RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-12309-RS
ADDRESS: 2808 ORCHARD AVENUE

JULY 1985

FOR

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT OFFICE

ALBUQUERQUE OPERATIONS OFFICE

DEPARTMENT OF ENERGY

BY

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DATE July 12, 1985

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-12309-RS, is a single-family residence located at 2808 Orchard 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, 167 cu. yd.; interior, 0 cu. yd.

Estimated cost to perform remedial action, including dislocation when applicable, is $8,481. Remedial action on this property will take approximately 12 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 2808 Orchard Avenue, Grand Junction, Colorado

Zoning: Residential (RSF-8)

Lot Size: Approximately 7,970 sf (0.18 acre)

Legal Description: Beginning 395 feet East of Southwest Corner NW4, Section 7, T1S R1E, Ute Meridian, North 154 feet, East 78 feet, South 154 feet, West to Beginning and Part of Lot 2, Laurie Ann Subdivision, Said Section 7, as Described in Book 1421, Page 1000, Except Road Right-of-ways as per Book 1385, Page 709, and Book 1386, Page 743, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 2 miles northeast 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:	Orchard Avenue
East:	Court Road
West:	Single-family residence

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence
Size:	Approximately 670 sf
Construction Date:	1923
Construction:	Wood-frame
Foundation:	Concrete stemwall on spread footing
Footing Depth:	Not determined
Basement:	Yes - full
Crawl Space:	None
Condition:	Good

Other Structures:

Type:	Garage
Size:	Approximately 227 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 over 50 years old. Therefore, it does meet the eligibility criteria for consideration of inclusion on the National Register of Historic Places.

Alterations to Structure: New roof and new metal siding has been added.

Architectural Significance: None

Historical Significance: None

3.0 RADIOLOGIC SURVEY

3.1 Introduction

Radiologic data were collected by Bendix at DOE ID No. GJ-12309-RS 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 in the yard and 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 Gamma Scan Field Map are included in the Appendix (Section 6.0).

3.2 Gamma Exposure-Rate Surveys

3.2.1 Exterior Findings

Background Readings: 15 to 16 uR/h
Highest Outside Gamma Reading (HOG): 78 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 16 uR/h
Highest Inside Gamma Reading (HIG): 16 uR/h

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

3.3 Boreholes, Soil Samples, and Other Measurements

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

3.4 Radon/Radon Daughter Concentration (RDC)

Determined by CDH: 0.005 gross working level (WL). No additional RDC measurements were taken by Bendix.

3.5 Extent of Contamination

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

(Area A) Surface Material: lawn
Direction From Primary Structure: north
Other Directions: none
Total Depth of Contamination: 12 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 2,020

(Area B) Surface Material: lawn
Direction From Primary Structure: north
Other Directions: northwest of the garage
Total Depth of Contamination: 6 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 56

(Area C) Surface Material: gravel
Direction From Primary Structure: east and northeast
Other Directions: near the east property line
Total Depth of Contamination: 6 inches
Other (height or thickness): none
Comments: Two small deposits are included in this area.
Approximate Square Footage: 55

(Area D) Surface Material: gravel
Direction From Primary Structure: northeast
Other Directions: south of the garage
Total Depth of Contamination: 4 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 58

(Area E) Surface Material: soil
Direction From Primary Structure: south
Other Directions: none
Total Depth of Contamination: 9 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 40

(Area F) Surface Material: lawn
Direction From Primary Structure: south
Other Directions: none
Total Depth of Contamination: 3 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 126

(Area G) Surface Material: lawn
Direction From Primary Structure: south
Other Directions: none
Total Depth of Contamination: 6 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 132

(Area H) Surface Material: lawn
Direction From Primary Structure: south
Other Directions: none
Total Depth of Contamination: 9 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 1,042

(Area I) Surface Material: lawn
Direction From Primary Structure: south and southwest
Other Directions: along south and west property lines
Total Depth of Contamination: 6 inches
Other (height or thickness): none
Comments: The area south of area I, along the sidewalk, should be closely monitored during remedial action to assure removal of all contaminated material.
Approximate Square Footage: 321

(Area J) Surface Material: soil
Direction From Primary Structure: west
Other Directions: adjacent to the west patio
Total Depth of Contamination: 12 inches
Other (height or thickness): none
Comments: The soil in the planter is contaminated.
Approximate Square Footage: 40

(Area K) Surface Material: lawn
Direction From Primary Structure: southwest
Other Directions: south of the west patio
Total Depth of Contamination: 12 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 527

(Area L) Surface Material: lawn
Direction From Primary Structure: north and northwest
Other Directions: north and west of the west patio
Total Depth of Contamination: 15 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 351

(Area M) Surface Material: lawn
Direction From Primary Structure: south
Other Directions: by gas meter
Total Depth of Contamination: 6 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 21

(Area N) Surface Material: soil
Direction From Primary Structure: north and east
Other Directions: adjacent to the primary structure
Total Depth of Contamination: 18 inches
Other (height or thickness): none
Comments: none
Approximate Square Footage: 160

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-12309-RS, includes removal of all areas identified as containing radioactive material (as discussed in Section 3.5 and shown in Appendix Figure 3.3) and transport of removed material to the disposal site.

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 $8,481.

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

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

5.0 REFERENCES

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

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

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

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

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

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

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

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

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

6.0 APPENDIX

This Appendix contains the following:

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

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

Official Survey Report

Team Leader Notes

Deconvolution Graphs (Apparent Radium-226 Concentration)

Gamma Scan Field Map

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
1	136193	00	DS	1.6		*	Southwest corner
		03	TC	4.3		*	of property
		06	TC	5.8		*	DC = 15 inches
		09	TC	7.4		*	Based on the
		12	TC	7.4		*	deconvolution graph
		15	TC	5.8		*	
		18	TC	5.0		*	
		21	TC	4.6		*	
		24	TC	4.4		*	
		27	TC	4.2		*	
		30	TC	4.2		*	
2	138215	00	DS	5.1		*	Southwest yard
		06	DS	2.2		*	
		12	DS	1.4		*	
3	140240	03	TC	13.7		*	West yard
		06	TC	11.4		*	DC = 15 inches
		09	TC	8.2		*	Based on the
		12	TC	6.5		*	deconvolution graph
		15	TC	5.1		*	
		18	TC	4.6		*	
		21	TC	4.3		*	
		24	TC	4.2		*	
		27	TC	4.2		*	
		30	TC	4.1		*	
		33	TC	4.2		*	
		36	TC	4.2		*	
		39	TC	4.3		*	
		42	TC	4.4		*	
		45	TC	4.3		*	
		48	TC	4.4		*	
		51	TC	4.3		*	
		54	TC	4.2		*	
		57	TC	4.1		*	
		60	TC	3.9		*	
		63	TC	3.9		*	
4	142240	[16]	DS	6.4		*	Planter in west
		[10]	DS	4.2		*	yard
		[4]	DS	<1.0		*	
5	145255	03	TC	9.6		*	North of west patio
		06	TC	11.0		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
5	145255	09	TC	9.6		*	DC = 15 inches
		12	TC	7.4		*	Based on the
		15	TC	5.6		*	deconvolution graph
		18	TC	4.8		*	
		21	TC	4.5		*	
		24	TC	4.3		*	
		27	TC	4.2		*	
6	150193	03	TC	3.2		*	South yard next
		06	TC	3.8		*	to sidewalk
		09	TC	4.2		*	DC = 0 inches
		12	TC	4.9		*	
		15	TC	4.6		*	
		18	TC	4.2		*	
		21	TC	4.0		*	
		24	TC	3.9		*	
		27	TC	3.8		*	
		30	TC	3.8		*	
		33	TC	3.8		*	
		36	TC	3.8		*	
		39	TC	3.8		*	
		42	TC	3.9		*	
		45	TC	3.9		*	
		48	TC	4.0		*	
		51	TC	4.1		*	
		54	TC	4.1		*	
		57	TC	4.0		*	
		60	TC	4.1		*	
		63	TC	4.0		*	
		66	TC	4.0		*	
		69	TC	4.1		*	
		72	TC	4.1		*	
		75	TC	4.1		*	
		78	TC	4.0		*	
		81	TC	3.8		*	
		84	TC	3.8		*	
		87	TC	3.7		*	
		90	TC	3.7		*	
		93	TC	3.7		*	
		96	TC	3.7		*	
		99	TC	3.7		*	
		102	TC	3.7		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
7	150205	03	TC	6.1		*	Southwest yard
		06	TC	5.8		*	DC = 12 inches
		09	TC	5.2		*	Based on the
		12	TC	4.7		*	deconvolution graph
		15	TC	4.4		*	
		18	TC	4.2		*	
		21	TC	4.1		*	
		24	TC	4.1		*	
		27	TC	4.1		*	
		30	TC	4.2		*	
		33	TC	4.2		*	
8	150225	03	TC	6.5		*	Southwest yard
		06	TC	6.0		*	DC = 12 inches
		09	TC	5.3		*	Based on the
		12	TC	4.9		*	deconvolution graph
		15	TC	4.4		*	
		18	TC	4.2		*	
		21	TC	4.2		*	
		24	TC	4.1		*	
		27	TC	4.2		*	
		30	TC	4.1		*	
		33	TC	4.1		*	
9	150240	00	DS	<1.0		*	West patio
10	150288	00	DS	7.0		*	North yard
		06	DS	3.4		*	
		12	DS	1.7		*	
11	155193	00	DS	<1.0		*	South yard next
		03	TC	3.4		*	to sidewalk
		06	TC	4.1		*	DC = 0 inches
		09	TC	4.9		*	
		12	TC	5.0		*	
		15	TC	4.4		*	
		18	TC	4.2		*	
		21	TC	4.0		*	
		24	TC	4.0		*	
		27	TC	4.0		*	
		30	TC	3.9		*	
		33	TC	4.0		*	
12	155248	00	DS	<1.0		*	West patio

