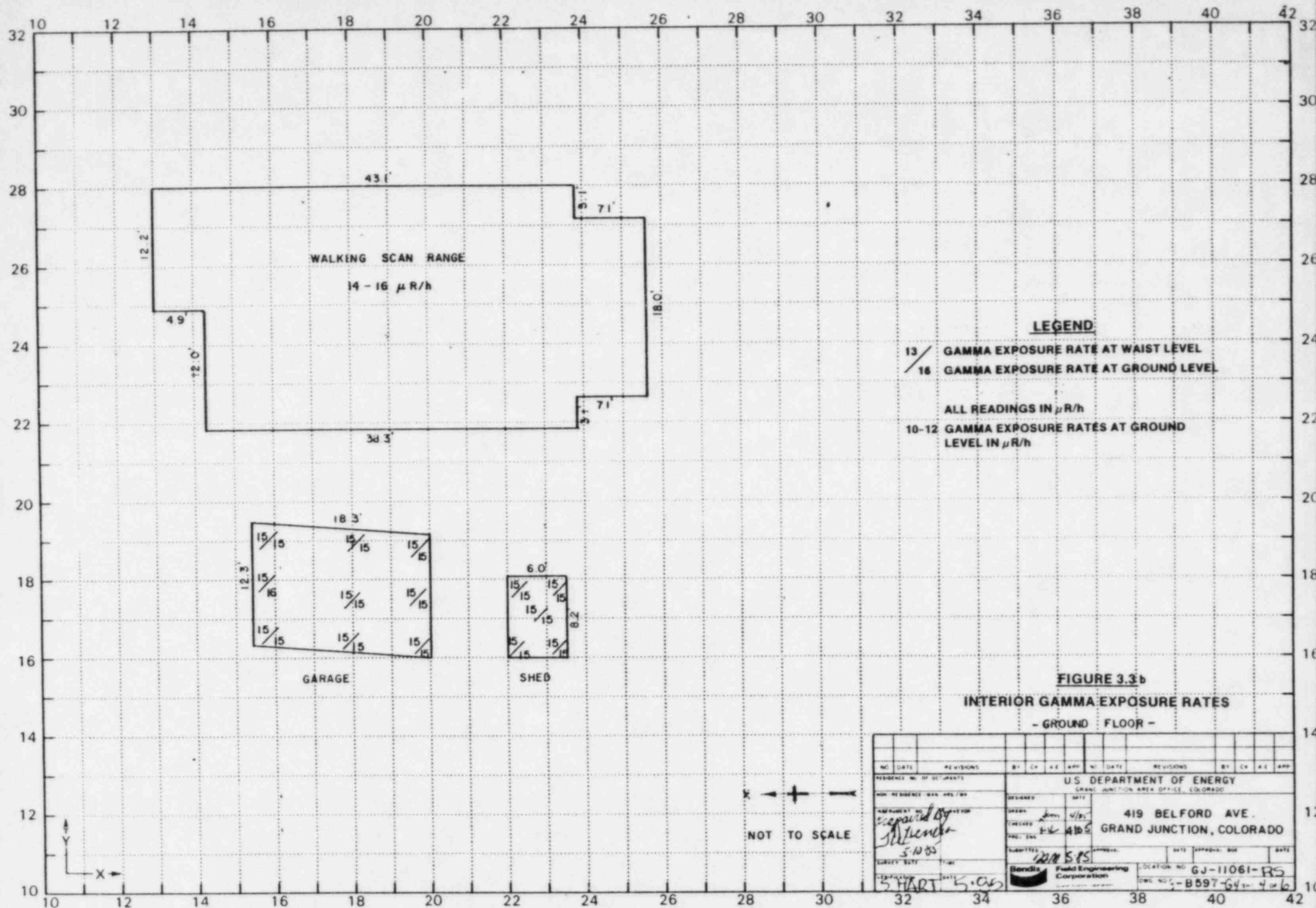
This drawing, prepared for the Uranium Mill Tailings Remedial Action Project, is for the sole use of the U.S. Department of Energy and its contractors. It is not a land survey plat or an improvement survey plat and is not to be relied upon for the establishment of fence, building, or other future rights/interest lines.



