

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-07924-RS
ADDRESS: 103 MIRIAM 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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APPROVED BY

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DATE

June 14, 1985

REA07924:REA-508

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-07924-RS, is a single-family residence located at 103 Miriam 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, 48 cu. yd.; interior, 0.01 cu. yd.

Estimated cost to perform remedial action, including dislocation when applicable, is \$3,139. Remedial action on this property will take approximately 10 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 103 Miriam Avenue, Grand Junction, Colorado

Zoning: Residential (RSF-8)

Lot Size: Approximately 9,600 sf (0.3 acre)

Legal Description: Lot 2, Block 4, Artesia Heights Replat,
City of Grand Junction, County of Mesa, State
of Colorado.

Point of Reference: This property is located approximately 1
mile south 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:	Miriam Avenue
West:	Alley

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-family residence
Size:	Approximately 1,612 sf
Construction Date:	1955
Construction:	Wood-frame
Foundation:	Slab-on-grade
Footing Depth:	Approximately 6" to bottom of footing from grade
Basement:	None
Crawl Space:	None
Condition:	Fair

Other Structures:

Type:	Garage
Size:	Approximately 626 sf
Construction:	Wood-frame
Foundation:	Slab-on-grade
Condition:	Fair

General Remarks:

The back yard is landscaped. 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-07924-RS on April 24, 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) Laboratory (ORNL) was conducted. These records indicate that building permit surveys were done for a carport in 1976 and for a garage in 1982. No indication of mill tailings were found on these sites. The Bendix spillover inclusion survey indicates contamination along the north property boundary.

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 17 uR/h
Highest Outside Gamma Reading (HOG): 54 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: 12 to 16 uR/h
Highest Inside Gamma Reading (HIG): 20 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 3.3 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 3.3 and 3.4. 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 Figures 3.5a and 3.5b 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) A 6-inch x 24-inch x 2-inch concrete step in the primary structure is contaminated (approximately 1 sf).
- (AREA B) West of the garage, the depth of contamination is 12 inches (approximately 90 sf).
- (AREA C) A small deposit at the southwest corner of the garage is contaminated to a depth of 9 inches (approximately 20 sf).
- (AREA D) South of the garage, contamination extends to a depth of 6 inches (approximately 18 sf).
- (AREA E) East of the garage, contamination extends to a depth of 6 inches (approximately 44 sf).
- (AREA F) Adjacent to the south side of Area E, contamination is 18 inches deep (approximately 21 sf).
- (AREA G) A small deposit southeast of Areas E and F is contaminated to a depth of 12 inches (approximately 9 sf).
- (AREA H) A grass-covered area northwest of the primary structure has contamination extending to a 9-inch depth (approximately 81 sf).
- (AREA I) The soil in the tulip bed northwest of the primary structure is contaminated to an estimated depth of 9 inches, based on information collected in Area H (approximately 49 sf).
- (AREA J) Along the north property line, northeast of the primary structure, the soil is contaminated to a depth of 6 inches (approximately 378 sf).

- (AREA K) At the northeast corner of the property, contamination is 24 inches deep (approximately 165 sf).
- (AREA L) Adjacent to the east side of Area K, the soil is contaminated to a 42-inch depth (approximately 72 sf).
- (AREA M) Contamination extends to a depth of 36 inches south of Area L (approximately 40 sf).
- (AREA N) Contaminated soil south of Area K is 6 inches deep (approximately 260 sf).

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-07924-RS, includes removal of all areas identified as containing radioactive material (as discussed in Section 3.5 and shown in Appendix Figures 3.5a and 3.5b) 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 \$3,139.

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 3.3	Interior Gamma Exposure Rates and Sample Location
Figure 3.4	Exterior Sample Locations
Figure 3.5a	Interior Estimated Extent of Contamination
Figure 3.5b	Exterior Estimated Extent of Contamination

Official Survey Report

Memo of Understanding

Team Leader Notes

Deconvolution Graphs (Apparent Radium-226 Concentration)

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.		
2	137261	03	TC	14.3		*	Backyard
		06	TC	11.2		*	
		09	TC	8.0		*	DC = 12 inches
		12	TC	6.1		*	Based on the
		15	TC	5.0		*	deconvolution graph
		18	TC	4.5		*	
		21	TC	4.2		*	
		24	TC	4.0		*	
		27	TC	3.8		*	
		30	TC	3.7		*	
		33	TC	3.6		*	
		36	TC	3.5		*	
3	150240	00	DS	1.7		*	Driveway
		06	DS	1.8		*	Background
		00-06	SS			1.7	
		03	TC	3.8		*	
		06	TC	4.1		*	
		09	TC	4.4		*	
		12	TC	4.3		*	DC = 0 inches
		15	TC	4.3		*	
		18	TC	4.2		*	
		21	TC	4.1		*	
		24	TC	3.9		*	
		27	TC	3.9		*	
4	160252	03	TC	8.5		*	South of garage
		06	TC	7.5		*	
		09	TC	5.8		*	DC = 9 inches
		12	TC	5.1		*	Based on the
		15	TC	4.5		*	deconvolution graph
		18	TC	4.2		*	
		21	TC	4.0		*	
		24	TC	3.9		*	
		27	TC	3.8		*	
		30	TC	3.7		*	
		33	TC	3.7		*	
		36	TC	3.5		*	
		39	TC	3.5		*	
5	168240	00	DS	4.0		*	Driveway near garage
		06	DS	2.0		*	
		00-06	SS			6.6	DC = 6 inches

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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	187255	00	DS	11.5		*	East of garage
		06	DS	20.3		*	
		12	DS	2.9		*	DC = 18 inches
		18	DS	1.5		*	
7	188258	00	DS	12.0			
		06	DS	2.1		*	East of garage
		00-06	SS			15.3	DC = 6 inches
8	195255	00	DS	5.8		*	DC = 12 inches
		06	DS	5.6		*	
		12	DS	1.6		*	
9	205288	00	DS	9.5		*	By tulip garden
		03	TC	8.2		*	
		06	TC	6.9		*	DC = 9 inches
		09	TC	5.7		*	Based on the
		12	TC	5.0		*	deconvolution graph
		15	TC	4.7		*	
		18	TC	4.4		*	
		21	TC	4.2		*	
		24	TC	4.0		*	
		27	TC	3.8		*	
		30	TC	3.7		*	
		33	TC	3.5		*	
		36	TC	3.4		*	
10	205296	00	DS	<1.0		*	By north fence
11	210240	03	TC	3.1		*	
		06	TC	3.8		*	Leach field
		09	TC	4.3		*	
		12	TC	4.8		*	DC = 0 inches
		15	TC	5.1		*	
		18	TC	5.1		*	
		21	TC	4.8		*	
		24	TC	4.3		*	
		27	TC	4.3		*	
		30	TC	4.1		*	
		33	TC	3.9		*	
		36	TC	3.7		*	
		39	TC	3.6		*	
		42	TC	3.4		*	

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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.		
12	210273	00	DS	1.6		*	
		12	DS	1.5		*	Horizontal under foundation
13	212287	00	DS	22.9		*	In tulip bed
14	215296	00	DS	2.5		*	By north fence
		00-06	SS			2.6	
15	230248	03	TC	3.5		*	South foundation
		06	TC	3.9		*	
		09	TC	4.1		*	DC = 0 inches
		12	TC	4.2		*	
		15	TC	4.2		*	
		18	TC	4.2		*	
		21	TC	4.0		*	
		24	TC	3.8		*	
		27	TC	3.6		*	
		30	TC	3.4		*	
		33	TC	3.3		*	
16	235298	03	TC	3.8		*	Water line
		06	TC	3.9		*	
		09	TC	4.0		*	DC = 0 inches
		12	TC	4.1		*	
		15	TC	4.0		*	
		18	TC	4.1		*	
		21	TC	4.0		*	
		24	TC	4.0		*	
		27	TC	3.8		*	
		30	TC	3.8		*	
		33	TC	3.7		*	
		36	TC	3.7		*	
		39	TC	3.6		*	
		42	TC	3.3		*	
		45	TC	3.1		*	
		48	TC	3.0		*	
		51	TC	3.0		*	
		54	TC	2.9		*	
		57	TC	2.9		*	
		60	TC	2.9		*	

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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.		
17	238259	03	TC	3.6		*	Sewer line
		06	TC	3.9		*	
		09	TC	4.1		*	DC = 0 inches
		12	TC	4.1		*	
		15	TC	4.1		*	
		18	TC	3.9		*	
		21	TC	3.8		*	
		24	TC	3.6		*	
		27	TC	3.4		*	
		30	TC	3.3		*	
		33	TC	3.2		*	
		36	TC	3.2		*	
		39	TC	3.2		*	
		42	TC	3.1		*	
		45	TC	3.1		*	
		48	TC	3.1		*	
		51	TC	3.2		*	
		54	TC	3.2		*	
		57	TC	3.2		*	
18	240240	03	TC	3.4		*	Septic tank
		06	TC	3.5		*	
		09	TC	3.7		*	DC = 0 inches
		12	TC	3.8		*	
		15	TC	3.8		*	
		18	TC	3.7		*	
		21	TC	3.5		*	
		24	TC	3.4		*	
		27	TC	3.3		*	
		30	TC	3.3		*	
		33	TC	3.3		*	
		36	TC	3.1		*	
		39	TC	3.1		*	
19	245298	00	DS	2.0		*	North of primary structure
		06	DS	2.7		*	
		00-06	SS			4.7	DC = 6 inches Based on all available data
		03	TC	3.6		*	
		06	TC	3.8		*	
		09	TC	4.0		*	
		12	TC	4.1		*	
		15	TC	4.2		*	

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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.		
19	245298	18	TC	4.4		*	
		21	TC	4.3		*	
		24	TC	4.0		*	
		27	TC	3.8		*	
		30	TC	3.5		*	
		33	TC	3.4		*	
20	261280	00	DS	1.6		*	East foundation
		00-06	SS			2.0	
		03	TC	3.7		*	DC = 0 inches
		06	TC	3.9		*	
		09	TC	4.2		*	
		12	TC	4.2		*	
		15	TC	4.2		*	
		18	TC	4.1		*	
		21	TC	4.1		*	
		24	TC	3.9		*	
		27	TC	3.6		*	
		30	TC	3.4		*	
		33	TC	3.3		*	
		36	TC	3.1		*	
		39	TC	3.0		*	
21	265301	03	TC	5.7		*	North of primary structure
		06	TC	5.1		*	
		09	TC	4.8		*	
		12	TC	4.7		*	DC = 6 inches
		15	TC	4.6		*	Based on the deconvolution graph
		18	TC	4.5		*	
		21	TC	4.4		*	
		24	TC	4.3		*	
		27	TC	3.9		*	
		30	TC	4.1		*	
22	269295	00	DS	1.4		*	East yard
		00-06	SS			4.9	DC = 6 inches
23	270265	03	TC	3.7		*	Gas line
		06	TC	4.0		*	
		09	TC	4.2		*	DC = 0 inches
		12	TC	4.2		*	
		15	TC	4.3		*	

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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.		
23	270265	18	TC	4.2		*	
		21	TC	4.0		*	
		24	TC	3.5		*	
24	275297	00	DS	2.2		*	East yard
		06	DS	1.8		*	DC = 6 inches
		00-06	SS			5.1	
25	283285	03	TC	3.0		*	Front yard
		06	TC	3.4		*	
		09	TC	3.8		*	DC = 0 inches
		12	TC	4.0		*	
		15	TC	4.0		*	
		18	TC	3.9		*	
		21	TC	3.8		*	
		24	TC	3.7		*	
		27	TC	3.4		*	
		30	TC	3.3		*	
		33	TC	3.1		*	
26	290300	36	TC	3.0		*	
		03	TC	10.0		*	Front yard by
		06	TC	8.3		*	street
		09	TC	6.8		*	
		12	TC	6.1		*	DC = 24 inches
		15	TC	5.9		*	Based on the
		18	TC	5.7		*	deconvolution graph
		21	TC	5.6		*	
		24	TC	5.4		*	
		27	TC	5.2		*	
		30	TC	5.1		*	
		33	TC	5.1		*	
		36	TC	5.1		*	
27	291281	39	TC	5.0		*	
		42	TC	4.7		*	
		00	DS	6.8		*	Front yard by
		06	DS	2.2		*	street
							DC = 6 inches
28	295250	03	TC	3.3		*	Near street
		06	TC	3.8		*	
		09	TC	4.0		*	DC = 0 inches
		12	TC	4.3		*	
		15	TC	4.2		*	

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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.		
28	292250	18	TC	4.3		*	
		21	TC	4.3		*	
		24	TC	4.0		*	
		27	TC	3.8		*	
		30	TC	3.4		*	
29	300250	03	TC	3.3		*	East of driveway
		06	TC	3.5		*	
		09	TC	3.8		*	DC = 0 inches
		12	TC	3.8		*	
		15	TC	3.8		*	
		18	TC	3.9		*	
		21	TC	4.0		*	
		24	TC	4.1		*	
		27	TC	4.1		*	
		30	TC	4.1		*	
		33	TC	4.1		*	
30	301285	03	TC	10.9		*	By street
		06	TC	11.5		*	
		09	TC	12.9		*	DC = 36 inches
		12	TC	14.9		*	Based on the
		15	TC	15.2		*	deconvolution graph
		18	TC	13.3		*	
		21	TC	11.4		*	
		24	TC	10.6		*	
		27	TC	9.7		*	
		30	TC	8.5		*	
		33	TC	7.6		*	
		36	TC	6.6		*	
		39	TC	5.9		*	
		42	TC	5.2		*	
		45	TC	4.8		*	
		48	TC	4.2		*	
31	301290	03	TC	12.5		*	By street
		06	TC	15.1		*	
		09	TC	14.6		*	
		12	TC	14.4		*	
		15	TC	15.6		*	
		18	TC	18.5		*	
		21	TC	21.4		*	

