

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-14713-RS
ADDRESS: 3212 F ROAD,
CLIFTON, COLORADO

SEPTEMBER 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

September 14, 1985

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-14713-RS, is a single-family residence located at 3212 F Road, Clifton, 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, 306 cu. yd.; interior, 0 cu. yd.

Estimated cost to perform remedial action, including dislocation when applicable, is \$11,421. Remedial action on this property will take approximately 20 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 3212 F Road, Clifton, Colorado

Zoning: Residential (R-2)

Lot Size: Approximately 58,988 sf (1.35 acres)

Legal Description: Beginning North 89deg. 59' East, 832.17 ft. from the Southwest Corner of Section 2, Township 1 South, Range 1 East, North 275 ft., South 89deg. 59' West, 262.17 ft. South 275 ft., North 89deg. 59' East, 262.17 ft. to Beginning; Except R.O.W. on South as described in Book 1381, Page 563, Mesa County Records, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 7 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:	Disconnected overhead
Gas:	Underground
Telephone:	Underground
Sewer:	Underground
Water:	Underground
Cable TV:	Overhead

Bordering Properties:

North:	Residence
South:	F Road
East:	Jackson Street
West:	Irwin Street

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Two-story residence
Size:	Approximately 2,688 sf with a 217 sf attached front porch
Construction Date:	1908
Construction:	Wood-frame
Foundation:	Concrete block wall with stone veneer on spread footing
Footing Depth:	Approximately 72" to bottom of footing from grade
Basement:	Yes - full

Crawl Space: No
Condition: Fair

Other Structures:

Type: Grain silo
Size: Approximately 314 sf
Construction: Steel-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: None known

Architectural Significance: None known

Historical Significance: None known

3.0 RADIOLOGIC SURVEY

3.1 Introduction

Radiologic data were collected by Bendix at DOE ID No. GJ-14713-RS on June 11, 1985. Data collection methods were performed in accordance with procedures fully described in the Radiologic Support Operations Procedures Manual GJ-07(84) (Bendix Field Engineering Corporation, 1984). These data were evaluated to determine the areal and vertical extent of uranium mill tailings contamination at this property as well as any other contaminated material that may have originated from the millsite.

A review of historical information from the files of the Colorado Department of Health (CDH) and the inclusion data from Oak Ridge National Laboratory (ORNL) was conducted. These records indicate contamination in the yard north, northeast, and east of 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, Memo of Understanding, team leader notes, deconvolution graphs, and Exterior Gamma Scan map are included in the Appendix (Section 6.0).

3.2 Gamma Exposure-Rate Surveys

3.2.1 Exterior Findings

Background Readings: 15 to 17 uR/h
Highest Outside Gamma Reading (HOG): 297 uR/h

Exterior radium-concentration measurements are presented in Appendix Tables 3.1a and 3.1b. Grid-point survey results are shown in Appendix Figures 3.1a and 3.1b.

3.2.2 Interior Findings

Access to the interior was denied by the owner.

3.3 Boreholes, Soil Samples, and Other Measurements

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

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 3.3a and 3.3b show identified areas and estimated depths of contamination on this property, based on assessments of all measurements taken. As noted in these figures, areas recommended for remedial action that contain identified residual radioactive materials are:

- (Area A) Surface Material: soil
Direction From Primary Structure: north
Total Depth of Contamination: 6 inches
Comments: Some gravel is mixed in with the soil. The contaminated soil covers a concrete sidewalk.
Approximate Square Footage: 340
- (Area B) Surface Material: soil
Direction From Primary Structure: north, northeast, and east
Total Depth of Contamination: 12 inches
Comments: Some gravel is mixed in with the soil.
Approximate Square Footage: 1,560
- (Area C) Surface Material: soil
Direction From Primary Structure: north
Total Depth of Contamination: 36 inches
Comments: This area also includes a small area of concrete.
Approximate Square Footage: 130
- (Area D) Surface Material: soil
Direction From Primary Structure: northeast
Total Depth of Contamination: 9 inches
Approximate Square Footage: 99
- (Area E) Surface Material: soil
Direction From Primary Structure: east
Total Depth of Contamination: 12 inches
Approximate Square Footage: 60
- (Area F) Surface Material: soil
Direction From Primary Structure: southeast
Total Depth of Contamination: 9 inches
Comments: This area is a cactus bed.
Approximate Square Footage: 48
- (Area G) Surface Material: soil
Direction From Primary Structure: east
Total Depth of Contamination: 6 inches
Comments: This area covers most of the east yard and a small deposit at the east property line.
Approximate Square Footage: 4,473

- (Area H) Surface Material: soil
Direction From Primary Structure: southeast
Other Directions: surrounded by Area G
Total Depth of Contamination: 12 inches
Approximate Square Footage: 119
- (Area I) Surface Material: soil
Direction From Primary Structure: northeast
Other Directions: south of silo
Total Depth of Contamination: 9 inches
Approximate Square Footage: 70
- (Area J) Surface Material: soil
Direction From Primary Structure: northeast
Other Directions: adjacent to silo on the northeast side
Total Depth of Contamination: 18 inches
Approximate Square Footage: 117
- (Area K) Surface Material: soil
Direction From Primary Structure: northeast
Other Directions: adjacent to silo on the southeast side
Total Depth of Contamination: 12 inches
Approximate Square Footage: 120
- (Area L) Surface Material: soil
Direction From Primary Structure: north and northeast
Total Depth of Contamination: 6 inches
Comments: There is contaminated soil covering a concrete sidewalk, north of the primary structure.
Approximate Square Footage: 5,631
- (Area M) Surface Material: soil
Direction From Primary Structure: northeast
Total Depth of Contamination: 12 inches
Approximate Square Footage: 168
- (Area N) Surface Material: soil
Direction From Primary Structure: northeast
Total Depth of Contamination: 18 inches
Approximate Square Footage: 169

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-14713-RS, includes removal of all areas identified as containing radioactive material (as discussed in Section 3.5 and shown in Appendix Figures 3.3a and 3.3b) 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 \$11,421.

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 Office, 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 3.1a	Radium Concentrations at Exterior Locations
Table 3.1b	Radium Concentrations at Exterior Locations
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 3.1a	Exterior Grid-Point Exposure Rates
Figure 3.1b	Exterior Grid-Point Exposure Rates
Figure 3.2a	Sample locations
Figure 3.2b	Sample Locations
Figure 3.3a	Estimated Extent of Contamination
Figure 3.3b	Estimated Extent of Contamination

Official Survey Report

Memo of Understanding

Team Leader Notes

Deconvolution Graphs (Apparent Radium-226 Concentration)

Exterior Gamma Scan Map (2)

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.		
1	220220	00	DS	<1.0		*	West of primary structure Background DC = 0 inches
		04	DS	<1.0		*	
		03	TC	3.1		*	
		06	TC	3.5		*	
		09	TC	3.7		*	
		12	BH	3.7	1.2	*	
		15	TC	3.8		*	
		18	TC	3.8		*	
		21	TC	3.9		*	
		24	TC	3.9		*	
		27	TC	3.9		*	
2	238247	00	DS	1.1		*	Gas line On gas line
		18	DS	1.4		*	
3	238261	03	TC	3.1		*	Sewer DC = 0 inches
		06	TC	3.4		*	
		09	TC	3.4		*	
		12	TC	3.5		*	
		15	TC	3.5		*	
		18	TC	3.6		*	
		21	TC	3.5		*	
		24	TC	3.6		*	
		27	TC	3.7		*	
		30	TC	3.6		*	
		33	TC	3.5		*	
		36	TC	3.5		*	
		39	TC	3.3		*	
		42	TC	3.3		*	
		45	TC	3.3		*	
		48	TC	3.3		*	
		51	TC	3.3		*	
		54	TC	3.3		*	
		57	TC	3.2		*	
		60	TC	3.3		*	
		63	TC	3.2		*	
4	239225	03	TC	2.8		*	Water line DC = 0 inches
		06	TC	3.1		*	
		09	TC	3.3		*	
		12	TC	3.4		*	
		15	TC	3.5		*	
		18	TC	3.5		*	
		21	TC	3.6		*	

