

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-00715-RS
ADDRESS: 1614 ELM AVENUE

AUGUST 1985

FOR

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT OFFICE

ALBUQUERQUE OPERATIONS OFFICE

DEPARTMENT OF ENERGY

BY

BENDIX FIELD ENGINEERING CORPORATION
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DOE PROJECT ENGINEER

DATE August 30, 1985

REA00715:REA-620

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PDR WASTE
WM-54 PDR

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-00715-RS, is a single-family residence located at 1614 Elm 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, 150 cu. yd.; interior, 0 cu. yd.

Estimated cost to perform remedial action is \$7,619. Remedial action on this property will take approximately 20 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 1614 Elm Avenue, Grand Junction, Colorado

Zoning: Residential (RSF-8)

Lot Size: Approximately 7,266 sf (0.17 acres)

Legal Description: Lot 9, Block 2, West Elmwood Plaza Subdivision, Section 12, T1S R1W, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 2 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:	Alley (gravel)
South:	Elm Avenue
East:	Single-family residence
West:	Single-family residence

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence with attached carport
Size:	Approximately 1,129 sf
Construction Date:	1937
Construction:	Wood-frame with stucco exterior
Foundation:	Concrete stemwall on spread footing
Footing Depth:	Approximately 13" to bottom of footing from grade
Basement:	None
Crawl Space:	Yes - under entire living area
Condition:	Fair

Other Structures:

Type:	Carport
Size:	Approximately 151 sf
Construction:	Wood-frame
Foundation:	Concrete slab-on-grade
Condition:	Good

Type:	Garage
Size:	Approximately 276 sf
Construction:	Wood-frame
Foundation:	Concrete slab-on-grade
Condition:	Good

Type:	Shed
Size:	Approximately 80 sf
Construction:	Prefabricated metal
Foundation:	None
Condition:	Good

Type:	Shed/storage
Size:	Approximately 214 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-00715-RS on July 2, 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) was conducted. These records indicate contamination in most of the yard around the primary structure.

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): 123 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): 22 uR/h

Interior gamma exposure-rate measurements are summarized in Appendix Table 3.2. Appendix Figure 3.2 shows interior exposure rates in Shed 1 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 Figure 3.3. 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 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: Wood
Direction From Primary Structure: North
Other Directions: Near north property line, beneath Shed 1
Total Depth of Contamination: Estimated at 12 inches
Comments: Shed 1 has a wood floor that is 3 inches above the soil. The depth of contamination is measured from the soil surface and is based on data collected in Area E.
Approximate Square Footage: 208
- (Area B) Surface Material: Lawn
Direction From Primary Structure: South and east
Total Depth of Contamination: 12 inches
Approximate Square Footage: 1,332
- (Area C) Surface Material: Lawn
Direction From Primary Structure: North and east
Total Depth of Contamination: 6 inches
Comments: Shed 2 should be checked for contamination after remedial action is performed on the exterior.
Approximate Square Footage: 960
- (Area D) Surface Material: Lawn
Direction From Primary Structure: Northwest
Total Depth of Contamination: 12 inches
Comments: Several large rose bushes are planted in this area.
Approximate Square Footage: 208
- (Area E) Surface Material: Lawn
Direction From Primary Structure: North
Total Depth of Contamination: 12 inches
Comments: There is a sprinkler system throughout the entire north yard.
Approximate Square Footage: 1,358
- (Area F) Surface Material: Road base
Direction From Primary Structure: North
Other Directions: In north alley
Total Depth of Contamination: 6 inches
Approximate Square Footage: 480

- (Area G) Surface Material: Soil
Direction From Primary Structure: West
Other Directions: Along west property line
Total Depth of Contamination: 12 inches
Comments: Several large vines and bushes are planted
in this area.
Approximate Square Footage: 144
- (Area H) Surface Material: Soil
Direction From Primary Structure: South and west
Other Directions: Inside brick and concrete planter
Total Depth of Contamination: Estimated at 6 inches
Comments: The brick planters have a concrete base that is
not contaminated. The depth of contamination is based
on the depth of the soil in the planters.
Approximate Square Footage: 95
- (Area I) Surface Material: Road base
Direction From Primary Structure: West
Other Directions: Driveway leading to carport
Total Depth of Contamination: 6 inches
Approximate Square Footage: 60

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-00715-RS, includes removal of all areas identified as containing radioactive material (as discussed in Section 3.5 and shown in Appendix Figures 3.4a and 3.4b) 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 \$7,619.

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-GMD4-84AL28460) 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	Interior Gamma Exposure Rates
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

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1614 Elm 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.		
1	141263	03	TC	8.1		*	North of Shed 1 DC = 6 inches Based on the deconvolution graph
		06	TC	6.0		*	
		09	TC	4.9		*	
		12	TC	4.2		*	
		15	TC	3.9		*	
		18	TC	3.8		*	
		21	TC	3.8		*	
		24	TC	3.7		*	
		27	TC	3.7		*	
		30	TC	3.7		*	
		33	TC	3.6		*	
		36	TC	3.5		*	
2	144285	00	DS	27.7		*	Northeast yard DC = 12 inches Based on the deconvolution graph
		03	TC	18.7		*	
		06	TC	15.6		*	
		09	TC	11.3		*	
		12	TC	8.2		*	
		15	TC	6.3		*	
		18	TC	5.2		*	
		21	TC	4.6		*	
		24	TC	4.3		*	
		27	TC	4.2		*	
		30	TC	4.0		*	
		33	TC	3.9		*	
3	146240	00	DS	23.4		*	Northwest yard
		06	DS	13.6		*	
		12	DS	2.0		*	
4	150233	03	TC	19.7		*	Northwest of Shed 2 DC = 12 inches Based on the deconvolution graph
		06	TC	19.8		*	
		09	TC	15.6		*	
		12	TC	11.0		*	
		15	TC	7.8		*	
		18	TC	6.0		*	
		21	TC	5.2		*	
		24	TC	4.6		*	
		27	TC	4.3		*	
		30	TC	4.1		*	
		33	TC	4.1		*	
		36	TC	4.1		*	

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.		
5	155265	00	DS	22.3		*	South of Shed 1
		06	DS	3.7		*	
		12	DS	1.7		*	
6	160280	00	DS	3.7		*	Southeast of Shed 1
		06	DS	1.5		*	
7	166275	00	DS	3.4		*	Southeast of Shed 1
		06	DS	2.3		*	
8	167257	00	DS	4.2		*	North yard
		06	DS	2.7		*	
9	170288	00	DS	13.4		*	East property line
		06	DS	8.9		*	
		09	DS	5.9		*	
		12	DS	2.3		*	
10	171242	00	DS	3.3		*	South of Shed 2
		06	DS	1.7		*	
11	182284	03	TC	12.6		*	Northeast of primary structure
		06	TC	10.6		*	
		09	TC	7.9		*	
		12	TC	6.1		*	DC = 12 inches Based on the deconvolution graph
		15	TC	5.0		*	
		18	TC	4.3		*	
		21	TC	4.1		*	
		24	TC	3.9		*	
		27	TC	3.9		*	
		30	TC	3.9		*	
		33	TC	3.8		*	
12	188277	00	DS	3.8		*	North yard
		06	DS	1.9		*	
13	189259	03	TC	3.6		*	North yard
		06	TC	3.7		*	
		09	TC	3.6		*	DC = 0 inches
		12	TC	3.6		*	
		15	TC	3.6		*	
		18	TC	3.7		*	
		21	TC	3.8		*	
		24	TC	3.8		*	
		27	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.		
13	189259	30	TC	3.7		*	
		33	TC	3.6		*	
		36	TC	3.6		*	
14	197287	00	DS	20.3		*	Northeast of primary structure
		06	DS	19.3		*	
15	198272	00	DS	1.9		*	North of primary structure
		06	DS	1.4		*	
16	200253	00	DS	5.7		*	North of primary structure
		06	DS	2.2		*	
17	200280	00	DS	4.3		*	North of primary structure
		06	DS	2.4		*	
18	207272	00	DS	1.8		*	North of primary structure
19	215285	00	DS	3.5		*	East of primary structure
		06	DS	2.5		*	
20	220230	00	DS	20.9		*	West of carport
		06	DS	7.3		*	
		12	DS	2.9		*	
21	223235	00	DS	2.5		*	West of primary structure
		03	TC	3.6		*	
		06	TC	3.6		*	
		09	TC	3.5		*	DC = 6 inches Based on all available data
		12	TC	3.6		*	
		15	TC	3.6		*	
		18	TC	3.6		*	
		21	TC	3.6		*	
		24	TC	3.5		*	
		27	TC	3.6		*	
		30	TC	3.5		*	
		33	TC	3.4		*	
22	225246	00	DS	24.0		*	West of primary structure
		06	DS	6.4		*	
23	230240	00	DS	<1.0		*	West of primary structure
		06	DS	<1.0		*	