Radium Concentrations at Exterior Locations

DOE ID No. GJ-07924-RS

103 Miriam Avenue

Page 8 of 8

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
31	301290	24	TC	22.9		*	DC = 42 inches
		27	TC	23.3		*	Based on the
		30	TC	24.5		*	deconvolution graph
		33	TC	23.1		*	
		36	TC	19.6		*	
		39	TC	15.3		*	
		42	TC	12.6		*	
		45	TC	11.9		*	
		48	TC	9.9		*	
		51	TC	7.4		*	
		54	TC	5.6		*	
		57	TC	4.6		*	
32	304290	03	TC	4.4		*	East of house
		06	TC	4.6		*	by street
		09	TC	4.8		*	
		12	TC	5.1		*	DC = 0 inches
		15	TC	5.2		*	
		18	TC	5.3		*	Shine from nearby
		21	TC	5.2		*	deposit
		24	TC	5.2		*	
		27	TC	5.1		*	
		30	TC	4.8		*	

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 = 04-24-85
Team Leader = BJF

Radium Concentrations at Interior Locations

DOE ID No. GJ-07924-RS

130 Miriam 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	7.8		*	Doorway
		00-01	SS			138.3	Concrete chips

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 = 04-24-85
Team Leader = BJF

Table 3.3

Summary of Interior Gamma Exposure Rates

DOE ID No. GJ-07924-RS

103 Miriam Avenue

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	*	*	*	*	12-20	*
GARAGE	*	*	*	*	12-14	*

* The CDH data indicates the absence of interior contamination at this property. This information was investigated by performing a walking gamma scan. These areas and the ranges of gamma measurements are shown in Appendix Figure 3.3.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-07924-RS

Page 1 of 2

<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
INTERIOR					
	Concrete				
A	2 x 0.5 =	1	x 0.2 =	0.2	
	Volume of Concrete			= 0.2	= 0.2/27 = 0.01
	TOTAL VOLUME - INTERIOR				= 0.01
EXTERIOR					
	Concrete				
*C	13 x 6 =	78	x 0.3 =	23	
	Volume of Concrete			23	= 23/27 = 1
	Contaminated Fill				
B	10 x 9 =	90	x 1.0 =	90	
C	5 x 4 =	20	x 0.8 =	16	
D	6 x 3 =	18	x 0.5 =	9	
E	11 x 4 =	44	x 0.5 =	22	
F	7 x 3 =	21	x 1.5 =	32	
G	3 x 3 =	9	x 1.0 =	9	
H	9 x 9 =	81	x 0.8 =	65	
I	7 x 7 =	49	x 0.8 =	39	
J	42 x 9 =	378	x 0.5 =	189	
K	15 x 11 =	165	x 2.0 =	330	
L	8 x 9 =	72	x 3.5 =	252	

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-07924-RS

Page 2 of 2

<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
M	5 x 8 =	40	x 3.0 =	120	
N	20 x 13 =	260	x 0.5 =	130	
	Volume of Fill			= 1,303	= 1,303/27 = 48
	TOTAL VOLUME - EXTERIOR			=	<u>49</u>
	TOTAL VOLUME - INTERIOR			=	0.01

* A portion of Area C is beneath concrete; the assumed depth of the concrete is 4 inches.

See Appendix Figures 3.5a and 3.5b For Areas

=====

INTERIOR

Remove/replace concrete step	
Lump sum	\$ 50
	<hr/>
TOTAL INTERIOR	\$ 50

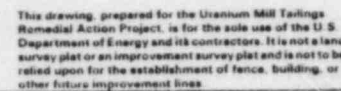
EXTERIOR


Remove identified residual radioactive material	
5 cy @ \$44/cy (manual-open)	220
43 cy @ \$14.50/cy (machine-open)	624
Replace areas with compacted roadbase	
18 cy @ \$11.50/cy	207
Replace areas with topsoil	
30 cy @ \$9.50/cy	285
Remove/replace concrete	
78 sf @ \$3/sf	234
Remove/replace flagstone walk	
24 sf @ \$7/sf	168
	<hr/>
TOTAL EXTERIOR	\$ 1,738
TOTAL INTERIOR	50
ACCESS CONTROL	250
	<hr/>
SUBTOTAL	\$ 2,038
CONTINGENCY @ 10%	204
	<hr/>
SUBTOTAL	\$ 2,242
CONTRACTOR OVERHEAD & PROFIT @ 40%	897
	<hr/>
GRAND TOTAL	\$ 3,139

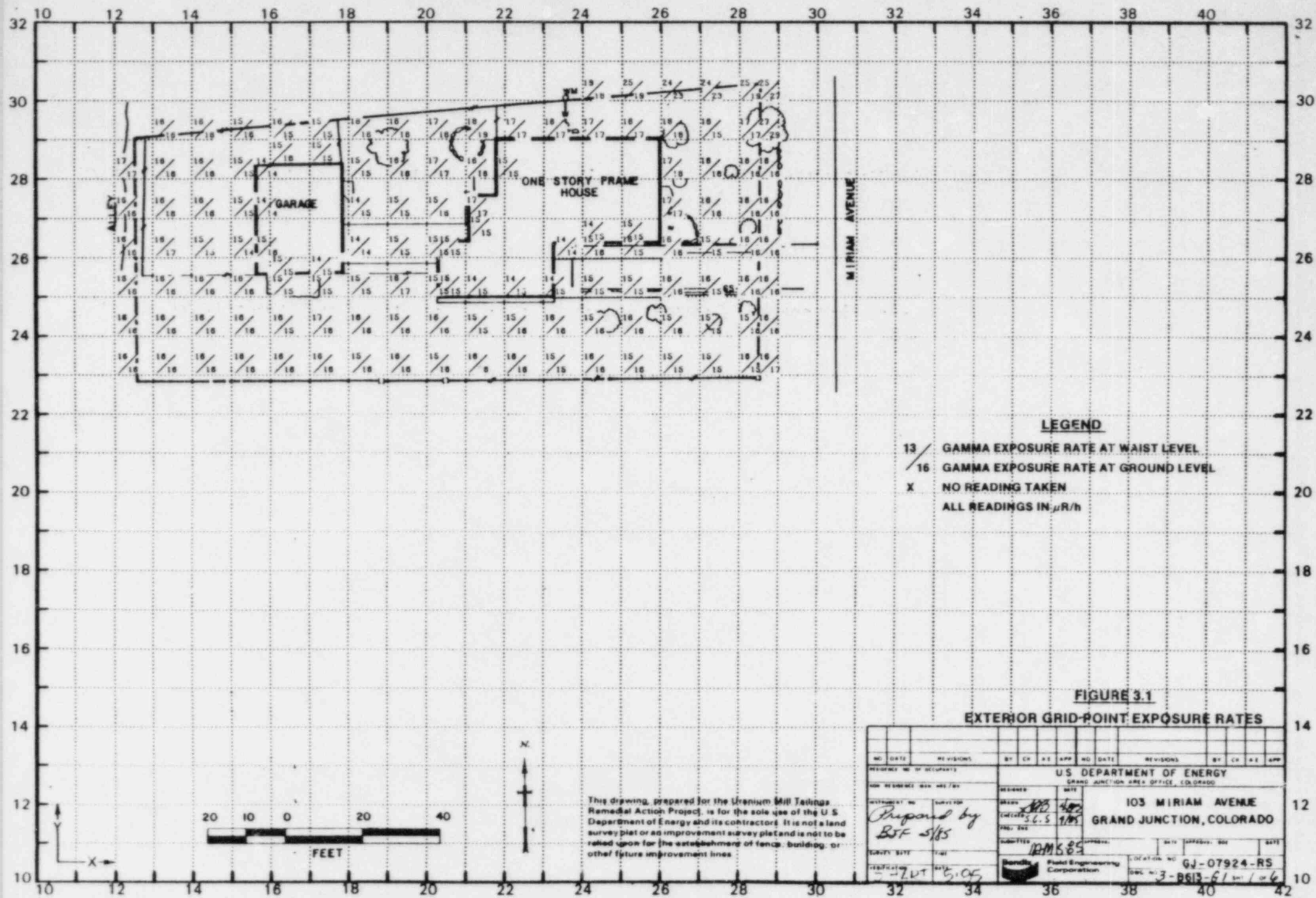
Hand-drawn site plan of a residential property. The plan shows a large rectangular lot with several structures and landscaping features. Key elements include:

- Structures:** A "GARAGE" (222 sq ft) on the left, a "ONE STORY FRAME" house (415 sq ft) in the center, and a "PLANTER" (1003 sq ft) on the right. There is also a "19' CLOTHES WIRE" and a "GAS METER 27.3".
- Landscaping:** Various trees and plants are marked, including "JUNIPER", "ROCKS W/MORTAR", "GRASS", "FLAGSTONE W/MORTAR", "ROCKS & WOOD", "EVERGREEN", "ROCK PLANT", "11-2' TREES", and "3-2' TREES".
- Utilities:** "OH PHONE OH CTN", "OH ELEC", "CONC YUTTEE", and "4x4 FENCE POST" are indicated.
- Dimensions:** Numerous measurements are provided, such as "22.2", "28.2", "29.3", "100.3", "14.2", "7.0", "14.6", "30.0", "14.0", "27.3", "27.4", "22.0", "75.0", "20.2", "100.6", "73.5", "100.0", "100.2", "100.3", "100.4", "100.5", "100.6", "100.7", "100.8", "100.9", "101.0", "101.1", "101.2", "101.3", "101.4", "101.5", "101.6", "101.7", "101.8", "101.9", "102.0", "102.1", "102.2", "102.3", "102.4", "102.5", "102.6", "102.7", "102.8", "102.9", "103.0", "103.1", "103.2", "103.3", "103.4", "103.5", "103.6", "103.7", "103.8", "103.9", "104.0", "104.1", "104.2", "104.3", "104.4", "104.5", "104.6", "104.7", "104.8", "104.9", "105.0", "105.1", "105.2", "105.3", "105.4", "105.5", "105.6", "105.7", "105.8", "105.9", "106.0", "106.1", "106.2", "106.3", "106.4", "106.5", "106.6", "106.7", "106.8", "106.9", "107.0", "107.1", "107.2", "107.3", "107.4", "107.5", "107.6", "107.7", "107.8", "107.9", "108.0", "108.1", "108.2", "108.3", "108.4", "108.5", "108.6", "108.7", "108.8", "108.9", "109.0", "109.1", "109.2", "109.3", "109.4", "109.5", "109.6", "109.7", "109.8", "109.9", "110.0", "110.1", "110.2", "110.3", "110.4", "110.5", "110.6", "110.7", "110.8", "110.9", "111.0", "111.1", "111.2", "111.3", "111.4", "111.5", "111.6", "111.7", "111.8", "111.9", "112.0", "112.1", "112.2", "112.3", "112.4", "112.5", "112.6", "112.7", "112.8", "112.9", "113.0", "113.1", "113.2", "113.3", "113.4", "113.5", "113.6", "113.7", "113.8", "113.9", "114.0", "114.1", "114.2", "114.3", "114.4", "114.5", "114.6", "114.7", "114.8", "114.9", "115.0", "115.1", "115.2", "115.3", "115.4", "115.5", "115.6", "115.7", "115.8", "115.9", "116.0", "116.1", "116.2", "116.3", "116.4", "116.5", "116.6", "116.7", "116.8", "116.9", "117.0", "117.1", "117.2", "117.3", "117.4", "117.5", "117.6", "117.7", "117.8", "117.9", "118.0", "118.1", "118.2", "118.3", "118.4", "118.5", "118.6", "118.7", "118.8", "118.9", "119.0", "119.1", "119.2", "119.3", "119.4", "119.5", "119.6", "119.7", "119.8", "119.9", "120.0", "120.1", "120.2", "120.3", "120.4", "120.5", "120.6", "120.7", "120.8", "120.9", "121.0", "121.1", "121.2", "121.3", "121.4", "121.5", "121.6", "121.7", "121.8", "121.9", "122.0", "122.1", "122.2", "122.3", "122.4", "122.5", "122.6", "122.7", "122.8", "122.9", "123.0", "123.1", "123.2", "123.3", "123.4", "123.5", "123.6", "123.7", "123.8", "123.9", "124.0", "124.1", "124.2", "124.3", "124.4", "124.5", "124.6", "124.7", "124.8", "124.9", "125.0", "125.1", "125.2", "125.3", "125.4", "125.5", "125.6", "125.7", "125.8", "125.9", "126.0", "126.1", "126.2", "126.3", "126.4", "126.5", "126.6", "126.7", "126.8", "126.9", "127.0", "127.1", "127.2", "127.3", "127.4", "127.5", "127.6", "127.7", "127.8", "127.9", "128.0", "128.1", "128.2", "128.3", "128.4", "128.5", "128.6", "128.7", "128.8", "128.9", "129.0", "129.1", "129.2", "129.3", "129.4", "129.5", "129.6", "129.7", "129.8", "129.9", "130.0", "130.1", "130.2", "130.3", "130.4", "130.5", "130.6", "130.7", "130.8", "130.9", "131.0", "131.1", "131.2", "131.3", "131.4", "131.5", "131.6", "131.7", "131.8", "131.9", "132.0", "132.1", "132.2", "132.3", "132.4", "132.5", "132.6", "132.7", "132.8", "132.9", "133.0", "133.1", "133.2", "133.3", "133.4", "133.5", "133.6", "133.7", "133.8", "133.9", "134.0", "134.1", "134.2", "134.3", "134.4", "134.5", "134.6", "134.7", "134.8", "134.9", "135.0", "135.1", "135.2", "135.3", "135.4", "135.5", "135.6", "135.7", "135.8", "135.9", "136.0", "136.1", "136.2", "136.3", "136.4", "136.5", "136.6", "136.7", "136.8", "136.9", "137.0", "137.1", "137.2", "137.3", "137.4", "137.5", "137.6", "137.7", "137.8", "137.9", "138.0", "138.1", "138.2", "138.3", "138.4", "138.5", "138.6", "138.7", "138.8", "138.9", "139.0", "139.1", "139.2", "139.3", "139.4", "139.5", "139.6", "139.7", "139.8", "139.9", "140.0", "140.1", "140.2", "140.3", "140.4", "140.5", "140.6", "140.7", "140.8", "140.9", "141.0", "141.1", "141.2", "141.3", "141.4", "141.5", "141.6", "141.7", "141.8", "141.9", "142.0", "142.1", "142.2", "142.3", "142.4", "142.5", "142.6", "142.7", "142.8", "142.9", "143.0", "143.1", "143.2", "143.3", "143.4", "143.5", "143.6", "143.7", "143.8", "143.9", "144.0", "144.1", "144.2", "144.3", "144.4", "144.5", "144.6", "144.7", "144.8", "144.9", "145.0", "145.1", "145.2", "145.3", "145.4", "145.5", "145.6", "145.7", "145.8", "145.9", "146.0", "146.1", "146.2", "146.3", "146.4", "146.5", "146.6", "146.7", "146.8", "146.9", "147.0", "147.1", "147.2", "147.3", "147.4", "147.5", "147.6", "147.7", "147.8", "147.9", "148.0", "148.1", "148.2", "148.3", "148.4", "148.5", "148.6", "148.7", "148.8", "148.9", "149.0", "149.1", "149.2", "149.3", "149.4", "149.5", "149.6", "149.7", "149.8", "149.9", "150.0", "150.1", "150.2", "150.3", "150.4", "150.5", "150.6", "150.7", "150.8", "150.9", "151.0", "151.1", "151.2", "151.3", "151.4", "151.5", "151.6", "151.7", "151.8", "151.9", "152.0", "152.1", "152.2", "152.3", "152.4", "152.5", "152.6", "152.7", "152.8", "152.9