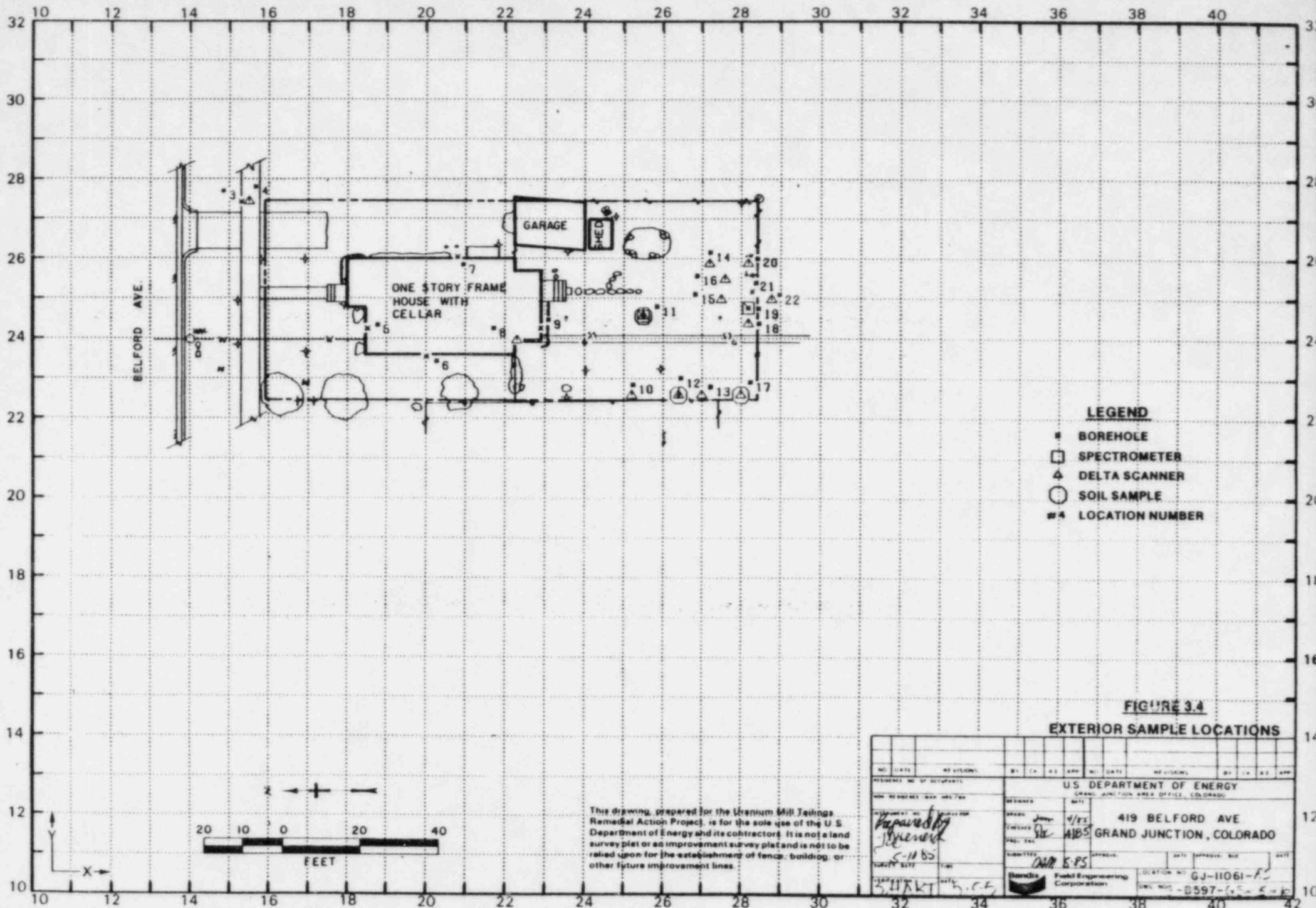


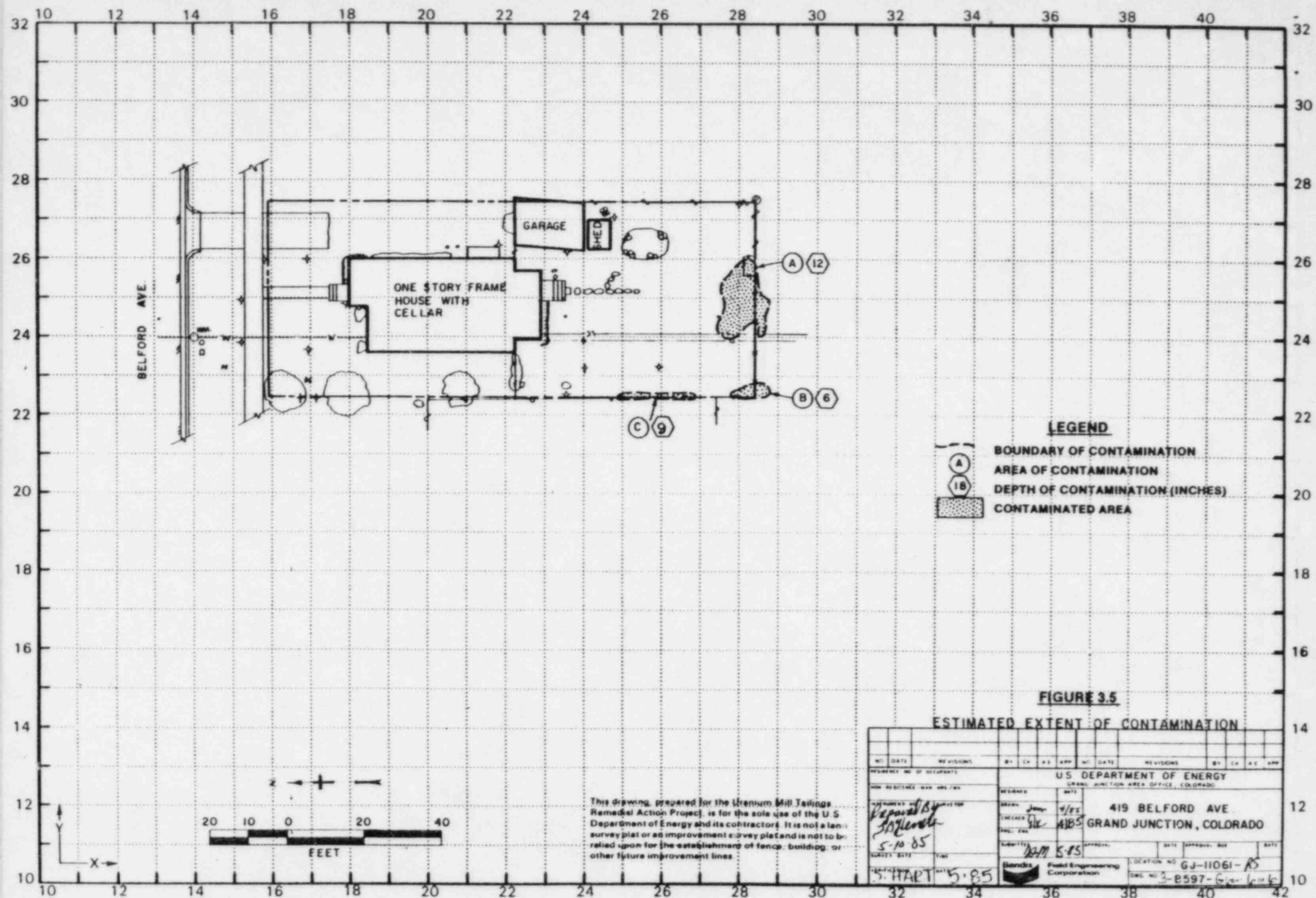






NO.	DATE	REVISIONS	BY	CHK	DATE	NO.	DATE	REVISIONS	BY	CHK	DATE
<p>RESIDENTIAL NO. OF OCCUPANTS</p> <p>MIN. RESIDENCE MAX. HRS. / Wk.</p> <p>DESIGNED BY <i>SHART</i> DATE <i>5-10-85</i></p> <p>CHECKED BY <i>SHART</i> DATE <i>5-10-85</i></p> <p>DRAWN BY <i>SHART</i> DATE <i>5-10-85</i></p> <p>PROJECT NO. <i>5-10-85</i></p> <p>LOCATION NO. <i>6J-11061-RS</i></p> <p>DWG. NO. <i>5-B597-64-4 of 6</i></p>											





This drawing, prepared for the Uranium Mill Tailings Remedial Action Project, is for the sole use of the U.S. Department of Energy and its contractors. It is not a land 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.

3/85

DOE ID NO. GJ-11061-RS

Date 4-24-85

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

Official Survey Report

Property Address 419 Belford Avenue

Property Owner Clara Crumpton

Address of Owner (if different from above) Same

Report Prepared By T. Dean Herrera

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

☐ No evidence of residual radioactive material on surveyed property.

☐ Residual radioactive materials found at the following locations:

☒ In open areas.

☐ Under or around exterior improvements.

☐ Under or around a typically nonoccupied structure.

☐ Under or around a typically occupied structure.

II. RESULTS OF RADIOLOGIC ASSESSMENT

☐ 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.

☒ 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 = 56 uR/h





Bendix  
Aerospace

Bendix Field Engineering Corporation  
P.O. Box 1569  
Grand Junction, CO 81502-1569  
Telephone (303) 242-8621  
Telex: 454-338

May 6, 1985

Colorado Department of Health  
222 South 6th Street  
Grand Junction, Colorado 81501

ATTN: Elaine Brummett

Dear Elaine:

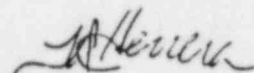
The following is in response to your questions and comments during the Technical Review concerning Department of Energy (DOE) Identification (ID) number GJ-11061-RS, conducted 11 April 1985.

1. The elevated readings on the city sidewalk are spillover to DOE ID number GJ-03634, 435 Belford, to the east residential property. The map does not show the readings as the readings were not a part of the property GJ-11061 boundary.