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.		
24	232281	03	TC	23.8		*	East of primary structure
		06	TC	24.8		*	
		09	TC	18.2		*	
		12	TC	12.0		*	
		15	TC	7.8		*	DC = 12 inches Based on the deconvolution graph
		18	TC	5.8		*	
		21	TC	4.7		*	
		24	TC	4.2		*	
		27	TC	3.9		*	
		30	TC	3.8		*	
		33	TC	3.6		*	
		36	TC	3.7		*	
25	234230	03	TC	10.6		*	West of driveway
		06	TC	10.3		*	
		09	TC	8.2		*	
		12	TC	6.3		*	
		15	TC	5.0		*	DC = 12 inches Based on the deconvolution graph
		18	TC	4.5		*	
		21	TC	4.2		*	
		24	TC	4.0		*	
		27	TC	3.9		*	
		30	TC	3.8		*	
		33	TC	3.8		*	
26	241253	00	DS	32.8		*	South yard
		06	DS	4.1		*	
27	241266	00	DS	13.0		*	Gas line
		06	DS	2.3		*	
		12	DS	<1.0		*	
		18	DS	1.4		*	
28	250260	00	DS	10.8		*	South of primary structure
		06	DS	5.3		*	
		12	DS	1.1		*	
29	250270	03	TC	7.2		*	South yard
		06	TC	7.0		*	
		09	TC	6.0		*	
		12	TC	5.1		*	DC = 12 inches Based on the deconvolution graph
		15	TC	4.4		*	
		18	TC	4.1		*	
		21	TC	3.9		*	

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.		
29	250270	24	TC	3.7		*	
		27	TC	3.6		*	
		30	TC	3.5		*	
		33	TC	3.5		*	
		36	TC	3.5		*	
30	250290	00	DS	3.3		*	Southeast of primary structure
		06	DS	3.5		*	
		12	DS	<1.0		*	
31	265275	00	DS	6.4		*	South yard
		06	DS	3.8		*	
		12	DS	2.2		*	

Measurement Types:

GB = GAD-6 Borehole
 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 = 07-02-85
 Team Leader = TLC

Table 3.2

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)
Room A	05	17-18	17	05	17-18	18
Room B	01	16-16	16	01	16-16	16
Room C	01	16-16	16	01	16-16	16
Room D	06	16-20	17	06	16-21	18
Room E	03	18-22	20	03	18-22	20
Room F	06	16-18	17	06	16-18	17
Room G	09	14-19	17	09	16-21	18
Garage	*	*	*	*	16-17	*
Shed 1	06	16-25	21	05	18-29	23
Shed 2	02	18-22	20	02	17-18	18

* A walking gamma scan was performed to confirm the absence of interior contamination at this location. Exposure rates in Shed 1 are shown in Appendix Figure 3.2.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-0715-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					
Contaminated Fill					
A*	13 x 16	= 208	x 1.0	= 208	
B	27 x 44	= 1,188			
	16 x 9	= 144			
		<hr/>			
		1,332	x 1.0	= 1,332	
C	20 x 20	= 400			
	8 x 20	= 160			
	12 x 30	= 360			
	20 x 2	= 40			
		<hr/>			
		960	x 0.5	= 480	
D	13 x 16	= 208	x 1.0	= 208	
E	76 x 8	= 608			
	15 x 12	= 180			
	10 x 35	= 350			
	16 x 10	= 160			
	(2 x 15)2	= 60			
		<hr/>			
		1,358	x 1.0	= 1,358	
F	8 x 60	= 480	x 0.5	= 240	
G	38 x 3	= 114			
	15 x 2	= 30			
		<hr/>			
		144	x 1.0	= 144	
H	2 x 10	= 20			
	3 x 15	= 45			
	10 x 3	= 30			
		<hr/>			
		95	x 0.5	= 48	

Table 4.1
Area and Volume Calculations
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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>
I	8 x 5 =	40			
	10 x 2 =	20			
		<hr/>			
		60	x 0.5 =	30	
				<hr/>	
TOTAL VOLUME - EXTERIOR				= 4,048	= 4,048/27 = 150

*Note: Shed 1 in Area A is portable and shall be considered as exterior involvement.

See Appendix Figures 3.4a and 3.4b For Areas

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Table 4.2
Estimated Cost of Decontamination and Restoration
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EXTERIOR

Remove identified residual radioactive material

140 cy @ \$14.50/cy (machine-open)	\$ 2,030
10 cy @ \$44/cy (manual-open)	440

Replace areas with compacted roadbase

10 cy @ \$11.50/cy	115
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Replace areas with topsoil

140 cy @ \$9.50/cy	1,330
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Replace areas with sod

4,300 sf @ \$.30/sf	1,290
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Remove/replace shed

Lump sum	200
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Replace flowers, rose bushes

