

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-03077-MR  
ADDRESS: 2313 ORCHARD AVENUE

JULY 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

M. K. Tucker <sup>by</sup> CWA  
M. TUCKER  
DOE PROJECT ENGINEER

DATE

July 29, 1985

REA03077:REA-612

8508140371 850730  
PDR WASTE  
WM-54 PDR

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## **1.0 EXECUTIVE SUMMARY**

### **1.1 Introduction**

The location, DOE ID No. GJ-03077-MR, is a single-family residence located at 2313 Orchard Avenue, Grand Junction, Colorado.

The purpose of this assessment is to evaluate the extent of uranium millsite contamination at this property and present a recommendation based on this assessment.

### **1.2 Evaluation and Recommendation**

It is recommended that no remedial action be performed on this property (as discussed in Section 4.0) and that a Property Completion Report be prepared for use in the DOE certification process. The identified residual radioactive material found on this property is tailings; the estimated volume is: exterior, 5 cu. yd.; interior, 17 cu. yd.

## 2.0 PROPERTY DESCRIPTION

### 2.1 General Description

Address: 2313 Orchard Avenue, Grand Junction, Colorado

Zoning: Residential

Lot Size: Approximately 9,360 sf (0.21 acre)

Legal Description: Lot 4 of Block 5 of the Regent Subdivision, Section 12 1S 1W, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 4 miles 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:	Orchard Avenue
South:	Alley (asphalt)
East:	Single-family residence
West:	Single-family residence

### 2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence
Size:	Approximately 1,276 sf
Construction Date:	1958
Construction:	Wood-frame
Foundation:	Monolithic concrete slab-on-grade
Footing Depth:	Approximately 14" to bottom of footing from grade
Basement:	None
Crawl Space:	None
Condition:	Good

Other Structures:

Type:	Shed
Size:	Approximately 80 sf
Construction:	Prefabricated metal
Foundation:	Not determined
Condition:	Good

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-03077-MR on May 31, 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 associated with the concrete floor in the primary structure and the concrete sidewalks in the north and south yards.

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: 13 to 15 uR/h  
Highest Outside Gamma Reading (HOG): 33 uR/h

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

##### 3.2.2 Interior Findings

Background Readings: 14 to 17 uR/h  
Highest Inside Gamma Reading (HIG): 33 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 Figure 3.2 shows 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 3.2 and 3.3. Data from these investigations are included in Appendix Tables 3.1 and 3.2.

### 3.4 Radon/Radon Daughter Concentration (RDC)

Determined by CDH: 0.008 working level (WL). No additional measurements were taken by Bendix.

### 3.5 Extent of Contamination

Appendix Figures 3.4a and 3.4b show identified areas and estimated depths of contamination on this property, based on assessments of all measurements taken. As noted in these figures, areas recommended for remedial action that contain identified residual radioactive materials are:

- (Area A) Surface Material: concrete  
 Direction From Primary Structure: interior  
 Other Directions: ground floor  
 Total Depth of Contamination: 5 inches  
 Other (height or thickness): 5-inch-thick concrete  
 Comments: The depth of contamination is based on data collected in Area F.  
 Approximate Square Footage: 759
- (Area B) Surface Material: concrete  
 Direction From Primary Structure: interior  
 Other Directions: beneath the ground floor  
 Total Depth of Contamination: 19 inches  
 Other (height or thickness): The total height of the stem-wall and footing is 19 inches.  
 Comments: Only the original foundation is contaminated.  
 Approximate Square Footage: 237
- (Area C) Surface Material: concrete  
 Direction From Primary Structure: north  
 Other Directions: the sidewalk extends north to the city sidewalk  
 Total Depth of Contamination: 4 inches  
 Other (height or thickness): 4-inch-thick concrete  
 Approximate Square Footage: 45
- (Area D) Surface Material: concrete  
 Direction From Primary Structure: south  
 Other Directions: the sidewalk extends south to the alley  
 Total Depth of Contamination: 4 inches  
 Other (height or thickness): 4-inch-thick concrete  
 Comments: The depth of contamination is based on data collected in Area C.  
 Approximate Square Footage: 240

(Area E) Surface Material: concrete  
Direction From Primary Structure: north  
Total Depth of Contamination: 5 inches  
Other (height or thickness): 5-inch-thick concrete  
Comments: The depth of contamination is based on data  
collected in Area F.  
Approximate Square Footage: 60

(Area F) Surface Material: concrete  
Direction From Primary Structure: south  
Other Directions: by the south door  
Total Depth of Contamination: 5 inches  
Other (height or thickness): 5-inch-thick concrete  
Approximate Square Footage: 45



## 4.0 RECOMMENDED REMEDIAL ACTION

### 4.1 Decontamination and Restoration

We do not recommend decontamination and restoration of this property. It is recommended that no remedial action be performed and that a brief Property Completion Report be prepared for use in the DOE certification process.

### 4.2 Evaluation of Recommended Remedial Action

The recommendation that no remedial action be performed on this property is made because the levels of radioactivity on this property fall below the EPA Standards (40 CFR 192):

- (1) 5 pCi/g, averaged over the first 15 cm of soil below the surface; and
- (2) 15 pCi/g, averaged over 15-cm-thick layers of soil more than 15 cm below the surface.
- (3) If the indoor radon daughter concentration exceeds 0.02 working level (WL), where practical or 0.03 WL in any event (the gross working level determined by CDH for this property is 0.008); and
- (4) Indoor gamma radiation exceeds 20 microroentgens per hour (uR/h) above background levels (interior background readings for this location were found to be 14 to 17 uR/h with the highest inside gamma reading of 33 uR/h).

Appendix Table 4.1 presents the area and volume calculations of contamination present on the property. Appendix Table 4.2 presents the calculations for concentrations of Radium-226 in soil for this location.