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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.		
4	239225	24	TC	3.6		*	
		27	TC	3.7		*	
		30	TC	3.7		*	
		33	TC	3.7		*	
		36	TC	3.7		*	
		39	TC	3.5		*	
		42	TC	3.4		*	
		45	TC	3.4		*	
		48	TC	3.5		*	
		51	TC	3.5		*	
		54	TC	3.5		*	
		57	TC	3.4		*	
		60	TC	3.3		*	
		63	TC	3.2		*	
		66	TC	3.3		*	
5	244280	03	TC	2.8		*	Line from cistern DC = 0 inches
		06	TC	3.1		*	
		09	TC	3.3		*	
		12	TC	3.5		*	
		15	TC	3.5		*	
		18	TC	3.5		*	
		21	TC	3.6		*	
		24	TC	3.6		*	
		27	TC	3.6		*	
		30	TC	3.5		*	
		33	TC	3.5		*	
		36	TC	3.4		*	
		39	TC	3.4		*	
		42	TC	3.4		*	
		45	TC	3.3		*	
		48	TC	3.4		*	
		51	TC	3.5		*	
		54	TC	3.4		*	
		57	TC	3.4		*	
6	247295	00	DS	3.6		*	North of primary structure
		06	DS	1.5		*	

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tox. Ct	Spectr.		
7	250271	00	DS	4.7		*	North side of primary structure under steps
		06	DS	<1.0		*	
8	250302	00	DS	3.4		*	Dirt field
		06	DS	1.5		*	
9	252284	03	TC	6.3		*	North of primary structure DC = 6 inches Based on the deconvolution graph
		06	TC	5.2		*	
		09	TC	4.3		*	
		12	TC	3.9		*	
		15	TC	3.9		*	
		18	TC	3.9		*	
		21	TC	3.9		*	
		24	TC	3.9		*	
		27	TC	4.0		*	
		30	TC	4.0		*	
10	255210	00	DS	1.4		*	South of primary structure
		06	DS	<1.0		*	
11	260275	03	TC	21.2		*	North side of primary structure DC = 36 inches Based on the deconvolution graph
		06	TC	26.6		*	
		09	TC	22.2		*	
		12	TC	14.9		*	
		15	TC	14.2		*	
		18	TC	8.6		*	
		21	TC	7.9		*	
		24	TC	8.4		*	
		27	TC	9.5		*	
		30	TC	10.0		*	
		33	TC	8.1		*	
		36	TC	6.2		*	
		39	TC	5.0		*	
12	260295	42	TC	4.4		*	
		45	TC	4.2		*	
		03	TC	11.4		*	North of primary structure DC = 12 inches Based on the deconvolution graph
		06	TC	8.7		*	
		09	TC	6.6		*	
		12	BH	5.2	2.0	*	
		15	TC	4.3		*	
		18	TC	3.9		*	
		21	TC	3.8		*	
		24	TC	3.9		*	

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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.		
12	260295	27	TC	3.9		*	
13	270225	00	DS	1.2		*	On sidewalk
		06	DS	1.7		*	Horizontal
14	270255	00	DS	1.8		*	On sidewalk
		06	DS	3.7		*	Horizontal
15	270267	00	DS	2.5		*	On sidewalk
		06	DS	1.8		*	Horizontal
16	270280	03	TC	19.7		*	North of primary structure DC = 12 inches Based on the deconvolution graph
		06	TC	15.3		*	
		09	TC	10.3		*	
		12	BH	7.0	3.4	*	
		15	TC	5.2		*	
		18	TC	4.6		*	
		21	TC	4.4		*	
		24	TC	4.3		*	
		27	TC	4.3		*	
		30	TC	4.3		*	
		33	TC	4.5		*	
		36	TC	4.8		*	
17	271213	03	TC	11.9		*	Southeast corner of primary structure DC = 9 inches Based on the deconvolution graph
		06	TC	8.9		*	
		09	TC	6.8		*	
		12	BH	5.6	2.4	*	
		15	TC	4.8		*	
		18	TC	4.3		*	
		21	TC	4.2		*	
		24	TC	4.0		*	
		27	TC	3.9		*	
		30	TC	3.8		*	
		33	TC	3.9		*	
		36	TC	3.9		*	
		39	TC	3.8		*	
18	271237	00	DS	5.6		*	Phone line
		06	DS	5.0		*	
		12	DS	2.2		*	

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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	275307	00	DS	1.9		*	Northeast of primary structure
		06	DS	<1.0		*	
20	278218	00	DS	9.4		*	Beside driveway
		06	DS	1.2		*	
21	280245	00	DS	4.1		*	In driveway
		06	DS	1.8		*	
22	280295	03	TC	4.7		*	North of primary structure DC = 6 inches Based on all data available
		06	TC	4.6		*	
		09	TC	4.4		*	
		12	TC	4.1		*	
		15	TC	3.9		*	
		18	TC	3.8		*	
		21	TC	3.8		*	
		24	TC	3.9		*	
		27	TC	3.9		*	
		30	TC	4.0		*	
23	285225	00	DS	3.6		*	In driveway
		06	DS	1.5		*	
24	286252	03	TC	11.1		*	Driveway DC = 12 inches Based on the deconvolution graph
		06	TC	10.4		*	
		09	TC	7.5		*	
		12	BH	5.5	2.8	*	
		15	TC	4.6		*	
		18	TC	4.2		*	
		21	TC	4.1		*	
		24	TC	4.0		*	
		27	TC	3.9		*	
		30	TC	3.8		*	
25	290245	00	DS	2.2		*	Beside driveway
		06	DS	2.6		*	
26	290275	03	TC	18.9		*	East of primary structure DC = 9 inches Based on the deconvolution graph
		06	TC	12.6		*	
		09	TC	8.2		*	
		12	BH	5.8	2.1	*	
		15	TC	4.6		*	
		18	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.		
26	290275	21	TC	4.0		*	
		24	TC	4.0		*	
		27	TC	4.0		*	
		30	TC	3.9		*	
		33	TC	3.8		*	
		36	TC	3.8		*	
27	295207	00	DS	7.6		*	East of driveway
		06	DS	1.7		*	
28	295285	00	DS	3.1		*	Northeast of
		06	DS	1.6		*	primary structure
29	300300	00	DS	<1.0		*	Northeast of
		06	DS	1.9		*	primary structure
30	305235	00	DS	1.7		*	East of primary
		06	DS	1.3		*	structure
31	310205	00	DS	5.4		*	East of driveway
		06	DS	1.6		*	
32	310260	00	DS	2.7		*	East of primary
		06	DS	1.3		*	structure
33	322245	00	DS	1.9		*	East of primary
		06	DS	<1.0		*	structure
34	323210	00	DS	4.9		*	East of driveway
		06	DS	1.7		*	
35	325270	00	DS	10.4		*	East of primary
		06	DS	1.6		*	structure
36	325285	00	DS	1.9		*	Northeast of
		06	DS	1.2		*	primary structure
37	330255	00	DS	6.4		*	East of primary
		06	DS	1.3		*	structure
38	332302	00	DS	5.8		*	Northeast of
		06	DS	1.6		*	primary structure