Lump sum	150
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TOTAL EXTERIOR	\$ 5,555
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TOTAL INTERIOR	0
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ACCESS CONTROL	250
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SUBTOTAL	\$ 5,805
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CONTINGENCY @ 5%	290
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SUBTOTAL	\$ 6,095
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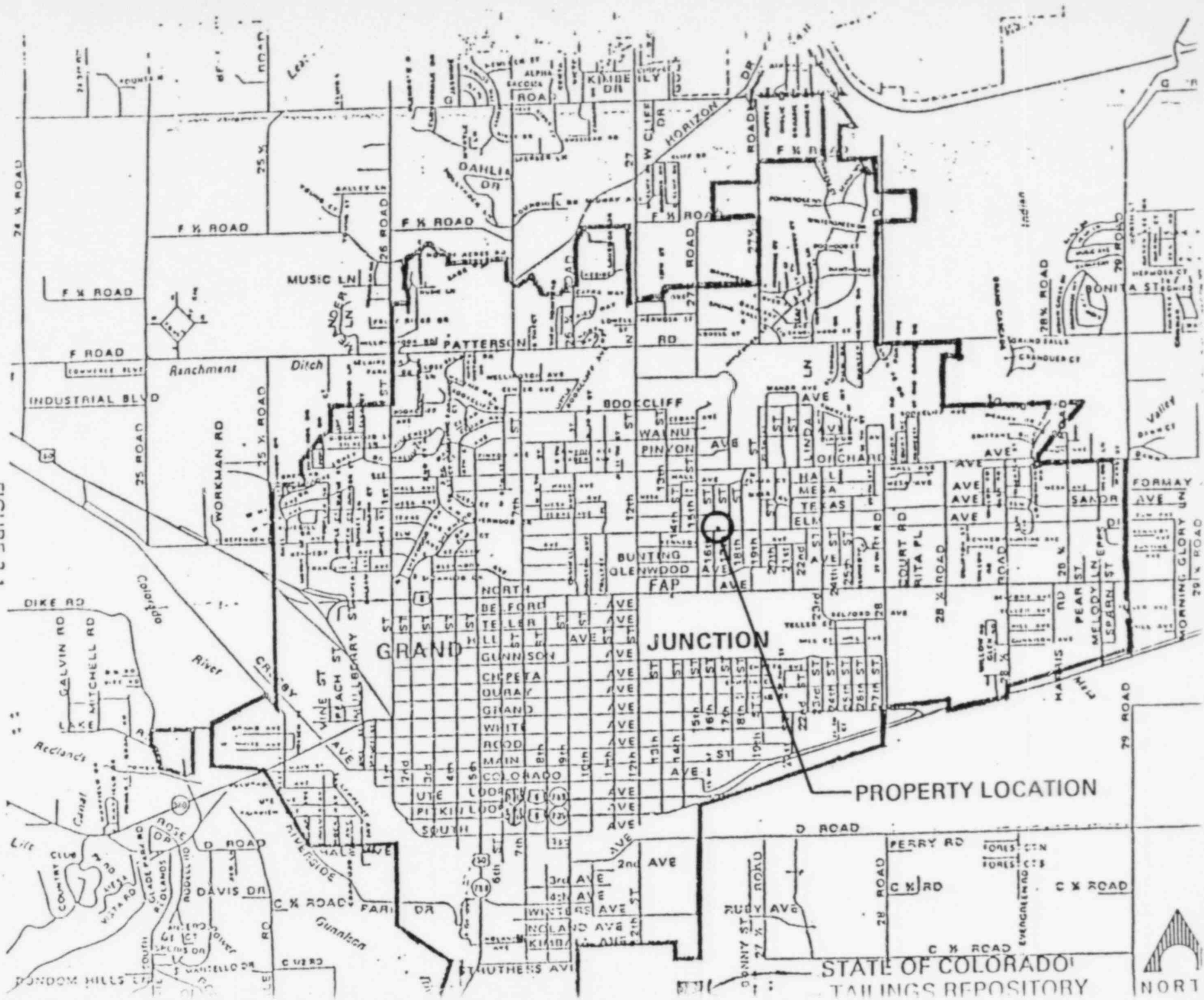
CONTRACTOR OVERHEAD & PROFIT @ 25%	1,524
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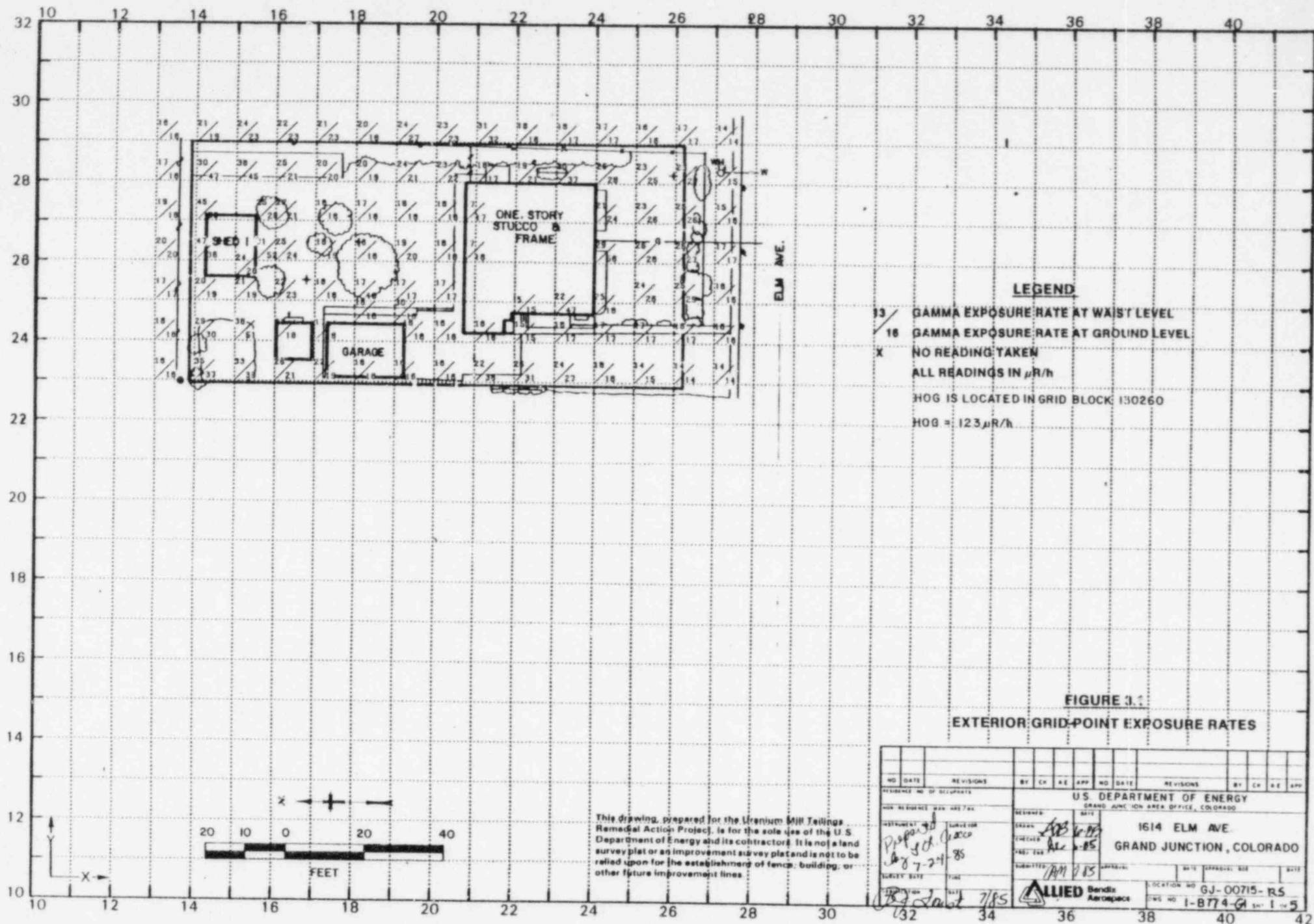
GRAND TOTAL	\$ 7,619
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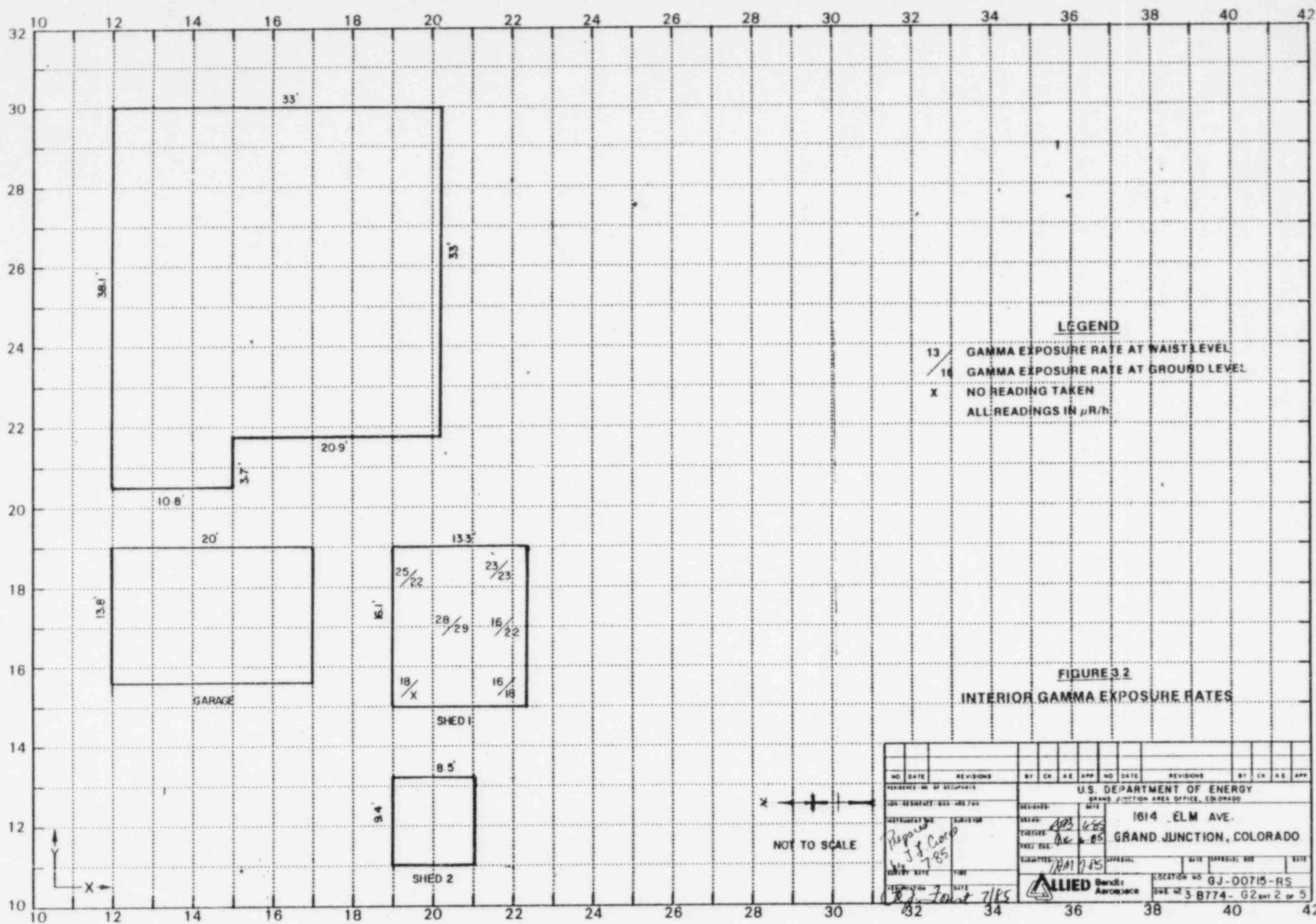
LR082885