## 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	Calculations for Concentration of Radium-226 in Soil

Appendix Figures:

Figure 2.1	Vicinity Map
Figure 2.2	Site Plan
Figure 3.1	Exterior Grid-Point Exposure Rates
Figure 3.2	Interior Gamma Exposure Rates and Sample Locations
Figure 3.3	Exterior Sample Locations
Figure 3.4a	Interior Estimated Extent of Contamination
Figure 3.4b	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-03077-MR

2313 Orchard Avenue

Page 1 of 3

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
6	184254	00	DS	1.4		*	Background
		00-06	SS			1.8	
		03	TC	3.0		*	North of primary
		06	TC	3.4		*	structure
		09	TC	3.5		*	Water line
		12	TC	3.5		*	DC = 0 inches
		15	TC	3.5		*	
		18	TC	3.5		*	
		21	TC	3.6		*	
		24	TC	3.6		*	
		27	TC	3.6		*	
		30	TC	3.6		*	
		33	TC	3.6		*	
		36	TC	3.6		*	
7	185247	00	DS	2.7		*	By walkway
		06	DS	<1.0		*	
8	189243	00	DS	1.3		*	North of primary
		06	DS	2.0		*	structure
		12	DS	1.4		*	
9	189249	00-04	SS			9.6	Concrete core
		04-10	SS			2.2	Soil
		03	TC	5.1		*	North of primary
		06	TC	5.0		*	structure
		09	TC	4.6		*	DC = 4 inches
		12	TC	4.2		*	Based on soil
		15	TC	3.8		*	sample analyses
		18	TC	3.8		*	
		21	TC	3.8		*	
		24	TC	3.7		*	
		27	TC	3.6		*	
		30	TC	3.7		*	
		33	TC	3.5		*	
		36	TC	3.6		*	
10	190243	00	DS	3.3		*	By north entrance
		06	DS	5.8		*	On old concrete slab
		12	DS	10.9		*	
11	190270	00	DS	7.4		*	Horizontal
		00	DS	3.4		*	Vertical

## Radium Concentrations at Exterior Locations

DOE ID #GJ-03077-MR

2313 Orchard Avenue

Page 2 of 3

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
11	190270	08	DS	10.0		*	Horizontal
		08	DS	10.8		*	Vertical
12	191271	00	DS	2.7		*	Gas line
		28	DS	<1.0		*	
13	193243	00	DS	6.9		*	Concrete slab North of primary structure
14	215225	03	TC	3.1		*	West of primary structure
		06	TC	3.3		*	
		09	TC	3.4		*	
		12	TC	3.5		*	
		15	TC	3.5		*	DC = 0 inches
		18	TC	3.5		*	
		21	TC	3.5		*	
		24	TC	3.5		*	
		27	TC	3.4		*	
		30	TC	3.4		*	
		33	TC	3.5		*	
		36	TC	3.5		*	
15	220255	00	DS	2.4		*	South of primary structure
		06	DS	7.2		*	
16	222251	03	TC	3.6		*	Sewer line
		06	TC	3.8		*	
		09	TC	3.9		*	DC = 0 inches
		12	TC	3.8		*	
		15	TC	3.8		*	
		18	TC	3.7		*	
		21	TC	3.7		*	
		24	TC	3.7		*	
		27	TC	3.7		*	
		30	TC	3.7		*	
		33	TC	3.7		*	
17	225235	00-05	SS			20.0	Concrete core
		05-11	SS			2.5	Soil
		03	TC	6.8		*	Concrete slab
		06	TC	6.5		*	South of primary structure
		09	TC	6.6		*	

## Radium Concentrations at Exterior Locations

DOE ID #GJ-03077-MR

2313 Orchard Avenue

Page 3 of 3

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
17	225235	12	TC	6.4		*	DC = 5 inches
		15	TC	5.6		*	Based on soil
		18	TC	4.7		*	sample analyses
		21	TC	4.1		*	
		24	TC	3.8		*	
		27	TC	3.7		*	
		30	TC	3.6		*	
		33	TC	3.7		*	
		36	TC	3.8		*	
18	225238	00	DS	1.2		*	Next to sidewalk

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 = 05-31-85  
Team Leader = CH

## Radium Concentrations at Interior Locations

DOE ID #GJ-03077-MR

2313 Orchard Avenue

Page 1 of 1

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	8.4		*	Northeast bedroom
2		00	DS	8.6		*	North side living room
3		00	DS	8.5		*	Southeast bedroom behind door
4		00	DS	7.9		*	Kitchen by north wall
5		00	DS	7.1		*	

Measurement GB = GAD-6 Borehole  
 Type: 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 = 05-31-85  
 Team Leader = CH

Table 3.3  
Summary of Interior Gamma Exposure Rates

DOE ID No. GJ-03077-MR 2313 Orchard Avenue Page 1 of 1

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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)
<hr/>						
Room A	05	16-22	18	05	14-26	21
Room B	06	21-24	22	06	26-27	26
Room C	04	18-22	20	04	22-26	24
Room D	01	18-18	18	01	26-26	26
Room E	02	18-22	20	02	21-26	24
Room F	06	14-19	17	06	15-26	21
Room G	05	22-24	23	05	26-33	28
Room H	05	14-19	16	05	15-22	18
Room I	01	15-15	15	01	16-16	16
Shed	*	*	*	*	16-16	*
<hr/>						

\*Exposure rates and room locations in the primary structure are shown in Appendix Figure 3.2. A walking scan was performed in the shed to verify the absence of contamination.