FIGURE 2.2 SITE PLAN

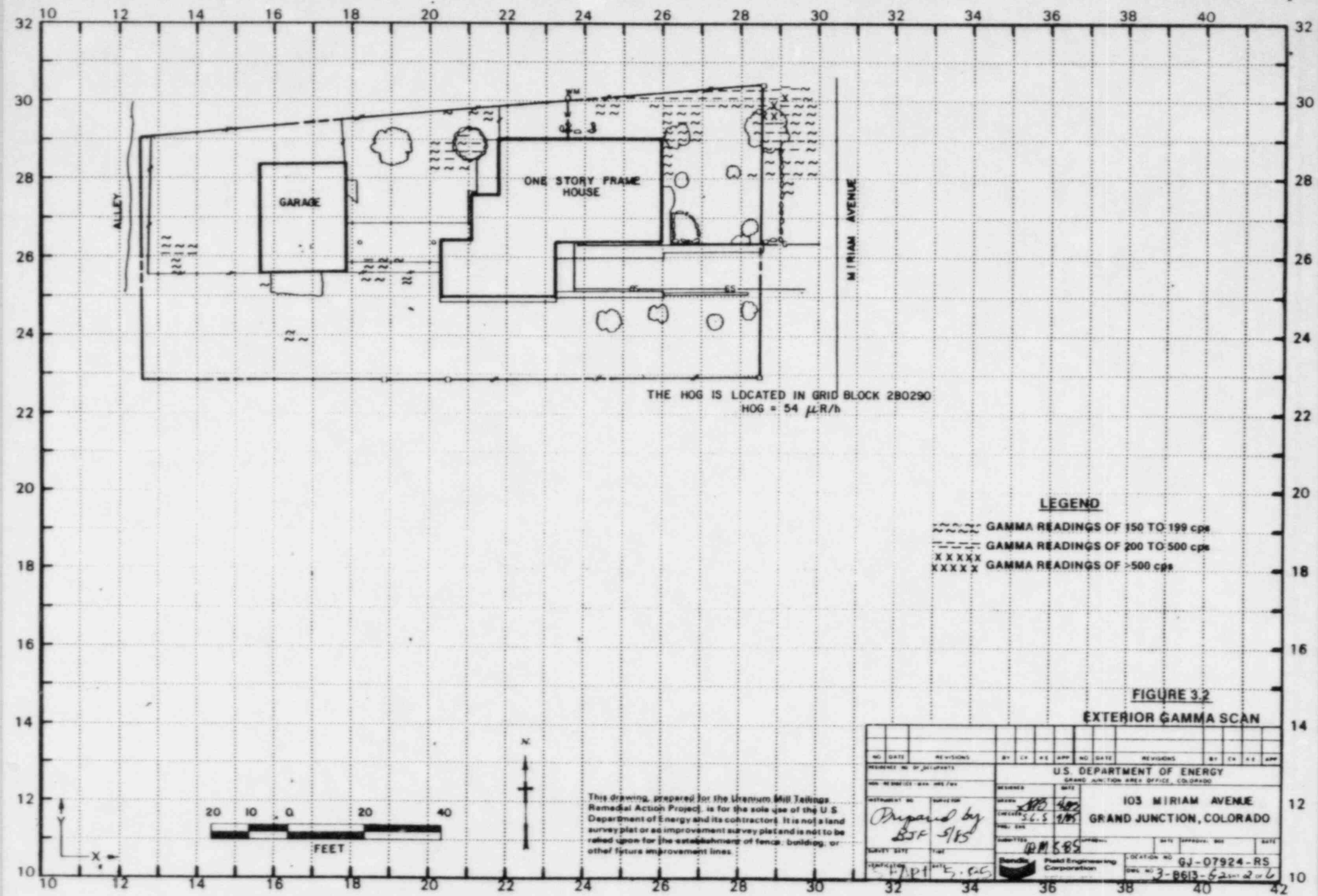


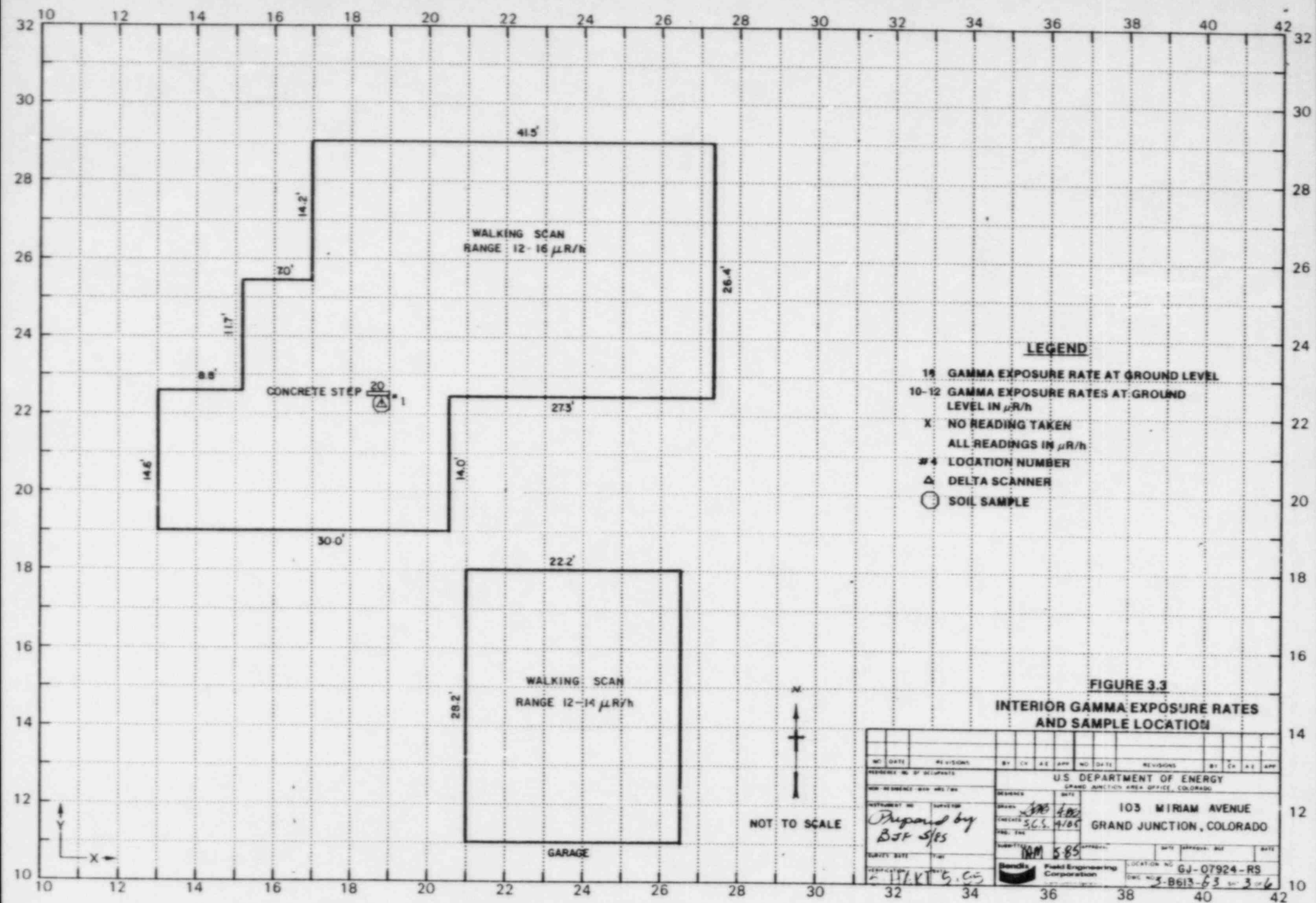
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION PROJECT OFFICE, COLORADO		DOE ID NO GJ 07924 RS
ADDRESS 103 MIRIAM AVENUE GRAND JUNCTION, COLO		 Allied Building Corporation Grand Junction Office
SURV RLB/410BS DRAFT TJ/415BS		CR/AF 4-16-88
DRAWING NO 3 C G13 F1		SHEET 1 OF



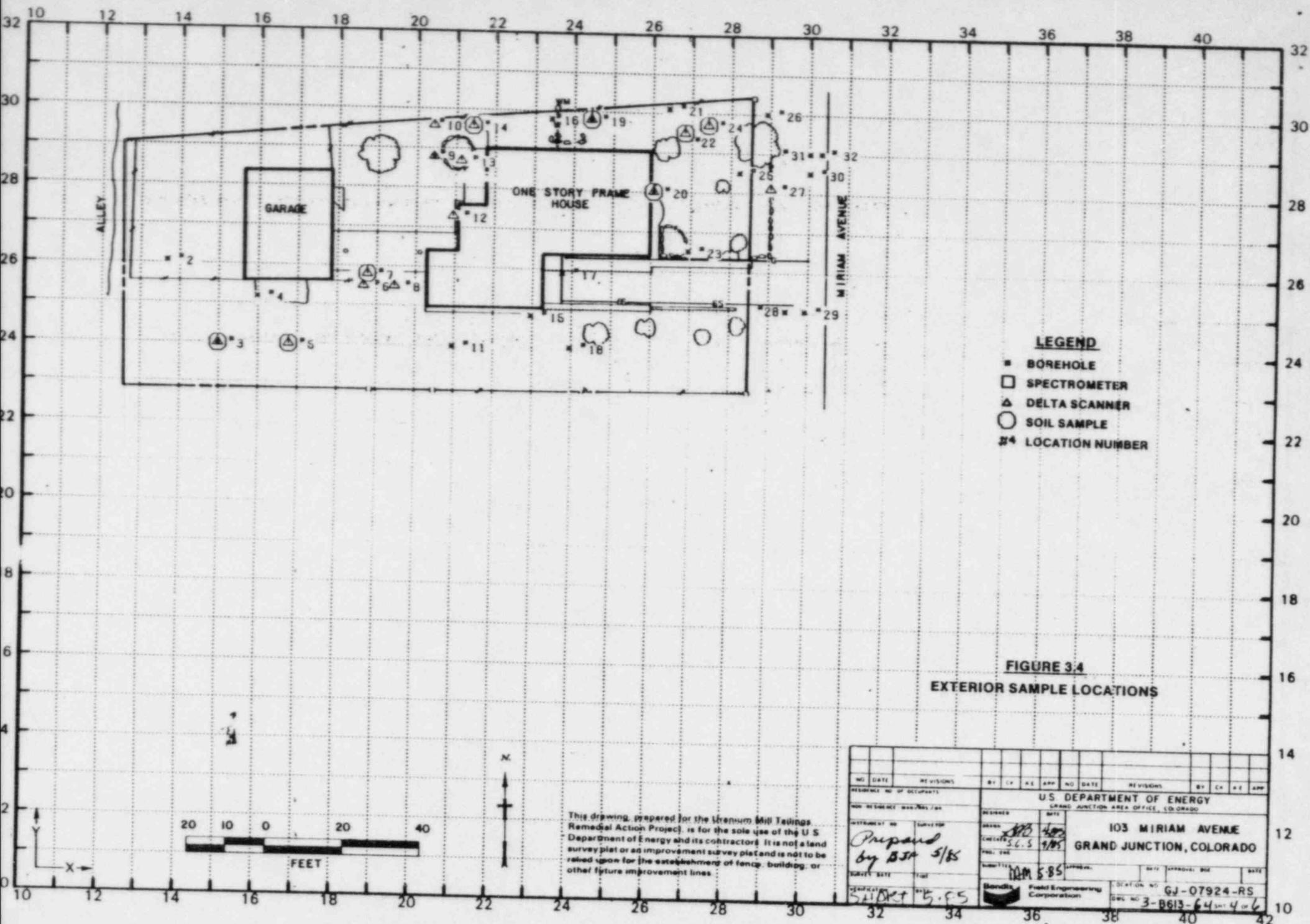
This drawing, prepared for the Uranium Mill Tailings Remedial Action Project, is for the sole use of the U. S. Department of Energy and its contractors. It is not a land survey plot or an improvement survey plot and is not to be relied upon for the establishment of fence, building, or other future improvement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

NO. DATE		REVISIONS		BY CH. X.E. APP. NO. DATE		REVISIONS		BY CH. X.E. APP.	
RESIDENCE NO. OF OCCUPANTS									
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION AREA OFFICE, COLORADO									
103 MIRIAM AVENUE GRAND JUNCTION, COLORADO									
OWNER		DESIGNED		DRAWN		CHECKED		DATE	
Prepared by BTF 5/85				5/85		5/85		5/85	
SURVEY SITE		DATE		SUBMITTER		APPROVED		DATE	
-ZVT 5/85		5/85		BTF 5/85				5/85	
FIELD ENGINEERING CORPORATION		LOCATION NO.		GJ-07924-RS		DWC NO.		3-RS13-61 smt / or 6	