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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.		
39	335227	03	TC	23.2		*	East of primary structure DC = 12 inches Based on the deconvolution graph
		06	TC	22.4		*	
		09	TC	14.7		*	
		12	BH	9.3	4.6	*	
		15	TC	6.8		*	
		18	TC	5.6		*	
		21	TC	4.9		*	
		24	TC	4.5		*	
		27	TC	4.3		*	
		30	TC	4.1		*	
		33	TC	4.0		*	
		36	TC	4.0		*	
		39	TC	3.9		*	
		42	TC	3.9		*	
		45	TC	3.8		*	
40	338215	03	TC	16.2		*	Southeast of primary structure DC = 12 inches Based on the deconvolution graph
		06	TC	9.8		*	
		09	TC	9.2		*	
		12	BH	6.3	2.7	*	
		15	TC	5.3		*	
		18	TC	4.7		*	
		21	TC	4.5		*	
		24	TC	4.6		*	
		27	TC	4.7		*	
41	340280	00	DS	6.5		*	Northeast of primary structure
		06	DS	1.9		*	
42	345205	00	DS	2.9		*	East of driveway
		06	DS	1.5		*	
43	345235	00	DS	2.9		*	East of primary structure
		06	DS	<1.0		*	
44	345265	00	DS	3.3		*	East of primary structure
		06	DS	1.5		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-14713-RS

3212 F Road

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.		
45	390280	00	DS	3.1		*	Next to Jackson
		06	DS	1.8		*	Street

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 = 06-11-85
Team Leader = TRU

Radium Concentrations at Exterior Locations

DOE ID #GJ-I4713-RS

3212 F Road

Page 1 of 4

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
46	230273	03	TC	2.7		*	Cistern
		06	TC	2.9		*	DC = 0 inches
		09	TC	3.1		*	
		12	TC	3.4		*	
		15	TC	3.5		*	
		18	TC	3.7		*	
		21	TC	3.8		*	
		24	TC	3.8		*	
		27	TC	3.7		*	
		30	TC	3.7		*	
		33	TC	3.7		*	
47	238200	00	DS	2.5		*	Dirt field
		06	DS	1.5		*	
48	239215	00	DS	3.8		*	Dirt field
		06	DS	2.5		*	
49	245225	00	DS	3.2		*	West of silo
		06	DS	1.8		*	
50	248189	00	DS	3.9		*	Electrical line
		09	DS	1.0		*	On electrical line
51	255184	00	DS	3.1		*	Southwest of silo
		06	DS	1.3		*	
52	260255	00	DS	3.5		*	Dirt field
		06	DS	2.1		*	
53	270240	00	DS	5.4		*	Northwest of silo
		06	DS	2.2		*	
54	270275	00	DS	5.2		*	South of fence
		06	DS	2.2		*	
55	275225	03	TC	17.0		*	West of silo
		06	TC	10.5		*	DC = 6 inches
		09	TC	7.3		*	Based on the,
		12	BH	5.6	2.3	*	deconvolution graph
		15	TC	4.8		*	
		18	TC	4.4		*	
		21	TC	4.3		*	
		24	TC	4.4		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-I4713-RS

3212 F Road

Page 2 of 4

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
55	275225	27	TC	4.6		*	
		30	TC	4.5		*	
		33	TC	4.6		*	
56	280200	00	DS	13.0		*	Southwest of silo
		06	DS	1.3		*	
57	280210	03	TC	27.9		*	Northeast of
		06	TC	30.2		*	concrete slab
		09	TC	22.4		*	DC = 12 inches
		12	TC	14.0		*	Based on the
		15	TC	8.6		*	deconvolution graph
		18	TC	6.2		*	
		21	TC	5.1		*	
		24	TC	4.5		*	
		27	TC	4.3		*	
		30	TC	4.1		*	
		33	TC	4.0		*	
		36	TC	4.1		*	
		39	TC	3.9		*	
		42	TC	3.8		*	
		45	TC	3.9		*	
		48	TC	4.0		*	
58	280255	00	DS	6.7		*	Northwest of silo
		06	DS	1.3		*	
59	285185	00	DS	3.2		*	Southwest of silo
		06	DS	2.0		*	
60	285294	00	DS	1.6		*	Northwest of silo
		06	DS	<1.0		*	
61	288270	00	DS	7.0		*	Northwest of silo
		06	DS	1.3		*	
62	295265	00	DS	4.9		*	Northwest of silo
		06	DS	5.4		*	
		12	DS	2.7		*	
63	300205	00	DS	1.9		*	West of silo
		06	DS	1.0		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-I4713-RS

3212 F Road

Page 3 of 4

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
64	300225	00	DS	8.3		*	West of silo
		06	DS	1.4		*	
65	305245	00	DS	2.3		*	Northwest of silo
		06	DS	<1.0		*	
66	310185	00	DS	3.5		*	Southwest of silo
		06	DS	1.5		*	
67	320215	03	TC	17.5		*	Southwest side of silo DC = 12 inches Based on the deconvolution graph
		06	TC	12.2		*	
		09	TC	8.5		*	
		12	BH	6.2	2.6	*	
		15	TC	5.1		*	
		18	TC	4.5		*	
		21	TC	4.2		*	
		24	TC	4.0		*	
		27	TC	4.0		*	
		30	TC	4.0		*	
		33	TC	4.1		*	
68	325200	00	DS	3.9		*	Southeast of silo
		06	DS	<1.0		*	
69	328207	03	TC	7.7		*	South of silo DC = 9 inches Based on the deconvolution graph
		06	TC	6.2		*	
		09	TC	5.2		*	
		12	TC	4.5		*	
		15	TC	4.2		*	
		18	TC	4.2		*	
		21	TC	4.1		*	
70	335240	00	DS	3.4		*	North of silo
		06	DS	1.1		*	
71	343225	03	TC	35.8		*	East of silo DC = 18 inches Based on the deconvolution graph
		06	TC	41.0		*	
		09	TC	35.7		*	
		12	BH	25.7	5.1	*	
		15	TC	15.8		*	
		18	TC	9.6		*	
		21	TC	6.8		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-I4713-RS

3212 F Road

Page 4 of 4

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
71	343225	24	TC	5.6		*	
		27	TC	5.1		*	
		30	TC	4.7		*	
72	349225	00	DS	3.5		*	East of silo
		06	DS	1.6		*	

Measurement Types: GB = GAD-6 Borehole
GS = GAD-6 Surface
DS = Delta Scintillometer
TC = Total Count Borehole
SS = Soil Sample
BH = Combined GAD-6 and
Total Count Borehole

Notes: DC = Depth of Contamination
* = No Soil Sample Taken
[n] = Reading Taken n-Inches
Above Floor or Ground
Date of Survey = 06-11-85
Team Leader = TRU

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-14713-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>
EXTERIOR					
Concrete					
C	14 x 2	= 28			
	3 x 9	= 27			
		<u>55</u>	x 0.3	= 17	
	Volume of concrete			= <u>17</u>	= 17/27 = 1
Contaminated fill					
A	8 x 35	= 280			
	10 x 6	= 60			
		<u>340</u>	x 0.5	= 170	
B	60 x 26	= 1,560	x 1.0	= 1,560	
C	13 x 10	= 130	x 3.0	= 390	
D	11 x 9	= 99	x 0.8	= 79	
E	10 x 6	= 60	x 1.0	= 60	
F	6 x 8	= 48	x 0.8	= 38	
G	7 x 5	= 35			
	57 x 20	= 1,140			
	33 x 10	= 330			
	6 x 4	= 24			
	92 x 27	= 2,484			
	20 x 23	= 460			
		<u>4,473</u>	x 0.5	= 2,237	
H	7 x 17	= 119	x 1.0	= 119	
I	7 x 10	= 70	x 0.8	= 56	
J	9 x 13	= 117	x 1.5	= 176	
K	10 x 12	= 120	x 1.0	= 120	

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-14713-RS

Page 2 of 2

L	35 x 47	=	1,645						
	30 x 19	=	570						
	56 x 61	=	3,416						
			<u>5,631</u>	x	0.5	=	2,816		
M	12 x 14	=	168	x	1.0	=	168		
N	13 x 13	=	169	x	1.5	=	254		
	Volume of fill					=	<u>8,243</u>	=	8,243/27 = 305
									<hr/>
	TOTAL VOLUME - EXTERIOR							=	306