2. There will be additional delta measurement data taken in the basement. The auger at Location 5 was taken by the stairwell. Mrs. C. Crumpton has lived at this address for fourteen years. The basement was built prior to that time.
3. The deposit along the fence line to the west does extend to the neighboring lot. The DOE ID number for this property is GJ-03633. It has been submitted to Mel Scott for remedial action.
4. Based on all available data, the depth of contamination is 6 inches at the backyard west fence line, Locations 8, 10, and 15. The estimated extent of contamination map (Figure 3.5) preliminary map was changed to 6 inches at these locations along the fence line.

Elaine Brummett  
Colorado Department of Health  
GJ-11061-RS  
May 6, 1985  
Page 2

Thank you for your time and cooperation. If you should have additional questions or comments you may contact me at 242-8621, extension 280.

Sincerely,



T.D. Herrera  
RSD Survey Team

TDH:pr

CDH.LETTER:11061.TDH

MEMORANDUM

ALLIED Bendix  
Aerospace

Bendix Field Engineering Corporation  
Grand Junction Operations  
Grand Junction, Colorado 81501

DATE: April 11, 1985

TO: Files

FROM: Dean Herrera

SUBJECT: Team Leader Notes - GJ-11061-RS

Address: 419 Belford Avenue

Owner: Clara Crumpton

Occupancy: One (1)

Weather: Sunny, slightly breezy, temperature approximately 75 degrees.

Team Members

D. Herrera (Team Leader)  
R. Beltz  
N. Wallace  
L. Kula

R. Ryan  
J. Dickerson  
A. Quintana  
M. Gilfillan

Instruments

Crutch Scintillometer - C-1042, C-1021, C-3510, C-1163, C-3502  
Delta Scintillometer - C-3937  
Total Count - C-3959, C-4006  
Downhole Spectrometer - C-3361

The site arrival time was approximately 8:50 A.M.

Elevated gamma readings of 100 to 140 cps were located on the sidewalk adjacent to Belford Avenue. The concrete was a different pour and was not on the 419 Belford property.

Team Leader Notes  
Dean Herrera  
GJ-11061-RS  
April 11, 1985  
Page 2

In the backyard elevated gamma readings were located adjacent to the alley ranging from 95 to 675 cps, and to the west along the fence ranging from 140 to 350 cps.