REA00715/REA-620/LMR

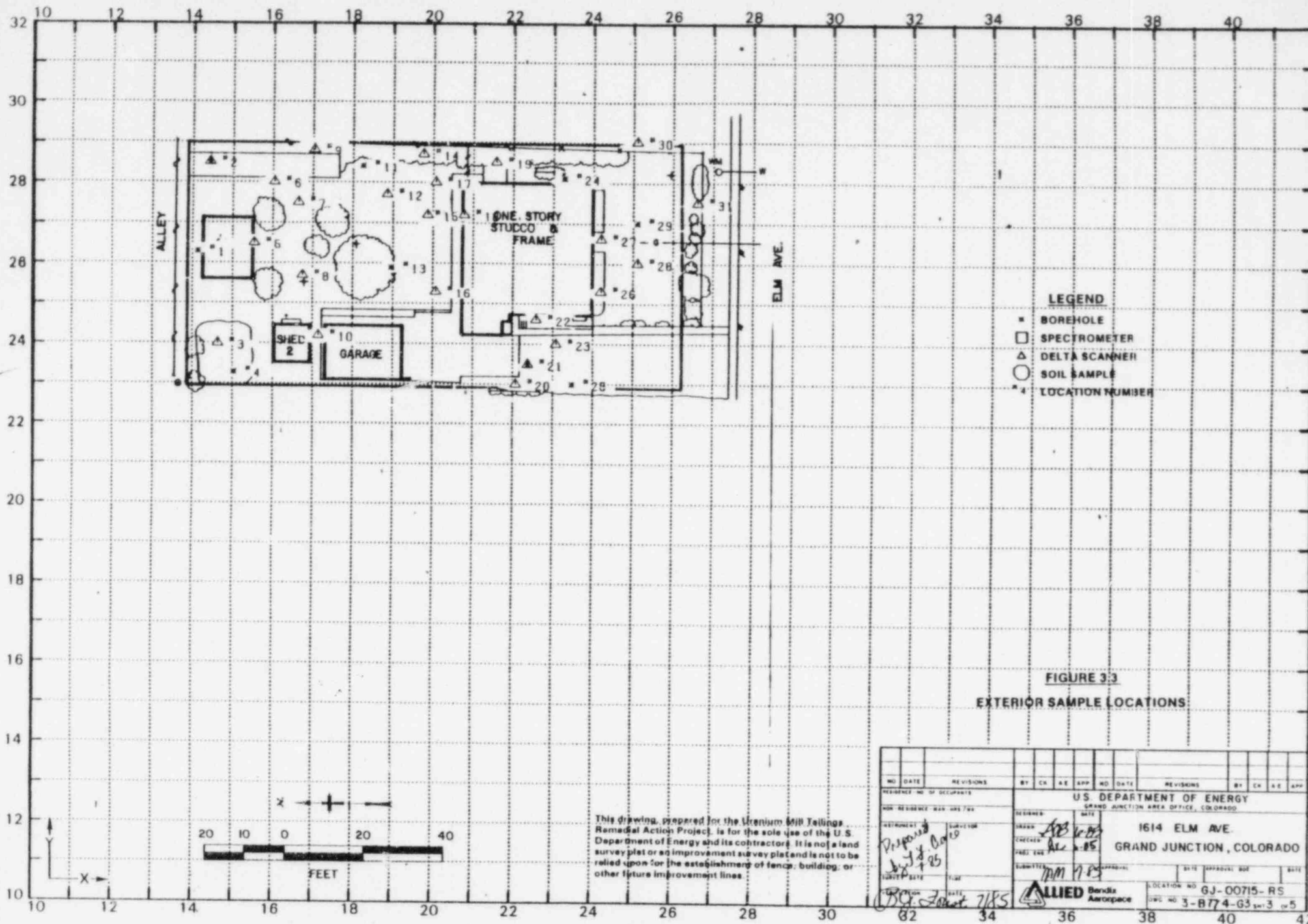
FIGURE 2.1
VICINITY MAP

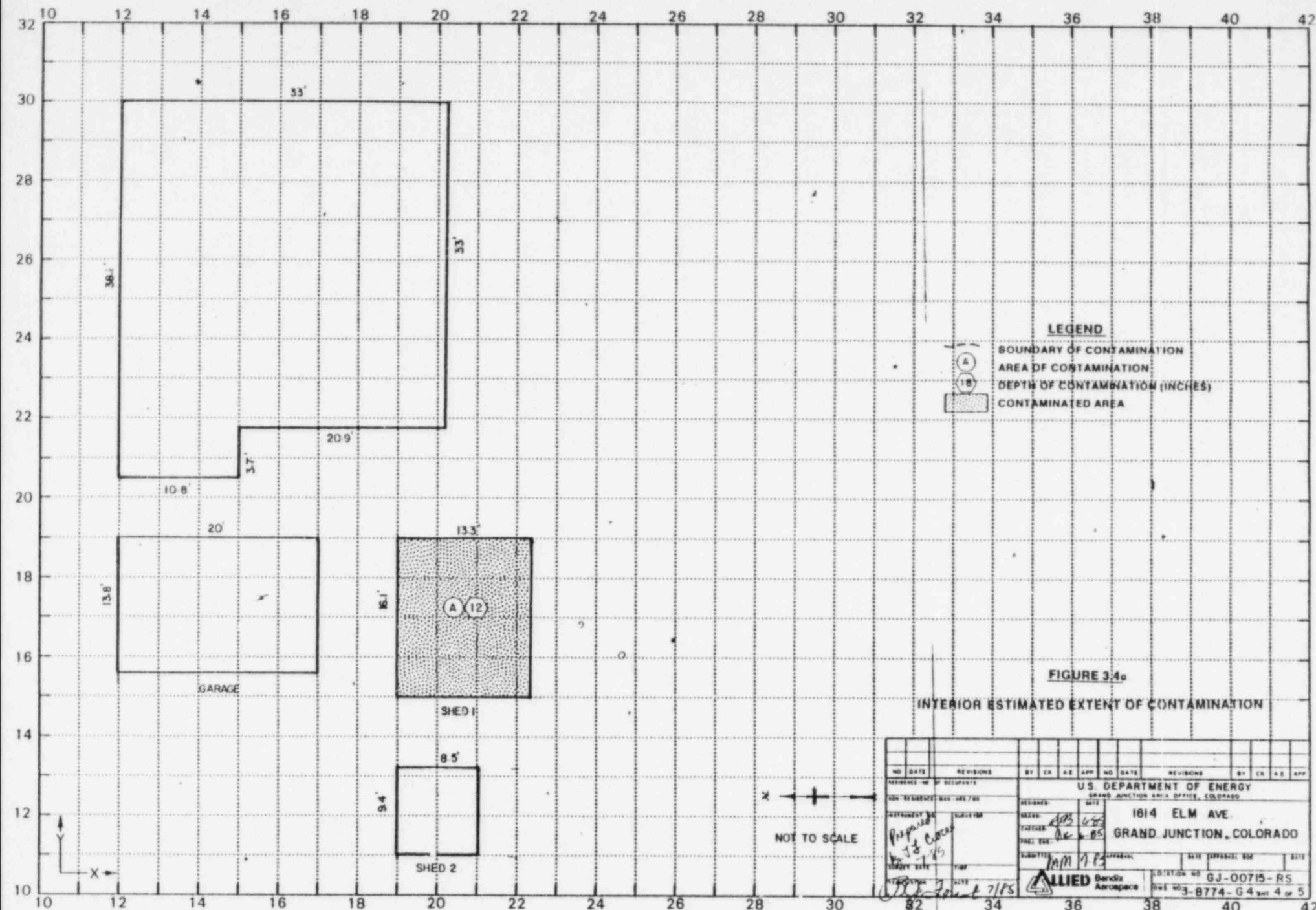


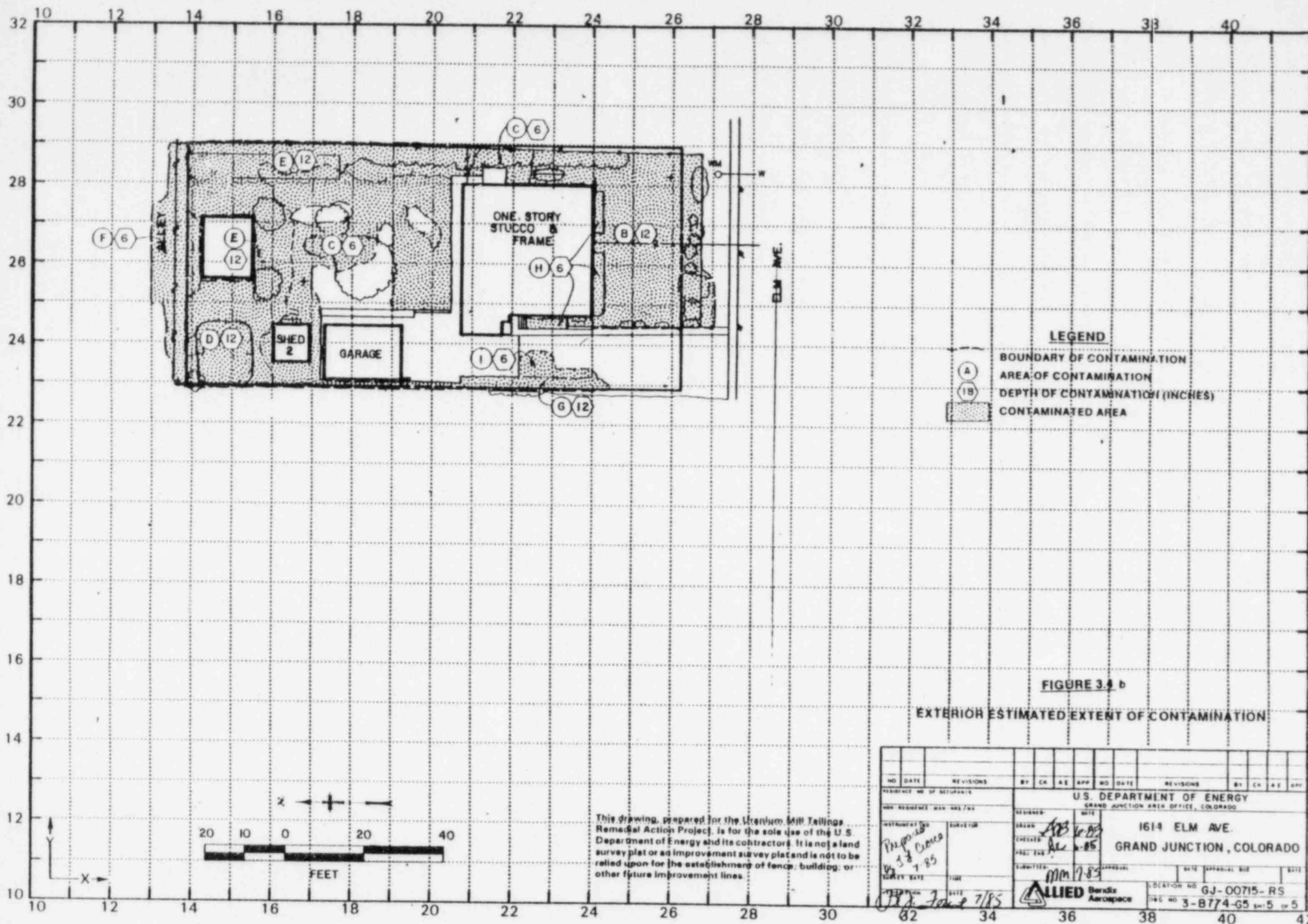




NO.	DATE	REVISIONS	BY	CHK	APP	NO.	DATE	REVISIONS	BY	CHK	APP
<p>U.S. DEPARTMENT OF ENERGY GRAND JUNCTION AREA OFFICE, COLORADO</p> <p>1614 ELM AVE. GRAND JUNCTION, COLORADO</p> <p>PROJECT NO. 3-B774-G2-SHT 2 OF 5</p> <p>LOCATION NO. GJ-00715-RS</p> <p>DATE 7/85</p> <p>ALLIED</p>											







3/85

DOE ID NO. GJ-00715-RS Date July 9, 1985

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

Official Survey Report

Property Address 1614 Elm Avenue
Property Owner Parkview Realtors
Address of Owner (if different from above) 1310 North Avenue
Report Prepared By Teri L. Ciocco

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

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

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

XXXXXX 1 In open areas.

XXXXXX 1 Under or around exterior improvements.

XXXXXX 1 Under or around a typically nonoccupied structure.

XXXXXX 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.

1XXXXX 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/CBH
J. Themelis, Mgr. UMTRA Proj. Off.

HIG = 22 uR/h
HOG = 123 uR/h

MEMORANDUM

ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado

Date: July 2, 1985

To: Files

From: Teri L. Ciocco

Subject: Team Leader Notes - GJ-00715-RS

Address: 1614 Elm Avenue; Vacant House

For key, contact Parkview Real Estate Company
1310 North Avenue
Telephone: 242-2771

Team Members

T. Ciocco (Team Leader)	M. Heronema
V. Young	K. Roemer
S. Larsen	S. Garcia
D. Clay	N. Wallace
D. Krabacher	M. Johnson
E. Herman	L. Kula
M. Dexter	G. Meeker
P. Hardy	H. Lucero
M. Gilfillan	

Instruments

See Equipment Summary sheet.

There was no historical data available on this property at the time the survey was conducted.

Spillover was checked on both the east and west boundaries. At 1630 Elm Avenue, no spillover was noted along the fence line in the south yard. The north yard was not checked because no one was at home at

Team Leader Notes
Teri L. Ciocco
GJ-00715-RS
July 2, 1985
Page 2

the time of the survey; therefore, permission for access was impossible to obtain. At 1610 Elm Avenue, (Department of Energy [DOE] Identification [ID] number GJ-11466), the west boundary, the occupants granted us permission to survey the adjoining fence line. They were unable to sign the consent form, as they were not the owners. They recommended we contact Strompolis Realty concerning any questions. Spillover information was compiled and turned in.