See Appendix Figures 3.3a and 3.3b For Areas

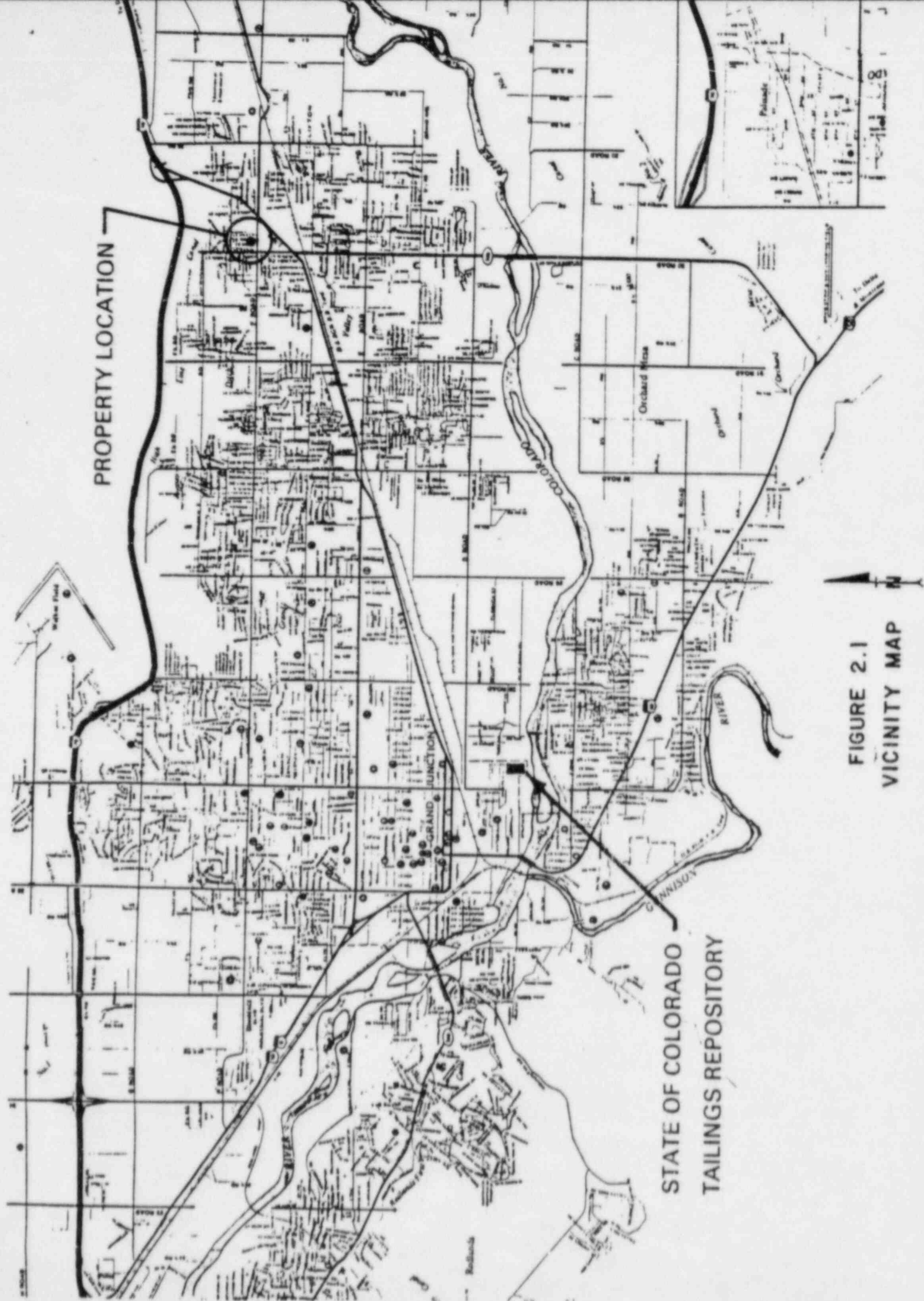
Table 4.2
Estimated Cost of Decontamination and Restoration
DOE ID No. GJ-14713-RS

Page 1 of 1

Remove/replace concrete		
37 sf @ \$4/sf	\$	148
Remove/replace decorative rock landscaping		
10 sf @ \$1.25/sf		13
Remove identified residual radioactive material		
290 cy @ \$14.50/cy (machine - open)		4,205
15 cy @ \$44/cy (manual - open)		660
Replace areas with compacted roadbase		
41 cy @ \$11.50/cy		472
Replace areas with topsoil		
264 cy @ \$9.50/cy		2,508
Misc. landscaping		
Lump sum		100
		<hr/>
TOTAL EXTERIOR	\$	8,106
TOTAL INTERIOR		0
ACCESS CONTROL		200
		<hr/>
SUBTOTAL	\$	8,306
CONTINGENCY @ 10%		831
		<hr/>
SUBTOTAL	\$	9,137
CONTRACTOR OVERHEAD & PROFIT @ 25%		2,284
		<hr/>
GRAND TOTAL	\$	11,421

=====

SC/8-29-85
REA14713/REA-AAB



Beginning N 89°55' E 852.17 Feet From The Southwest Corner Of Section 2, T 15, R 1 E, 3 M, Thence North 275.0 Feet, Thence S 89°55' W 262.17 Feet, Thence South 275.0 Feet, Thence N 89°55' E 262.17 Feet To Beginning, Except On Way On The South 80 Deceased In 1981 Plus 56.5 of The Nash County Clerk's Records.