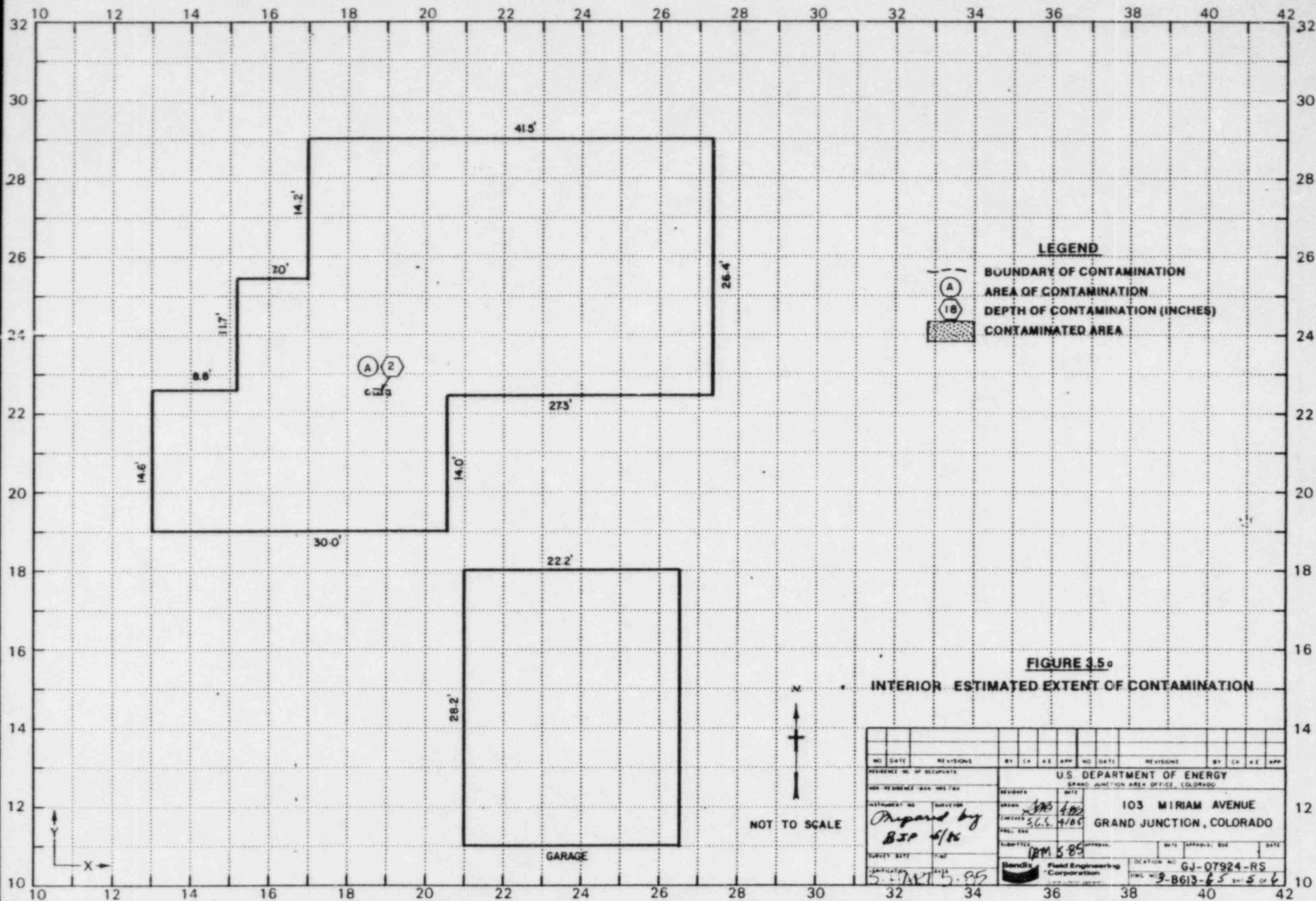




NO. DATE		REVISIONS		BY	CHK	A.E.	APP.	NO. DATE	REVISIONS		BY	CHK	A.E.	APP.
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION AREA OFFICE, COLORADO														
PROJECT NO.		SURVEYOR		DATE		TIME		LOCATION NO.		103 MIRIAM AVENUE GRAND JUNCTION, COLORADO				
PREPARED BY		CHECKED BY		DATE		TIME		LOCATION NO.		GJ-07924-RS				
SUBMITTER		DATE		TIME		TIME		LOCATION NO.		5-B613-63				
DATE		TIME		TIME		TIME		LOCATION NO.		3-3-6				
DATE		TIME		TIME		TIME		LOCATION NO.		3-3-6				



NO. DATE REVISIONS BY CH. A.E. APP. NO. DATE REVISIONS BY CH. A.E. APP.									
RESIDENT NO. OF OCCUPANTS									
NON-RESIDENT NO. NAME / ADDRESS					U.S. DEPARTMENT OF ENERGY GRAND JUNCTION AREA OFFICE, COLORADO 103 MIRIAM AVENUE GRAND JUNCTION, COLORADO				
DESIGNED		DATE		DRAWN		DATE		CHECKED	
Prepared by BJA 5/85		5.5		5.5		5.5		5.5	
SURVEY DATE		TIME		SUBTITLE		PROJECT		DATE	
5/85		5.5		10M 585		10M 585		5.5	
DRAWN		DATE		CHECKED		DATE		DATE	
5/85		5.5		5.5		5.5		5.5	
Field Engineering Corporation				LOCATION NO.		GJ-07924-RS		DATE	
3-8613-64				3-8613-64		3-8613-64		3-8613-64	



NO. DATE		REVISIONS		BY	CR	AE	APP	NO. DATE		REVISIONS		BY	CR	AE	APP
RESIDENCE NO. OF OCCUPANTS															
NON-RESIDENCE - BAK. HSE. / FAX															
DESIGNER		DATE		U.S. DEPARTMENT OF ENERGY											
DRAWN		DATE		GRAND JUNCTION AREA OFFICE, COLORADO											
CHECKED		DATE		103 MIRIAM AVENUE											
PROJ. ENG.		DATE		GRAND JUNCTION, COLORADO											
SUBMITTED		DATE		APPROVED		DATE		APPROVED		DATE		APPROVED		DATE	
Bentley		Field Engineering Corporation		LOCATION NO.		GJ-07924-RS		DWC NO.		9-B613-65		SH-5		OF 6	

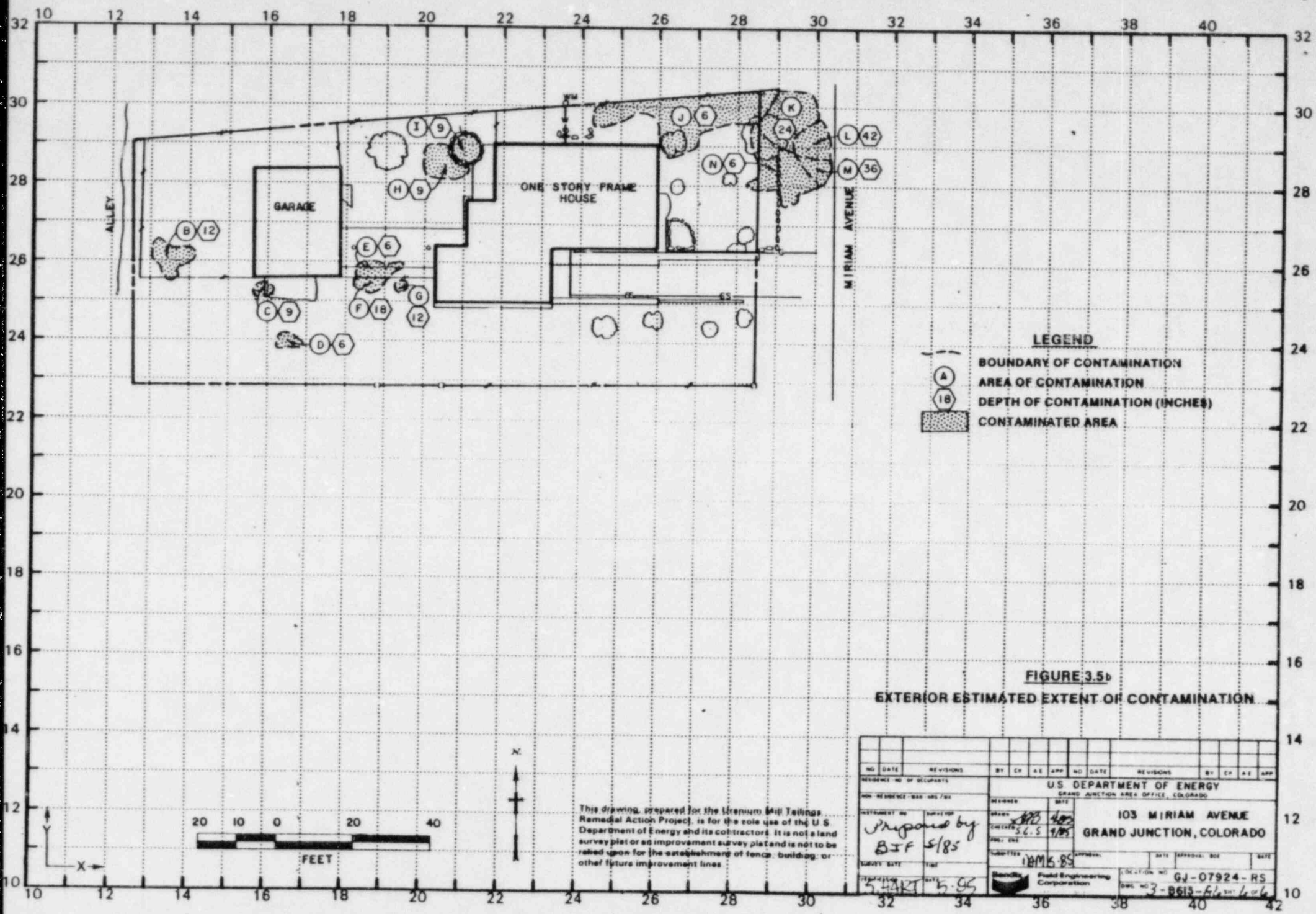


FIGURE 3.5b
EXTERIOR ESTIMATED EXTENT OF CONTAMINATION

NO. DATE		REVISIONS		BY CH. A.E. APP. NO. DATE		REVISIONS		BY CH. A.E. APP.	
RESIDENT NO. OF OCCUPANTS NON-RESIDENT NO. AND SEX									
INSTRUMENT NO. <i>Prepared by BIF 5/85</i>				SURVEYOR <i>5.6.5 7/85</i>		DESIGNED <i>5.6.5 7/85</i>			
SURVEY DATE <i>5-85</i>				TIME <i>5-85</i>		103 MIRIAM AVENUE GRAND JUNCTION, COLORADO			
DRAWN BY <i>5-85</i>				CHECKED BY <i>5-85</i>		U.S. DEPARTMENT OF ENERGY GRAND JUNCTION AREA OFFICE, COLORADO			
PROJECT NO. <i>5-85</i>				FIELD ENGINEERING CORPORATION		SECTION NO. GJ-07924-RS DWG. NO. 3-B613-613-1-6			

3/85

DOE ID NO.

GJ-07324-RS

Date

May 20, 1985

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

Official Survey Report

Property Address 103 Miriam Avenue

Property Owner E. and M. Dutton

Address of Owner (if different from above) _____

Report Prepared By Billie J. Foust

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/CDE

J. Themelis, Mgr. UMTRA Proj. Off.

HIG = 20 uR/h
HOG = 54 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 20, 1985

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

ATTN: Coleen Campbell

Dear Coleen:

The following comments are in order regarding the technical review for GJ-07924-RS (103 Miriam Avenue) held by telephone on May 14, 1985.

1. The Interior Estimated Extent of Contamination map has been included in the final REA.
2. In calling soil samples contaminated, they must be at least 1 pCi/g higher than the background sample.

Thank you for your time and comments. If you have further questions, please call me at 242-8621, ext. 435.

Very truly yours,

Billie J. Foust
RAD Group Leader



Bendix
Aerospace

Memorandum

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado

Date: April 24, 1985

To: Files

From: Billie J. Foust

Subject: Team Leader Notes - GJ-07924-RS (103 Miriam Avenue)

Owners: E. and M. Dutton
Weather: Sunny and Warm
Occupancy: 4

Field Crew

B. Foust	M. Gilfillan	S. Larsen	T. Ciocco
V. Rothman	R. Wilkins	B. Beltz	V. Young
A. Quintana	S. Southern		

Instruments

Scintillometers: C-1163, C-3502
PRS-1 Total Counts: C-3573, C-3959
Deltas: C-3940, C-3937

The doorway to the addition showed elevated readings. It is approximately 24" X 6". We took a sample of the patch of concrete that was put in to smooth out the step.

Half of the crew was sent over to start gridding 225 Sherman Avenue.

Several uranium ore samples were encountered during the gamma scan. We removed them with the approval of the owner and they were taken to the repository.

Some deep contamination was encountered on the city easement east of the property line. Several holes were drilled to try and define the boundaries of the contamination.

The owner showed me where the abandoned septic tank and leach field were located and holes were drilled by these areas.