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
13	155280	03	TC	10.7		*	Northwest yard
		06	TC	9.0		*	DC = 12 inches
		09	TC	7.0		*	Based on the
		12	TC	5.6		*	deconvolution graph
		15	TC	4.9		*	
		18	TC	4.6		*	
		21	TC	4.3		*	
		24	TC	4.3		*	
		27	TC	4.3		*	
		30	TC	4.2		*	
		33	TC	4.3		*	
		36	TC	4.4		*	
		39	TC	4.5		*	
		42	TC	4.4		*	
		45	TC	4.4		*	
		48	TC	4.4		*	
		51	TC	4.4		*	
		54	TC	4.2		*	
		57	TC	4.2		*	
		60	TC	4.0		*	
		63	TC	4.0		*	
		66	TC	3.9		*	
		69	TC	3.9		*	
		72	TC	4.0		*	
		75	TC	4.0		*	
		78	TC	3.9		*	
		81	TC	4.0		*	
		84	TC	4.0		*	
		87	TC	4.0		*	
		90	TC	3.9		*	
		93	TC	3.9		*	
14	160193	00	DS	1.1		*	South yard next to
		03	TC	4.0		*	sidewalk
		06	TC	5.0		*	DC = 15 inches
		09	TC	5.8		*	Based on the
		12	TC	5.2		*	deconvoluion graph
		15	TC	4.5		*	
		18	TC	4.2		*	
		21	TC	4.0		*	
		24	TC	4.0		*	
		27	TC	3.8		*	
		30	TC	4.0		*	
		33	TC	4.0		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
15	160265	03	TC	25.5		*	North yard
		06	TC	19.8		*	DC = 12 inches
		09	TC	12.8		*	Based on the
		12	TC	8.3		*	deconvolution graph
		15	TC	5.8		*	
		18	TC	5.1		*	
		21	TC	4.7		*	
		24	TC	4.4		*	
		27	TC	4.4		*	
		30	TC	4.4		*	
		33	TC	4.4		*	
		36	TC	4.4		*	
		39	TC	4.5		*	
		42	TC	4.6		*	
		45	TC	4.6		*	
		48	TC	4.5		*	
		51	TC	4.5		*	
		54	TC	4.4		*	
		57	TC	4.4		*	
		60	TC	4.4		*	
		63	TC	4.3		*	
		66	TC	4.1		*	
		69	TC	4.0		*	
		72	TC	4.0		*	
		75	TC	3.9		*	
		78	TC	3.9		*	
		81	TC	3.8		*	
		84	TC	3.9		*	
		87	TC	3.9		*	
16	166229	00	DS	4.8		*	Gas line
		06	DS	1.8		*	
		11	DS	1.8		*	On gas line
17	170193	00	DS	<1.0		*	Surface
		08	DS	1.1		*	Horizontal
		03	TC	3.2		*	South yard next to
		06	TC	3.6		*	sidewalk
		09	TC	4.2		*	DC = 0 inches
		12	TC	4.7		*	
		15	TC	4.8		*	
		18	TC	4.5		*	
		21	TC	4.4		*	
		24	TC	4.2		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
17	170193	27	TC	4.1		*	
		30	TC	4.0		*	
		33	TC	3.9		*	
		36	TC	3.9		*	
18	170198	00	DS	4.0		*	South yard
		06	DS	2.1		*	
		12	DS	1.1		*	
19	170215	00	DS	4.6		*	South yard
		03	TC	5.0		*	DC = 9 inches
		06	TC	5.0		*	Based on the
		09	TC	4.5		*	deconvolution graph
		12	TC	4.4		*	
		15	TC	4.0		*	
		18	TC	3.9		*	
		21	TC	4.0		*	
		24	TC	4.0		*	
		27	TC	4.0		*	
		30	TC	4.1		*	
		33	TC	4.1		*	
20	174253	00	DS	12.4		*	Sewer line
		03	TC	11.1		*	DC = 18 inches
		06	TC	9.9		*	Based on the
		09	TC	8.0		*	deconvolution graph
		12	TC	6.6		*	
		15	TC	5.6		*	
		18	TC	4.9		*	
		21	TC	4.4		*	
		24	TC	4.2		*	
		27	TC	4.0		*	
		30	TC	3.9		*	
		33	TC	4.0		*	
		36	TC	4.0		*	
		39	TC	4.0		*	
		42	TC	4.2		*	
		45	TC	4.2		*	
		48	TC	4.3		*	
		51	TC	4.3		*	
		54	TC	4.2		*	
		57	TC	4.3		*	
		60	TC	4.3		*	
		63	TC	4.3		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
21	179225	00	DS	3.1		*	South of primary
		03	TC	4.1		*	structure
		06	TC	4.1		*	DC = 3 inches
		09	TC	3.9		*	Based on all
		12	TC	4.0		*	available data
		15	TC	3.9		*	
		18	TC	3.9		*	
		21	TC	3.9		*	
		24	TC	3.8		*	
		27	TC	3.9		*	
		30	TC	3.9		*	
		33	TC	3.9		*	
22	180193	03	TC	3.7		*	South yard next to
		06	TC	4.1		*	sidewalk
		09	TC	5.2		*	DC = 15 inches
		12	TC	6.0		*	Based on the
		15	TC	5.3		*	deconvolution graph
		18	TC	4.5		*	
		21	TC	4.2		*	
		24	TC	4.0		*	
		27	TC	3.9		*	
		30	TC	3.9		*	
		33	TC	3.9		*	
		36	TC	3.9		*	
		39	TC	3.9		*	
		42	TC	3.9		*	
		45	TC	4.0		*	
		48	TC	4.1		*	
		51	TC	4.2		*	
		54	TC	4.1		*	
		57	TC	4.1		*	
		60	TC	4.1		*	
		63	TC	4.1		*	
		66	TC	4.1		*	
		69	TC	4.1		*	
		72	TC	4.1		*	
		75	TC	4.1		*	
		78	TC	4.0		*	
		81	TC	3.8		*	
		84	TC	3.8		*	
		87	TC	3.8		*	
		90	TC	3.8		*	
		93	TC	3.8		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
23	180280	03	TC	9.8		*	North yard
		06	TC	8.9		*	DC = 12 inches
		09	TC	7.0		*	Based on the
		12	TC	5.6		*	deconvolution graph
		15	TC	4.8		*	
		18	TC	4.4		*	
		21	TC	4.3		*	
		24	TC	4.3		*	
		27	TC	4.2		*	
		30	TC	4.3		*	
		33	TC	4.3		*	
		36	TC	4.4		*	
		39	TC	4.5		*	
		42	TC	4.4		*	
		45	TC	4.3		*	
		48	TC	4.3		*	
		51	TC	4.3		*	
		54	TC	4.2		*	
		57	TC	4.1		*	
		60	TC	4.0		*	
24	185265	03	TC	12.1		*	North yard
		06	TC	11.7		*	DC = 12 inches
		09	TC	9.1		*	Based on the
		12	TC	6.6		*	deconvolution graph
		15	TC	5.3		*	
		18	TC	4.6		*	
		21	TC	4.5		*	
		24	TC	4.4		*	
		27	TC	4.2		*	
		30	TC	4.3		*	
		33	TC	4.3		*	
		36	TC	4.4		*	
		39	TC	4.5		*	
		42	TC	4.5		*	
		45	TC	4.5		*	
		48	TC	4.4		*	
		51	TC	4.4		*	
		54	TC	4.5		*	
		57	TC	4.5		*	
		60	TC	4.4		*	
		63	TC	4.3		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
25	186193	00	DS	<1.0		*	South yard next to
		03	TC	3.3		*	sidewalk
		06	TC	4.0		*	DC = 0 inches
		09	TC	4.6		*	
		12	TC	4.9		*	
		15	TC	4.6		*	
		18	TC	4.4		*	
		21	TC	4.0		*	
		24	TC	3.9		*	
		27	TC	3.9		*	
		30	TC	3.9		*	
		33	TC	3.9		*	
26	195193	00	DS	1.6		*	South yard next to
		03	TC	3.4		*	sidewalk
		06	TC	4.1		*	DC = 0 inches
		09	TC	4.8		*	
		12	TC	4.9		*	
		15	TC	4.4		*	
		18	TC	4.1		*	
		21	TC	4.0		*	
		24	TC	3.9		*	
		27	TC	3.9		*	
		30	TC	3.9		*	
		33	TC	3.9		*	
		36	TC	3.9		*	
27	195205	03	TC	6.3		*	South of primary
		06	TC	5.6		*	structure
		09	TC	4.9		*	DC = 9 inches
		12	TC	4.4		*	Based on the
		15	TC	4.2		*	deconvolution graph
		18	TC	4.1		*	
		21	TC	4.1		*	
		24	TC	4.0		*	
		27	TC	4.1		*	
		30	TC	4.2		*	
28	195221	00	DS	7.7		*	South yard
		03	TC	6.3		*	DC = 6 inches
		06	TC	5.4		*	Based on the
		09	TC	4.9		*	deconvolution graph
		12	TC	4.4		*	
		15	TC	4.2		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
28	195221	18	TC	4.1		*	
		21	TC	4.0		*	
		24	TC	4.0		*	
		27	TC	4.0		*	
29	195227	00	DS	<1.0		*	South yard
30	195232	00	DS	4.6		*	South of primary
		03	TC	5.5		*	structure
		06	TC	5.2		*	DC = 9 inches
		09	TC	4.7		*	Based on the
		12	TC	4.3		*	deconvolution graph
		15	TC	4.1		*	
		18	TC	3.9		*	
		21	TC	3.8		*	
		24	TC	3.9		*	
		27	TC	3.9		*	
		30	TC	4.0		*	
31	195287	00	DS	6.0		*	West of garage
		06	DS	2.5		*	
		12	DS	1.3		*	
32	200245	00	DS	12.0		*	
33	201220	00	DS	3.3		*	Northeast yard
		06	DS	2.0		*	
34	201260	00	DS	2.7		*	Northeast yard
		04	DS	2.0		*	
35	202193	00	DS	<1.0		*	South yard next
		03	TC	3.1		*	to sidewalk
		06	TC	3.6		*	DC = 0 inches
		09	TC	4.2		*	
		12	TC	4.7		*	
		15	TC	4.3		*	
		18	TC	4.1		*	
		21	TC	3.9		*	
		24	TC	3.8		*	
		27	TC	3.8		*	
		30	TC	3.7		*	
		33	TC	3.7		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
35	202193	36	TC	3.7		*	
		39	TC	3.8		*	
36	207235	00	DS	1.3		*	Water line
		03	TC	3.4		*	DC = 0 inches
		06	TC	3.7		*	
		09	TC	3.7		*	
		12	TC	3.8		*	
		15	TC	3.9		*	
		18	TC	3.9		*	
		21	TC	3.8		*	
		24	TC	3.8		*	
		27	TC	3.8		*	
		30	TC	3.9		*	
		33	TC	3.9		*	
		36	TC	4.1		*	
		39	TC	4.2		*	
		42	TC	4.2		*	
		45	TC	4.3		*	
		48	TC	4.3		*	
		51	TC	4.3		*	
		54	TC	4.4		*	
		57	TC	4.3		*	
		60	TC	4.3		*	
		63	TC	4.3		*	
		66	TC	4.2		*	
		69	TC	4.1		*	
		72	TC	4.0		*	
		75	TC	4.0		*	
		78	TC	3.9		*	
		81	TC	3.9		*	
		84	TC	4.0		*	
37	210193	03	TC	2.8		*	South yard next
		06	TC	3.2		*	to sidewalk
		09	TC	3.4		*	DC = 0 inches
		12	TC	3.5		*	
		15	TC	3.7		*	
		18	TC	3.8		*	
		21	TC	3.8		*	
		24	TC	3.7		*	
		27	TC	3.8		*	
		30	TC	3.9		*	
		33	TC	3.9		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
37	210193	36	TC	3.9		*	
		39	TC	3.9		*	
		42	TC	4.0		*	
		45	TC	4.0		*	
		48	TC	4.2		*	
		51	TC	4.0		*	
		54	TC	4.1		*	
		57	TC	3.9		*	
		60	TC	4.0		*	
		63	TC	4.0		*	
		66	TC	4.0		*	
		69	TC	4.0		*	
		72	TC	4.0		*	
		75	TC	4.0		*	
		78	TC	3.9		*	
		81	TC	3.8		*	
		84	TC	3.7		*	
		87	TC	3.7		*	
		90	TC	3.7		*	
		93	TC	3.7		*	
38	215200	00	DS	1.3		*	Background
		03	TC	3.8		*	DC = 0 inches
		06	TC	3.8		*	
		09	TC	3.8		*	
		12	TC	3.8		*	
		15	TC	3.8		*	
		18	TC	3.8		*	
		21	TC	3.8		*	
		24	TC	3.8		*	
		27	TC	3.9		*	
		30	TC	3.8		*	
		33	TC	3.9		*	
		36	TC	4.0		*	
		39	TC	4.0		*	
		42	TC	4.2		*	
		45	TC	4.2		*	
		48	TC	4.1		*	
		51	TC	4.1		*	
		54	TC	4.0		*	
		57	TC	3.9		*	
		60	TC	4.0		*	
		63	TC	4.0		*	
		66	TC	4.0		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	In Situ Ra-226 (pCi/g) Spectr.	Chem Ra-226 (pCi/g)	Comments
39	225240	00	DS	3.0		*	East driveway
		06	DS	1.6		*	
40	227253	00	DS	1.5		*	East yard
		06	DS	2.1		*	
		12	DS	1.4		*	
41	228273	00	DS	9.7		*	Northeast yard
		06	DS	2.5		*	
		12	DS	<1.0		*	

Measurement Type:
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 = 05-31-85
Team Leader = MJH

Table 3.2
Summary of Interior Gamma Exposure Rates

DOE ID No. GJ-12309-RS 2808 Orchard Avenue

Location *	Number of Readings Taken at Waist Level	Range at Waist Level (uR/h)	Mean at Waist Level (uR/h)	Number of Readings Taken at Surface	Range at Surface (uR/h)	Mean Surface (uR/h)
Basement	*	*	*	*	15-16	*
Crawl Space	*	*	*	*	16-17	*
Ground Floor	*	*	*	*	14-16	*
Garage	*	*	*	*	15-17	*

* A walking gamma scan was performed to confirm the absence of interior contamination at this location.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ 12309 RS

AREA	CALCULATIONS(ft)		SF	DEPTH(ft)		CF	CUBIC YARDS
EXTERIOR							
A	25 x 22	=	550				
	39 x 30	=	1,170				
	30 x 10	=	300				
			2,020	x	1.0 =	2,020	
B	8 x 7	=	56	x	0.5 =	28	
C	5 x 7	=	35				
	5 x 4	=	20				
			55	x	0.5 =	28	
D	2 x 29	=	58	x	0.3 =	17	
E	8 x 5	=	40	x	0.8 =	32	
F	4 x 9	=	36				
	13 x 4	=	52				
	19 x 2	=	38				
			126	x	0.3 =	38	
G	12 x 11	=	132	x	0.5 =	66	
H	8 x 10	=	80				
	33 x 20	=	660				
	5 x 10	=	50				
	10 x 6	=	60				
	12 x 16	=	192				
			1,042	x	0.8 =	834	
I	6 x 21	=	126				
	65 x 3	=	195				
			321	x	0.5 =	161	
J	2 x 20	=	40	x	1.0 =	40	

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-12309-RS

AREA	CALCULATIONS(ft)		SF		DEPTH(ft)		CF			CUBIC YARDS
K	17 x 31	=	527	x	1.0	=	527			
L	25 x 9	=	225							
	21 x 6	=	126							
			351	x	1.3	=	456			
M	7 x 3	=	21	x	0.5	=	11			
N	40 x 4	=	160	x	1.5	=	240			
	Volume of Fill						4,498	=	4,498/27	= 167
	TOTAL VOLUME - EXTERIOR									= 167

See Appendix Figure 3.3 For Areas

Table 4.2
Estimated Cost of Decontamination and Restoration
DOE ID No. GJ-12309-RS

Remove identified residual radioactive material		
154 cy @ $14.50/cy (machine-open)		$ 2,233
13 cy @ $44/cy (manual-open)		572
Replace areas with compacted roadbase		
7 cy @ $11.50/cy		81
Replace areas with topsoil		
160 cy @ $9.50/cy		1,520
Replace areas with sod		
4,749 sf @ $.35/sf		1,662
	TOTAL EXTERIOR	$ 6,068
	TOTAL INTERIOR	0
	ACCESS CONTROL	100
	SUBTOTAL	$ 6,168
	CONTINGENCY @ 10%	617
	SUBTOTAL	$ 6,785
	CONTRACTOR OVERHEAD & PROFIT @ 25%	1,696
	GRAND TOTAL	$ 8,481

LR070585
REA12309/REA-701/AP

FIGURE 2.1
VICINITY MAP

BEGINNING 395.0 FEET EAST OF SOUTHWEST CORNER OF THE NORTHWEST 1/4 SECTION 7, T.1S., R.1E., U.M., CITY OF GRAND JUNCTION, COLORADO; THENCE NORTH 154.0, THENCE EAST 78.0 FEET, THENCE SOUTH 154.0 FEET, THENCE WEST TO BEGINNING; AND PART OF LOT 2 LAURIE ANN SUBDIVISION SAID SECTION 7, AS DESCRIBED IN BOOK 1421, PAGE 1000; EXCEPT ROAD R.O.W. AS DESCRIBED IN BOOK 1385, PAGE 709 AND BOOK 1386, PAGE 743 OF THE MESA COUNTY RECORDS.

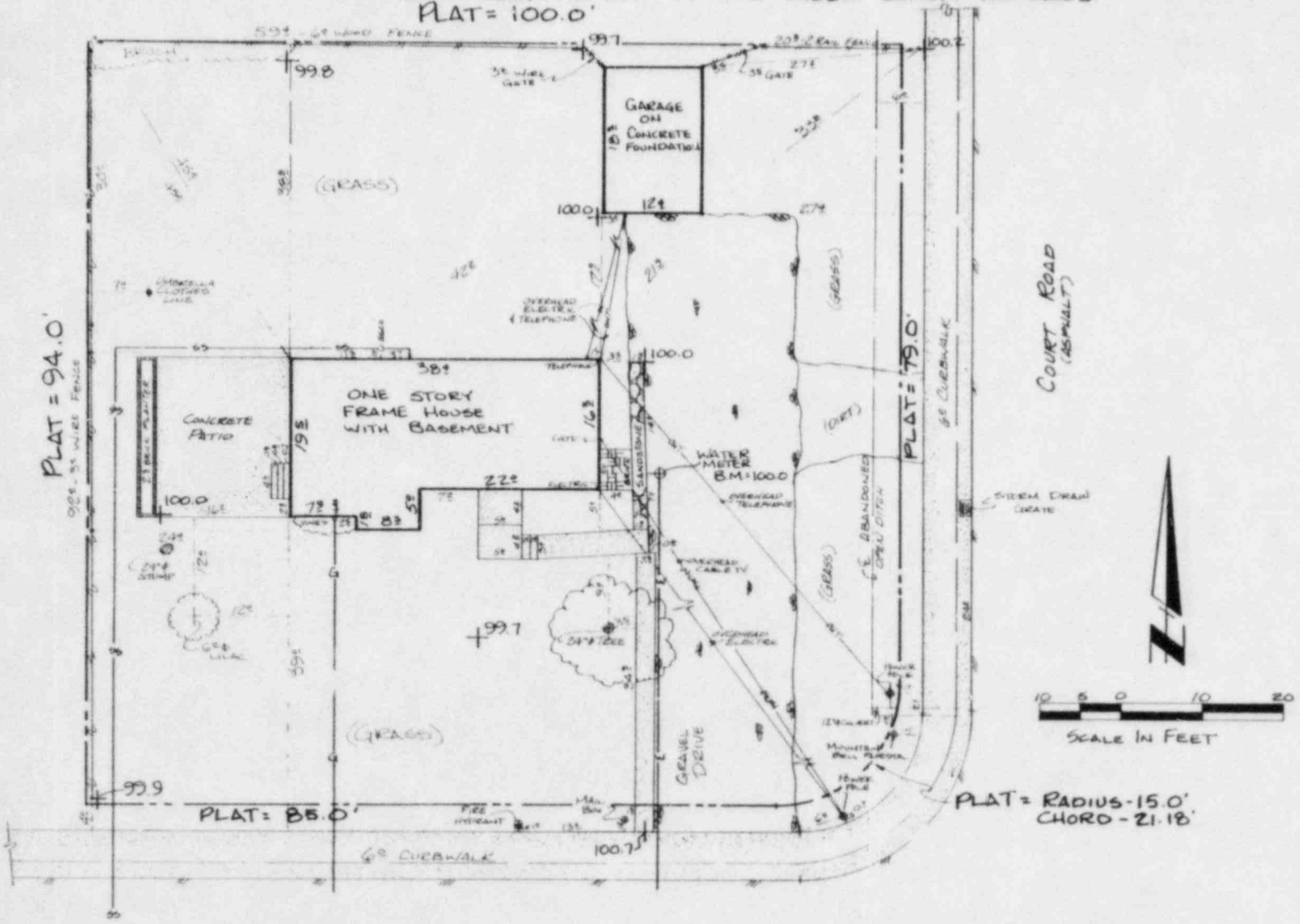
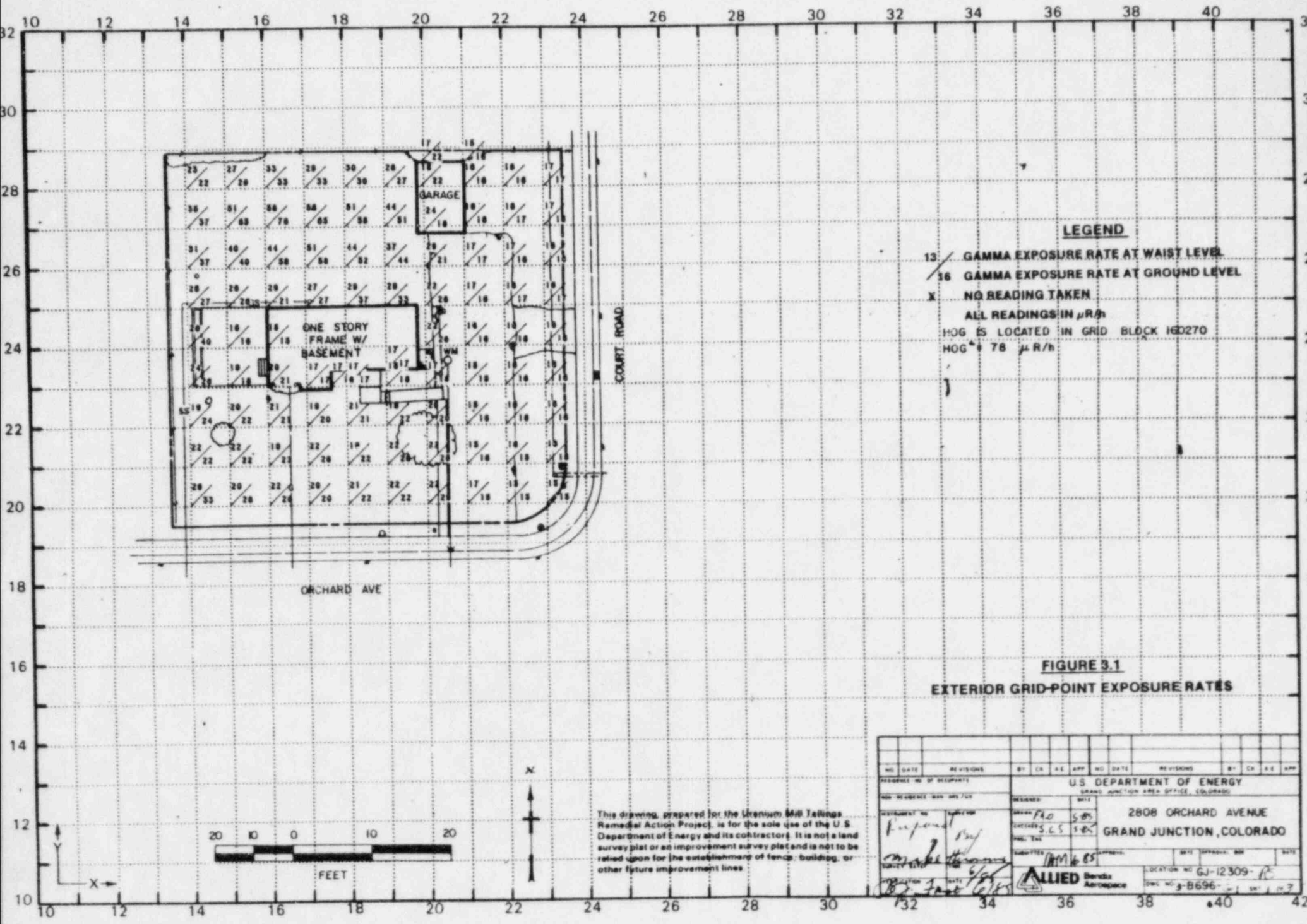