Spillover from the adjacent property (415 Belford Avenue) and up to the alley was noted. A scan was performed, readings ranged 120 to 2500 cps. A memorandum will be sent to Mel Scott.

The gas line area was shoveled and a delta reading was obtained. No apparent anomalies were discovered.

The water meter pit was investigated. The reading located at the top of the meter was 100 cps and the bottom of the meter was reading 160 cps.

Augering and total count investigation was performed against the structure.

Before breaking for lunch all personnel were frisked.

When returning from lunch a few more delta readings were taken. After only 45 minutes the team members assured the property to be free of equipment. Mrs. Crumpton was informed of the survey completion.

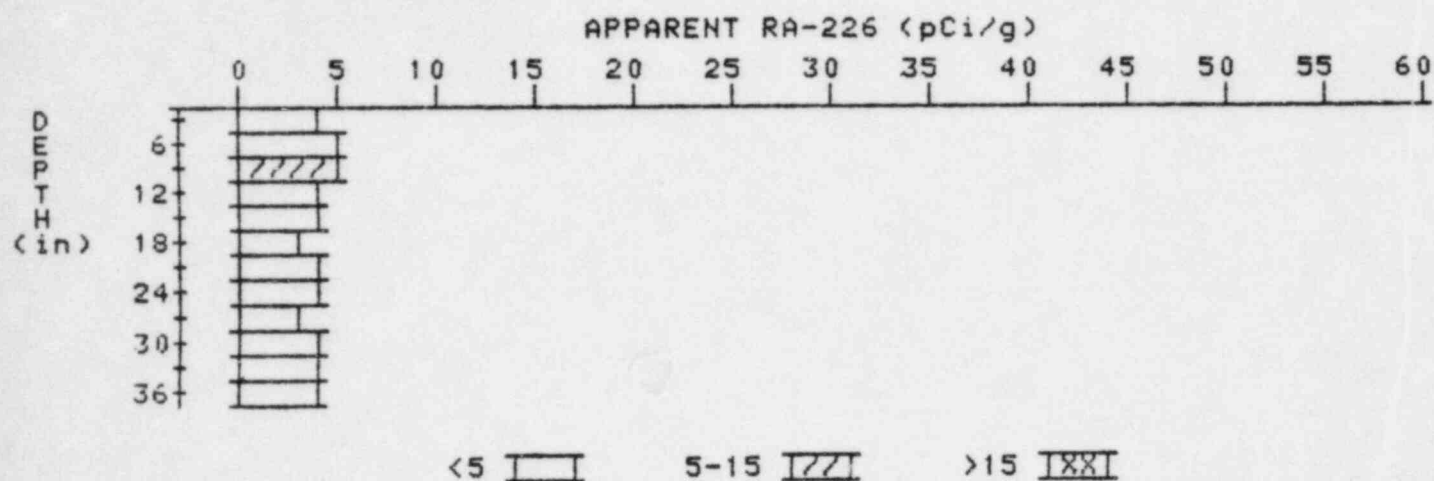
# APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

3

PROPERTY NUMBER: GJ-11061-RS

HOLE NUMBER: 3

✓ LOCATION: 153274



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.1	4.1
6	4.4	4.8
9	4.5	5.2
12	4.2	4.0
15	4.0	4.0
18	3.8	3.4
21	3.8	3.6
24	3.9	4.3
27	3.8	3.4
30	3.9	3.9
33	4.0	4.0
36	4.1	4.1

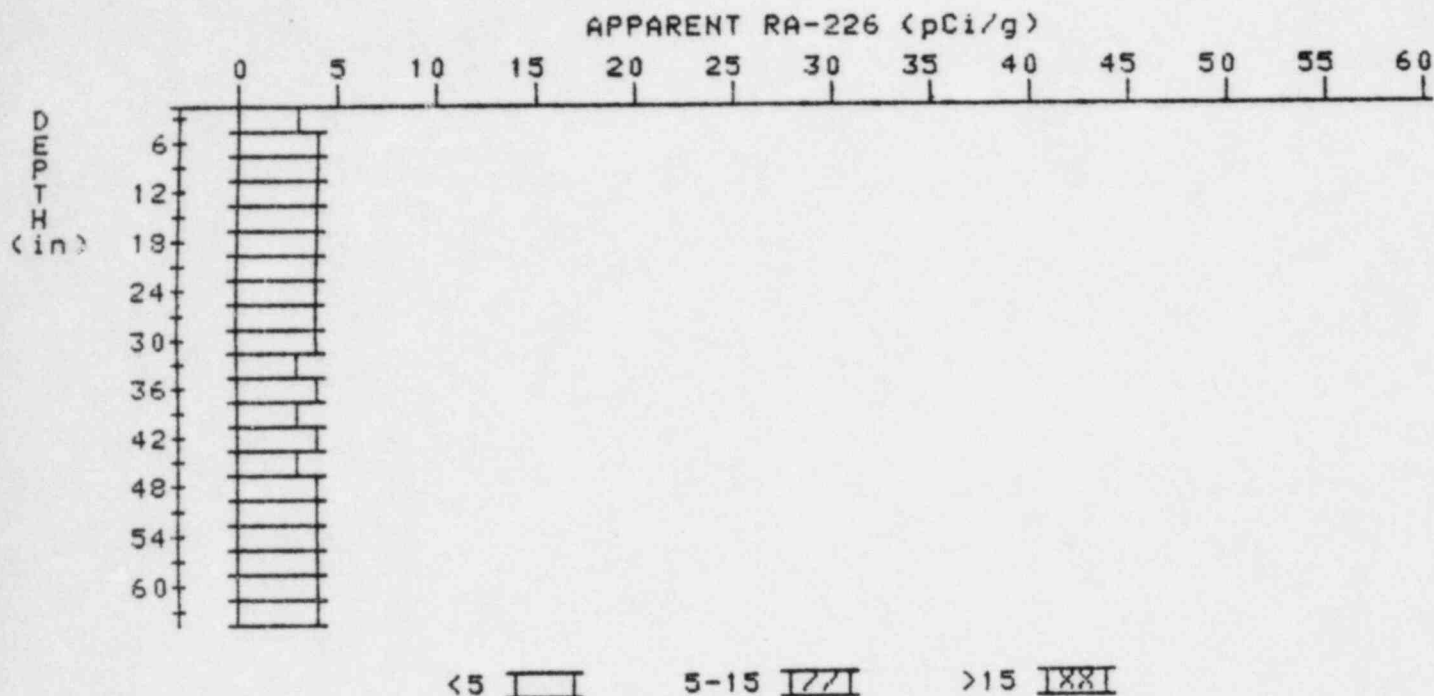
# APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