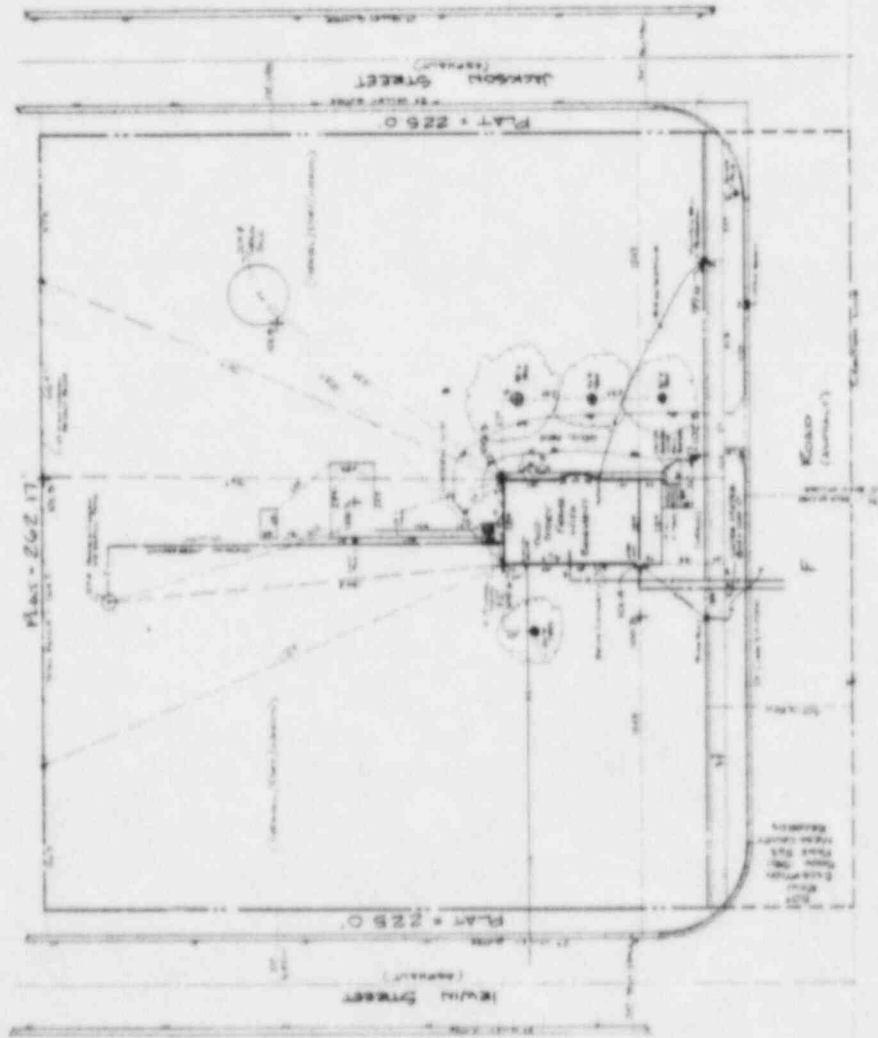
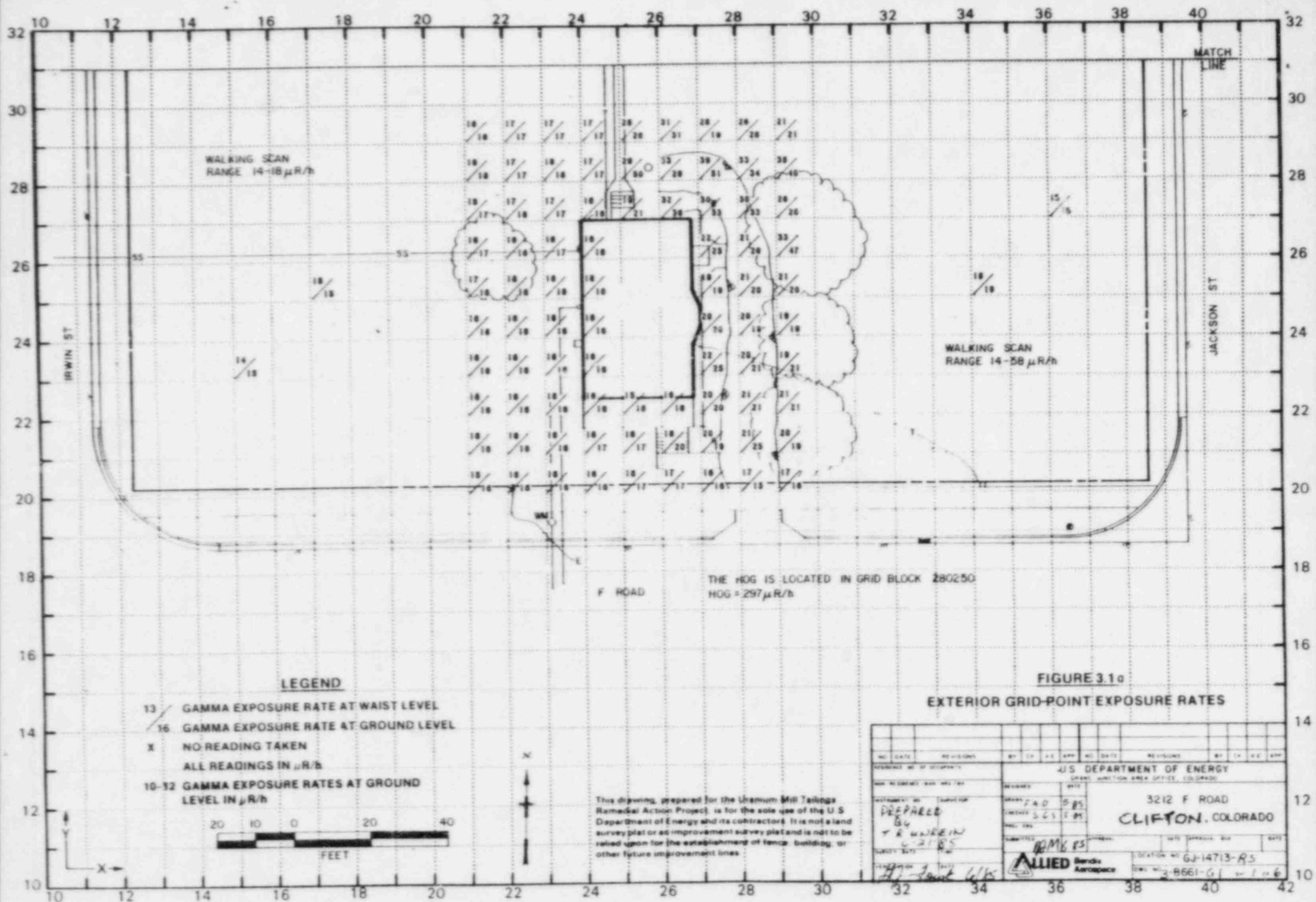
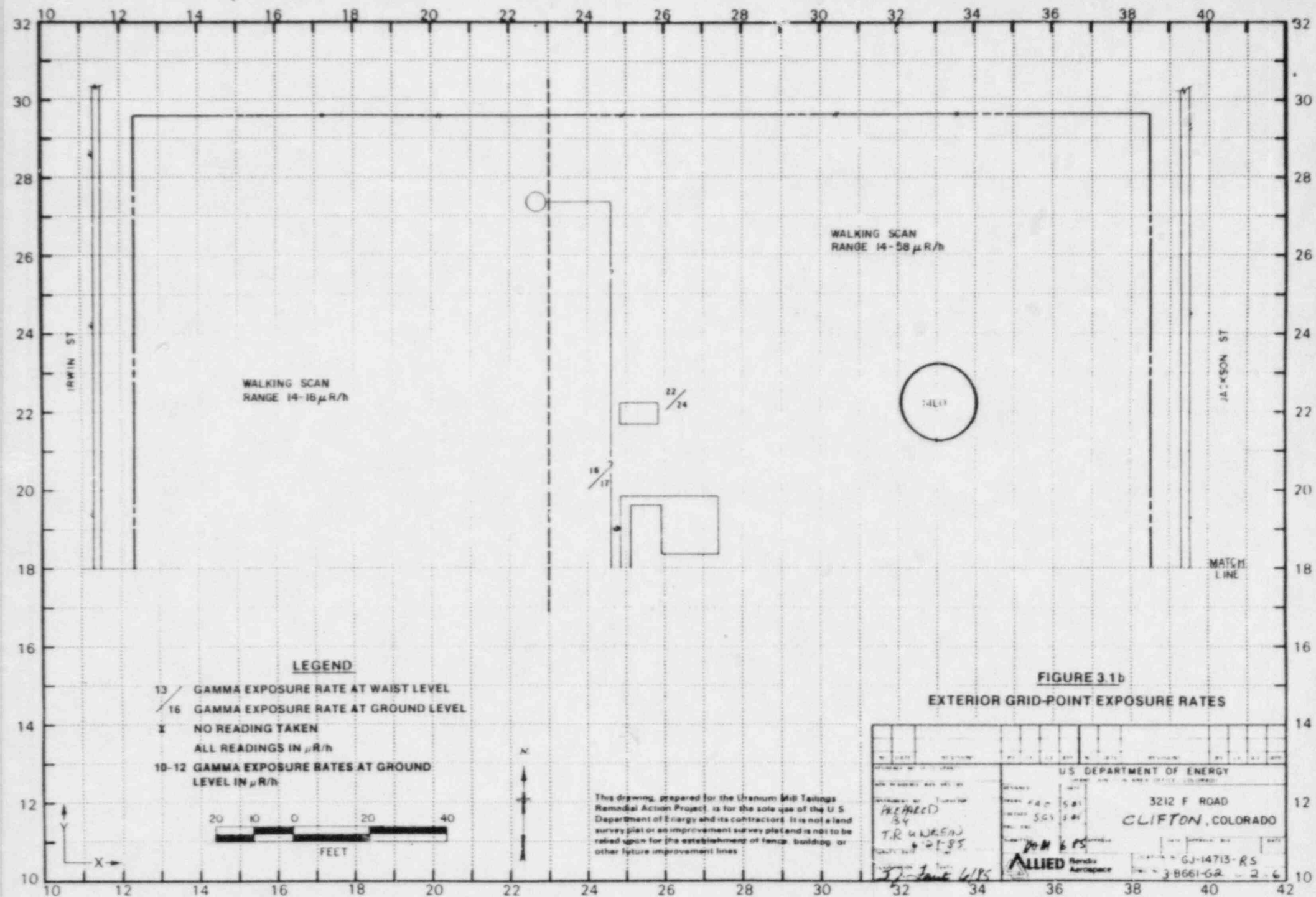