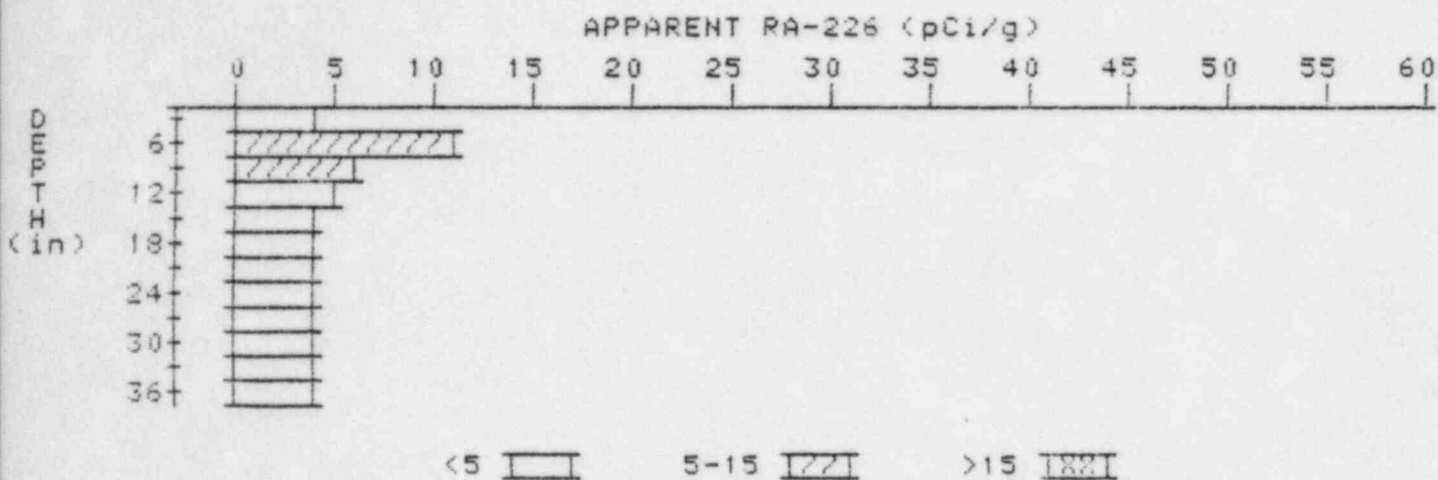
The water line does not enter the house where the map indicates, so a hole was drilled by the water meter to investigate the water line.

The slightly elevated readings recorded along the east foundation seemed to be associated with the brick facing, so a soil sample was taken to see if there is any radium in the soil.

All personnel were alpha scanned.

APPARENT RADIUM-226 CONCENTRATION 2 DECONVOLUTION GRAPH

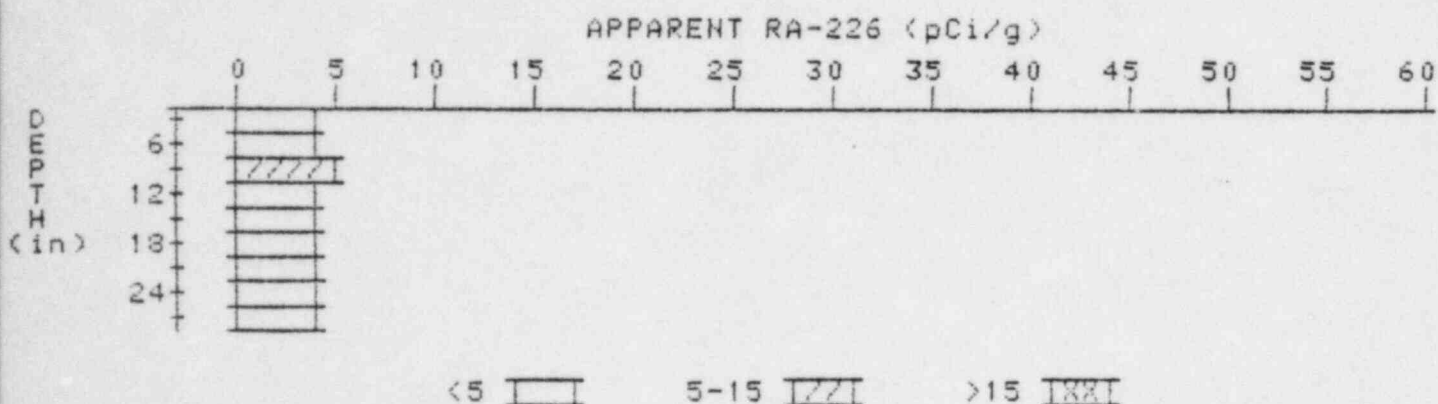
PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 2
LOCATION: 137261



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	14.3	14.3
6	11.2	11.4
9	8.0	5.7
12	6.1	4.7
15	5.0	3.9
18	4.5	4.1
21	4.2	4.0
24	4.0	4.0
27	3.8	3.6
30	3.7	3.7
33	3.6	3.6
36	3.5	3.5

APPARENT RADIUM-226 CONCENTRATION 3 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 3
LOCATION: 150240

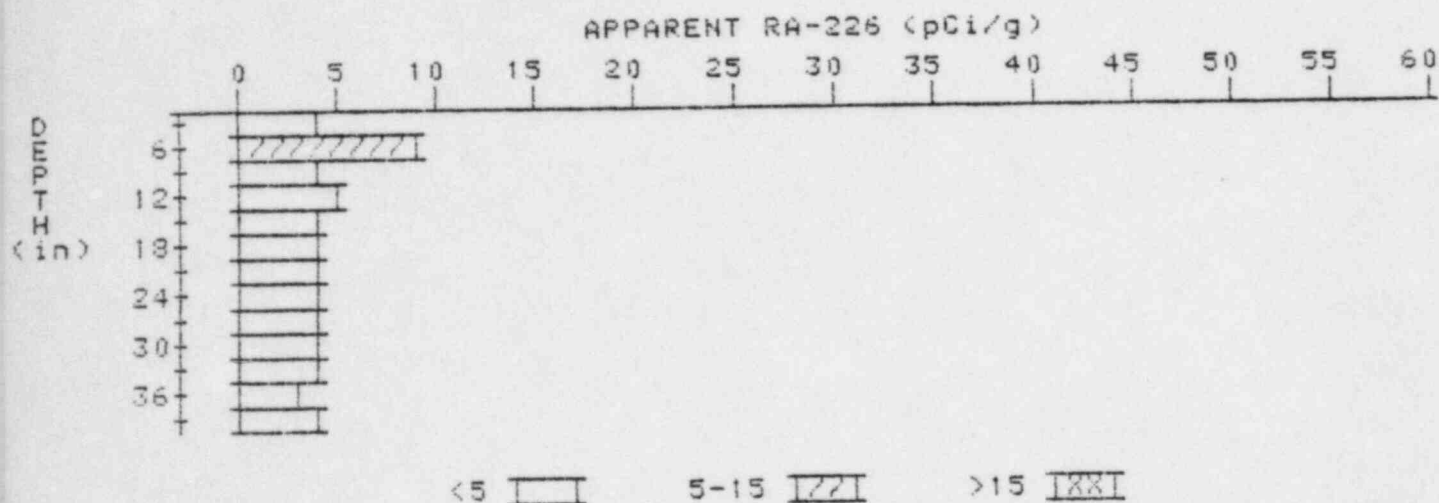


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.8	3.8
6	4.1	4.1
9	4.4	5.1
12	4.3	4.1
15	4.3	4.5
18	4.2	4.2
21	4.1	4.3
24	3.9	3.5
27	3.9	3.9

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

4

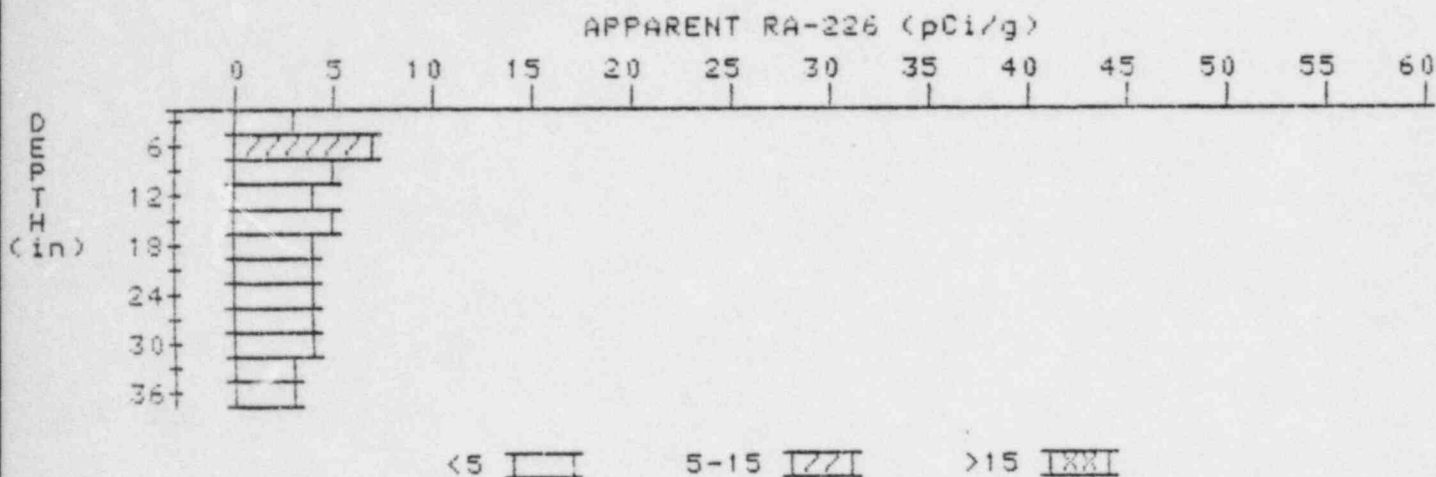
PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 4
LOCATION: 160252



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	8.5	8.5
6	7.5	8.7
9	5.8	4.0
12	5.1	4.9
15	4.5	4.0
18	4.2	4.0
21	4.0	3.8
24	3.9	3.9
27	3.8	3.8
30	3.7	3.5
33	3.7	4.1
36	3.5	3.1
39	3.5	3.5

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 9

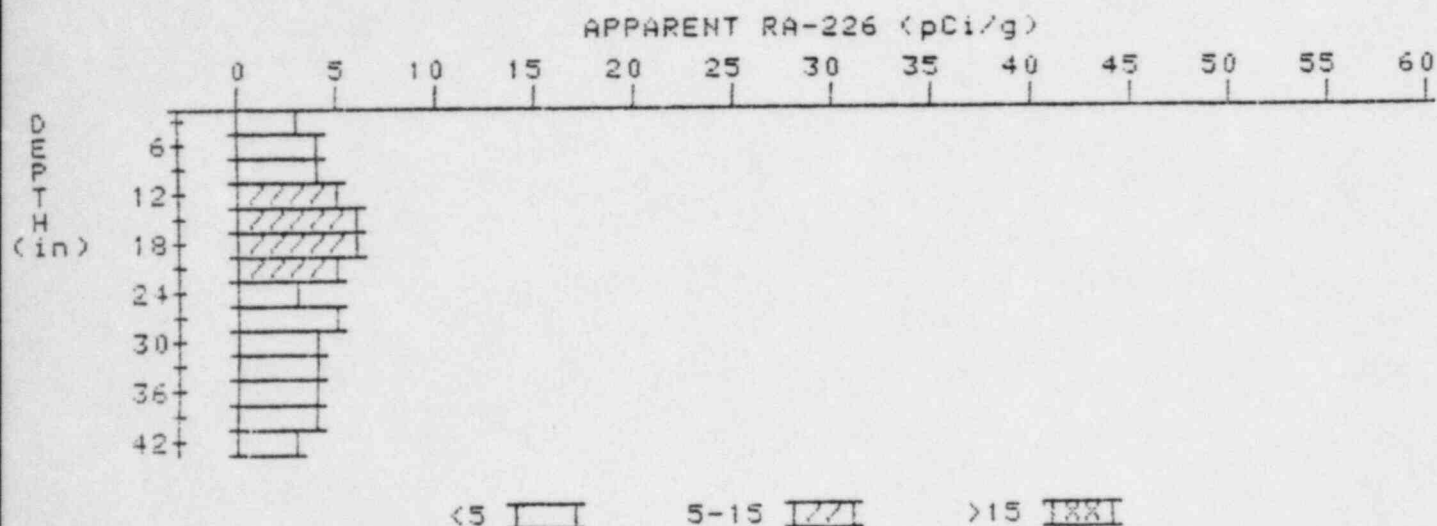
PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 9
LOCATION: 205288



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	8.2	8.2
6	6.9	6.7
9	5.7	4.8
12	5.0	4.3
15	4.7	4.7
18	4.4	4.2
21	4.2	4.2
24	4.0	4.0
27	3.8	3.6
30	3.7	3.9
33	3.5	3.3
36	3.4	3.4

APPARENT RADIUM-226 CONCENTRATION 11 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-07924-R3
HOLE NUMBER: 11
LOCATION: 210240



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
=====	=====	=====
3	3.1	3.1
6	3.8	4.2
9	4.3	4.3
12	4.8	5.2
15	5.1	5.6
18	5.1	5.6
21	4.8	5.2
24	4.3	3.4
27	4.3	4.7
30	4.1	4.1
33	3.9	3.9
36	3.7	3.5
39	3.6	3.8
42	3.4	3.4