Table 4.1  
Area and Volume Calculations  
DOE ID No. GJ-03077-MR

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>
INTERIOR					
	Concrete				
A	23 x 33 =	759	x 0.4 =	304	
B	3 x 79 =	237	x 0.7 =	166	(stemwall and footing)
	Volume of Concrete			= 470 =	470/27 = 17
	TOTAL VOLUME - INTERIOR				= 17
EXTERIOR					
	Concrete				
C	15 x 3 =	45	x 0.3 =	14	
D	80 x 3 =	240	x 0.3 =	72	
E	15 x 4 =	60	x 0.4 =	24	
F	15 x 3 =	45	x 0.4 =	18	
	Volume of Concrete			= 128 =	128/27 = 5
	TOTAL VOLUME - EXTERIOR				= 5

NOTE: Total square feet of Exterior Areas C, D, E, and F = 390 square feet  
390 square feet = 36.24 square meters

See Appendix Figures 3.4a and 3.4b For Areas

=====

$$C_{avg} = \frac{C_c \times A_c + C_b (100m^2 - A_c)}{100m^2}$$

Where

$C_{avg}$  = Concentration average (pCi/g)

$C_c$  = Concentration of Contamination (pCi/g)

$A_c$  = Area of Concentration ( $m^2$ )

$C_b$  = Background Concentration (pCi/g)

$$C_{avg} = \frac{(9.6 \times 4.18) + (14.8 \times 22.3) + (14.8 \times 5.58) + (20 \times 4.18) + 2(100 - 36.24)}{100}$$