FIGURE 2.2 SITE PLAN

U.S. DEPARTMENT OF ENERGY		DOE/ST-115-85
Contract No.	5272 F Road	Ames
Task Order No.	CL-1 F Road	Contract
Task Order No.	5272 F Road	Ames
Task Order No.	5272 F Road	Ames





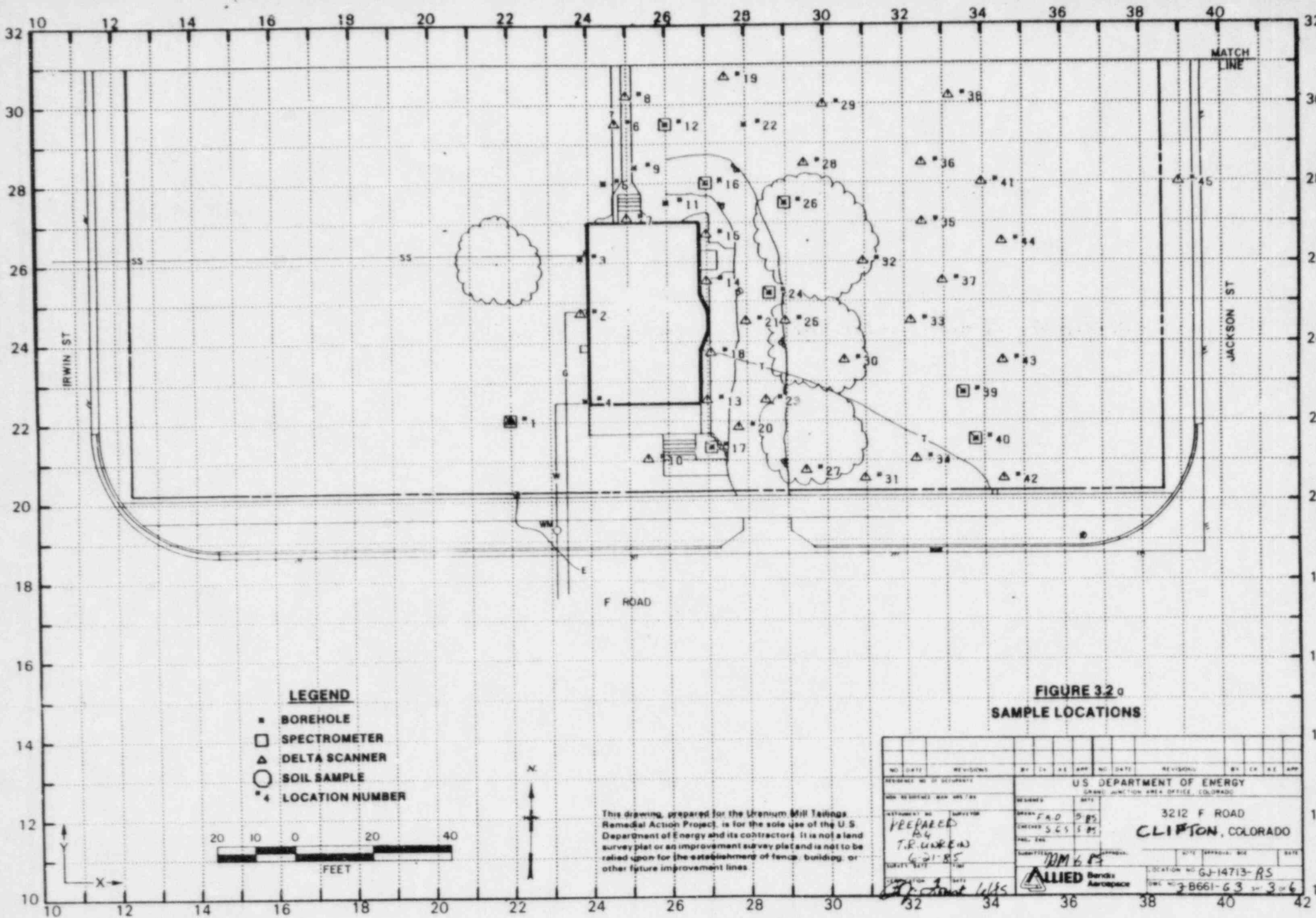
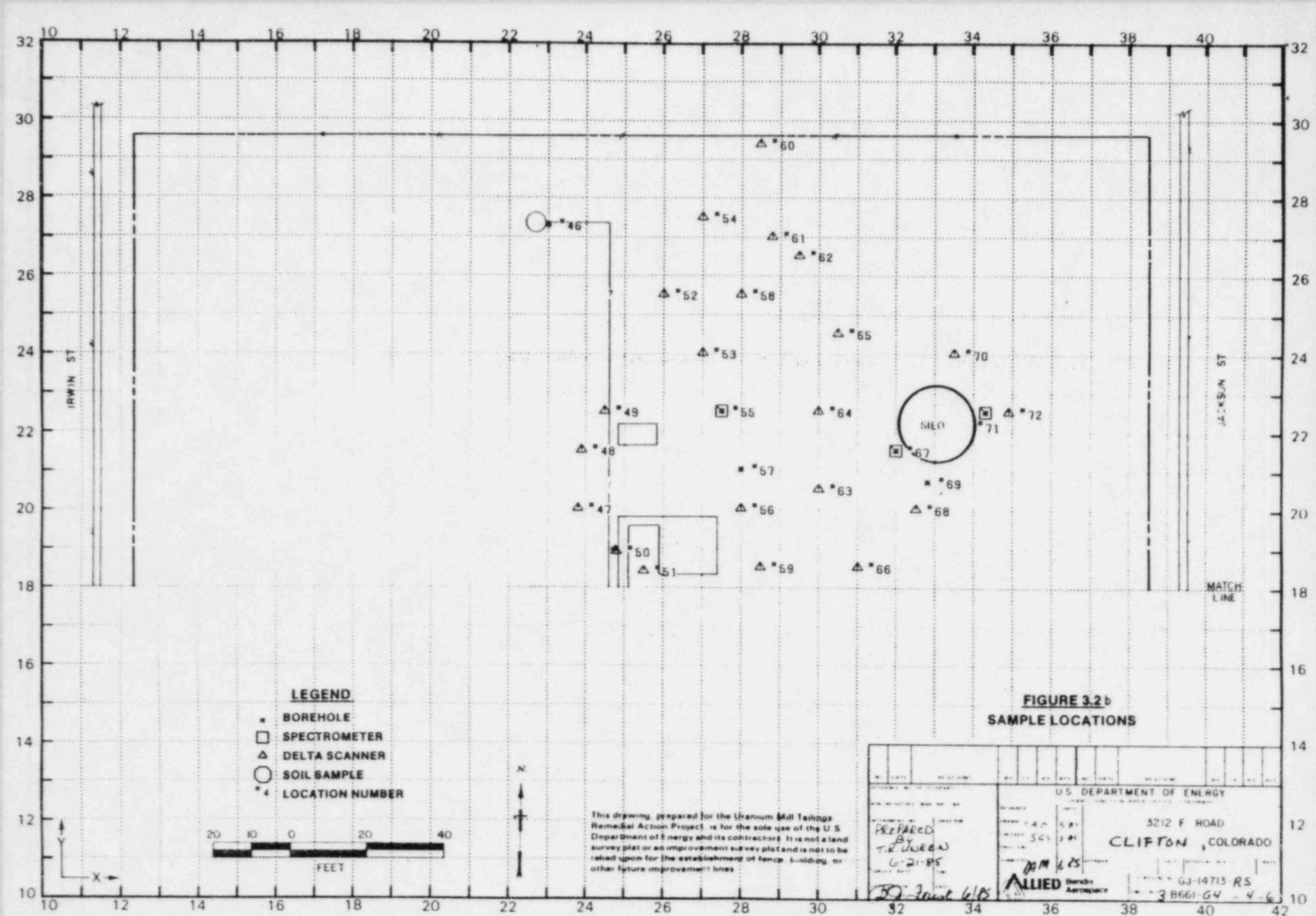