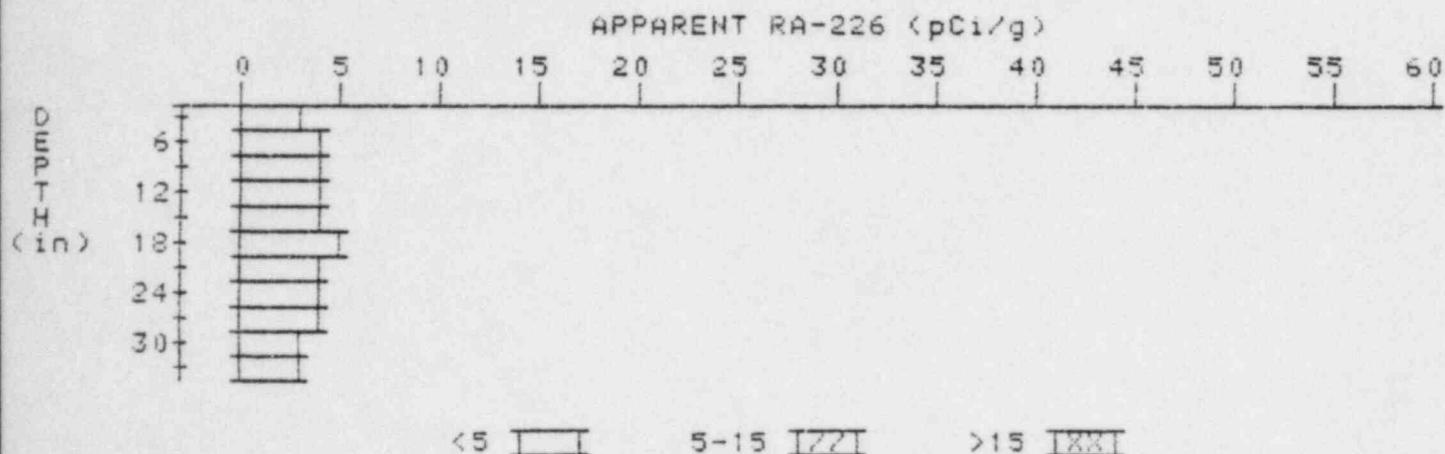
APPARENT RADIUM-226 CONCENTRATION 15

DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-07924-RS

HOLE NUMBER: 15

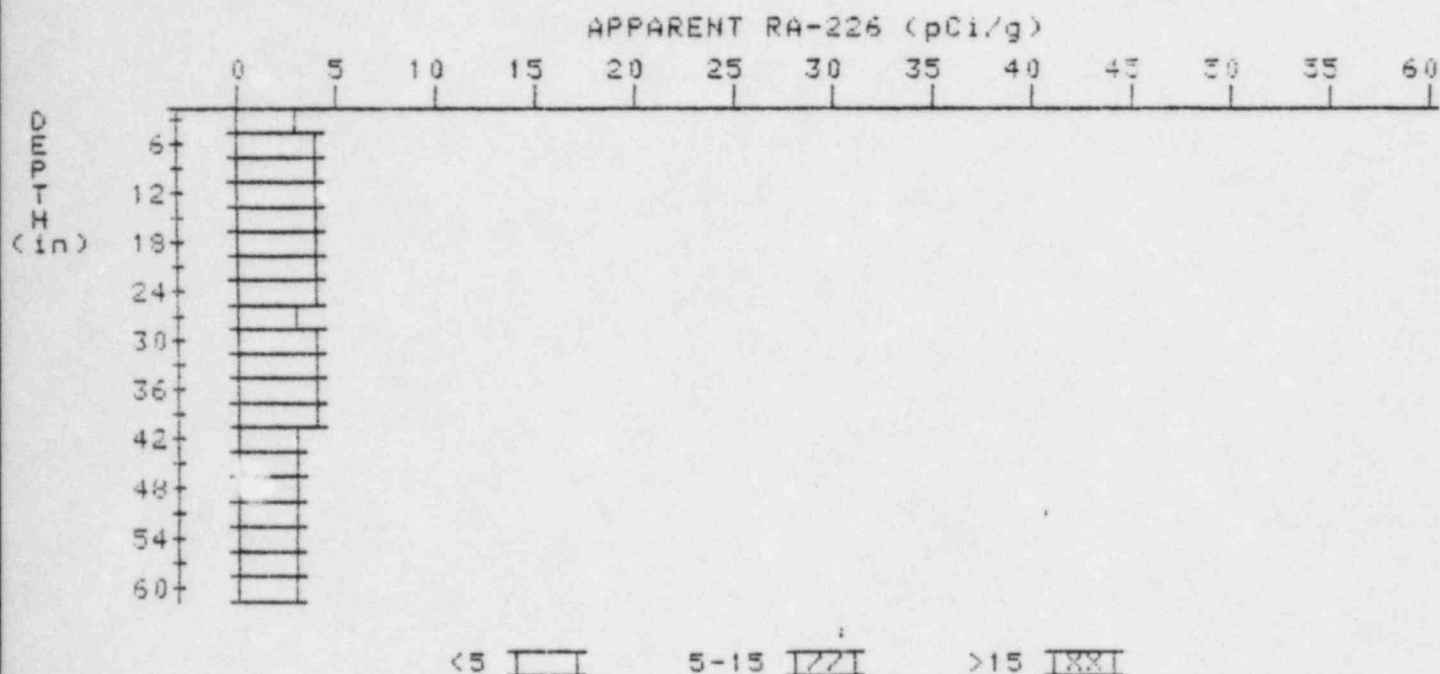
LOCATION: 230248



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.5	3.5
6	3.9	4.3
9	4.1	4.3
12	4.2	4.4
15	4.2	4.2
18	4.2	4.6
21	4.0	4.0
24	3.8	3.8
27	3.6	3.6
30	3.4	3.2
33	3.3	3.3

APPARENT RADIUM-226 CONCENTRATION 16 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-07924-R5
HOLE NUMBER: 16
LOCATION: 235298



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.8	3.8
6	3.9	3.9
9	4.0	4.0
12	4.1	4.5
15	4.0	3.6
18	4.1	4.5
21	4.0	3.8
24	4.0	4.4
27	3.8	3.4
30	3.8	4.0
33	3.7	3.5
36	3.7	3.9
39	3.6	4.0
42	3.3	3.1
45	3.1	2.9
48	3.0	2.8
51	3.0	3.2
54	2.9	2.7

57
60

2.9
2.9

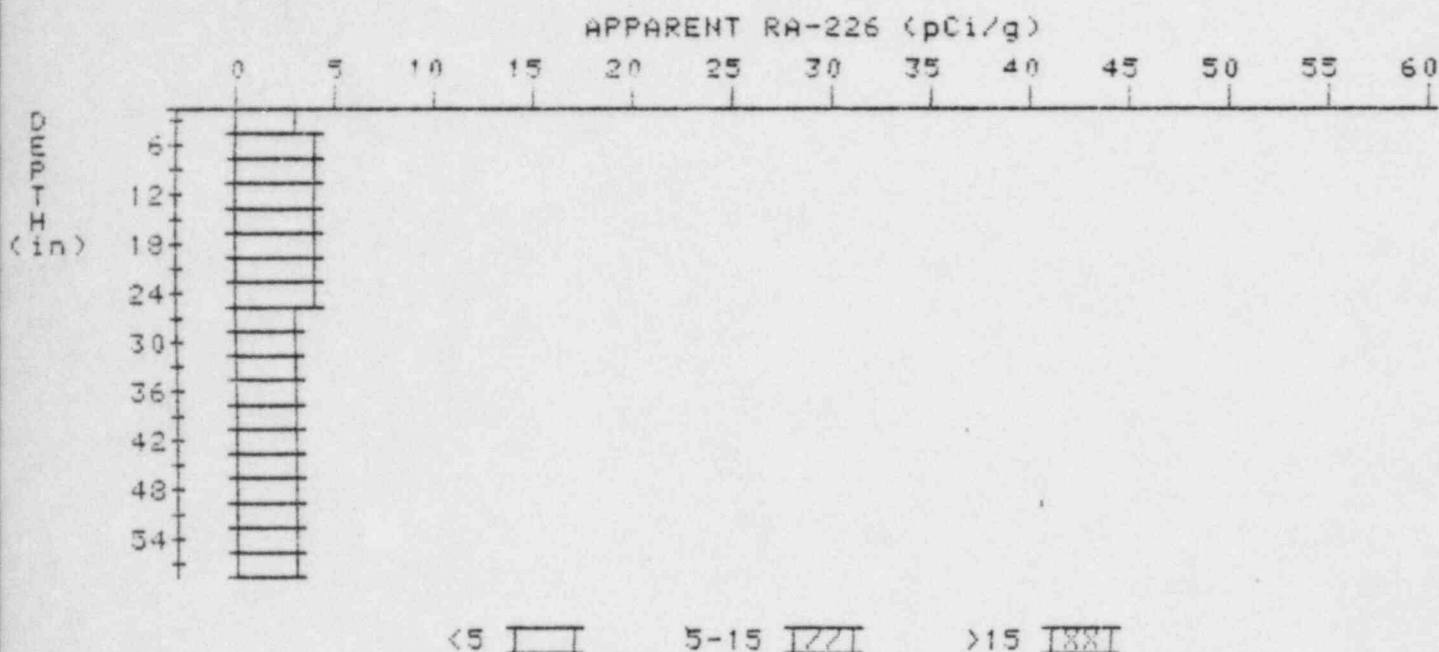
2.9
2.9

APPARENT RADIUM-226 CONCENTRATION 17 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-07924-RS

HOLE NUMBER: 17

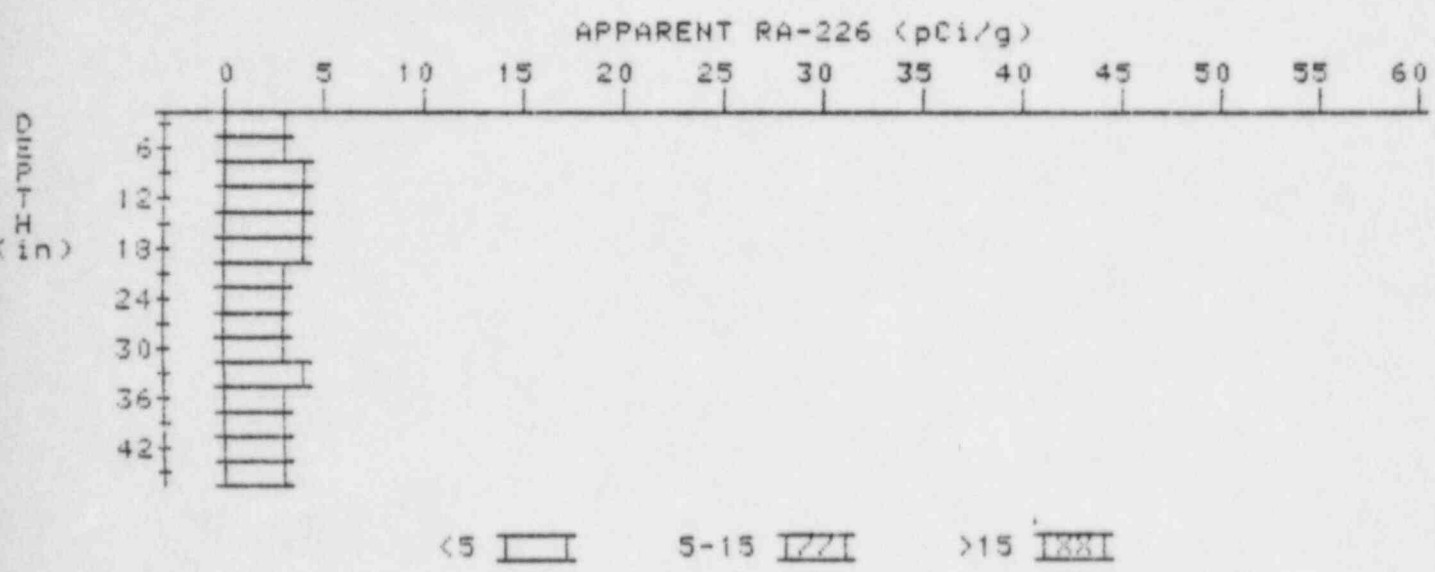
LOCATION: 239259



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.6	3.6
6	3.9	4.1
9	4.1	4.5
12	4.1	4.1
15	4.1	4.5
18	3.9	3.7
21	3.8	4.0
24	3.6	3.6
27	3.4	3.2
30	3.3	3.3
33	3.2	3.0
36	3.2	3.2
39	3.2	3.4
42	3.1	2.9
45	3.1	3.1
48	3.1	2.9
51	3.2	3.4
54	3.2	3.2

APPARENT RADIUM-226 CONCENTRATION 18 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 18
LOCATION: 240240

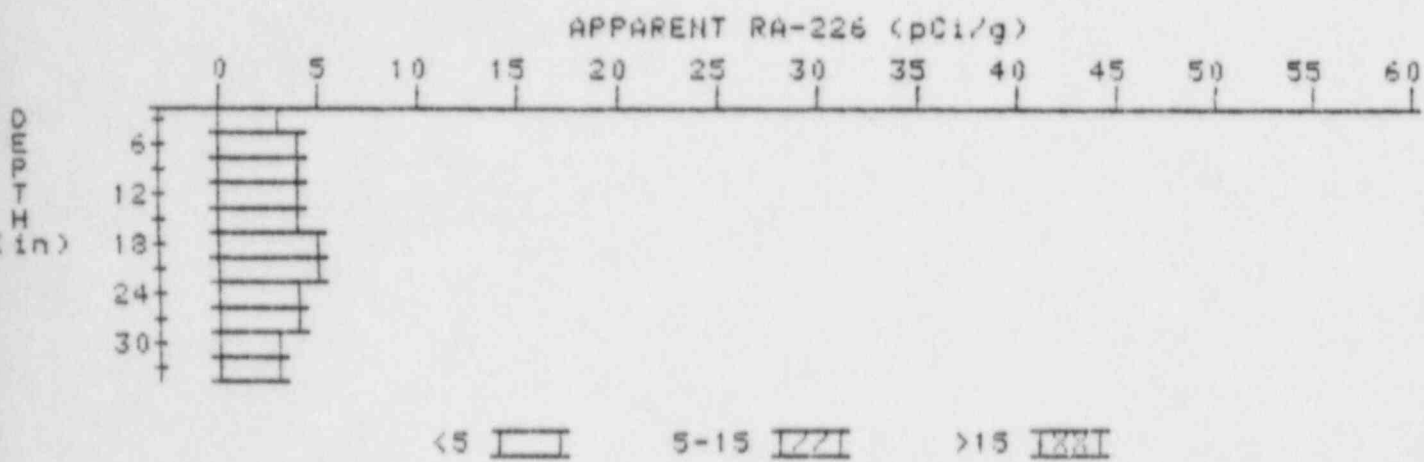


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.4	3.4
6	3.5	3.3
9	3.7	3.9
12	3.8	4.0
15	3.8	4.0
18	3.7	3.9
21	3.5	3.3
24	3.4	3.4
27	3.3	3.1
30	3.3	3.3
33	3.3	3.7
36	3.1	2.7
39	3.1	3.3
42	3.0	2.6
45	3.1	3.1