FIGURE 2.2 SITE PLAN

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION PROJECT OFFICE, COLORADO	DOE ID NO. CO.J 12309 RS
ADDRESS 2808 ORCHARD AVENUE GRAND JUNCTION, COLORADO	ALLIED
SURV GDE-5 28 85 DRAFT RSK-5 29 85	CK
DRAWING NO 3 C696 F1	SHEET 1 OF 1

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



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U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION AREA OFFICE, COLORADO

2808 ORCHARD AVENUE
GRAND JUNCTION, COLORADO

ALLIED Bendix Aerospace

LOCATION NO. GJ-12309-

DWG. NO. 3-8696-

FIGURE 3.1

EXTERIOR GRID-POINT EXPOSURE RATES

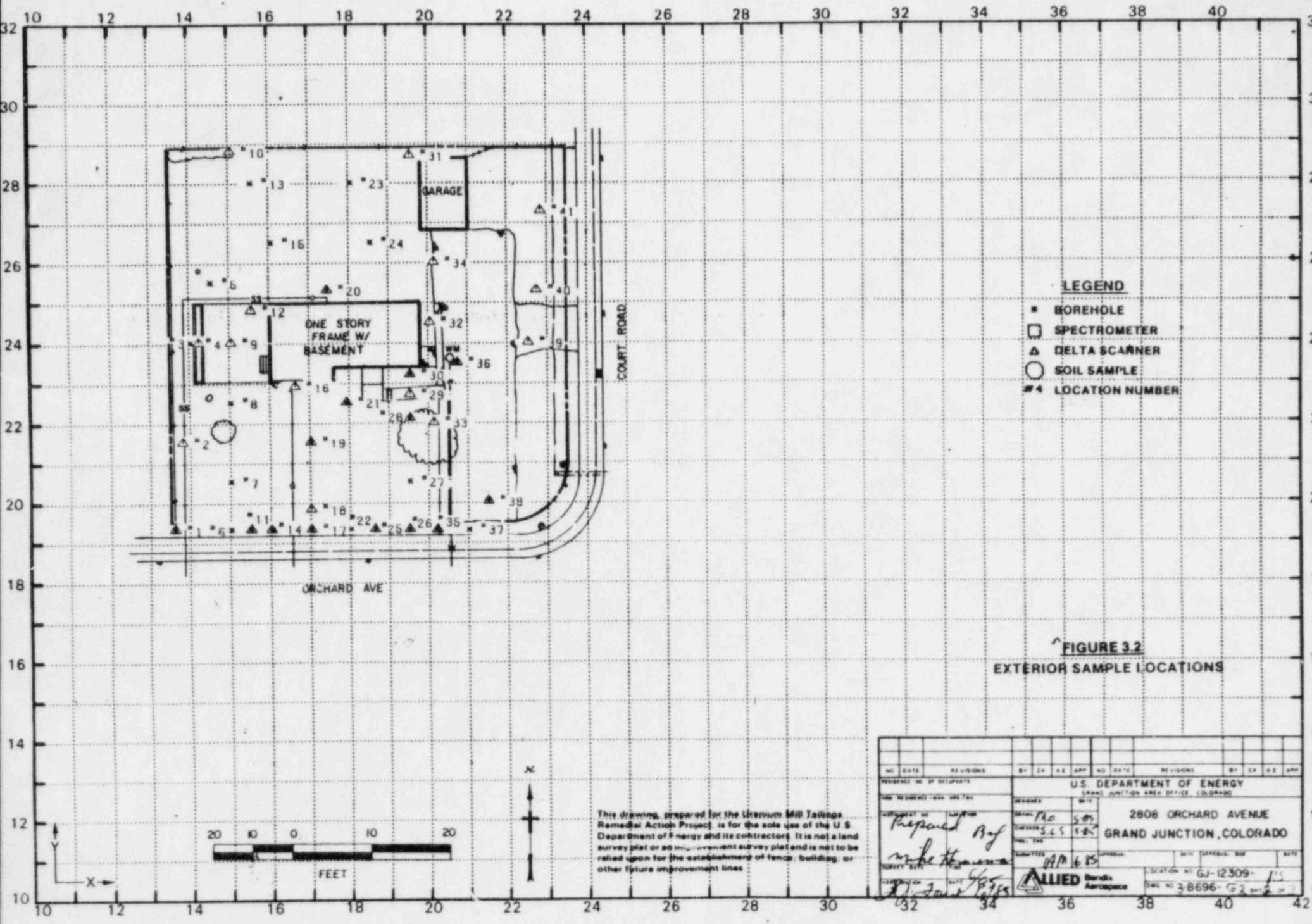
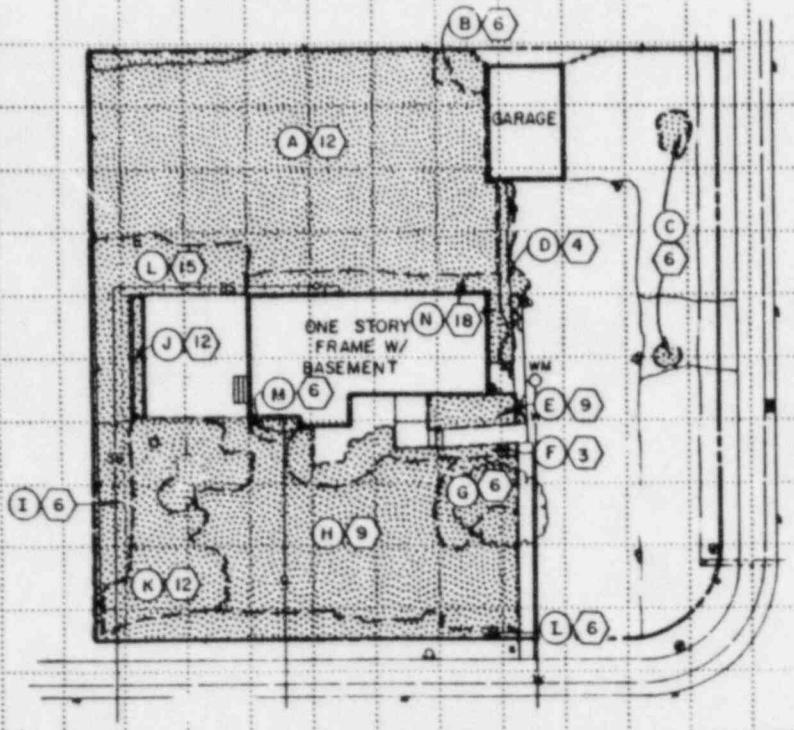


FIGURE 3.2

EXTERIOR SAMPLE LOCATIONS



LEGEND

- BOUNDARY OF CONTAMINATION
- A — AREA OF CONTAMINATION
- 18 — DEPTH OF CONTAMINATION (INCHES)
- CONTAMINATED AREA

FIGURE 3.3

ESTIMATED EXTENT OF CONTAMINATION

20 10 0 10 20

FEET

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U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION AREA OFFICE, COLORADO

2808 ORCHARD AVENUE
GRAND JUNCTION, COLORADO

ALLIED Bendix Aerospace

LOCATION NO. GJ-12309-

DWG. NO. 3-8696-G

3/85

DOE ID NO. GJ-12309-RS Date 6-13-85

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

Official Survey Report

Property Address 2808 Orchard Avenue

Property Owner D.M. and A. Cooksey

Address of Owner (if different from above) NA

Report Prepared By Mike Heronema

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

[ ] No evidence of residual radioactive material on surveyed property.

[X] Residual ractioactive materials found at the following locations:

- [X] In open areas.
- [X] Under or around exterior improvements.
- [X] Under or around a typically nonoccupied structure.
- [X] 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.

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

cc:
G. A. Franz, III, GJ/CDH
J. Themelis, Mgr. UMTRA Proj. Off.

HIG = 16 uR/h
HOG = 78 uR/h

MEMORANDUM

ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado

Date: June 10, 1985

To: Files

From: Mike Heronema

Subject: Team Leader Notes - GJ-12309-RS

Address: 2808 Orchard Avenue

Owner: Donny Cooksey

Team Members

M. Heronema (Team Leader)
M. Duran
R. Herman
C. Adams
D. Bell
H. Mattison
V. Rothman

Date: May 31, 1985

The sewer line exits the house at approximately 18-inches. The system is partially uncovered and in the process of being repaired. A portion of this line is in contaminated soil.

The water and gas lines were investigated with no apparent contamination.

An investigation of the road fill adjacent to the south sidewalk revealed contamination at approximately 15-inches.

MEMORANDUM

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D. Bell
H. Mattison
V. Rothman

Date: May 31, 1985

The sewer line exits the house at approximately 18-inches. The system is partially uncovered and in the process of being repaired. A portion of this line is in contaminated soil.

The water and gas lines were investigated with no apparent contamination.

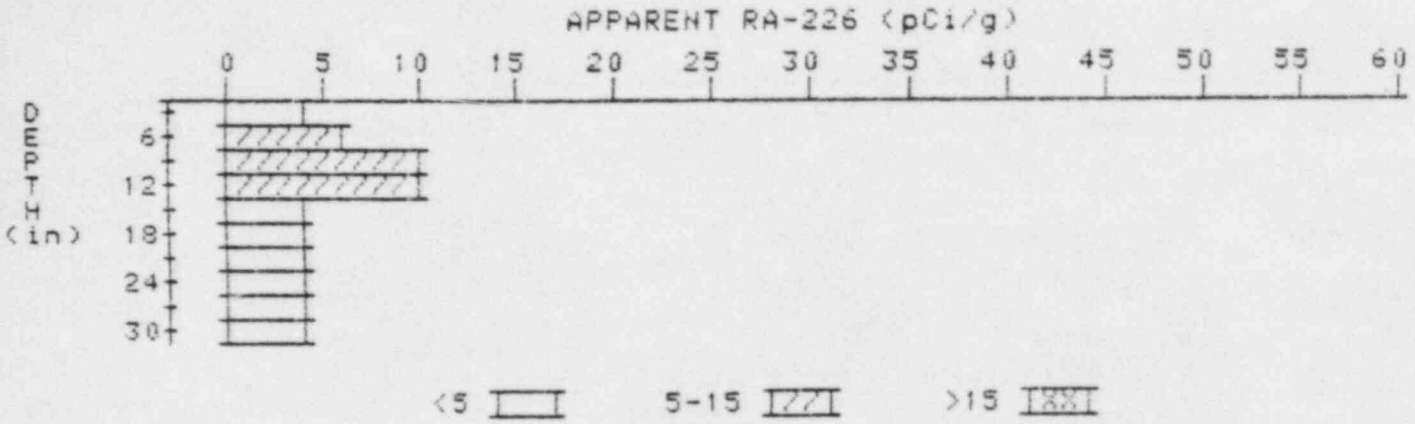
An investigation of the road fill adjacent to the south sidewalk revealed contamination at approximately 15-inches.

Date: July 8, 1985

The deposits in the north and west yards does not spillover to the adjacent properties. This was verified by C. Adams and M. Heronema on 5 July 1985.

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

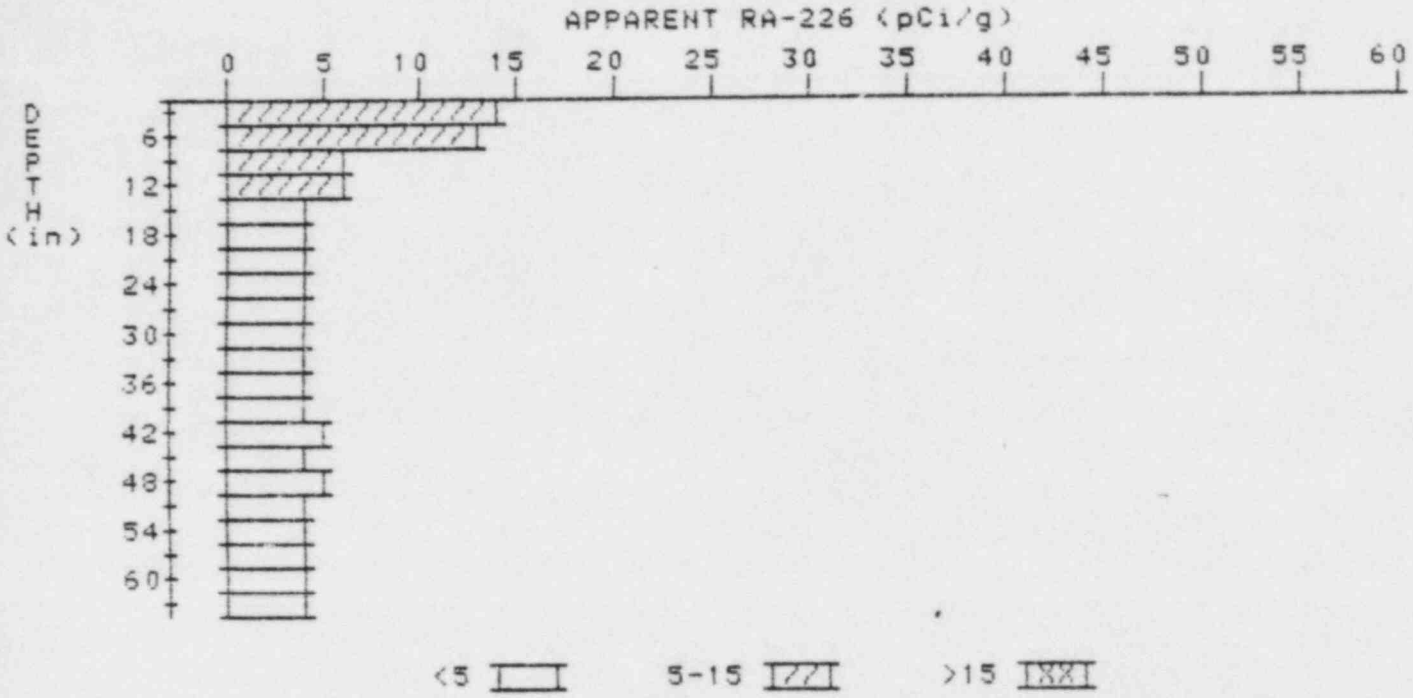
PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 1
LOCATION: 136193