5

PROPERTY NUMBER: GJ-11061-RS

HOLE NUMBER: 5

✓ LOCATION: 185242



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	2.8	2.8
6	3.2	3.6
9	3.4	3.6
12	3.5	3.5
15	3.6	3.8
18	3.6	3.6
21	3.6	3.6
24	3.6	3.6
27	3.6	3.6
30	3.6	3.8
33	3.5	3.1
36	3.6	4.0
39	3.5	3.1
42	3.6	3.8
45	3.6	3.2
48	3.8	4.0
51	3.9	4.1

54  
57  
60  
63

3.9  
4.0  
4.0  
4.0

3.7  
4.2  
4.0  
4.0



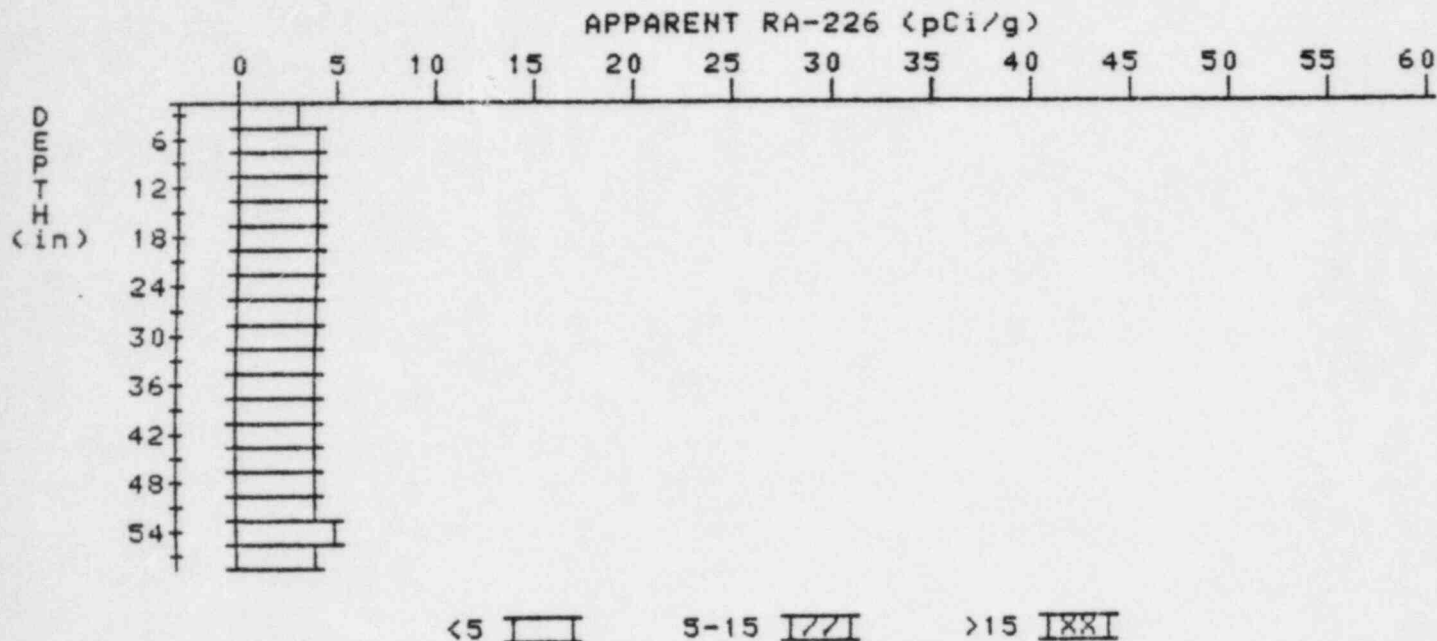
# APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

6

PROPERTY NUMBER: GJ-11061-RS

HOLE NUMBER: 6

LOCATION: 200235



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.1	3.1
6	3.4	3.6
9	3.6	3.8
12	3.7	3.9
15	3.7	3.5
18	3.8	4.2
21	3.7	3.5
24	3.7	3.7
27	3.7	3.7
30	3.7	3.7
33	3.7	3.5
36	3.8	3.6
39	4.0	4.2
42	4.1	4.1
45	4.2	4.4
48	4.2	4.2
51	4.2	4.0
54	4.3	4.7