Dave Diss (Health and Safety) recommended we did not enter the crawl space as the entry into the crawl space presented a hazard because of glass, assorted clutter, and a low clearance. Investigation was performed by probing all entrances and side vents, a range was taken in counts per second (cps).

A revisit is planned to finish taking data.

All team members were alpha scanned before departing.

Revisit

Date: July 8, 1985

The remainder of the data was completed as planned.

The interior of the house and the crawl space was more thoroughly investigated to confirm that the high readings were due to shine. There was no contamination associated with the stucco foundation or crawl space.

The water line was investigated with the use of a scintillometer. The gas line was investigated with a delta scintillometer every 6 inches in order to obtain information concerning the surface contamination.

The north yard of the east adjacent property was checked for spillover, no elevated readings were found.

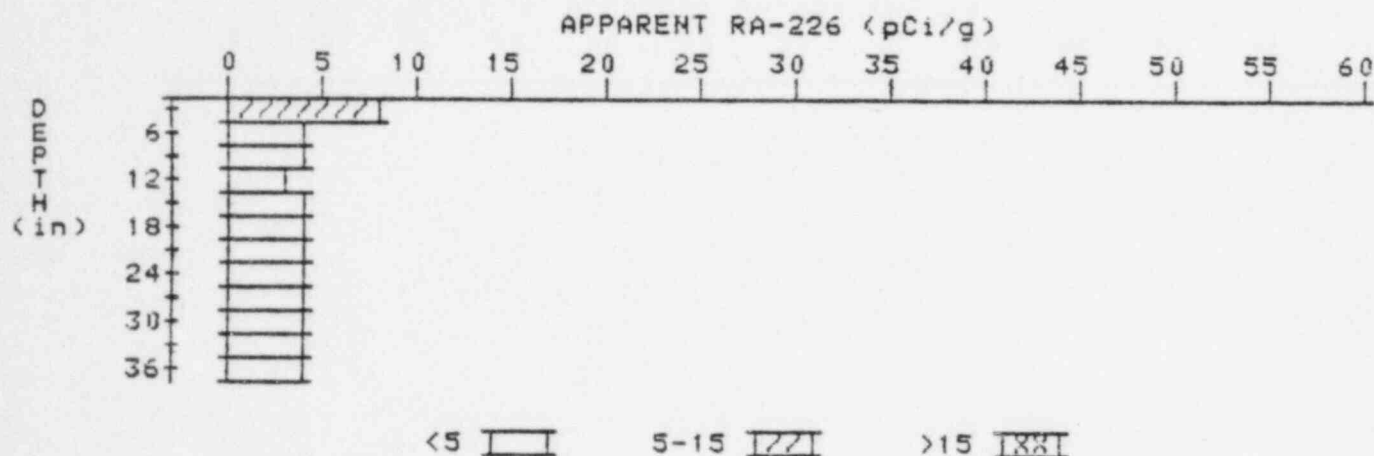
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

1

PROPERTY NUMBER: GJ-00715-RS

HOLE NUMBER: 1

LOCATION: 141263



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	8.1	8.1
6	6.0	4.2
9	4.9	4.2
12	4.2	3.5
15	3.9	3.5
18	3.8	3.6
21	3.8	4.0
24	3.7	3.5
27	3.7	3.7
30	3.7	3.9
33	3.6	3.6
36	3.5	3.5

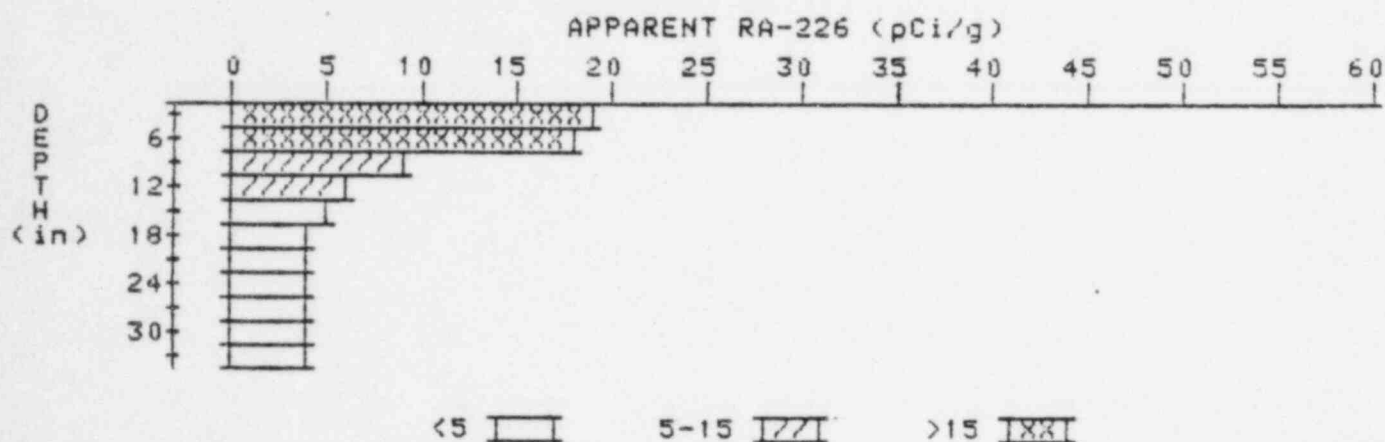
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

2

PROPERTY NUMBER: GJ-00715-RS

HOLE NUMBER: 2

LOCATION: 144285



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	18.7	18.7
6	15.6	17.7
9	11.3	9.2
12	8.2	6.1
15	6.3	4.9
18	5.2	4.3
21	4.6	4.1
24	4.3	3.9
27	4.2	4.4
30	4.0	3.8
33	3.9	3.9

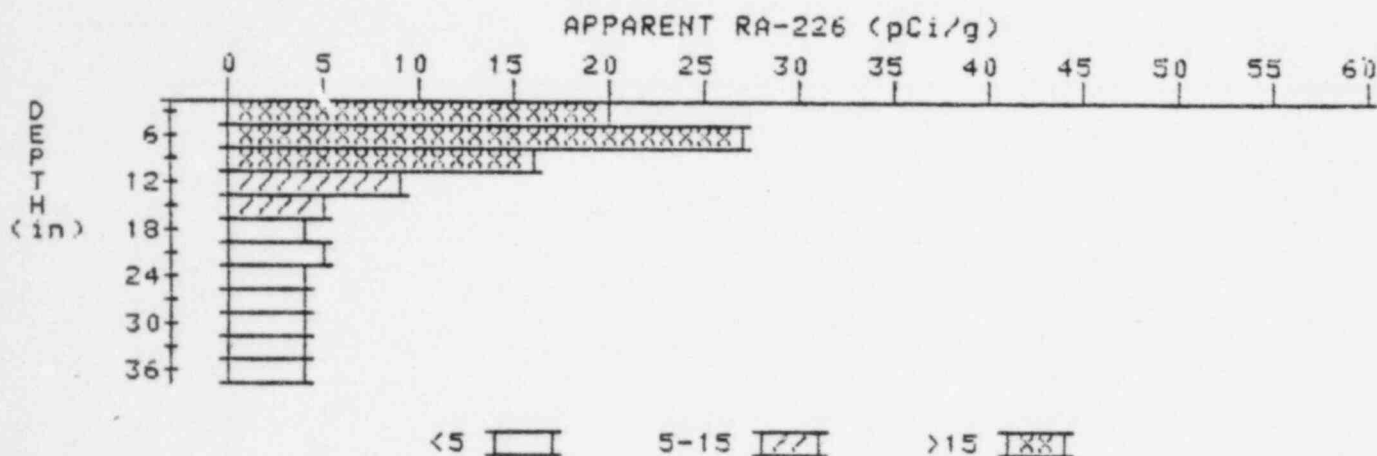
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