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.3	4.3
6	5.8	5.6
9	7.4	10.2
12	7.4	10.2
15	5.8	4.4
18	5.0	4.3
21	4.6	4.2
24	4.4	4.4
27	4.2	3.8
30	4.2	4.2

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 3
LOCATION: 140240

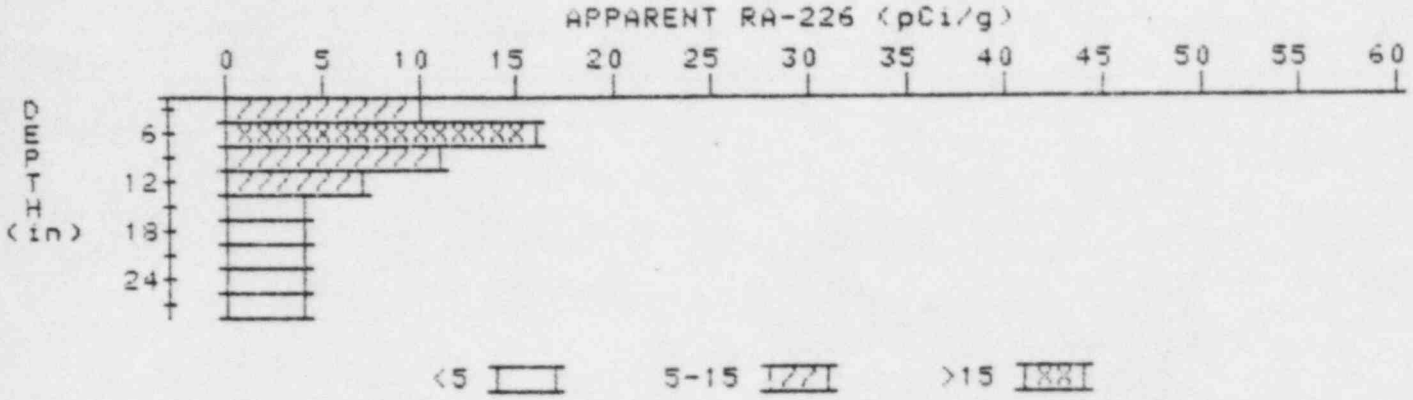


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	13.7	13.7
6	11.4	13.0
9	8.2	5.5
12	6.5	6.0
15	5.1	3.5
18	4.6	4.2
21	4.3	3.9
24	4.2	4.0
27	4.2	4.4
30	4.1	3.7
33	4.2	4.4
36	4.2	4.0
39	4.3	4.3
42	4.4	4.8
45	4.3	3.9
48	4.4	4.8
51	4.3	4.3

54	4.2	4.2
57	4.1	4.3
60	3.9	3.5
63	3.9	3.9

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

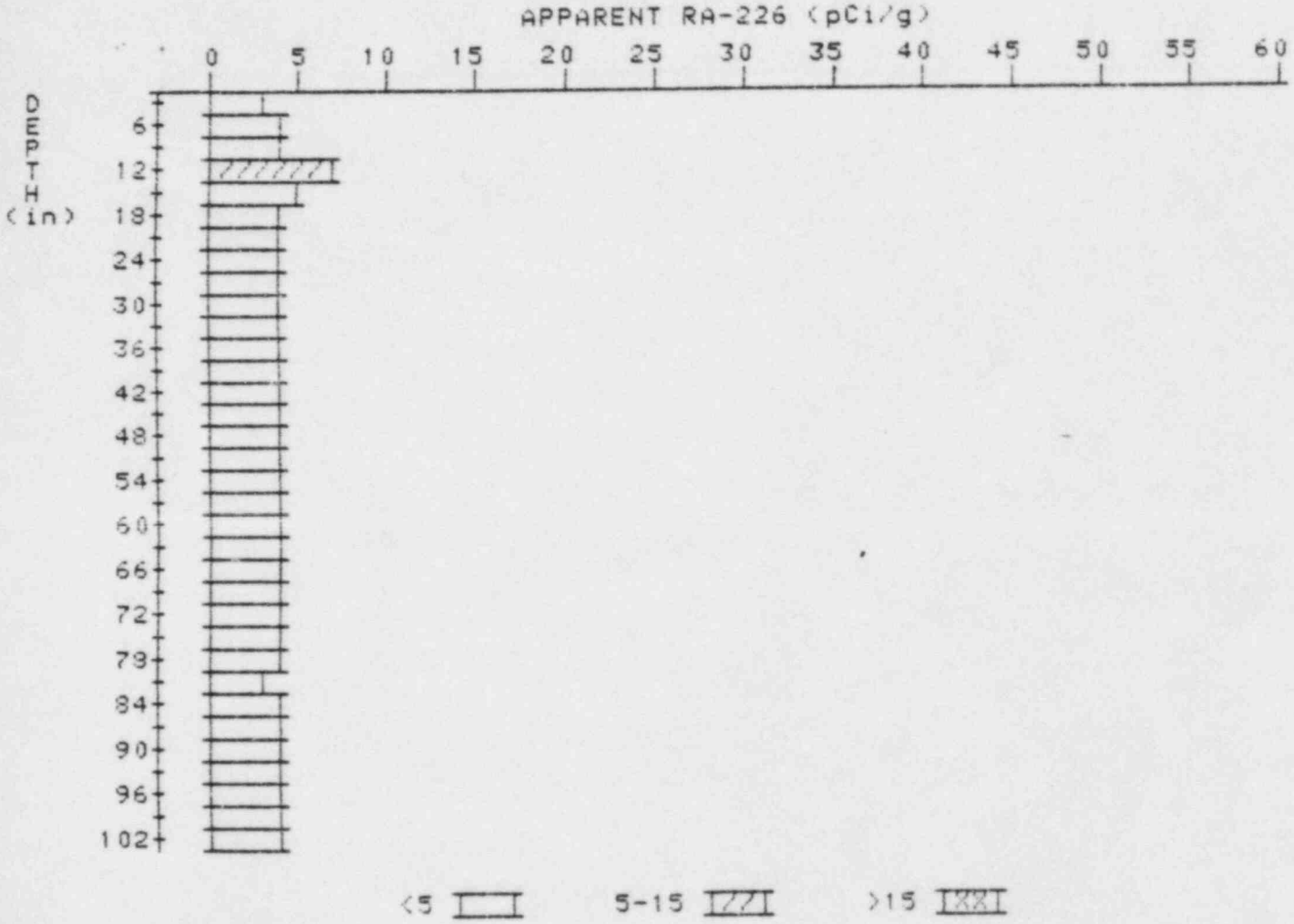
PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 5
LOCATION: 145255



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	9.6	9.6
6	11.0	16.0
9	9.6	11.0
12	7.4	6.7
15	5.6	3.8
18	4.8	3.9
21	4.5	4.3
24	4.3	4.1
27	4.2	4.2

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 6
LOCATION: 150193

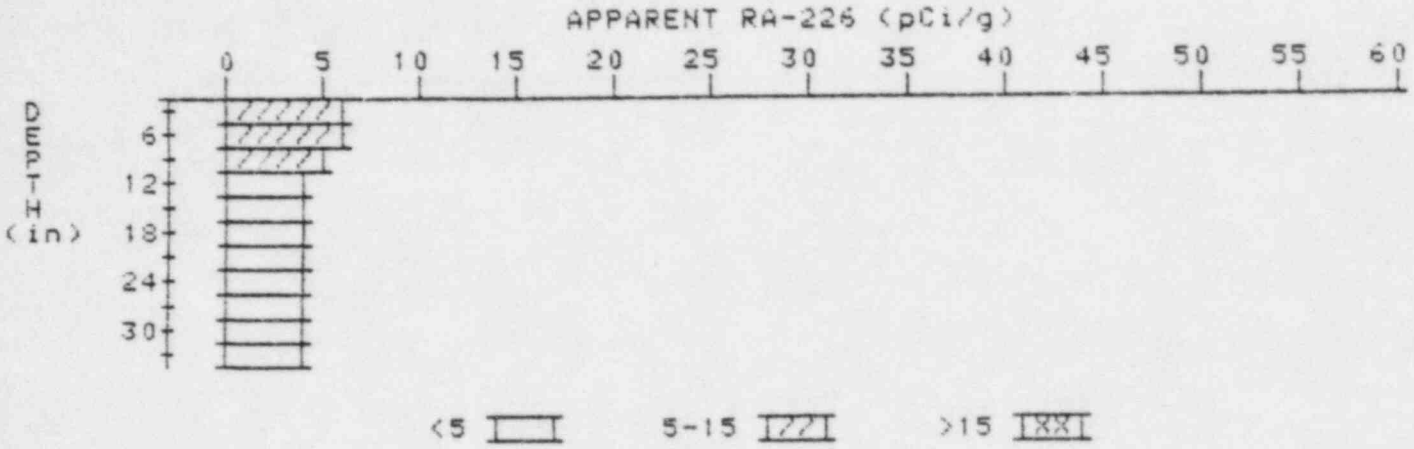


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.2	3.2
6	3.8	4.2
9	4.2	3.7
12	4.9	6.7
15	4.6	4.8
18	4.2	3.8
21	4.0	3.8

24	3.9	3.9
27	3.8	3.6
30	3.8	3.8
33	3.8	3.8
36	3.8	3.8
39	3.8	3.6
42	3.9	4.1
45	3.9	3.7
48	4.0	4.0
51	4.1	4.3
54	4.1	4.3
57	4.0	3.6
60	4.1	4.5
63	4.0	3.8
66	4.0	3.8
69	4.1	4.3
72	4.1	4.1
75	4.1	4.3
78	4.0	4.2
81	3.8	3.4
84	3.8	4.0
87	3.7	3.5
90	3.7	3.7
93	3.7	3.7
96	3.7	3.7
99	3.7	3.7
102	3.7	3.7

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

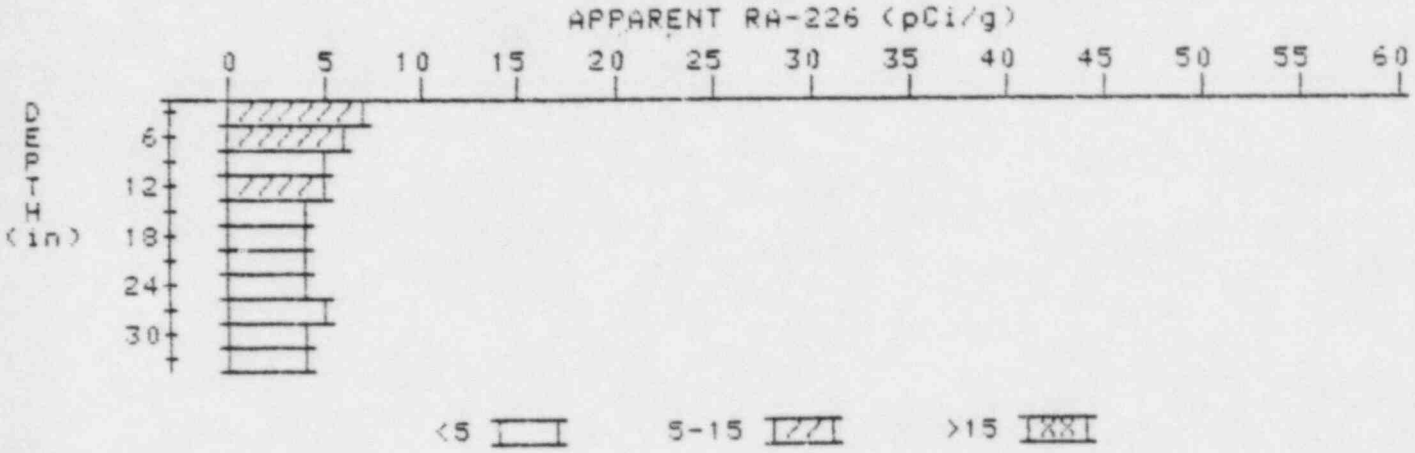
PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 7
LOCATION: 150205



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	6.1	6.1
6	5.8	6.3
9	5.2	5.0
12	4.7	4.3
15	4.4	4.2
18	4.2	4.0
21	4.1	3.9
24	4.1	4.1
27	4.1	3.9
30	4.2	4.4
33	4.2	4.2

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

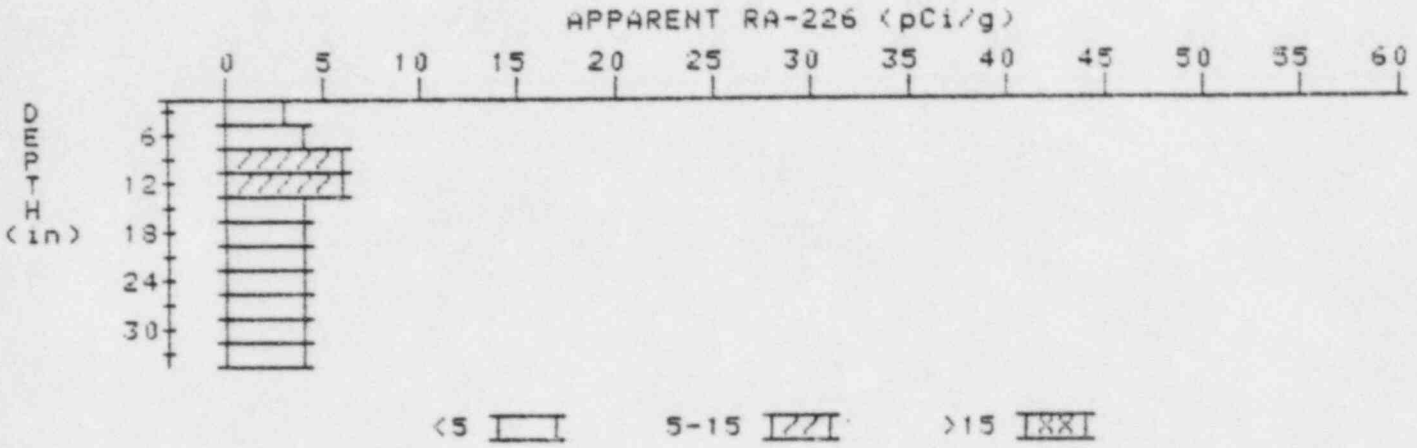
PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 8
LOCATION: 150225



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	6.5	6.5
6	6.0	6.4
9	5.3	4.8
12	4.9	5.1
15	4.4	3.9
18	4.2	3.8
21	4.2	4.4
24	4.1	3.7
27	4.2	4.6
30	4.1	3.9
33	4.1	4.1