$$C_{avg} = 6.64 < 7$$

$$C = (9.6 \times 4.18)$$

$$D = (14.8 \times 22.3)$$

$$E = (14.8 \times 5.58)$$

$$F = (20 \times 4.18)$$

Therefore, concentration does not meet EPA Standards of 7 pCi/g

NOTE: Background Radium concentration for this area is 2 pCi/g

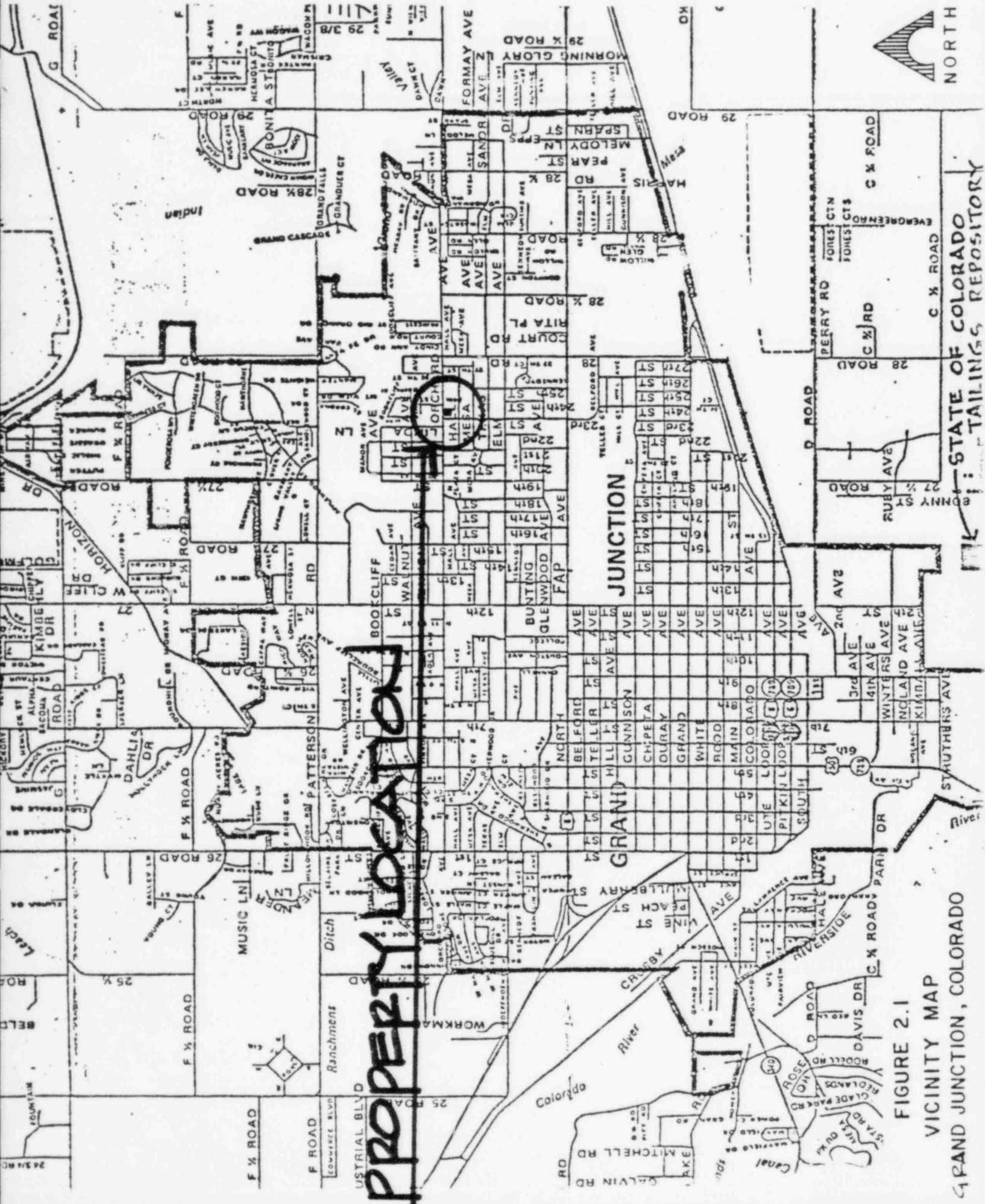


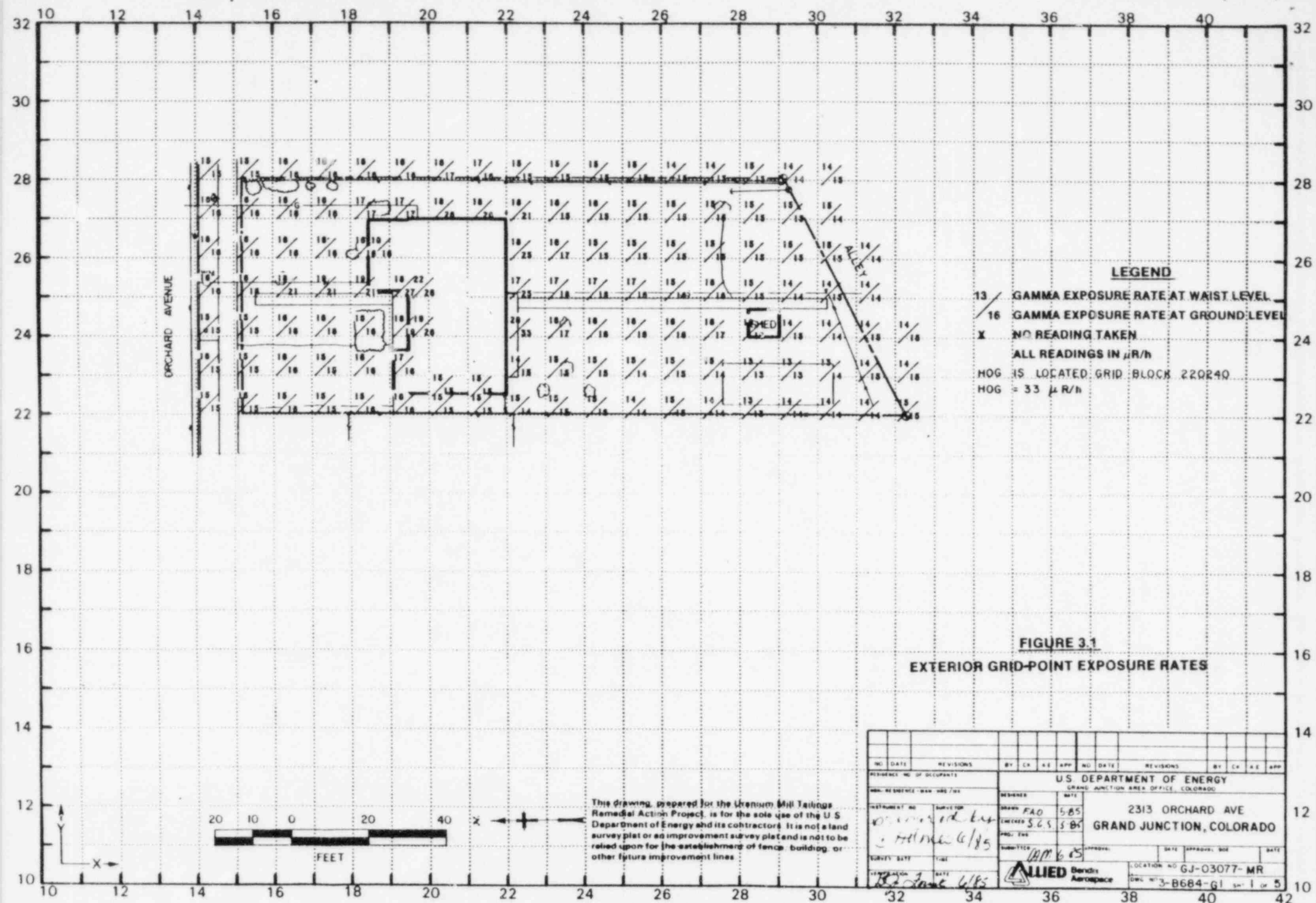
FIGURE 2.1

VICINITY MAP

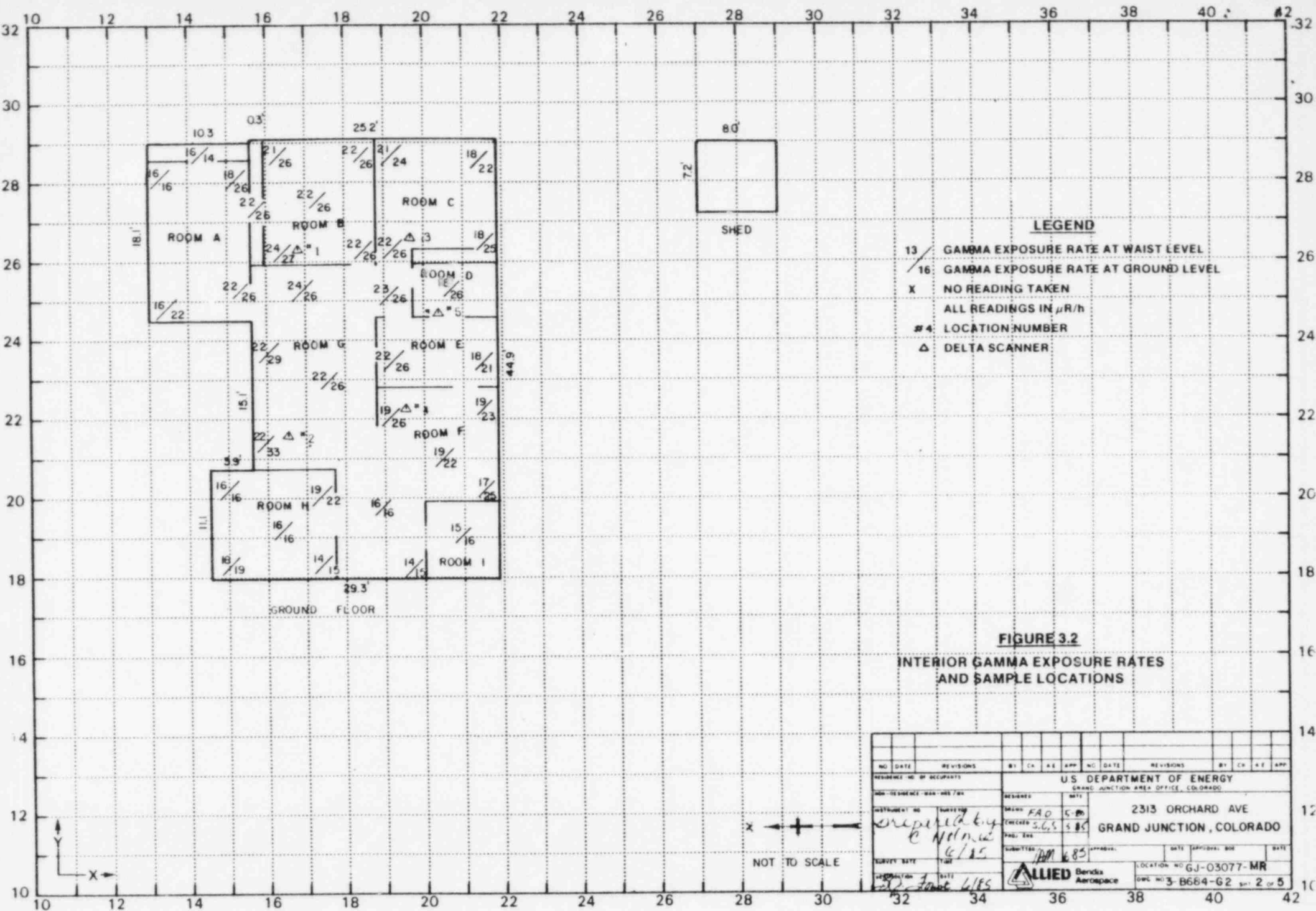
GRAND JUNCTION, COLORADO

STATE OF COLORADO  
TAILINGS REPOSITORY





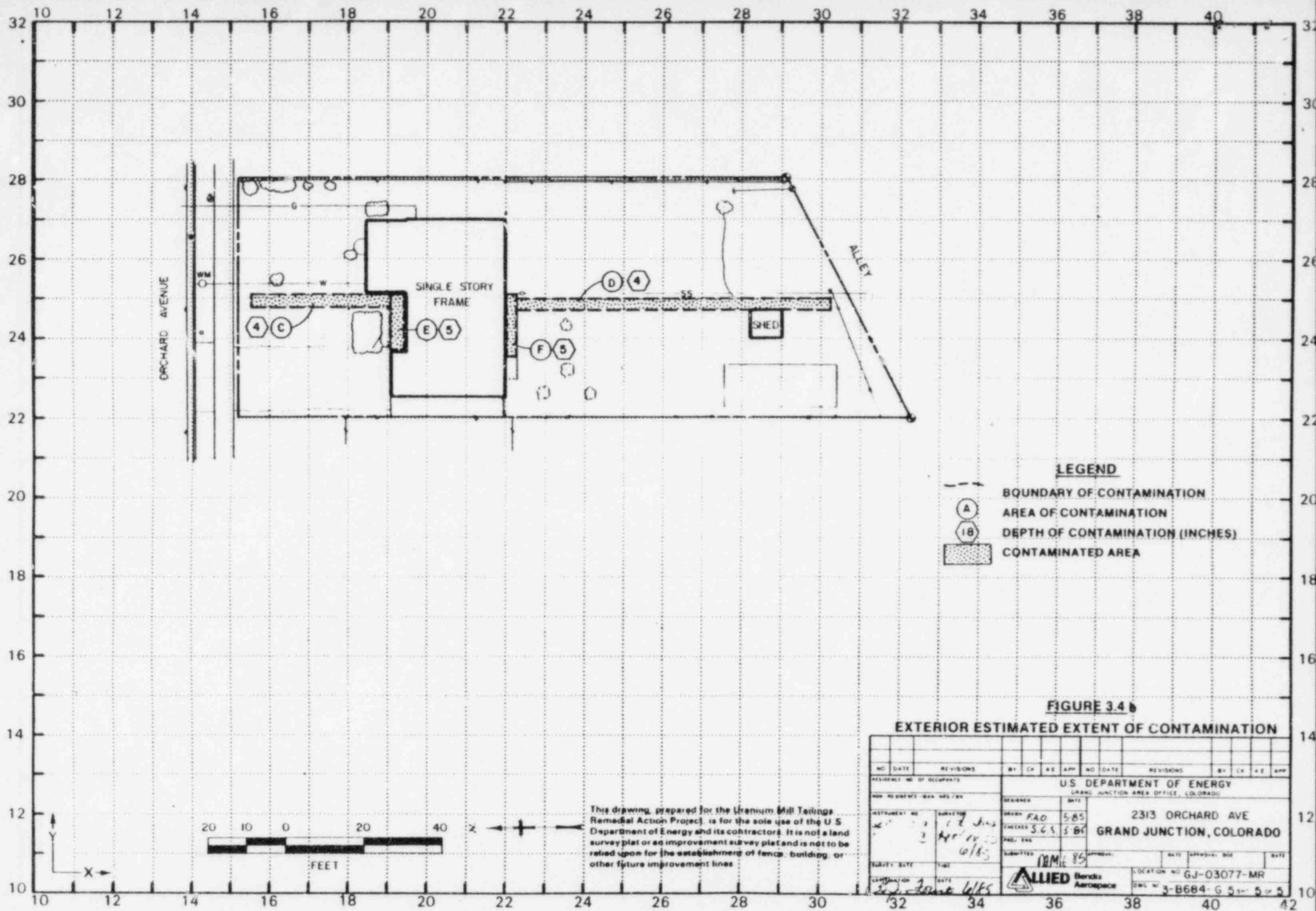












3/85

DOE ID NO.

GJ-03077-RS MR

Date

June 10, 1985

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

Official Survey Report

Property Address 2313 Orchard Avenue  
Property Owner Mark and Mary Ann Hill  
Address of Owner (if different from above) \_\_\_\_\_  
Report Prepared By Carol Holmes

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/CDB

J. Themelis, Mgr. UMTRA Proj. Off.

HIG = 33 uR/h  
HOG = 33 uR/h

ALLIED Bendix  
Aerospace

Bendix Field Engineering Corporation  
Grand Junction Operations  
Grand Junction, Colorado

Date: May 31, 1985

To: Files

From: Carol Holmes

Subject: Team Leader Notes - GJ-03077-R&MR *myo* 7.85

Address: 2313 Orchard Avenue

Owner: Mark and Mary Ann Hill

Team Members

C. Holmes (Team Leader)  
M. Dexter  
S. Southern

D. Dow  
P. Hardy  
V. Young

Instruments

Delta Scintillometer - C-3937, C-3936  
Crutch Scintillometer - C-1205, C-1181  
Total Count - C-3573, C-3956

Mrs. Hill was present during the entire survey, while Mr. Hill was present only a short time.

Although Mr. and Mrs. Hill were not living at this address during the renovation, Mr. Hill thought the west portion of the house was originally a garage. It is now an addition to the house. Also, another bedroom has been extended from the northeast section of the house.