4

PROPERTY NUMBER: GJ-00715-RS

HOLE NUMBER: 4

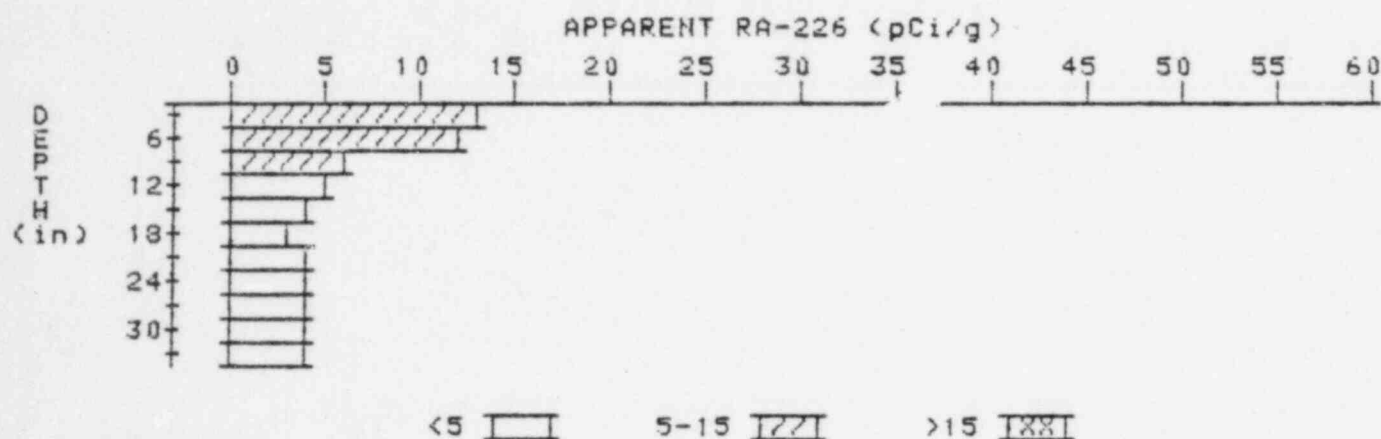
LOCATION: 150233



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	19.7	19.7
6	19.8	27.4
9	15.6	16.3
12	11.0	9.5
15	7.8	5.3
18	6.0	4.2
21	5.2	4.8
24	4.6	4.1
27	4.3	4.1
30	4.1	3.7
33	4.1	4.1
36	4.1	4.1

APPARENT RADIUM-226 CONCENTRATION 11 DECONVOLUTION GRAPH

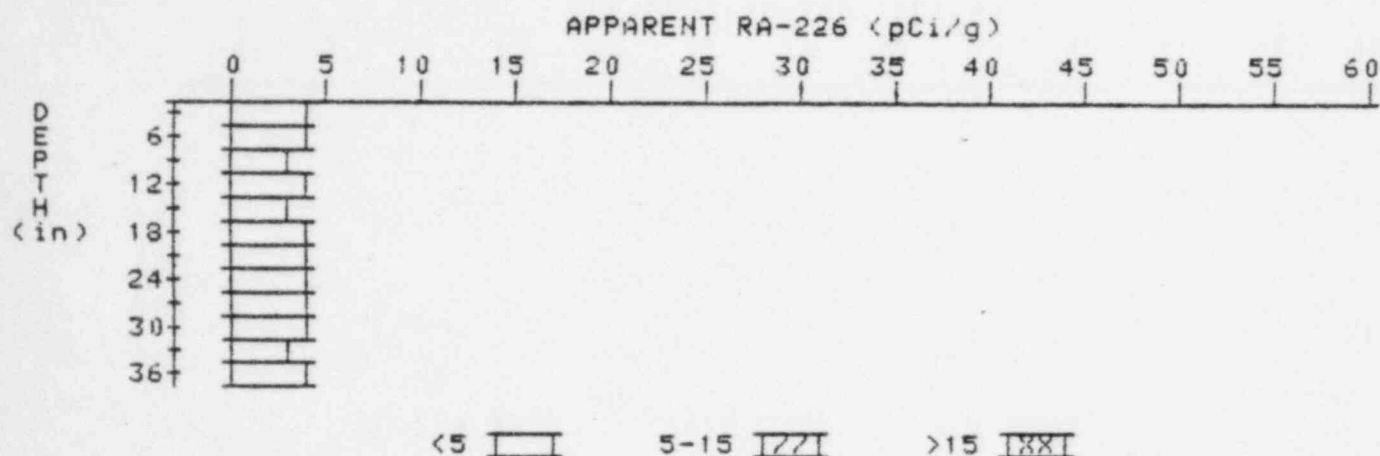
PROPERTY NUMBER: GJ-00715-RS
HOLE NUMBER: 11
LOCATION: 182294



Depth (in)	Apparent Radium-226 (pCi/g)	Apparent Radium-226 (pCi/g)
	Undeconvolved	Deconvolved
3	12.6	12.6
6	10.6	11.8
9	7.9	6.3
12	6.1	4.9
15	5.0	4.3
18	4.3	3.4
21	4.1	4.1
24	3.9	3.5
27	3.9	3.9
30	3.9	4.1
33	3.8	3.8

APPARENT RADIUM-226 CONCENTRATION 13 DECONVOLUTION GRAPH

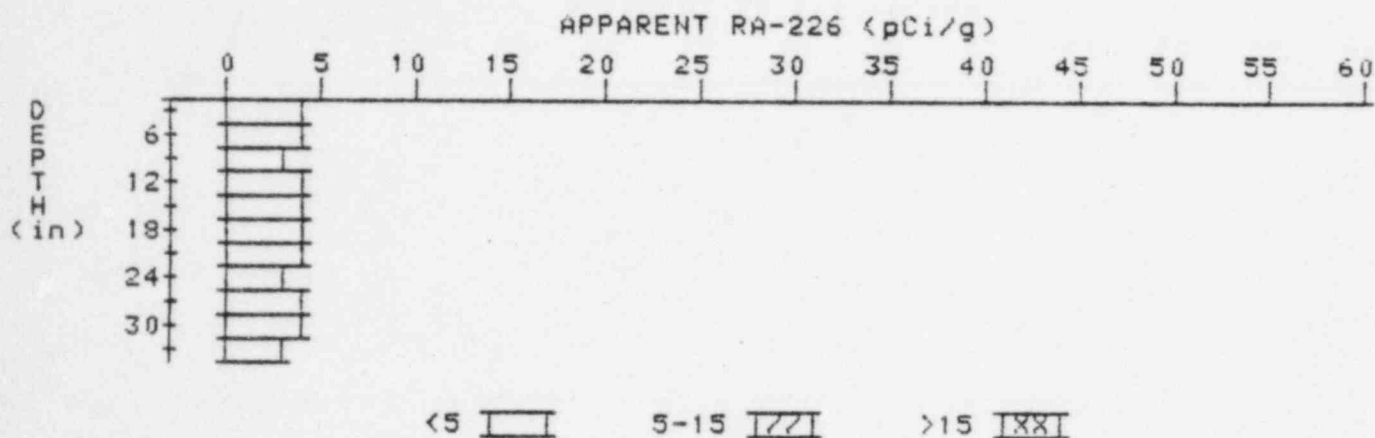
PROPERTY NUMBER: GJ-00715-RS
HOLE NUMBER: 13
LOCATION: 189259



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.6	3.6
6	3.7	4.1
9	3.6	3.4
12	3.6	3.6
15	3.6	3.4
18	3.7	3.7
21	3.8	4.0
24	3.8	4.0
27	3.7	3.5
30	3.7	3.9
33	3.6	3.4
36	3.6	3.6