APPARENT RADIUM-226 CONCENTRATION 19

DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 19
LOCATION: 245298

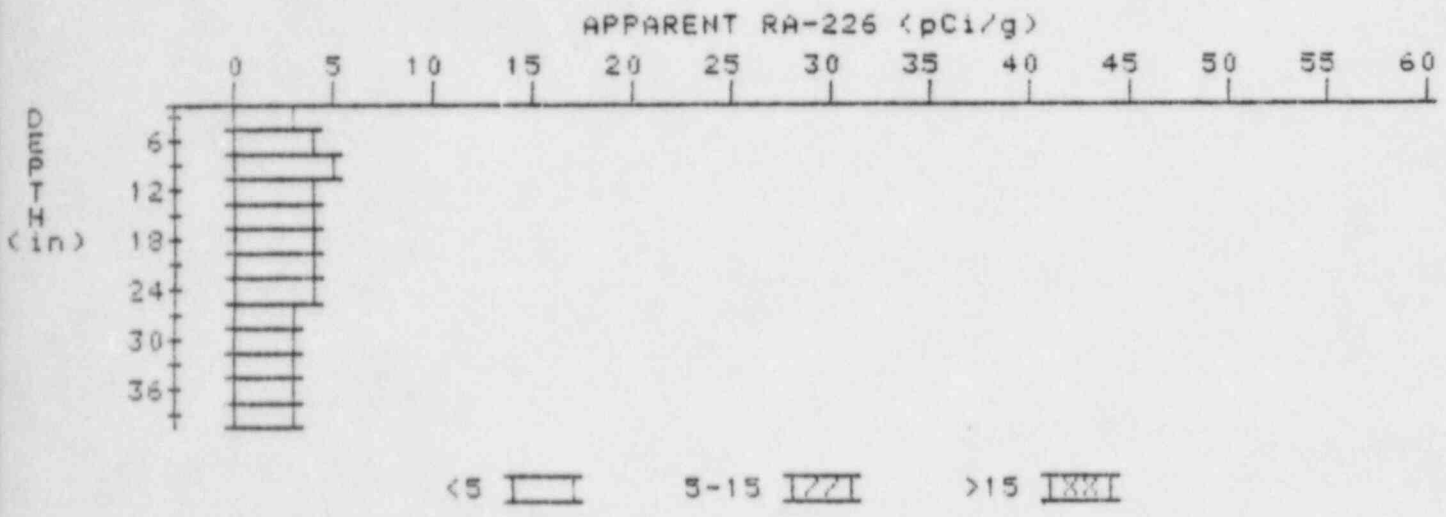


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.6	3.6
6	3.8	3.8
9	4.0	4.2
12	4.1	4.1
15	4.2	4.0
18	4.4	4.9
21	4.3	4.7
24	4.0	3.8
27	3.8	4.0
30	3.5	3.1
33	3.4	3.4

APPARENT RADIUM-226 CONCENTRATION 20

DECONVOLUTION GRAPH

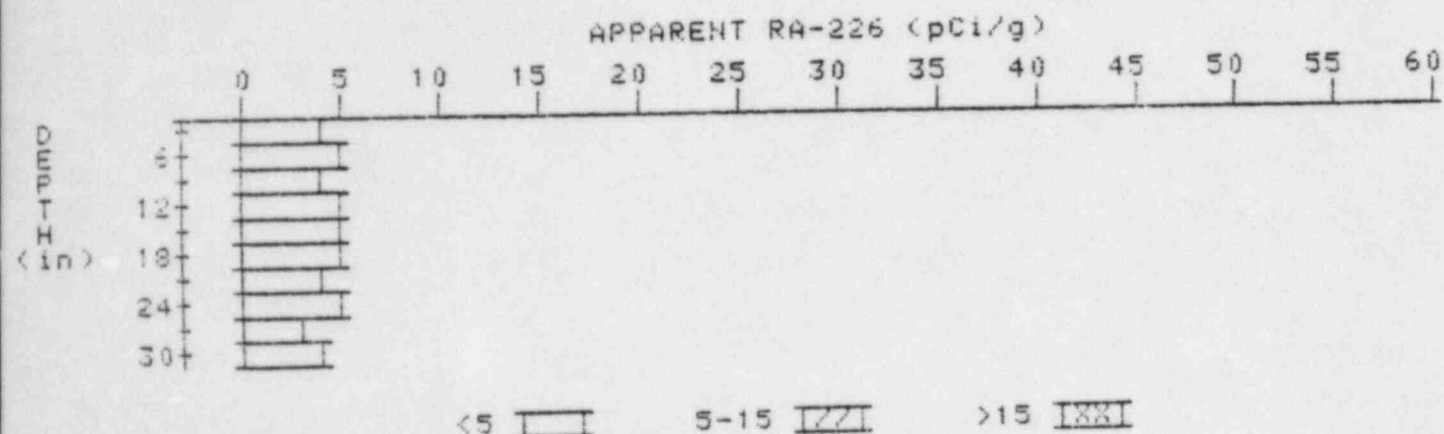
PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 20
LOCATION: 261230



Depth (in)	Apparent Radium-226 (pCi/g)	Apparent Radium-226 (pCi/g)
	Undeconvolved	Deconvolved
3	3.7	3.7
6	3.9	3.7
9	4.2	4.7
12	4.2	4.2
15	4.2	4.4
18	4.1	3.9
21	4.1	4.5
24	3.9	4.1
27	3.6	3.4
30	3.4	3.2
33	3.3	3.5
36	3.1	2.9
39	3.0	3.0

APPARENT RADIUM-226 CONCENTRATION 21 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 21
LOCATION: 265301

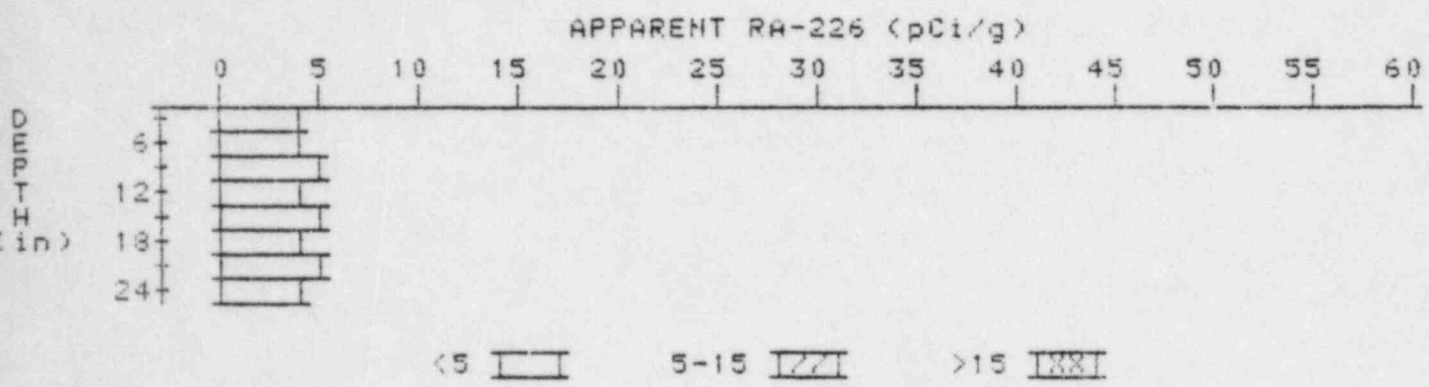


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	5.7	5.7
6	5.1	4.6
9	4.8	4.4
12	4.7	4.7
15	4.6	4.6
18	4.5	4.5
21	4.4	4.4
24	4.3	4.3
27	3.9	2.8
30	4.1	4.1

APPARENT RADIUM-226 CONCENTRATION 23

DECONVOLUTION GRAPH

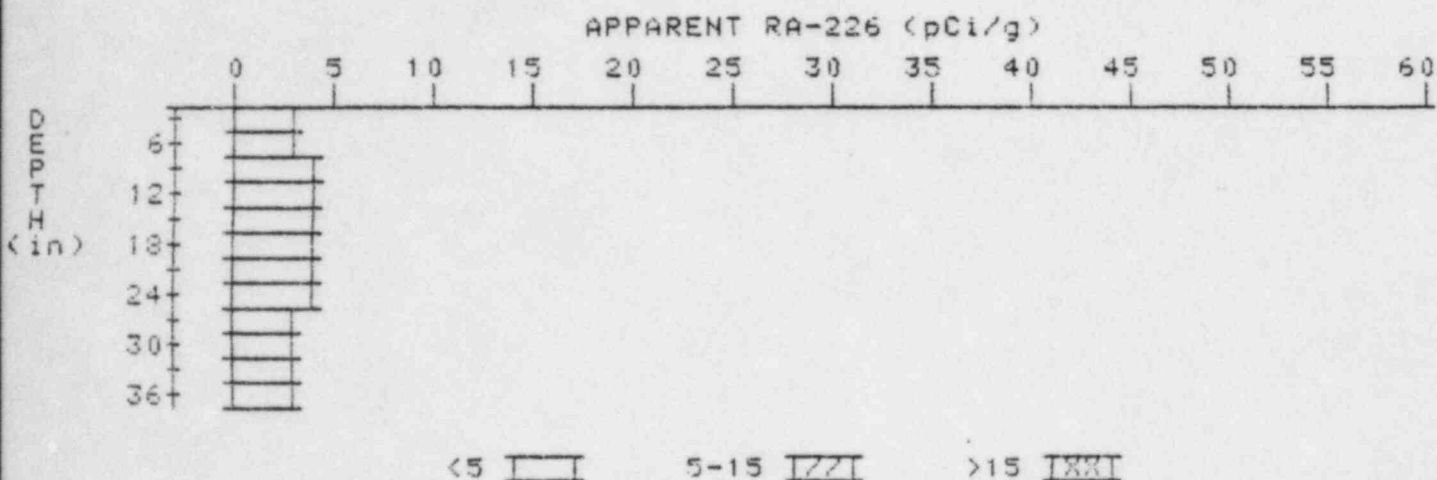
PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 23
LOCATION: 270265



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.7	3.7
6	4.0	4.2
9	4.2	4.6
12	4.2	4.0
15	4.3	4.7
18	4.2	4.4
21	4.0	4.5
24	3.5	3.5

APPARENT RADIUM-226 CONCENTRATION 25 DECONVOLUTION GRAPH

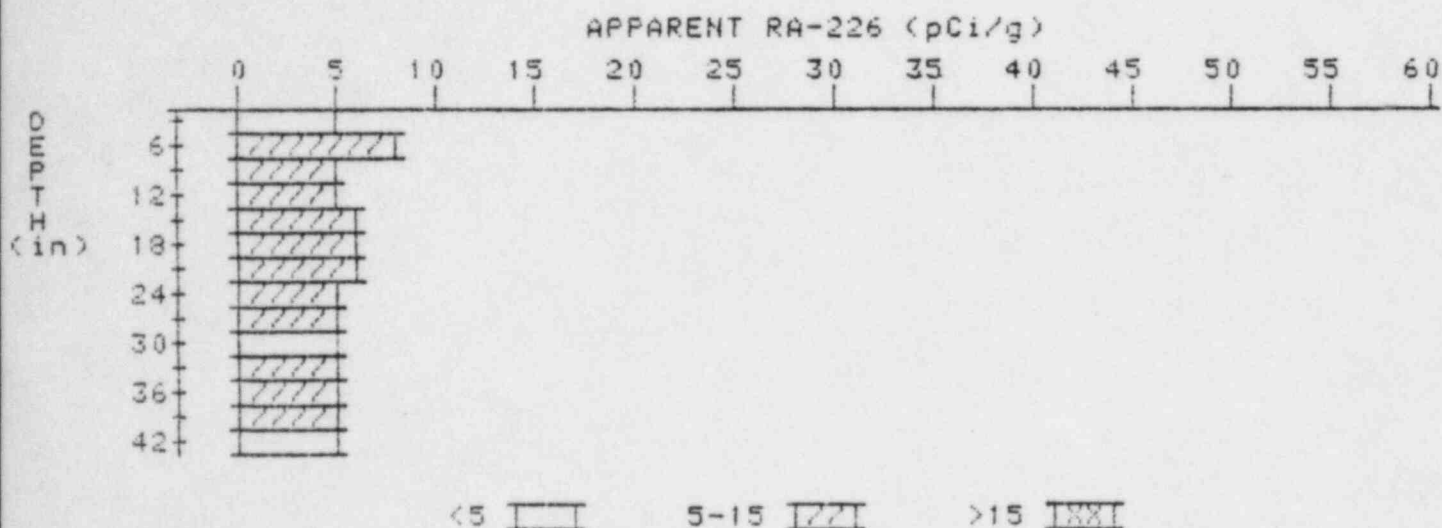
PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 25
LOCATION: 293285



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.0	3.0
6	3.4	3.4
9	3.8	4.2
12	4.0	4.4
15	4.0	4.2
18	3.9	3.9
21	3.8	3.8
24	3.7	4.1
27	3.4	3.0
30	3.3	3.5
33	3.1	2.9
36	3.0	3.0