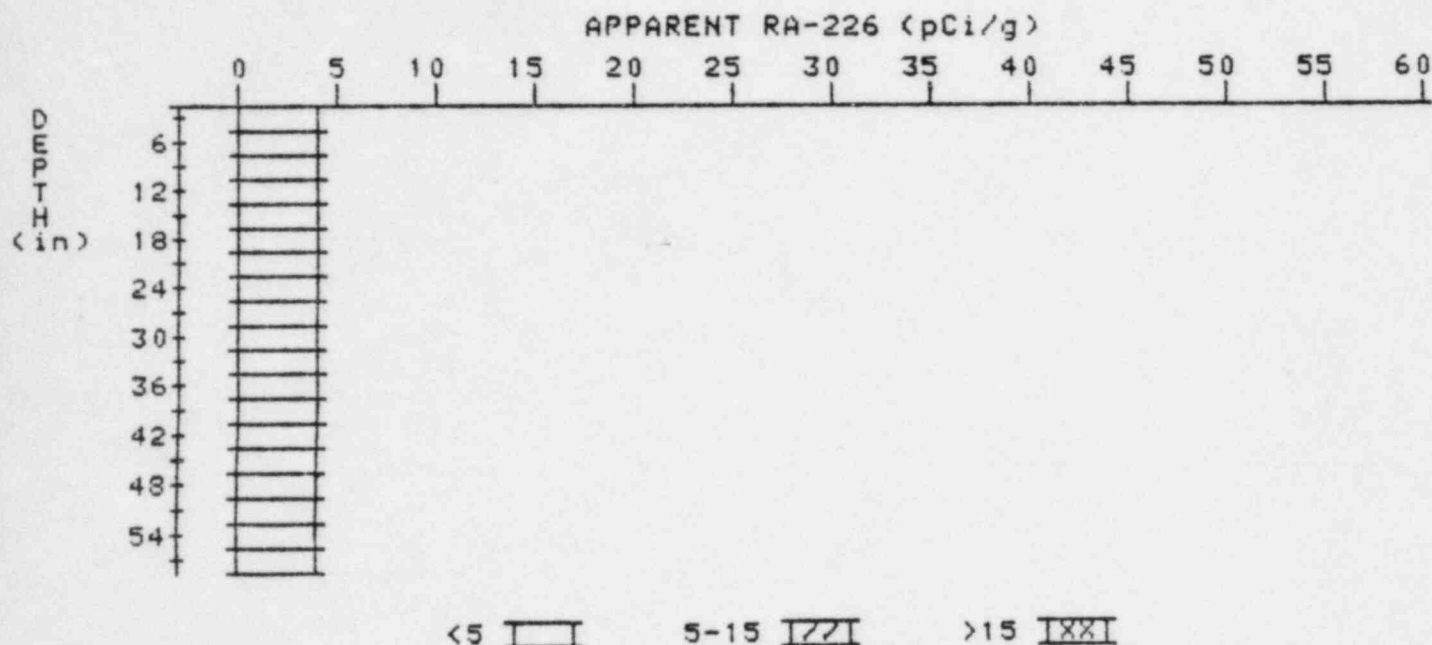
# APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

7

PROPERTY NUMBER: GJ-11061-RS

HOLE NUMBER: 7

✓ LOCATION: 208260



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.5	3.5
6	3.7	3.7
9	3.9	4.3
12	3.9	3.9
15	3.9	4.1
18	3.8	3.6
21	3.8	3.8
24	3.8	3.8
27	3.8	3.6
30	3.9	4.3
33	3.8	3.6
36	3.8	3.8
39	3.8	3.8
42	3.8	3.8
45	3.8	3.8
48	3.8	4.0
51	3.7	3.5
54	3.7	3.7

57

3.7

3.7

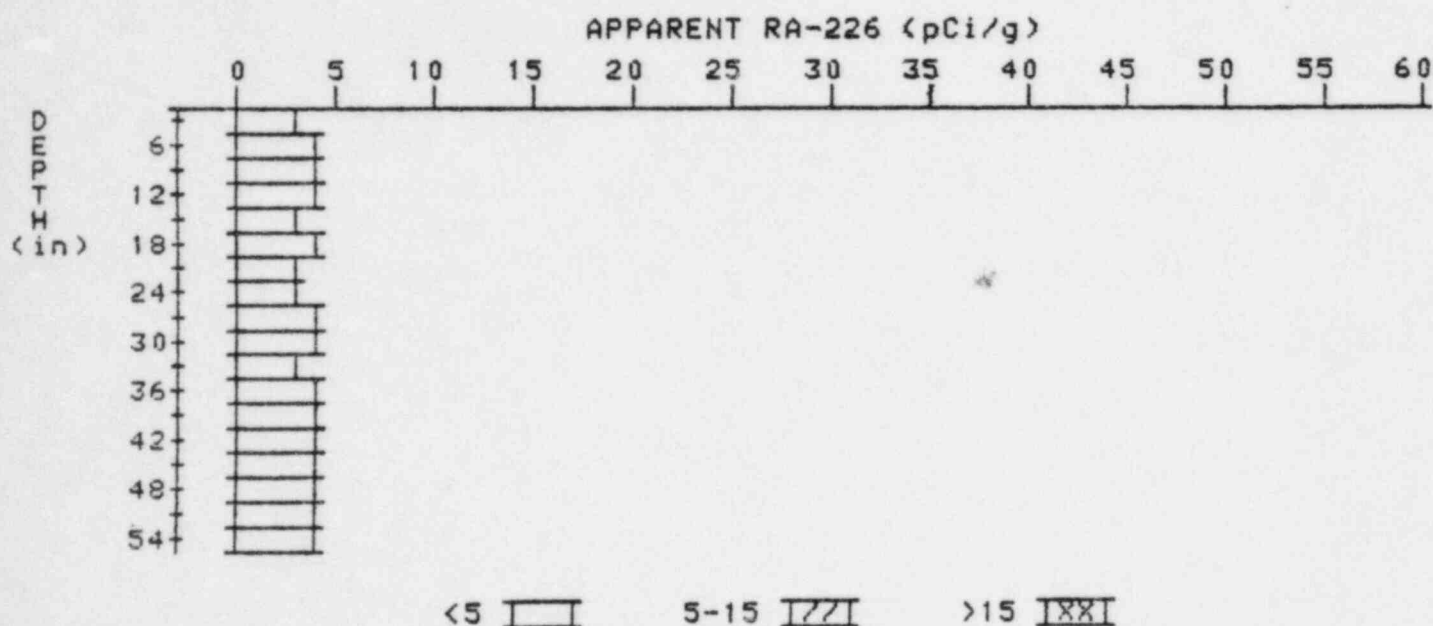
# APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