APPARENT RADIUM-226 CONCENTRATION 21 DECONVOLUTION GRAPH

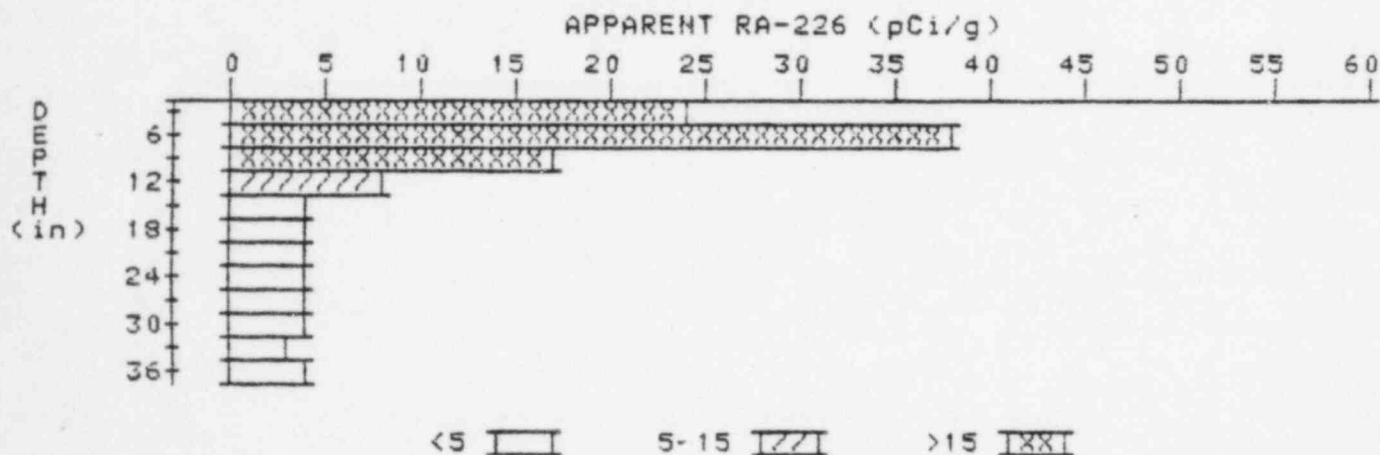
PROPERTY NUMBER: GJ-00715-RS
HOLE NUMBER: 21
LOCATION: 223235



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.6	3.6
6	3.6	3.8
9	3.5	3.1
12	3.6	3.8
15	3.6	3.6
18	3.6	3.6
21	3.6	3.8
24	3.5	3.1
27	3.6	4.0
30	3.5	3.5
33	3.4	3.4

APPARENT RADIUM-226 CONCENTRATION 24 DECONVOLUTION GRAPH

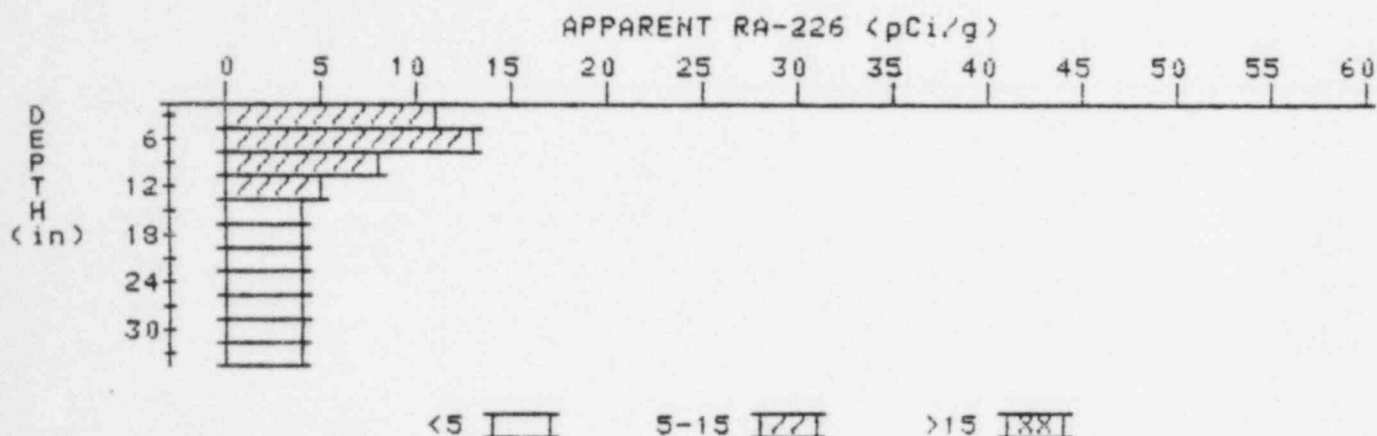
PROPERTY NUMBER: GJ-00715-RS
HOLE NUMBER: 24
LOCATION: 232281



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	23.8	23.8
6	24.8	38.3
9	18.2	17.5
12	12.0	8.4
15	7.8	3.9
18	5.8	4.2
21	4.7	3.6
24	4.2	3.8
27	3.9	3.5
30	3.8	4.0
33	3.6	3.1
36	3.7	3.7

APPARENT RADIUM-226 CONCENTRATION 25 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-00715-RS
HOLE NUMBER: 25
LOCATION: 234230

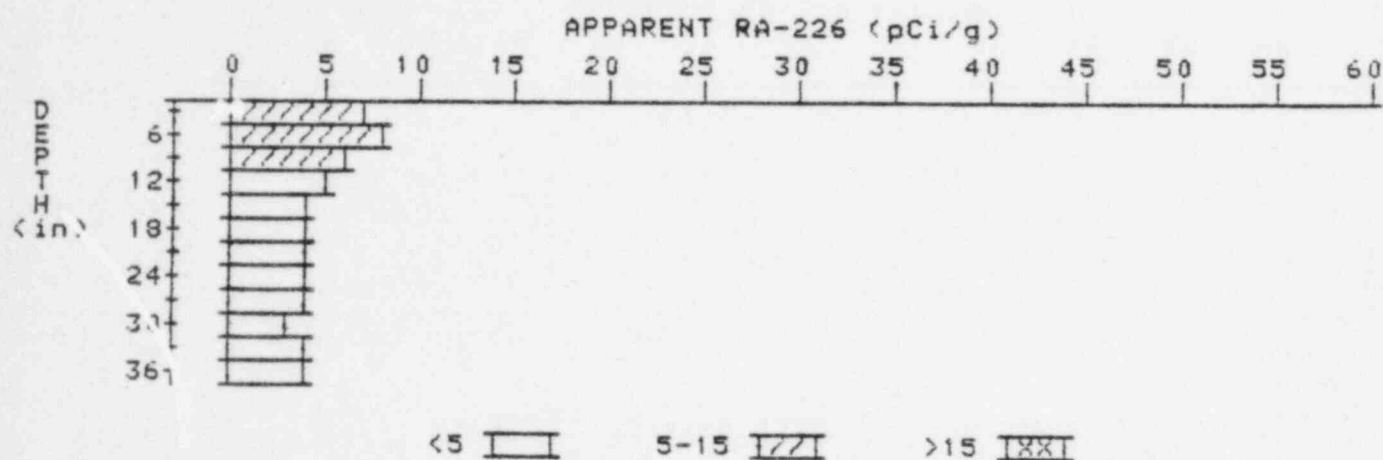


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	10.6	10.6
6	10.3	13.5
9	8.2	7.8
12	6.3	5.2
15	5.0	3.6
18	4.5	4.1
21	4.2	4.0
24	4.0	3.8
27	3.9	3.9
30	3.8	3.6
33	3.8	3.8

APPARENT RADIUM-226 CONCENTRATION 29

DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-00715-RS
HOLE NUMBER: 29
LOCATION: 250270



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	7.2	7.2
6	7.0	6.4
9	6.0	5.8
12	5.1	4.7
15	4.4	3.7
18	4.1	3.9
21	3.9	3.9
24	3.7	3.5
27	3.6	3.6
30	3.5	3.3
33	3.5	3.5
36	3.5	3.5