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

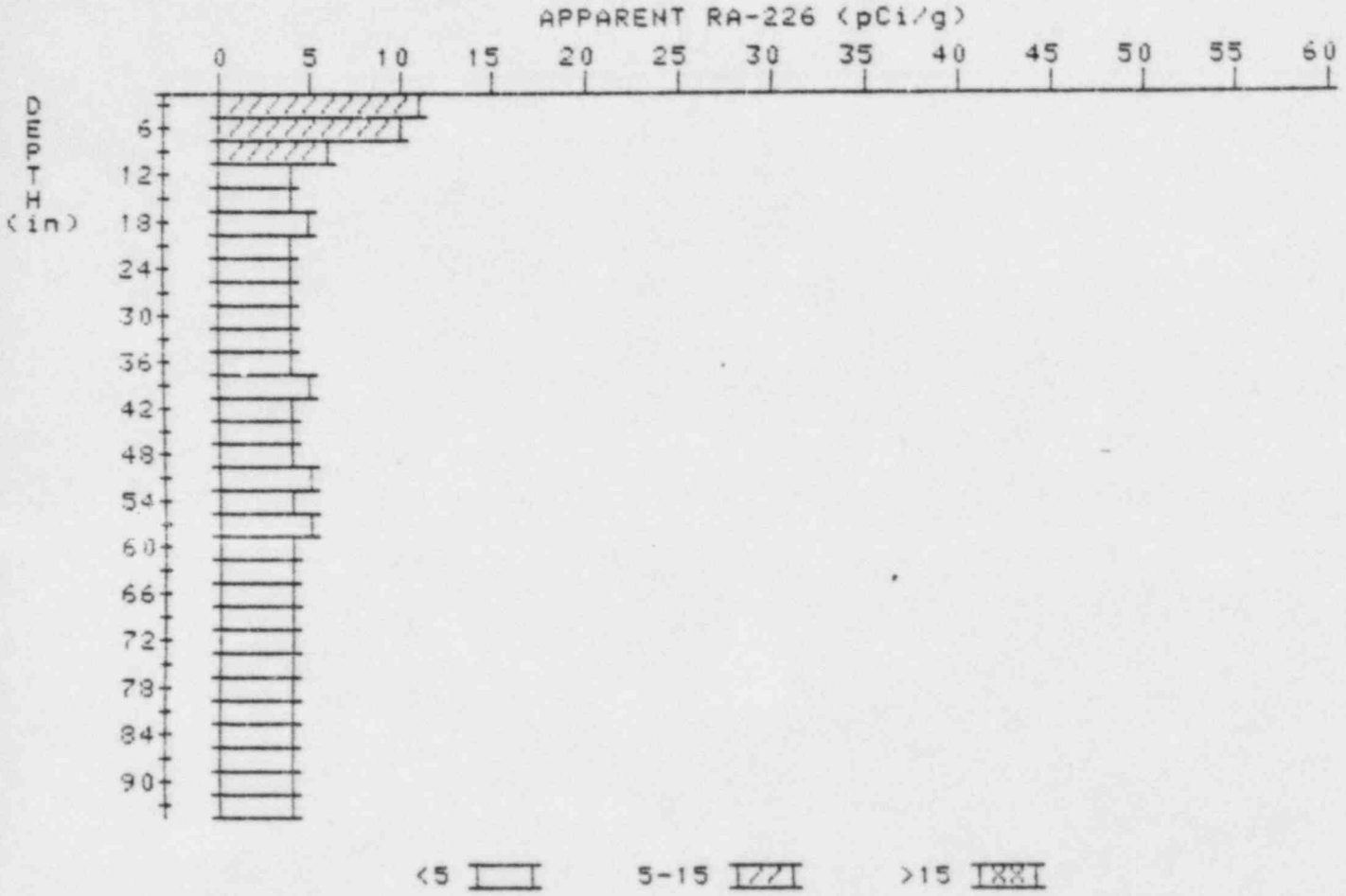
PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 11
LOCATION: 155193



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.4	3.4
6	4.1	3.9
9	4.9	6.1
12	5.0	6.2
15	4.4	3.7
18	4.2	4.2
21	4.0	3.6
24	4.0	4.0
27	4.0	4.2
30	3.9	3.5
33	4.0	4.0

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 13
LOCATION: 155280



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	10.7	10.7
6	9.0	9.5
9	7.0	5.9
12	5.6	4.4
15	4.9	4.2
18	4.6	4.6
21	4.3	3.8
24	4.3	4.3
27	4.3	4.5

30	4.2	3.8
33	4.3	4.3
36	4.4	4.4
39	4.5	4.9
42	4.4	4.2
45	4.4	4.4
48	4.4	4.4
51	4.4	4.8
54	4.2	3.8
57	4.2	4.6
60	4.0	3.6
63	4.0	4.2
66	3.9	3.7
69	3.9	3.7
72	4.0	4.2
75	4.0	4.2
78	3.9	3.5
81	4.0	4.2
84	4.0	4.0
87	4.0	4.2
90	3.9	3.7
93	3.9	3.9

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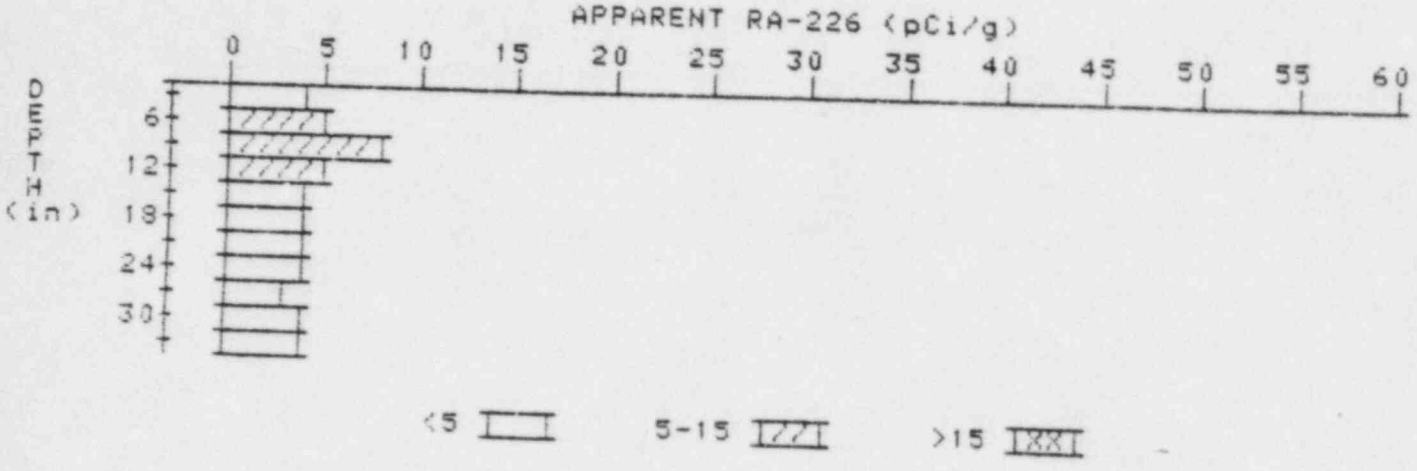
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

14

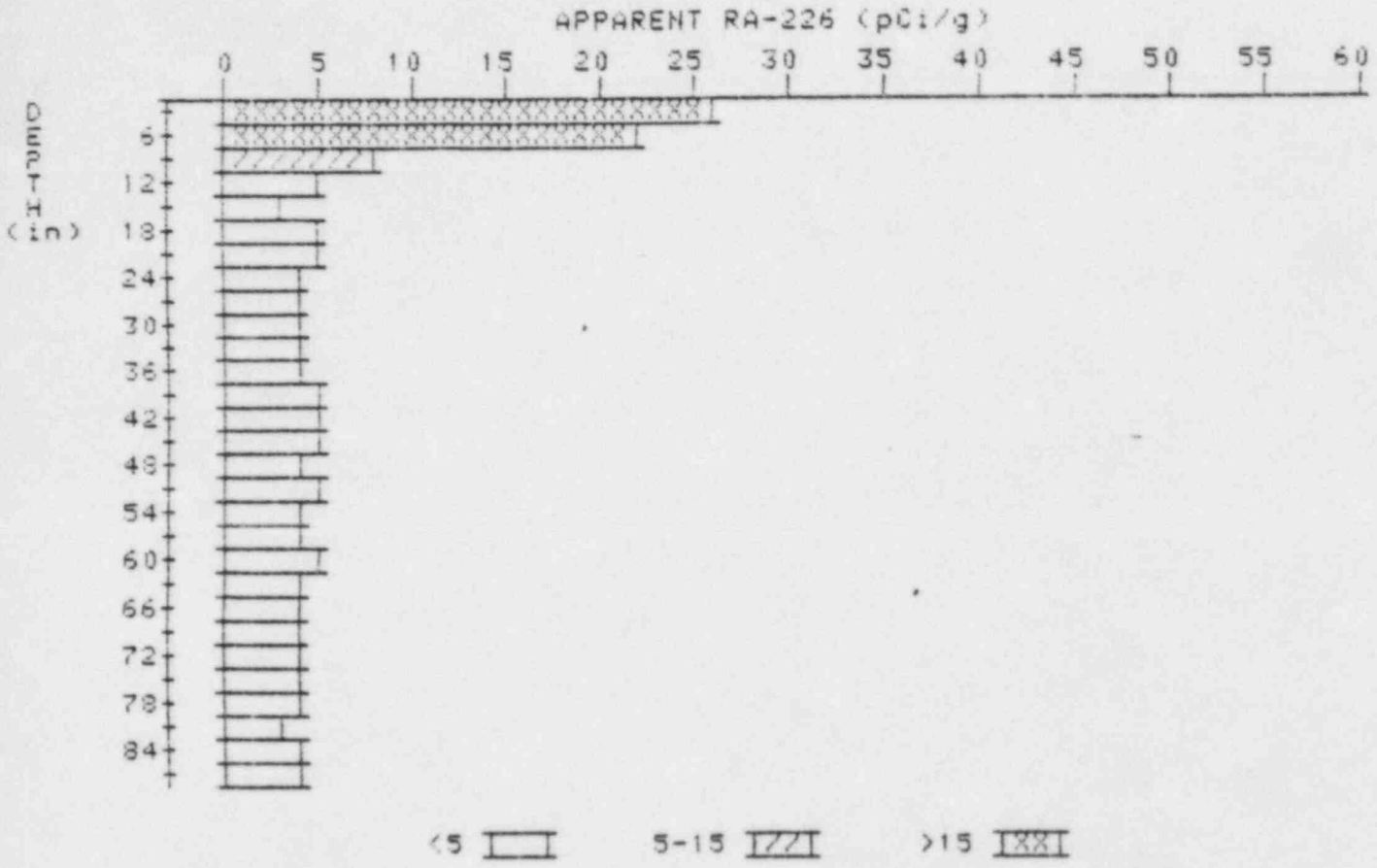
PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 14
LOCATION: 160193



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.0	4.0
6	5.0	5.4
9	5.8	8.3
12	5.2	5.4
15	4.5	3.8
18	4.2	4.0
21	4.0	3.6
24	4.0	4.4
27	3.8	3.1
30	4.0	4.4
33	4.0	4.0

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 15

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 15
LOCATION: 160265



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	25.5	25.5
6	19.8	22.1
9	12.8	8.4
12	8.3	4.7
15	5.8	2.6
18	5.1	4.6
21	4.7	4.5
24	4.4	3.9
27	4.4	4.4
30	4.4	4.4
33	4.4	4.4

36	4.4	4.2
39	4.5	4.5
42	4.6	4.8
45	4.6	4.8
48	4.5	4.3
51	4.5	4.7
54	4.4	4.2
57	4.4	4.4
60	4.4	4.6
63	4.3	4.5
66	4.1	3.9
69	4.0	3.8
72	4.0	4.2
75	3.9	3.7
78	3.9	4.1
81	3.8	3.4
84	3.9	4.1
87	3.9	3.9

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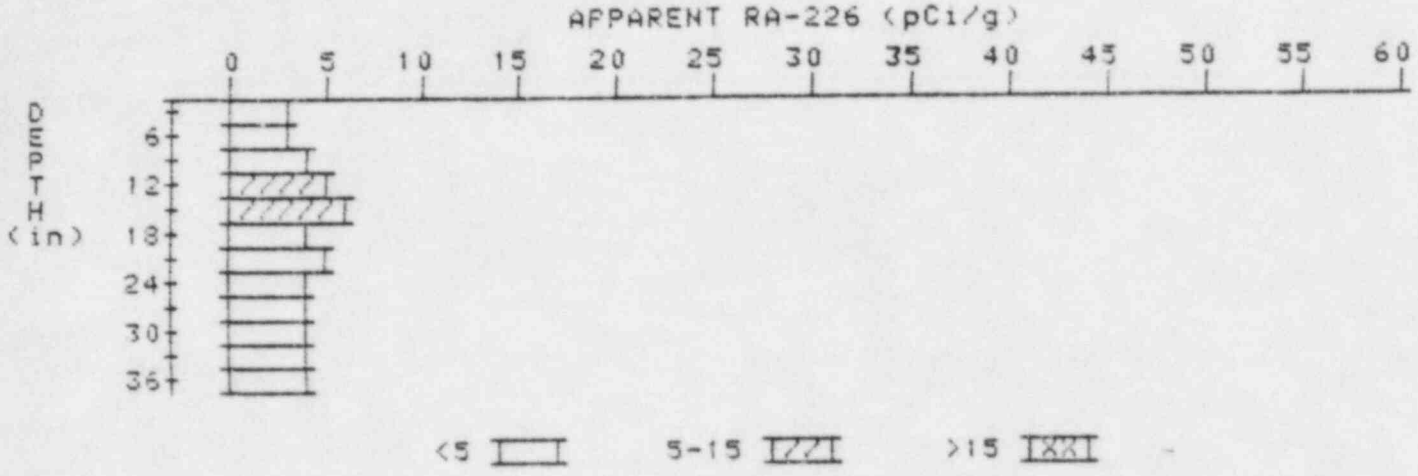
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 17

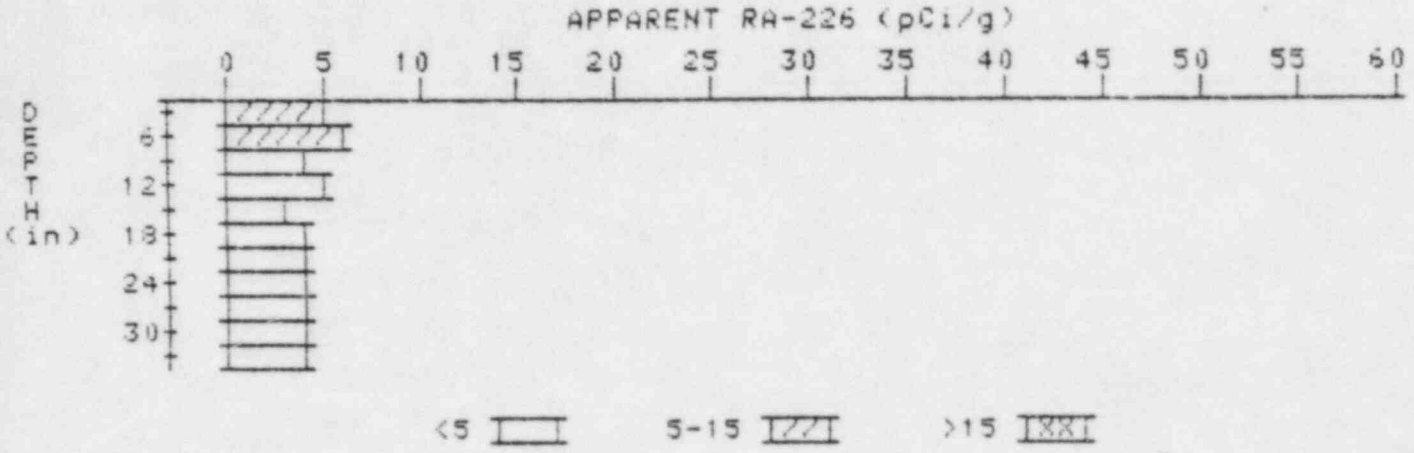
PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 17
LOCATION: 170193



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.2	3.2
6	3.6	3.2
9	4.2	4.4
12	4.7	5.4
15	4.8	5.5
18	4.5	4.1
21	4.4	4.6
24	4.2	4.0
27	4.1	4.1
30	4.0	4.0
33	3.9	3.7
36	3.9	3.9

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 19
LOCATION: 170215



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	5.0	5.0
6	5.0	5.9
9	4.5	3.8
12	4.4	4.9
15	4.0	3.5
18	3.9	3.5
21	4.0	4.2
24	4.0	4.0
27	4.0	3.8
30	4.1	4.3
33	4.1	4.1