9

PROPERTY NUMBER: GJ-11061-RS

HOLE NUMBER: 9

LOCATION: 229242



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	3.6
15	3.6	3.4
18	3.7	4.1
21	3.6	3.4
24	3.6	3.4
27	3.7	3.7
30	3.8	4.3
33	3.6	3.1
36	3.7	3.9
39	3.7	3.5
42	3.8	4.0
45	3.8	3.6
48	3.9	3.9
51	4.0	4.4
54	3.9	3.9

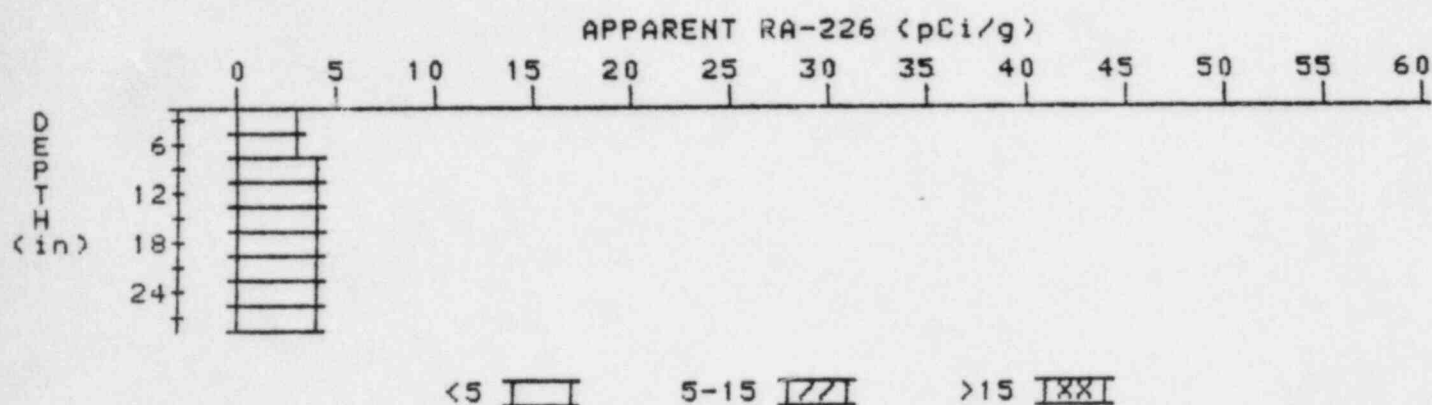
# APPARENT RADIUM-226 CONCENTRATION 11

## DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-11061-RS

HOLE NUMBER: 11

LOCATION: 255245



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.1	3.1
6	3.4	3.4
9	3.7	4.1
12	3.8	3.8
15	3.9	4.1
18	3.9	3.7
21	4.0	4.2
24	4.0	4.2
27	3.9	3.9

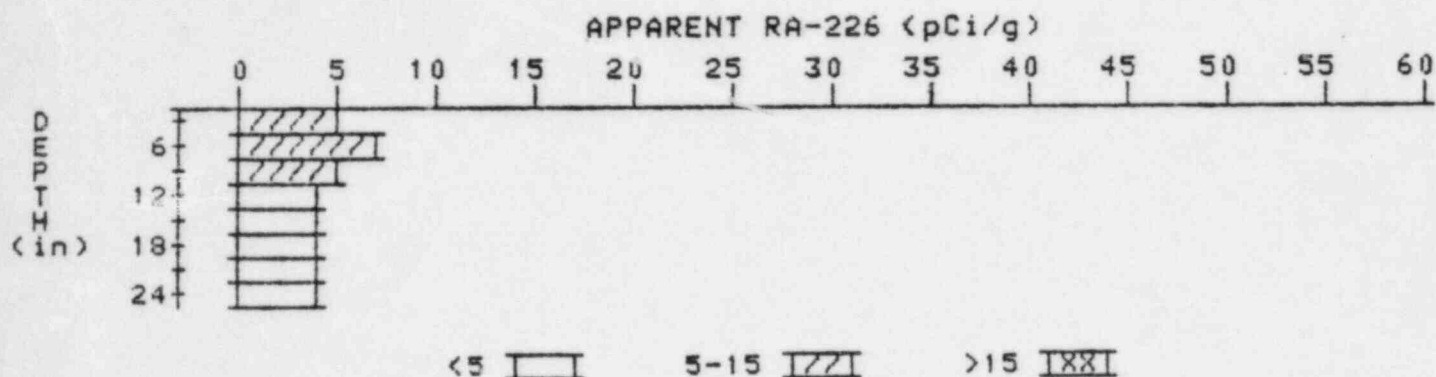
# APPARENT RADIUM-226 CONCENTRATION 12

## DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-11061-RS

HOLE NUMBER: 12

LOCATION: 264225



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	5.0	5.0
6	5.3	6.5
9	4.9	5.1
12	4.4	3.9
15	4.2	4.0
18	4.1	4.1
21	4.0	3.8
24	4.0	4.0