APPARENT RADIUM-226 CONCENTRATION 26 DECONVOLUTION GRAPH

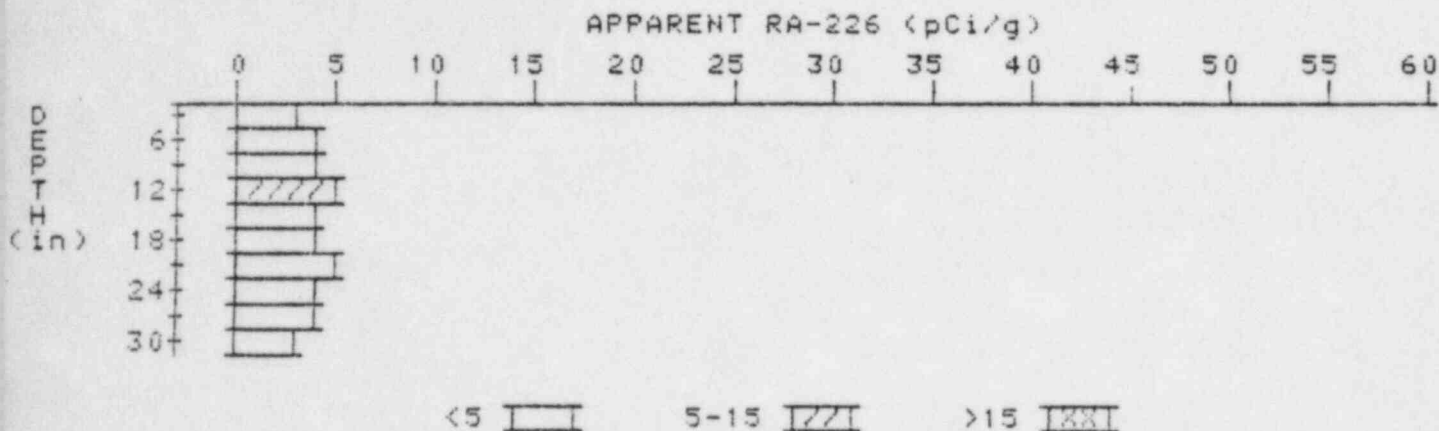
PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 26
LOCATION: 290300



Depth (in)	Apparent Radium-226 (pCi/g)	Apparent Radium-226 (pCi/g)
	Undeconvolved	Deconvolved
3	10.0	10.0
6	8.3	7.9
9	6.8	5.4
12	6.1	5.2
15	5.9	5.9
18	5.7	5.5
21	5.6	5.3
24	5.4	5.4
27	5.2	5.0
30	5.1	4.9
33	5.1	5.1
36	5.1	5.3
39	5.0	5.4
42	4.7	4.7

APPARENT RADIUM-226 CONCENTRATION 28 DECONVOLUTION GRAPH

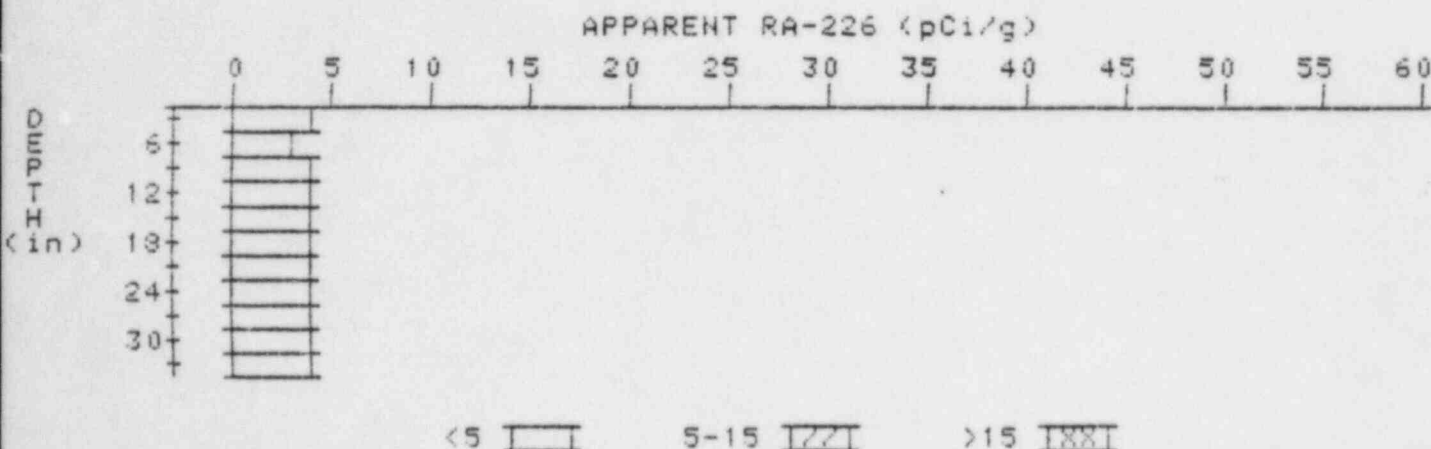
PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 28
LOCATION: 295250



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.3	3.3
6	3.8	4.3
9	4.0	3.8
12	4.3	5.0
15	4.2	3.8
18	4.3	4.5
21	4.3	4.8
24	4.0	3.8
27	3.8	4.2
30	3.4	3.4

APPARENT RADIUM-226 CONCENTRATION 29 DECONVOLUTION GRAPH

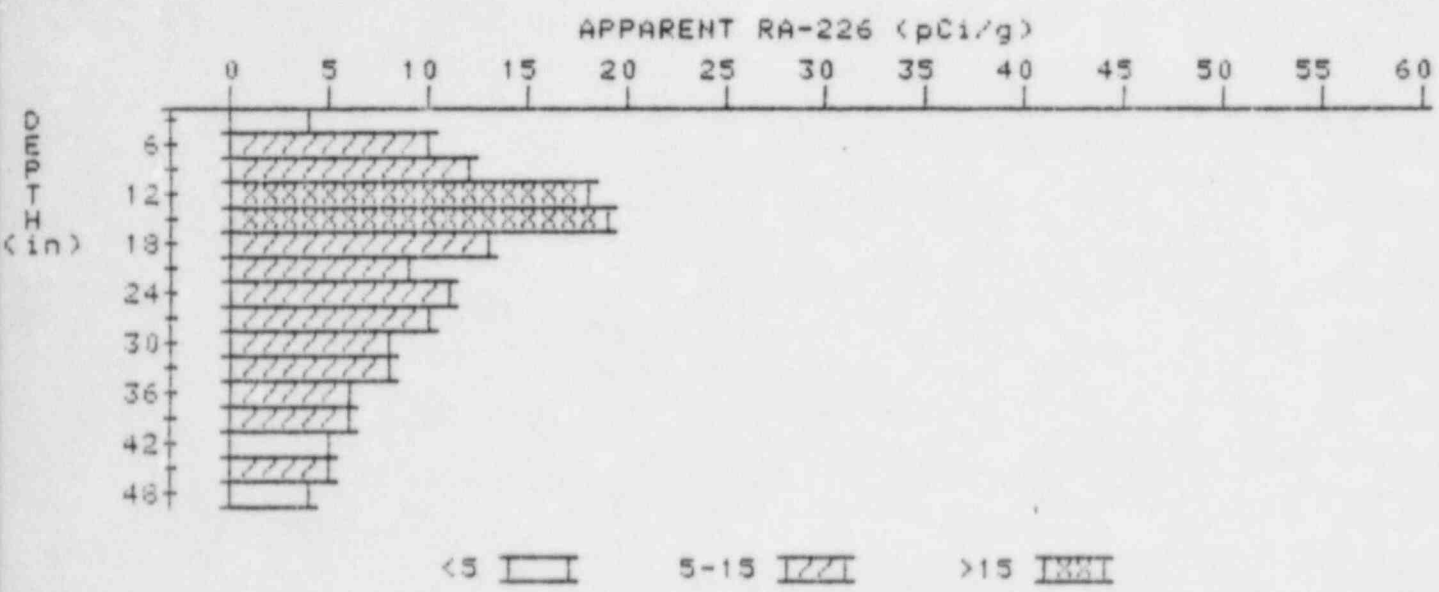
PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 29
LOCATION: 300250



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.3	3.3
6	3.5	3.3
9	3.8	4.3
12	3.8	3.8
15	3.8	3.6
18	3.9	3.9
21	4.0	4.0
24	4.1	4.3
27	4.1	4.1
30	4.1	4.1
33	4.1	4.1

APPARENT RADIUM-226 CONCENTRATION 30 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 30
LOCATION: 301295

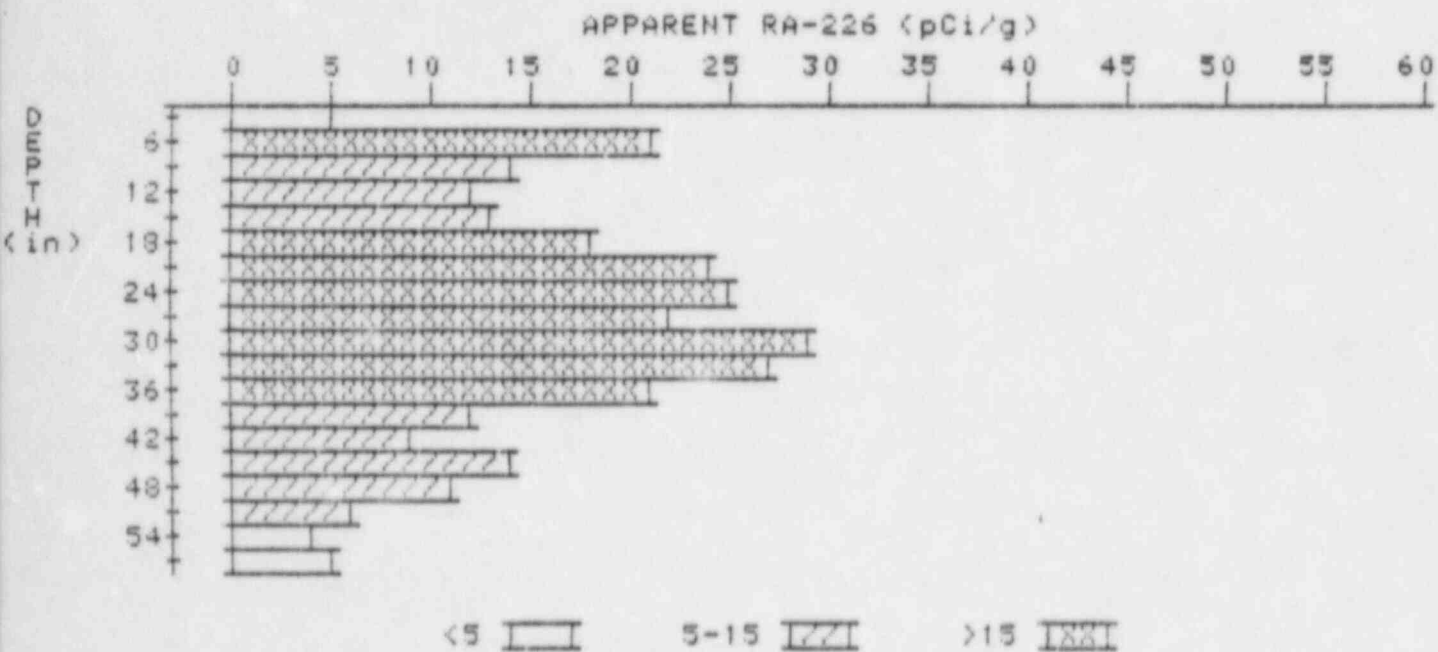


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	10.9	10.9
6	11.5	10.1
9	12.9	11.8
12	14.9	17.9
15	15.2	19.1
18	13.3	13.3
21	11.4	9.4
24	10.6	10.8
27	9.7	10.2
30	8.5	8.0
33	7.6	7.8
36	6.6	6.1
39	5.9	5.9
42	5.2	4.7
45	4.8	5.2
48	4.2	4.2

APPARENT RADIUM-226 CONCENTRATION 31

DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-07924-RS
HOLE NUMBER: 31
LOCATION: 301290



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	12.5	12.5
6	15.1	20.6
9	14.6	14.1
12	14.4	11.9
15	15.6	12.6
18	18.5	18.5
21	21.4	23.9
24	22.9	24.9
27	23.3	21.9
30	24.5	29.1
33	23.1	26.3
36	19.6	21.0
39	15.3	12.5
42	12.6	9.0
45	11.9	14.2
48	9.9	10.3
51	7.4	6.2
54	5.6	4.2

57

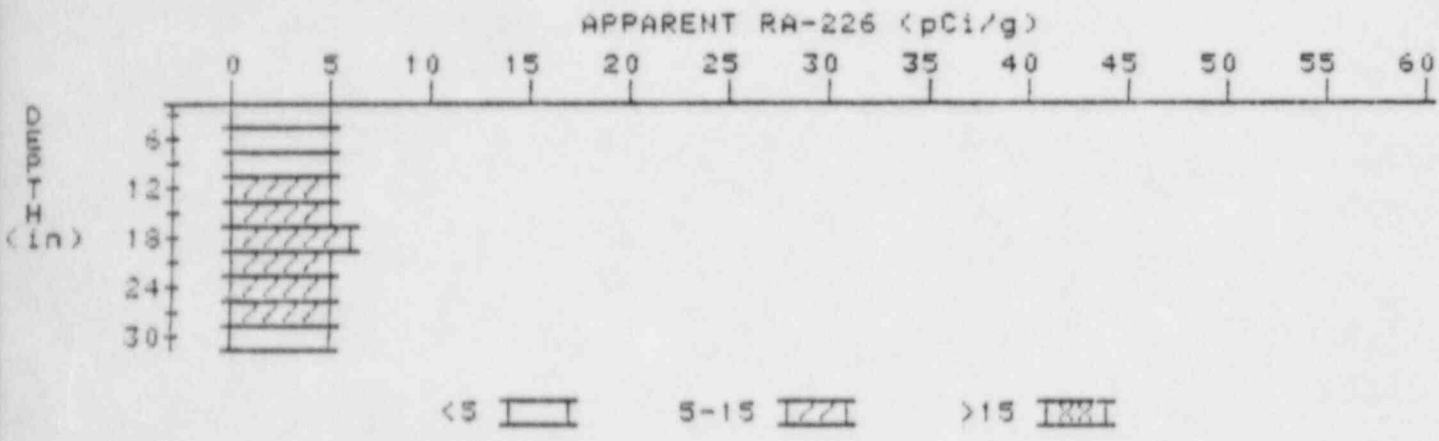
4.6

4.6

APPARENT RADIUM-226 CONCENTRATION 32

DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-07924-R3
HOLE NUMBER: 32
LOCATION: 304290



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.4	4.4
6	4.6	4.6
9	4.8	4.6
12	5.1	5.5
15	5.2	5.2
18	5.3	5.7
21	5.2	5.0
24	5.2	5.4
27	5.1	5.5
30	4.9	4.9