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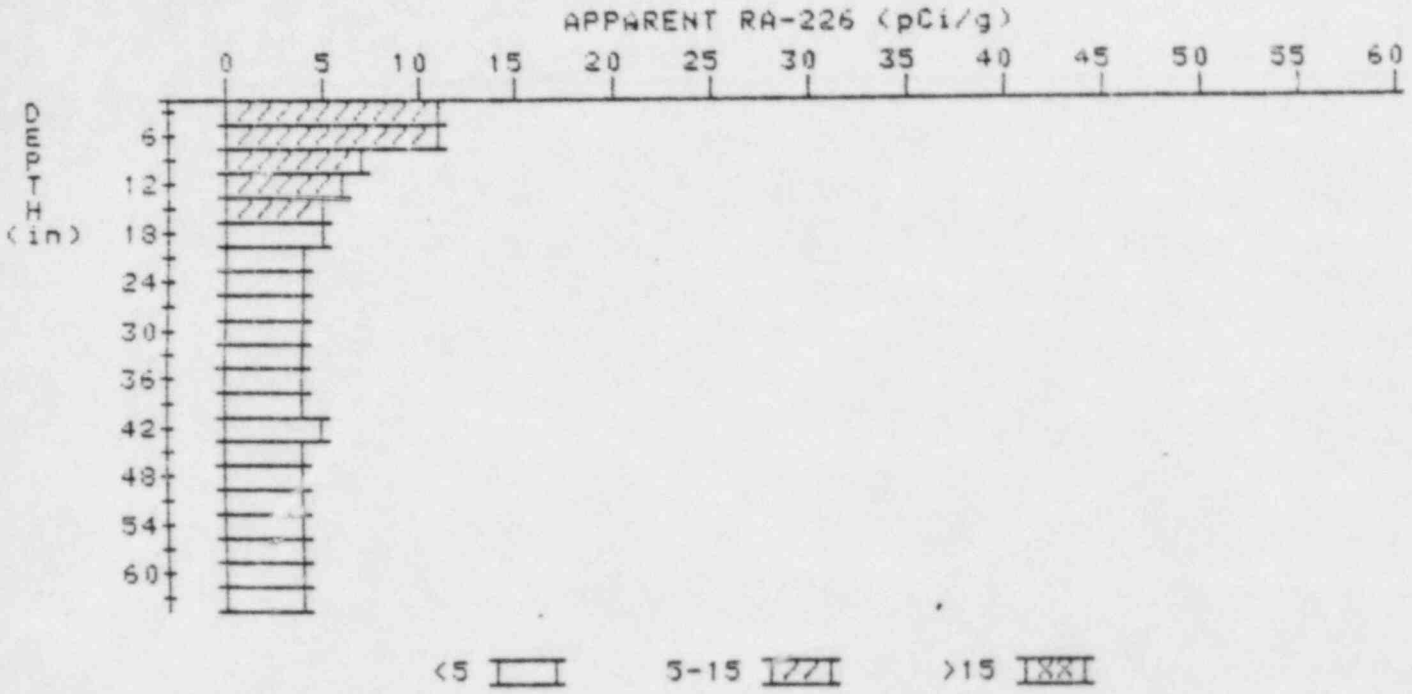
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 20

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 20
LOCATION: 174253



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	11.1	11.1
6	9.9	11.1
9	8.0	7.1
12	6.6	5.9
15	5.6	5.1
18	4.9	4.5
21	4.4	3.9
24	4.2	4.2
27	4.0	3.8
30	3.9	3.5
33	4.0	4.2
36	4.0	4.0
39	4.0	3.6
42	4.2	4.6
45	4.2	4.0
48	4.3	4.5
51	4.3	4.5

54	4.2	3.o
57	4.3	4.5
60	4.3	4.3
63	4.3	4.3

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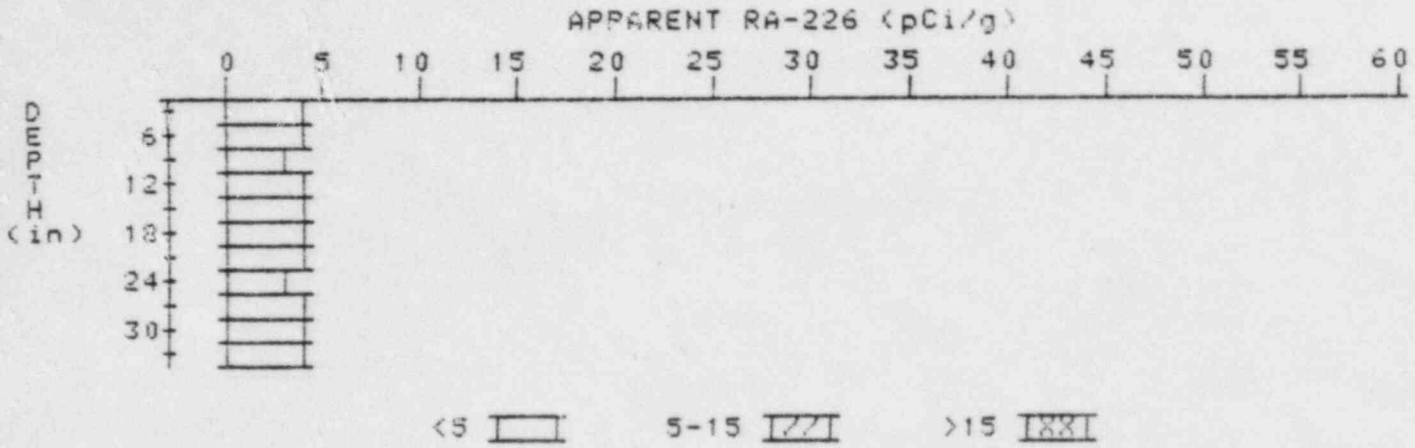
APPARENT RADIUM-226 CONCENTRATION 21
DECONVOLUTION GRAPH

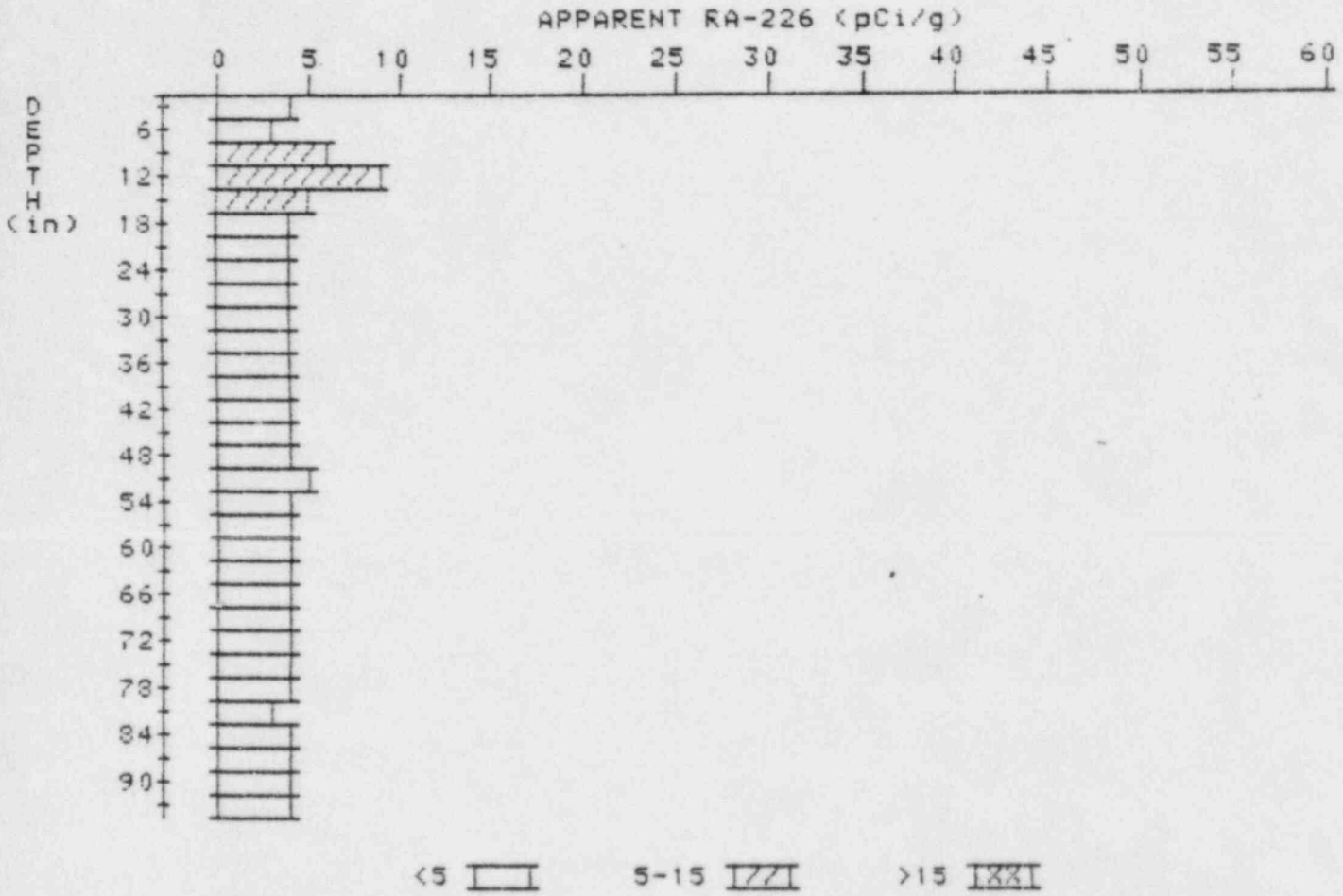
PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 21
LOCATION: 179225



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.1	4.1
6	4.1	4.5
9	3.9	3.4
12	4.0	4.4
15	3.9	3.7
18	3.9	3.9
21	3.9	4.1
24	3.8	3.4
27	3.9	4.1
30	3.9	3.9
33	3.9	3.9

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 22
LOCATION: 180193

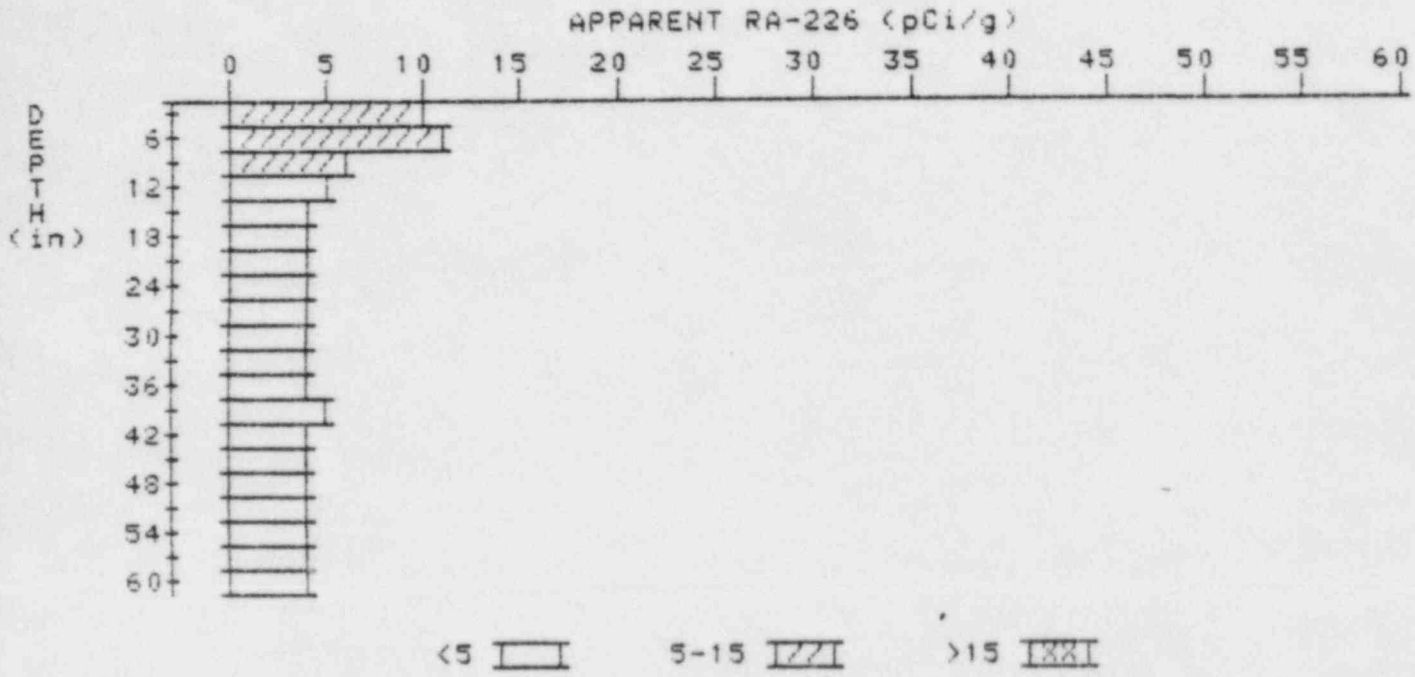


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.7	3.7
6	4.1	2.9
9	5.2	5.7
12	6.0	8.7
15	5.3	5.5
18	4.5	3.6
21	4.2	4.0
24	4.0	3.8
27	3.9	3.7

30	3.9	3.9
33	3.9	3.9
36	3.9	3.9
39	3.9	3.9
42	3.9	3.7
45	4.0	4.0
48	4.1	4.1
51	4.2	4.6
54	4.1	3.9
57	4.1	4.1
60	4.1	4.1
63	4.1	4.1
66	4.1	4.1
69	4.1	4.1
72	4.1	4.1
75	4.1	4.3
78	4.0	4.2
81	3.8	3.4
84	3.8	3.8
87	3.8	3.8
90	3.8	3.8
93	3.8	3.8

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 23

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 23
LOCATION: 180280



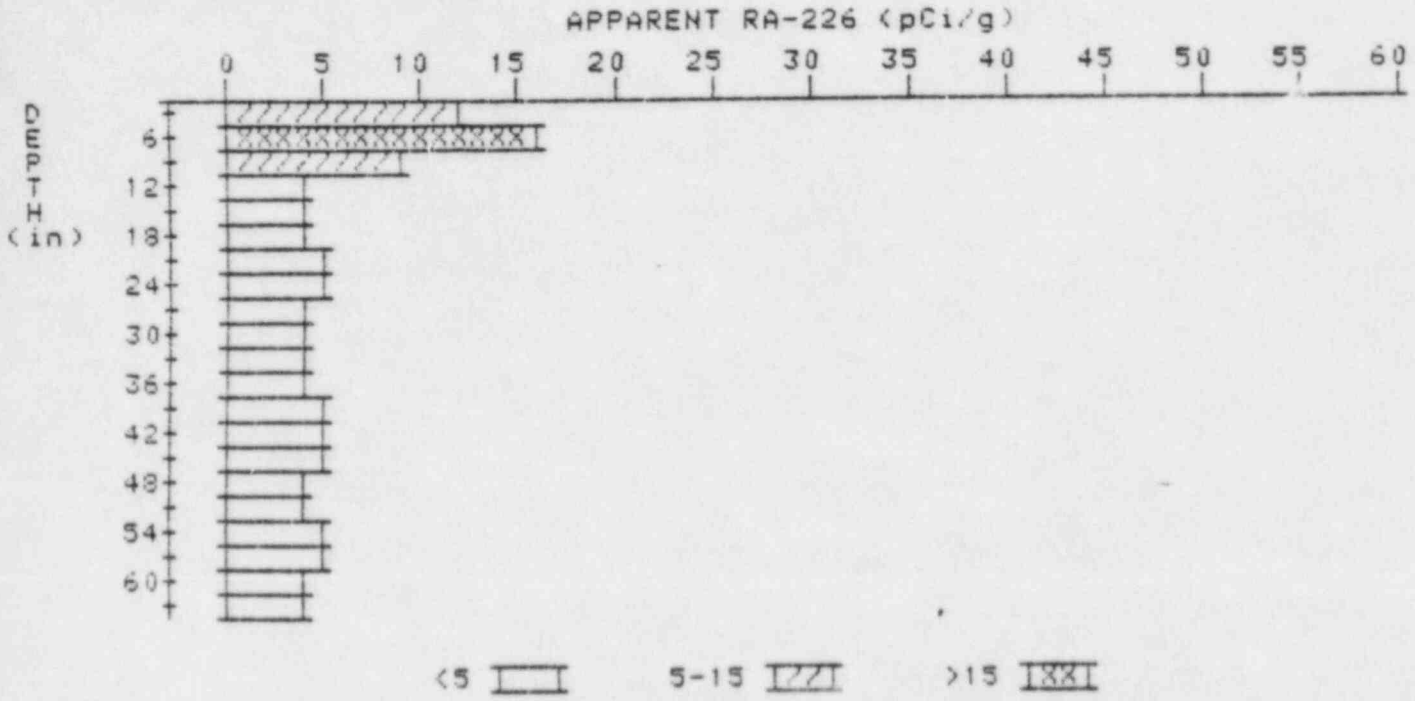
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	9.8	9.8
6	8.9	10.7
9	7.0	6.1
12	5.6	4.5
15	4.8	4.1
18	4.4	3.9
21	4.3	4.1
24	4.3	4.5
27	4.2	3.8
30	4.3	4.5
33	4.3	4.1
36	4.4	4.4
39	4.5	4.9
42	4.4	4.4
45	4.3	4.1
48	4.3	4.3
51	4.3	4.5
54	4.2	4.2