Elevated readings were discovered along the sidewalks north and south of the house, and in the old portion of the house. The slab the house is resting on is contaminated. A core in the back should be able to give me a depth of the concrete and the extent, if any, of contamination beneath it. Soil samples of the sidewalk and the concrete pad were collected.

Team Leader Notes

Carol Holmes

GJ-03077-RS-MR *mgc* 7-85

May 31, 1985

Page 2

The utility lines and all other areas of the yard appear to be clean.

All team members were frisked before leaving the property.

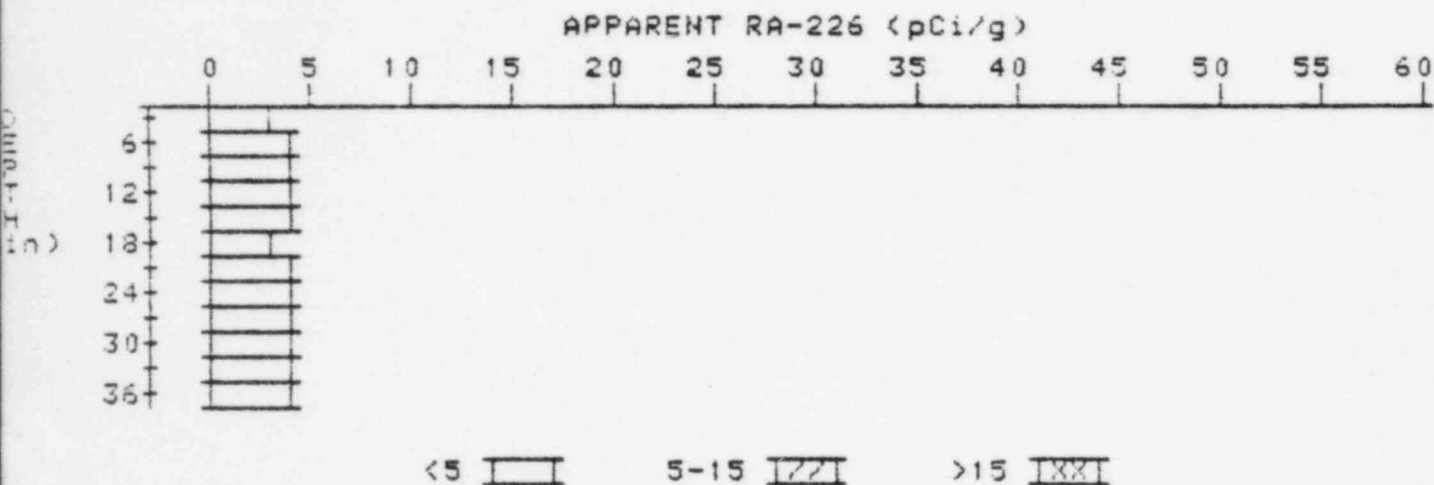
# APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

6

PROPERTY NUMBER: GJ-03077-RSMR *mg 7.25*

HOLE NUMBER: 6

LOCATION: 184254

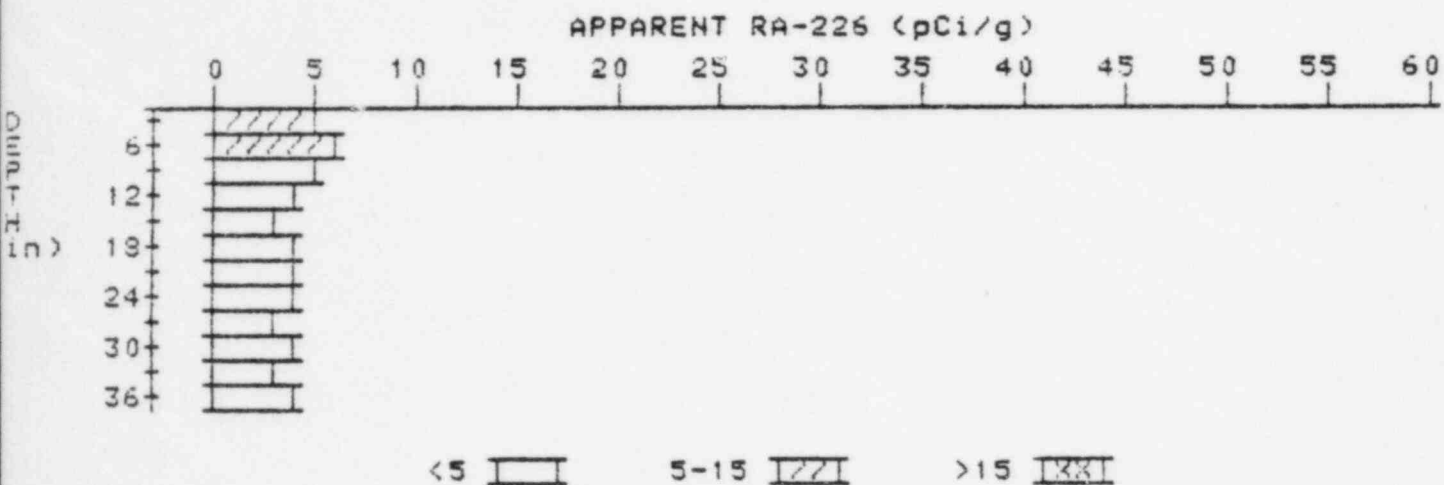


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.0	3.0
6	3.4	3.9
9	3.5	3.7
12	3.5	3.5
15	3.5	3.5
18	3.5	3.3
21	3.6	3.8
24	3.6	3.6
27	3.6	3.6
30	3.6	3.6
33	3.6	3.6
36	3.6	3.6

# APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

9

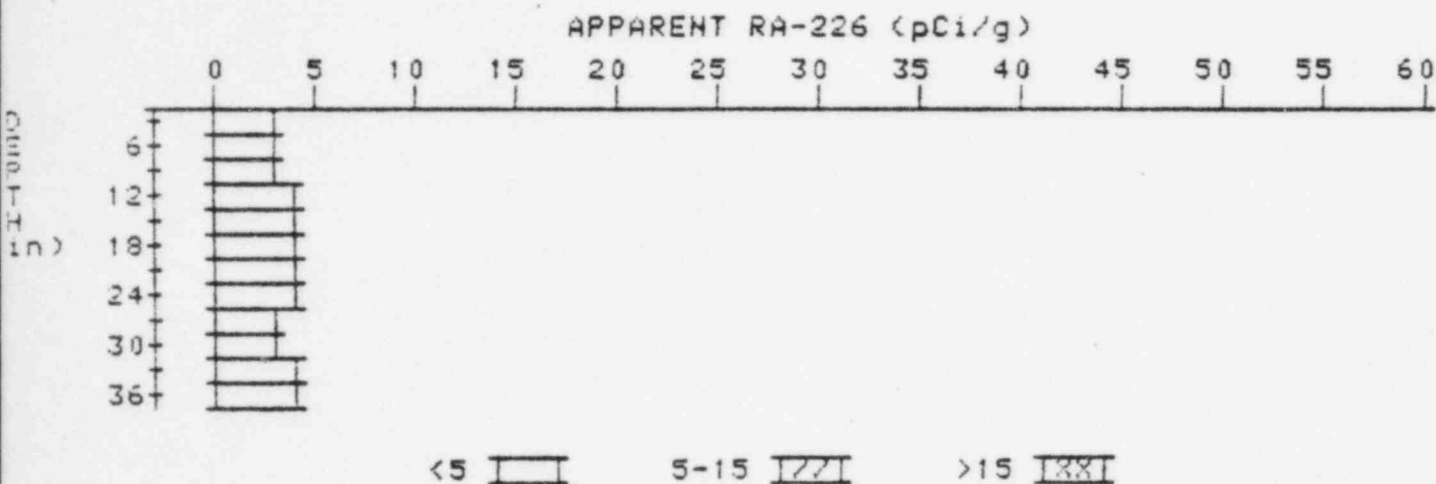
PROPERTY NUMBER: GJ-03077-R6MR *mp7.85*  
HOLE NUMBER: 9  
LOCATION: 189249



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	5.1	5.1
6	5.0	5.5
9	4.6	4.6
12	4.2	4.2
15	3.8	3.1
18	3.8	3.8
21	3.8	4.0
24	3.7	3.7
27	3.6	3.2
30	3.7	4.2
33	3.5	3.0
36	3.6	3.6

# APPARENT RADIUM-226 CONCENTRATION 14 DECONVOLUTION GRAPH

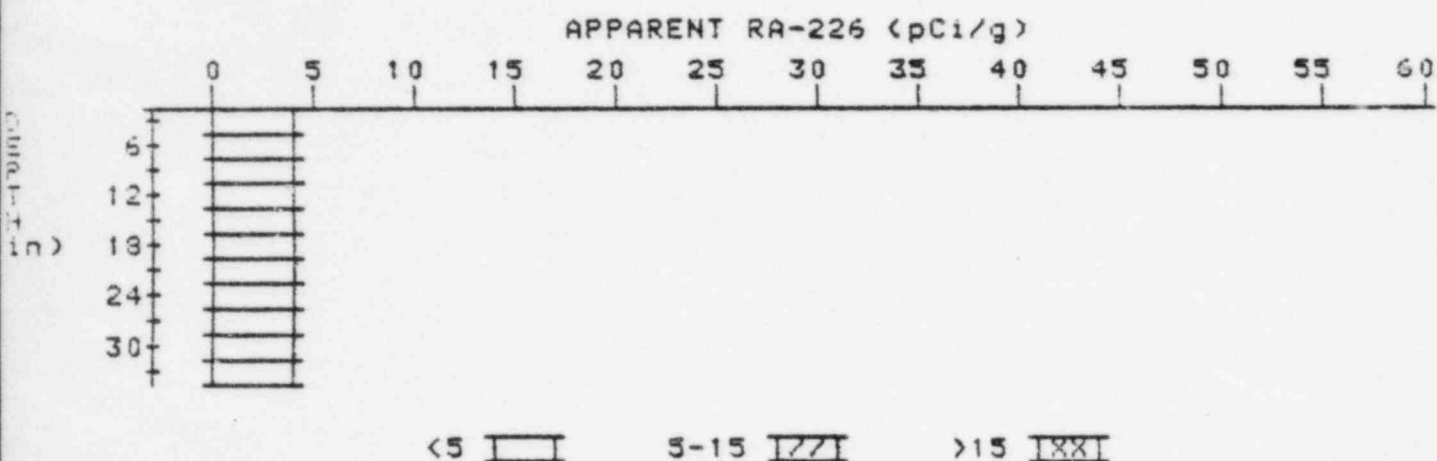
PROPERTY NUMBER: GJ-03077-R6 MR *mg 7.85*  
HOLE NUMBER: 14  
LOCATION: 215225



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.1	3.1
6	3.3	3.5
9	3.4	3.4
12	3.5	3.7
15	3.5	3.5
18	3.5	3.5
21	3.5	3.5
24	3.5	3.7
27	3.4	3.2
30	3.4	3.2
33	3.5	3.7
36	3.5	3.5

# APPARENT RADIUM-226 CONCENTRATION 16 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-03077-RS-MR *mg 7.85*  
HOLE NUMBER: 16  
LOCATION: 222251