FIGURE 32.0
SAMPLE LOCATIONS

NO. DATE		REVISIONS		BY	CR	AE	APP	NO.	DATE	REVISIONS		BY	CR	AE	APP
<p align="center">U.S. DEPARTMENT OF ENERGY GRAND JUNCTION AREA OFFICE, COLORADO</p> <p align="right">3212 F ROAD CLIFTON, COLORADO</p>															
DESIGNED BY		CHECKED BY		DATE		APPROVED BY		DATE		LOCATION NO.		DATE		SCALE	
PREPARED BY T.R. GUNEN		CHECKED BY S.C.S.		6-21-85		APPROVED BY M.M. 6.5		DATE		GJ-14713-R5		DATE		3-B661-63 3 of 6	
DRAWN BY		CHECKED BY		DATE		APPROVED BY		DATE		LOCATION NO.		DATE		SCALE	
DRAWN BY		CHECKED BY		DATE		APPROVED BY		DATE		LOCATION NO.		DATE		SCALE	
DRAWN BY		CHECKED BY		DATE		APPROVED BY		DATE		LOCATION NO.		DATE		SCALE	



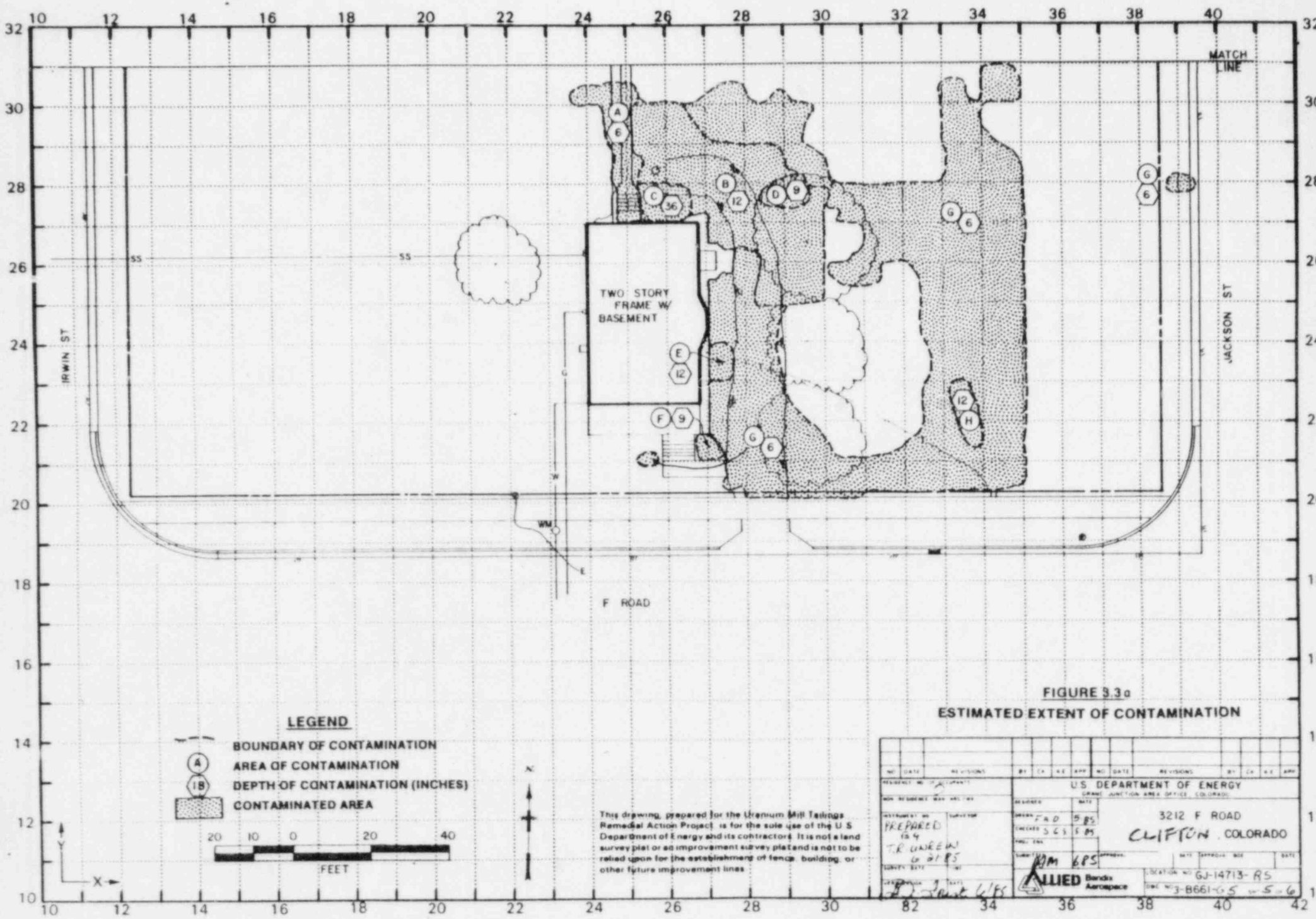
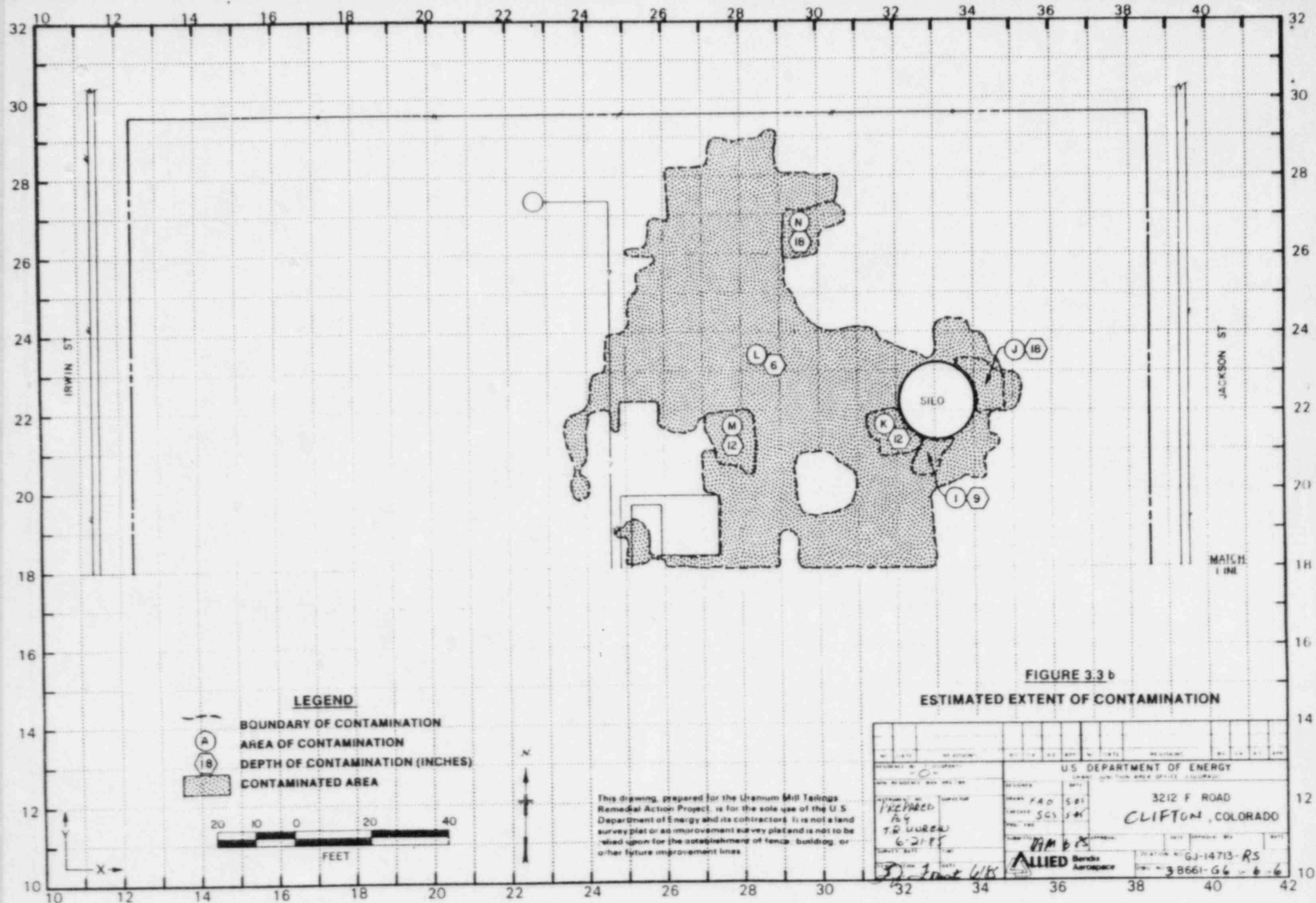