57	4.1	4.1
60	4.0	4.0

DECON V85.1<850524.0823>

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 24

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 24
LOCATION: 185265



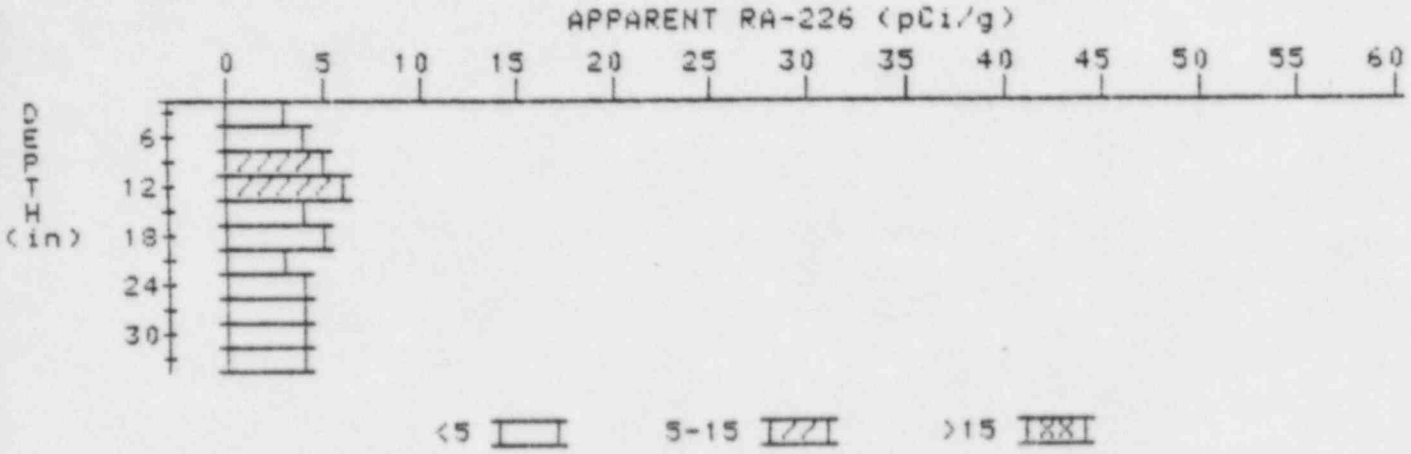
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	12.1	12.1
6	11.7	15.6
9	9.1	8.9
12	6.6	4.5
15	5.3	4.2
18	4.6	3.5
21	4.5	4.5
24	4.4	4.6
27	4.2	3.7
30	4.3	4.5
33	4.3	4.1
36	4.4	4.4
39	4.5	4.7
42	4.5	4.5
45	4.5	4.7
48	4.4	4.2
51	4.4	4.2

54	4.5	4.6
57	4.5	4.7
60	4.4	4.4
63	4.3	4.3

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

25

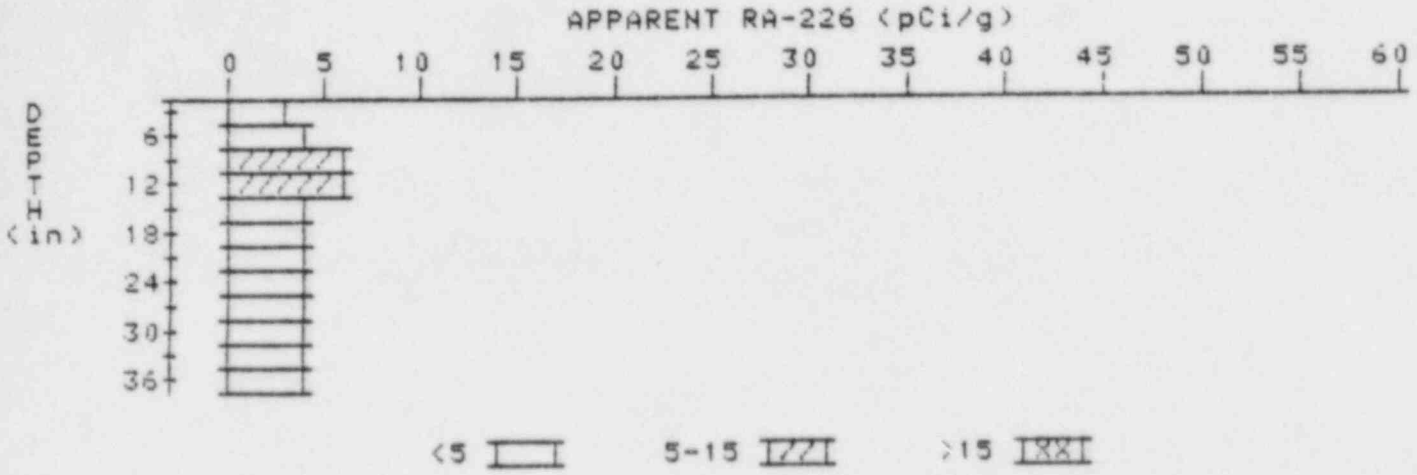
PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 25
LOCATION: 186193



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.3	3.3
6	4.0	4.2
9	4.6	5.1
12	4.9	6.0
15	4.6	4.4
18	4.4	4.8
21	4.0	3.5
24	3.9	3.7
27	3.9	3.9
30	3.9	3.9
33	3.9	3.9

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 26
LOCATION: 195193

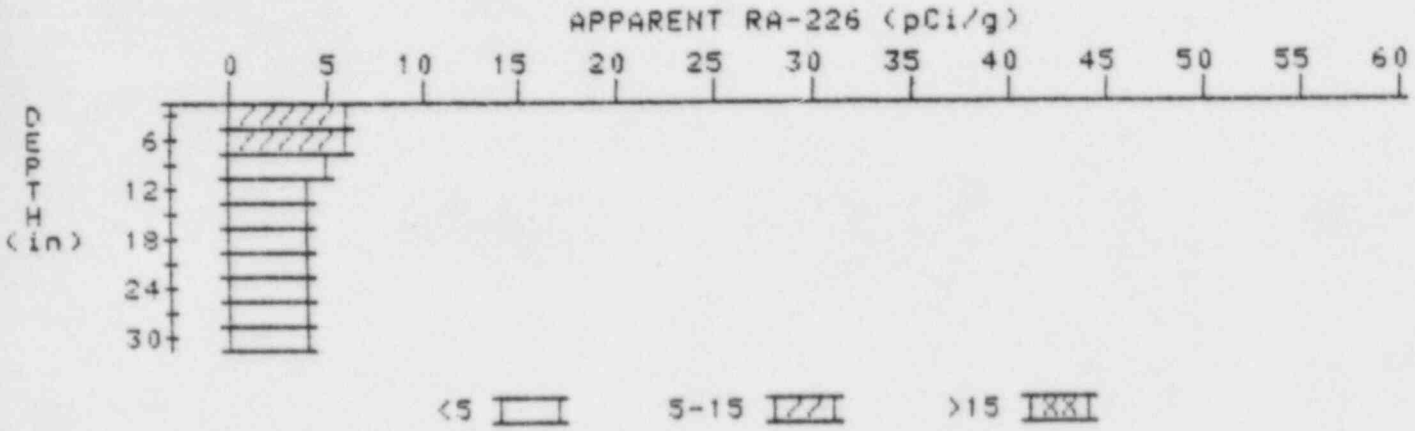


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.4	3.4
6	4.1	4.1
9	4.8	5.9
12	4.9	6.0
15	4.4	4.0
18	4.1	3.7
21	4.0	4.0
24	3.9	3.7
27	3.9	3.9
30	3.9	3.9
33	3.9	3.9
36	3.9	3.9

DECON V85.1<850524.0823>

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 27

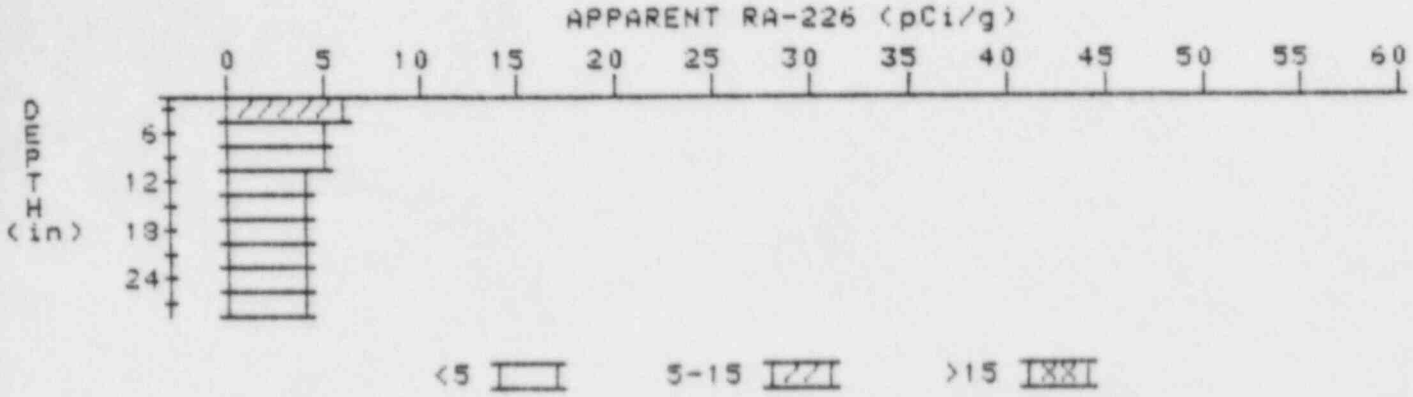
PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 27
LOCATION: 195205



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	6.3	6.3
6	5.6	5.6
9	4.9	4.5
12	4.4	3.9
15	4.2	4.0
18	4.1	3.9
21	4.1	4.3
24	4.0	3.6
27	4.1	4.1
30	4.2	4.2

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 28
LOCATION: 195221

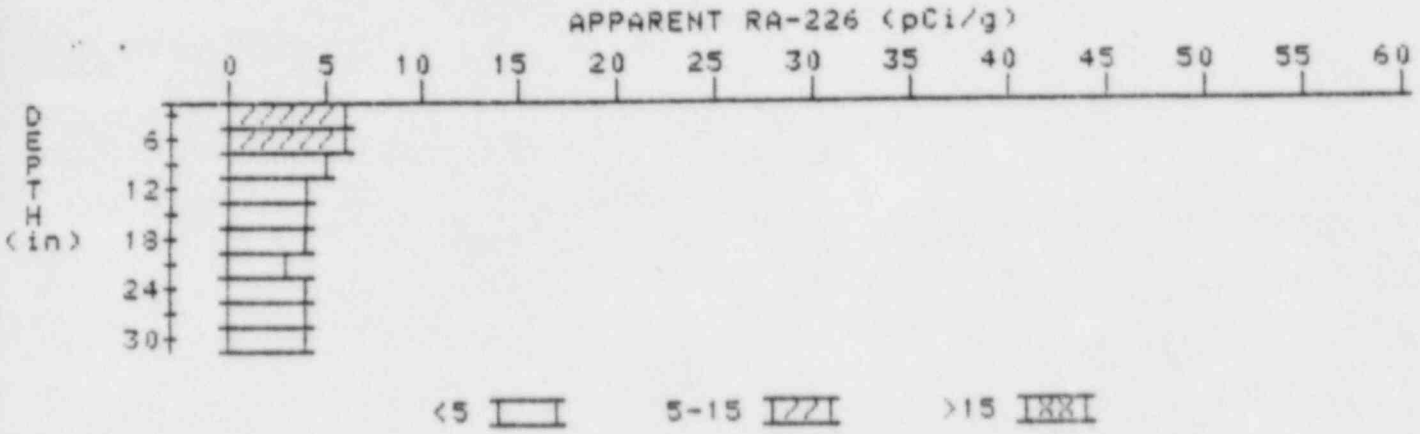


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	6.3	6.3
6	5.4	4.7
9	4.9	4.9
12	4.4	3.9
15	4.2	4.0
18	4.1	4.1
21	4.0	3.8
24	4.0	4.0
27	4.0	4.0

DECON 985.1<850524.0823>

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 30

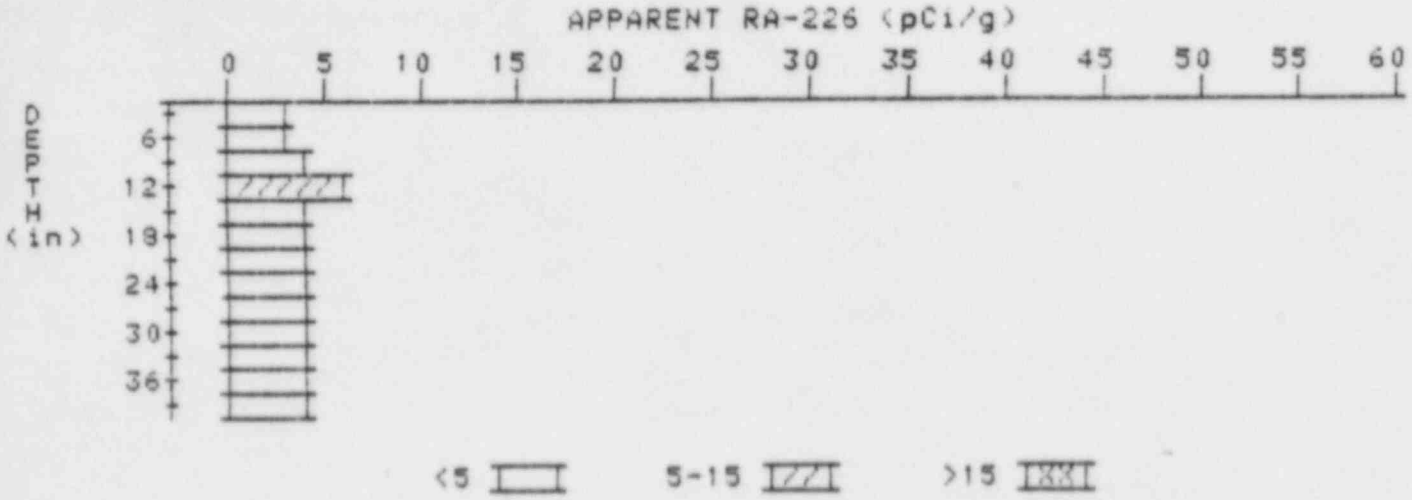
PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 30
LOCATION: 195232



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	5.5	5.5
6	5.2	5.6
9	4.7	4.5
12	4.3	3.9
15	4.1	4.1
18	3.9	3.7
21	3.8	3.4
24	3.9	4.1
27	3.9	3.7
30	4.0	4.0