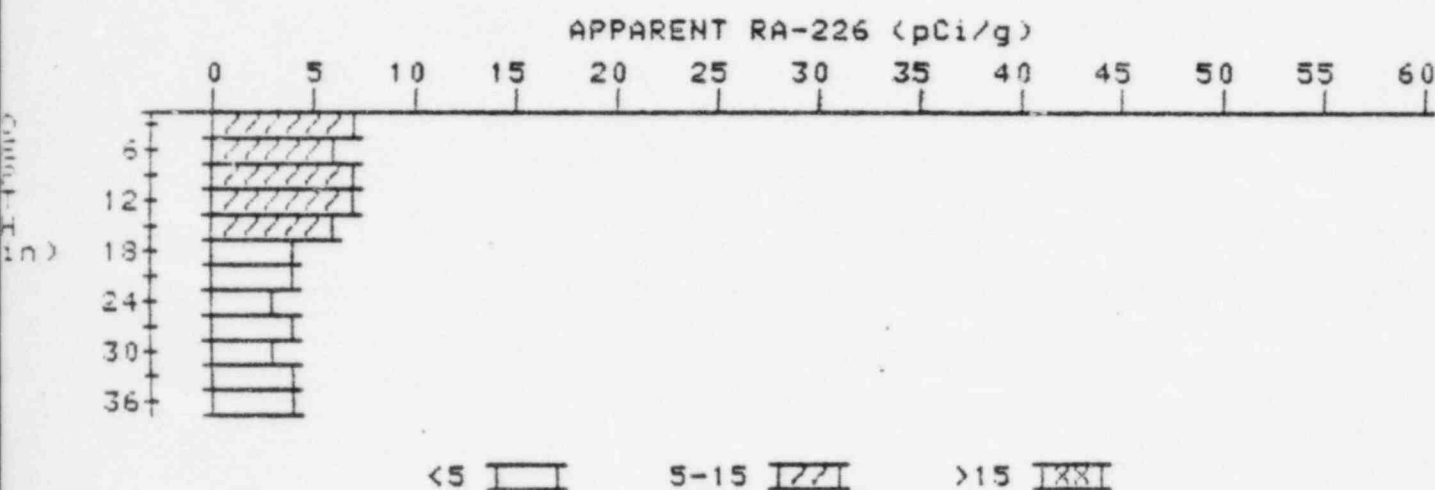


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.6	3.6
6	3.8	4.0
9	3.9	4.3
12	3.8	3.6
15	3.8	4.0
18	3.7	3.5
21	3.7	3.7
24	3.7	3.7
27	3.7	3.7
30	3.7	3.7
33	3.7	3.7



# APPARENT RADIUM-226 CONCENTRATION 17 DECONVOLUTION GRAPH

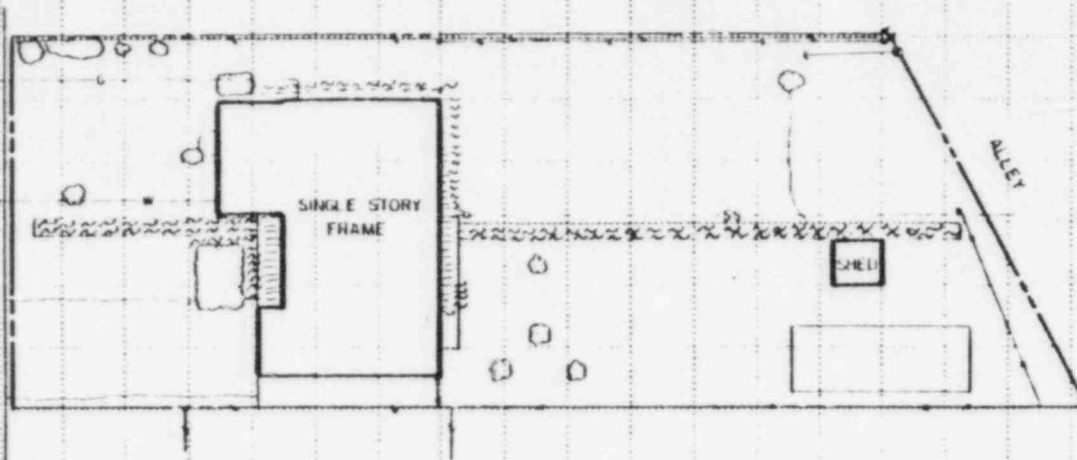
PROPERTY NUMBER: GJ-03077-R&MR *mg 7.85*  
HOLE NUMBER: 17  
LOCATION: 225235



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	6.8	6.8
6	6.5	5.8
9	6.6	7.1
12	6.4	7.5
15	5.6	5.8
18	4.7	4.2
21	4.1	3.6
24	3.8	3.4
27	3.7	3.7
30	3.6	3.2
33	3.7	3.7
36	3.8	3.8

30  
28  
26  
24  
22  
20  
18  
16  
14  
12  
10

ORCHARD AVENUE



SINGLE STORY  
FRAME

SHED

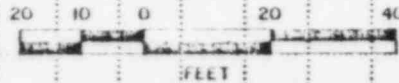
ALLEY

# LEGEND

- ~~~~~ GAMMA READINGS OF 150 TO 199 cps
- GAMMA READINGS OF 200 TO 500 cps
- XXXXXX GAMMA READINGS OF 500 cps

## EXTERIOR GAMMA SCAN

APPENDIX COPY



FEET

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, boundary, or other future improvement lines.

NO. DATE		REVISIONS		BY CH		RE APP		NO. DATE		REVISIONS		BY CH		RE APP	
RESIDENCE NO. OF OCCUPANTS															
NEW RESIDENCE NO. AND DATE															
<div style="display: flex; justify-content: space-between;"> <div> <p>DESIGNED BY: <i>[Signature]</i></p> <p>CHECKED BY: <i>[Signature]</i></p> <p>DRAWN BY: <i>[Signature]</i></p> <p>DATE: <i>[Date]</i></p> </div> <div> <p>REVIEWED BY: <i>[Signature]</i></p> <p>DATE: <i>[Date]</i></p> </div> </div>															
<div style="display: flex; justify-content: space-between;"> <div> <p>PROJECT NO. <i>[Number]</i></p> <p>LOCATION: <i>[Location]</i></p> </div> <div> <p>DATE: <i>[Date]</i></p> <p>SCALE: <i>[Scale]</i></p> </div> </div>															
<div style="display: flex; justify-content: space-between;"> <div> <p>US DEPARTMENT OF ENERGY</p> <p>GRAND JUNCTION AREA OFFICE, COLORADO</p> </div> <div> <p>2313 ORCHARD AVE</p> <p>GRAND JUNCTION, COLORADO</p> </div> </div>															
<div style="display: flex; justify-content: space-between;"> <div> <p>ALLIED</p> <p>Grand Junction Area Office</p> </div> <div> <p>CLATION NO. GJ-03077-MR</p> <p>ENC. NO. 0 6684-68-2-8</p> </div> </div>															