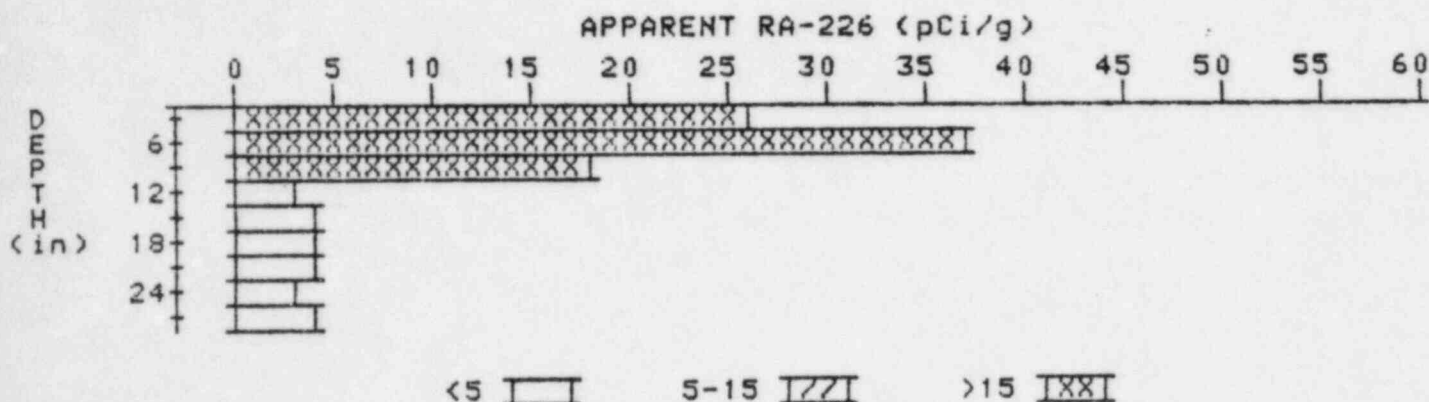
# APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

19

PROPERTY NUMBER: GJ-11061-RS

HOLE NUMBER: 19

LOCATION: 282247



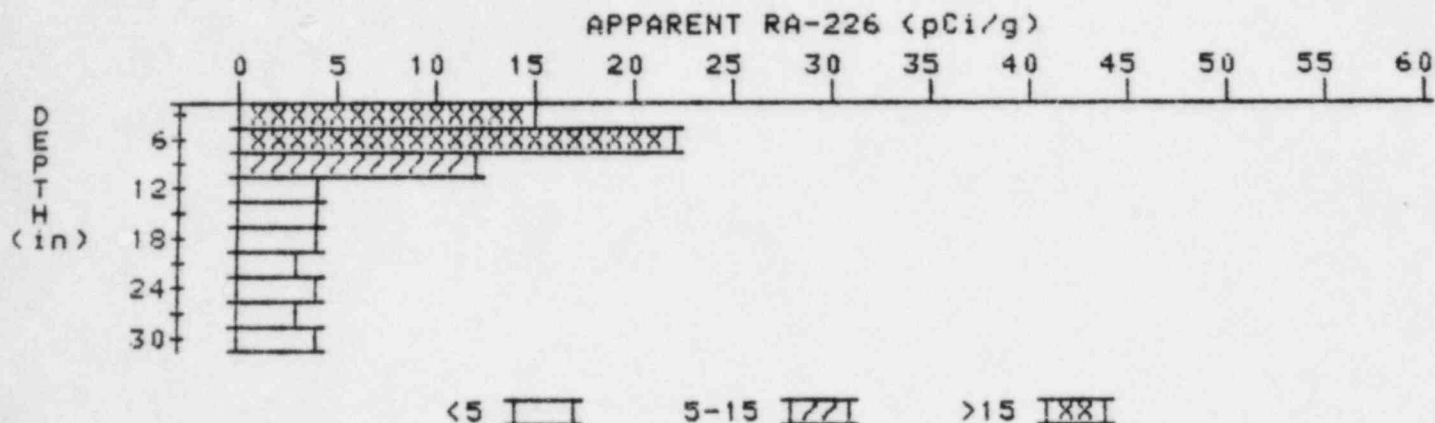
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	25.6	25.6
6	25.1	37.0
9	17.9	18.4
12	10.4	3.1
15	7.0	4.0
18	5.3	3.9
21	4.4	3.5
24	4.0	3.5
27	3.9	3.9

# APPARENT RADIUM-226 CONCENTRATION 21 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-11061-RS

HOLE NUMBER: 21

LOCATION: 283251



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	15.1	15.1
6	15.2	22.0
9	11.5	12.0
12	7.5	3.8
15	5.6	3.8
18	4.7	4.3
21	4.0	3.1
24	3.8	3.8
27	3.6	3.2
30	3.6	3.6