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 35

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 35
LOCATION: 202193

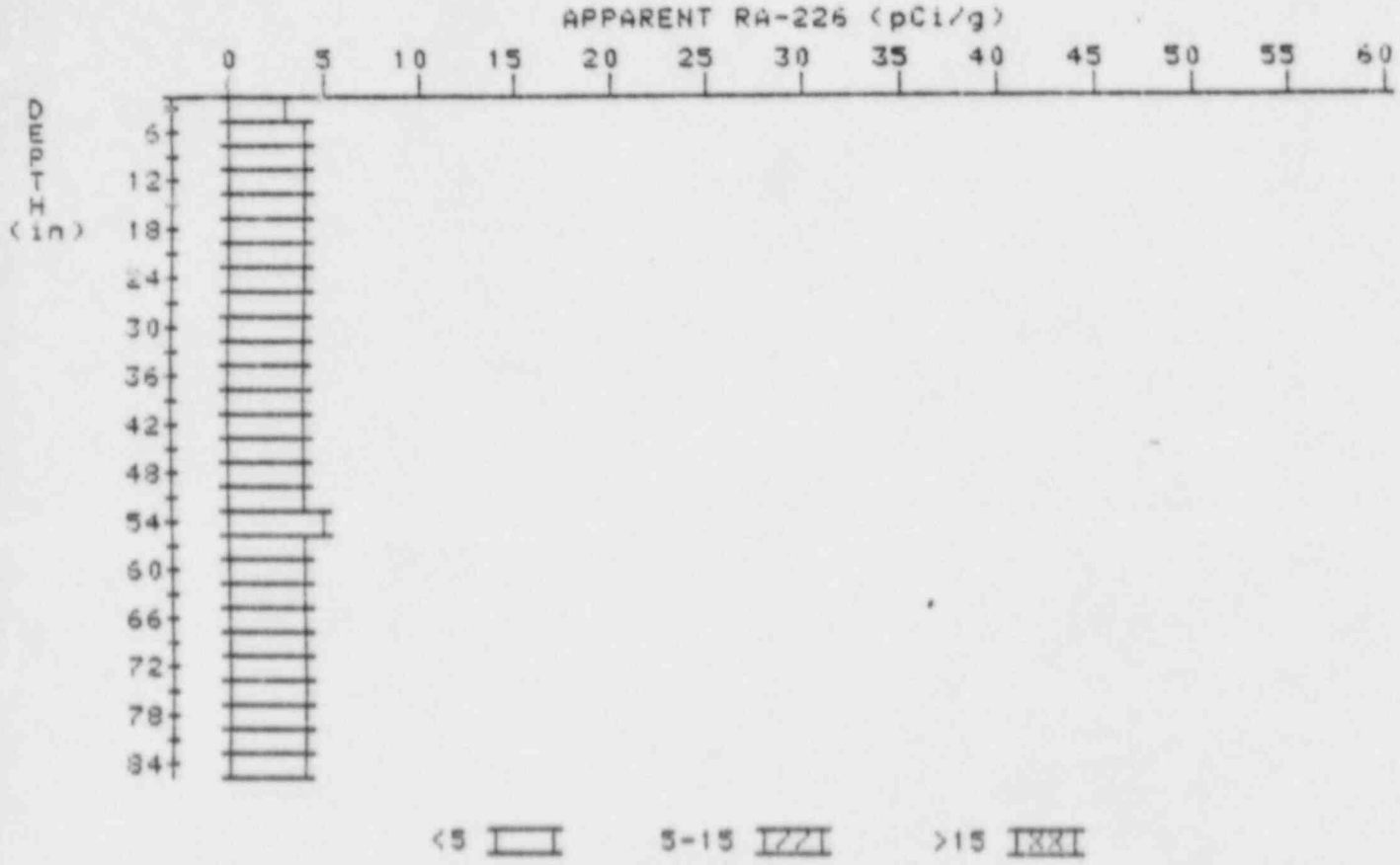


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.1	3.1
6	3.6	3.4
9	4.2	4.4
12	4.7	6.3
15	4.3	3.9
18	4.1	4.1
21	3.9	3.7
24	3.8	3.6
27	3.8	4.0
30	3.7	3.5
33	3.7	3.7
36	3.7	3.5
39	3.8	3.8

DECON V85.1(850524.0823)

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 36

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 36
LOCATION: 207235

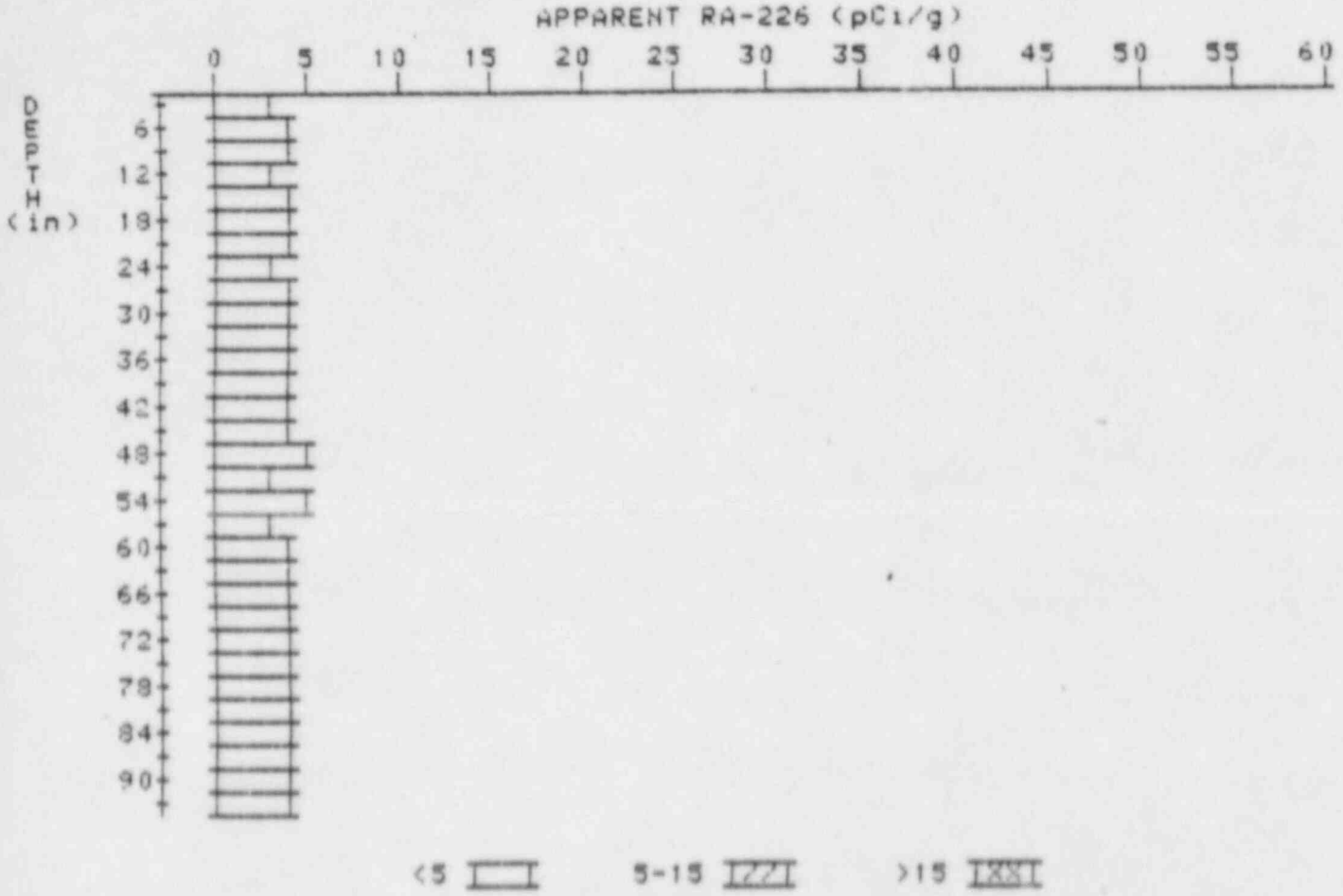


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.4	3.4
6	3.7	4.2
9	3.7	3.5
12	3.8	3.8
15	3.9	4.1
18	3.9	4.1
21	3.8	3.6
24	3.8	3.8
27	3.8	3.6
30	3.9	4.1
33	3.9	3.5
36	4.1	4.3

39	4.2	4.4
42	4.2	4.0
45	4.3	4.5
48	4.3	4.3
51	4.3	4.1
54	4.4	4.8
57	4.3	4.1
60	4.3	4.3
63	4.3	4.5
66	4.2	4.2
69	4.1	4.1
72	4.0	3.8
75	4.0	4.2
78	3.9	3.7
81	3.9	3.7
84	4.0	4.0

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 37

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 37
LOCATION: 210193

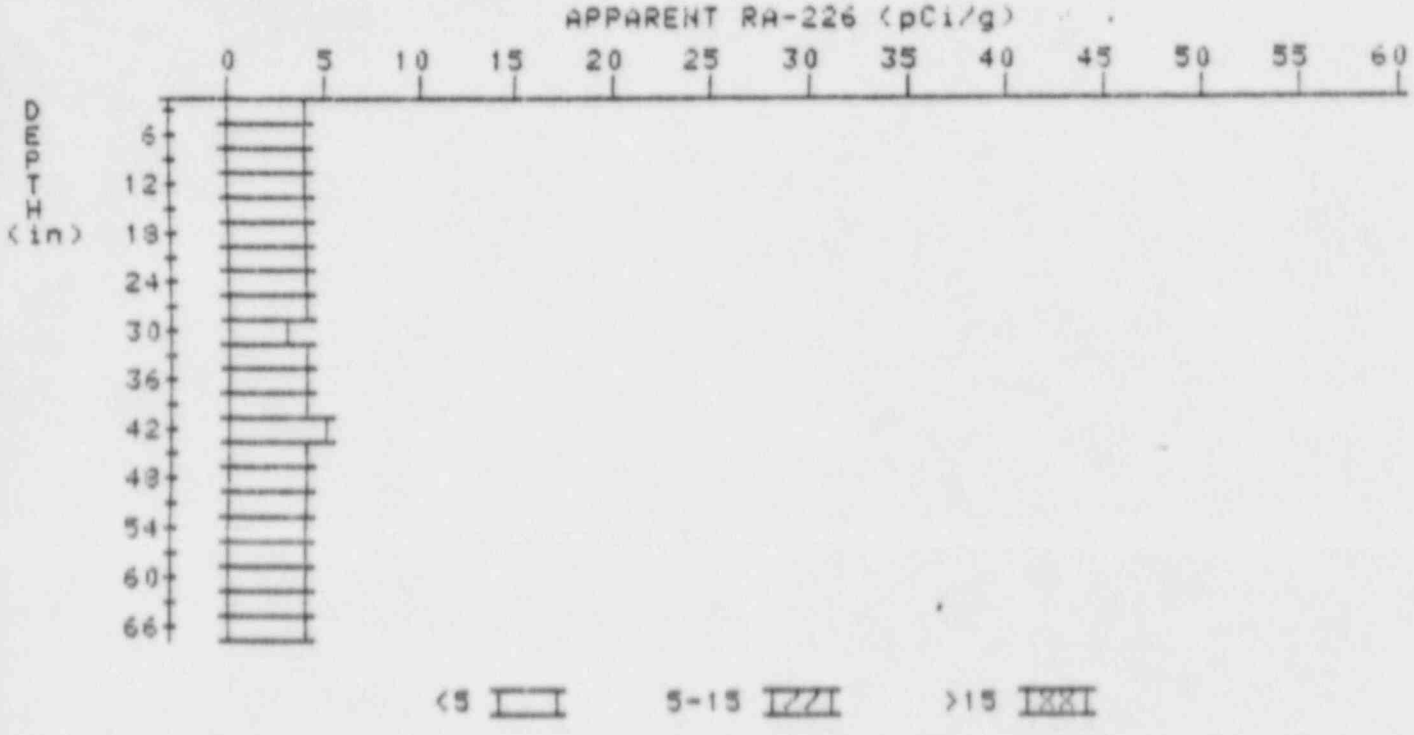


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	2.8	2.8
6	3.2	3.6
9	3.4	3.6
12	3.5	3.3
15	3.7	3.9
18	3.8	4.0
21	3.8	4.0
24	3.7	3.3
27	3.8	3.8

30	3.9	4.1
33	3.9	3.9
36	3.9	3.9
39	3.9	3.7
42	4.0	4.2
45	4.0	3.6
48	4.2	4.9
51	4.0	3.5
54	4.1	4.6
57	3.9	3.4
60	4.0	4.2
63	4.0	4.0
66	4.0	4.0
69	4.0	4.0
72	4.0	4.0
75	4.0	4.2
78	3.9	3.9
81	3.8	3.8
84	3.7	3.5
87	3.7	3.7
90	3.7	3.7
93	3.7	3.7

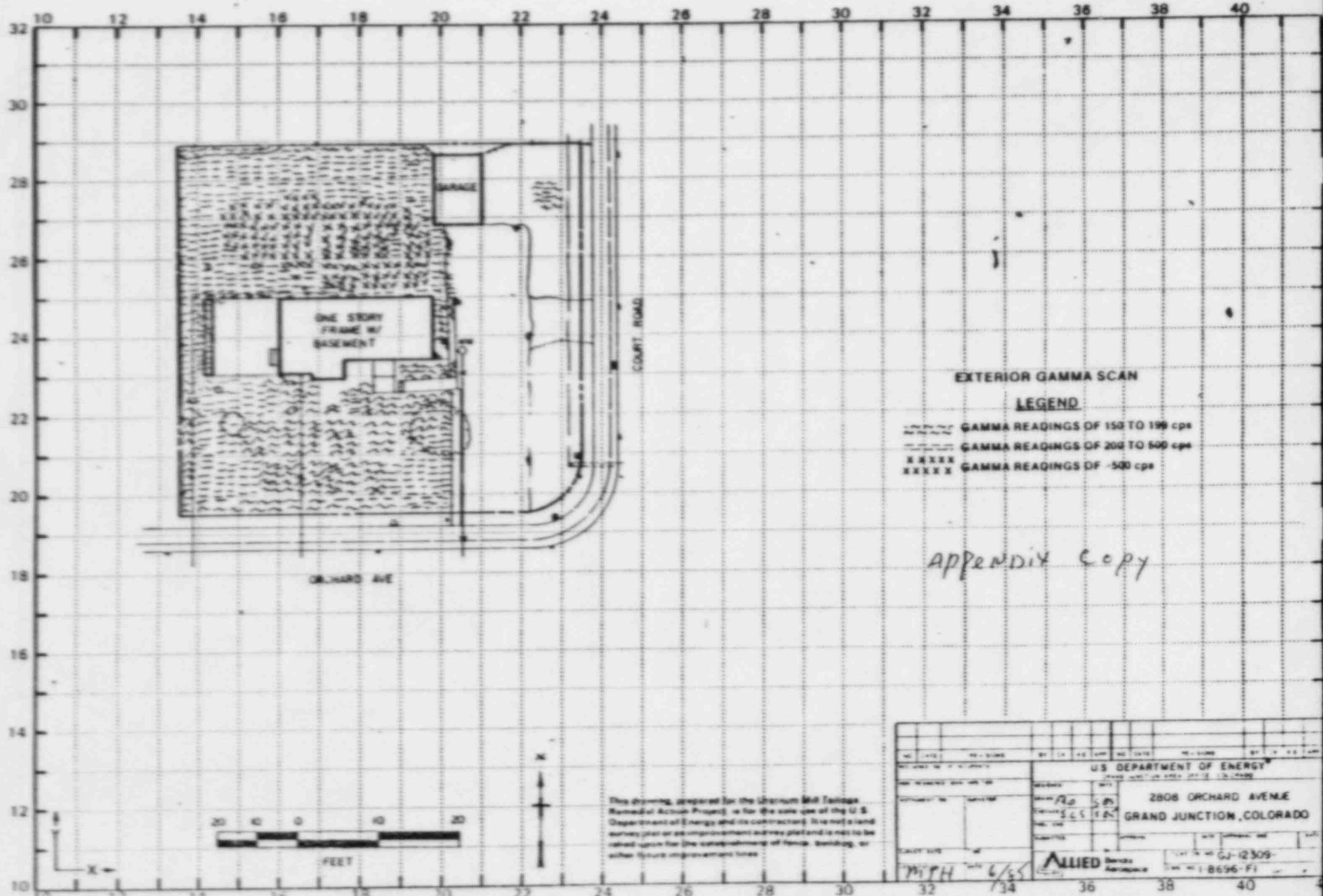
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-12309-RS
HOLE NUMBER: 38
LOCATION: 215200



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.8	3.8
6	3.8	3.8
9	3.8	3.8
12	3.8	3.8
15	3.8	3.8
18	3.8	3.8
21	3.8	3.8
24	3.8	3.6
27	3.9	4.3
30	3.8	3.4
33	3.9	3.9
36	4.0	4.2
39	4.0	3.6
42	4.2	4.6
45	4.2	4.4
48	4.1	3.9

51	4.1	4.3
54	4.0	4.0
57	3.9	3.5
60	4.0	4.2
63	4.0	4.0
66	4.0	4.0


GARAGE
ONE STORY FRAME W/ BASEMENT
COURT ROAD
ORCHARD AVE
EXTERIOR GAMMA SCAN
LEGEND
GAMMA READINGS OF 150 TO 199 cps
GAMMA READINGS OF 200 TO 500 cps
GAMMA READINGS OF >500 cps
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