FIGURE 3.3a
ESTIMATED EXTENT OF CONTAMINATION

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.

NO. DATE		REVISIONS		BY: CH. K.E. APP. NO. DATE		REVISIONS		BY: CH. K.E. APP.	
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION AREA OFFICE, COLORADO									
3212 F ROAD CLIFTON, COLORADO					DATE: 10/1/85				
PROJECT NO. 62-14713-R5					DATE: 10/1/85				
DRAWN BY: T.R. GREEN					CHECKED BY: S.C. F.B.				
DATE: 9/21/85					DATE: 10/1/85				
APPROVED BY: J.M. 6PS					APPROVED BY: J.M. 6PS				
ALLIED BORDS Aerospace					ALLIED BORDS Aerospace				



3/85

DOE ID NO. GJ-14713-RS Date June 20, 1985

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

Official Survey Report

Property Address 3212 F Road
Property Owner Jack Irwin
Address of Owner (if different from above) 1925 North 7th Street (243-9282)
Report Prepared By T.R. Unrein

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

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

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

1 XX 1 In open areas.

1 XX 1 Under or around exterior improvements.

1 XX 1 Under or around a typically nonoccupied structure.

1 XX 1 Under or around a typically occupied structure.

II. RESULTS OF RADIOLOGIC ASSESSMENT

1 XX 1 Levels of radiation from residual radioactive materials, if any, do not exceed EPA Standards and no action is required under the Uranium Mill Tailings Remedial Action Project.

1 XX 1 Levels of radiation from residual radioactive materials exceed EPA Standards such that Remedial Action is recommended and will be accomplished, with your consent, as soon as budget and schedule permit.

cc:

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

HIG = Undetermined uR/h
HOG = 297 uR/h

June 28, 1985

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

ATTN: Elaine Brummett

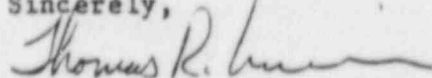
Dear Elaine:

The following is in response to your questions and comments concerning Department of Energy (DOE) Identification (ID) number GJ-14713-RS (3212 'F' Road).

1. Delta Location 14 does indicate contamination, but I determined some contaminated soil adjacent to the sidewalk fell into the hole. Deltas at Locations 13 and 15, which are under the sidewalk, also indicate no contamination. The sidewalk is very old and was probably put in when the house was built in 1908.
2. Delta Location 10 is negative and the scan shows 200 counts per second (cps). I do not have a reason for this. I did change my contamination map to include this area for removal.
3. Deltas were performed in the general areas of Grid Point Locations 310290, 305220, 315307 on Map A, and 298252 on Map B. These deltas indicated negative contamination, therefore it was determined these areas were shine from adjacent areas.
4. According to the procedures now being used, the 6-inch delta reading at Location 25 would be considered negative.
5. This property had a septic tank but no leach field. The owner indicated the septic system is now under 'F' Road.

Thank you for your time and cooperation. If you should have additional questions or comments you may contact me at 242-8621, extension 418.

Sincerely,



Thomas R. Unrein
RSD Survey Team Leader

TRU:pr

ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado

Date: June 11, 1985

To: Files

From: Thomas R. Unrein

Subject: Team Leader Notes - GJ-14713-RS

Address: 3212 'F' Road

Owner: Jack Irwin

Team Members

T.R. Unrein (Team Leader)	H. Lucero
M. Johnson	N. Wallace
L. Kula	V. Young
D. Krabacher	H. Mattison
D. Clay	K. Roemer
S. Larsen	R. Herman
S. Garcia	G. Meeker

Instruments

Crutch Scintillometers: C-1150, C-1184, C-1028, C-1208, C-1214,
C-3502
Total Counts: C-3959, C-3956
Surface Spectrometer: C-3431
Downhole Spectrometer: C-0385
Delta Scintillometers: C-4058, C-3936, C-4059, C-3942, C-4060,
C-3943

No interior survey was performed on this property because the owner denied us permission to do so.

The primary residence was built in the early 1900's.

Team Leader Notes
Thomas R. Unrein
GJ-14713-RS
June 11, 1985
Page 2

When Colorado Department of Health (CDH) surveyed the property they discovered a high inside gamma (HIG) of 15 uR/h.

The foundation (exterior) could only be checked on one side, which showed no contamination. The other sides were abutted by concrete. The maps show sidewalks on the north and east side of the primary structure. Portions of these sidewalks are under 1- to 6-inches of soil. In some areas the soil is contaminated. I will recommend that the soil be removed down to the concrete. Also, the concrete slabs north of the primary structure are portions of a foundation from a barn (which has since been torn down) that was built before the use of tailings. The larger slab is not as big as shown on the maps. This will be corrected on the final mylars.

The owner arrived on the property just as we were leaving. I answered his questions before departing the property.

All team members were frisked and returned to the office.

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

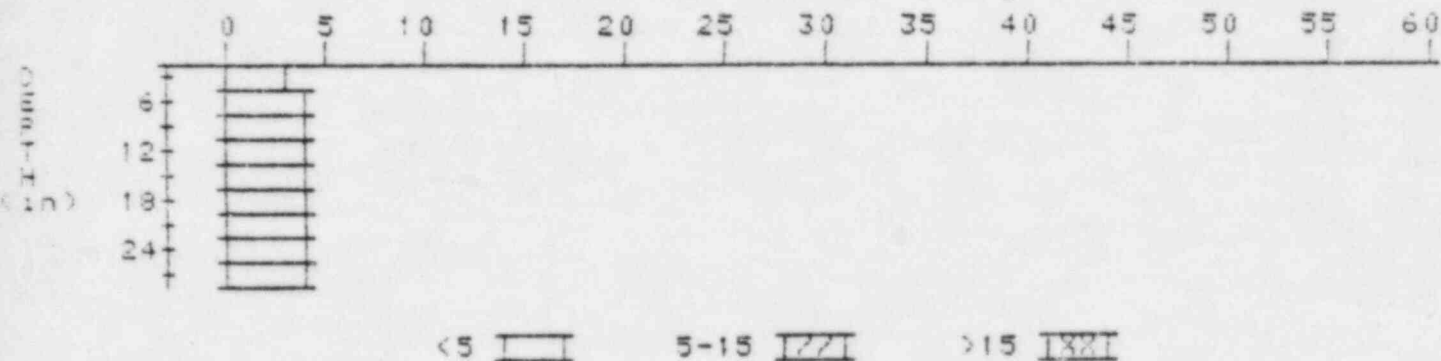
1

PROPERTY NUMBER: GJ-14713-RS

HOLE NUMBER: 1

LOCATION: 220220

APPARENT RA-226 (pCi/g)



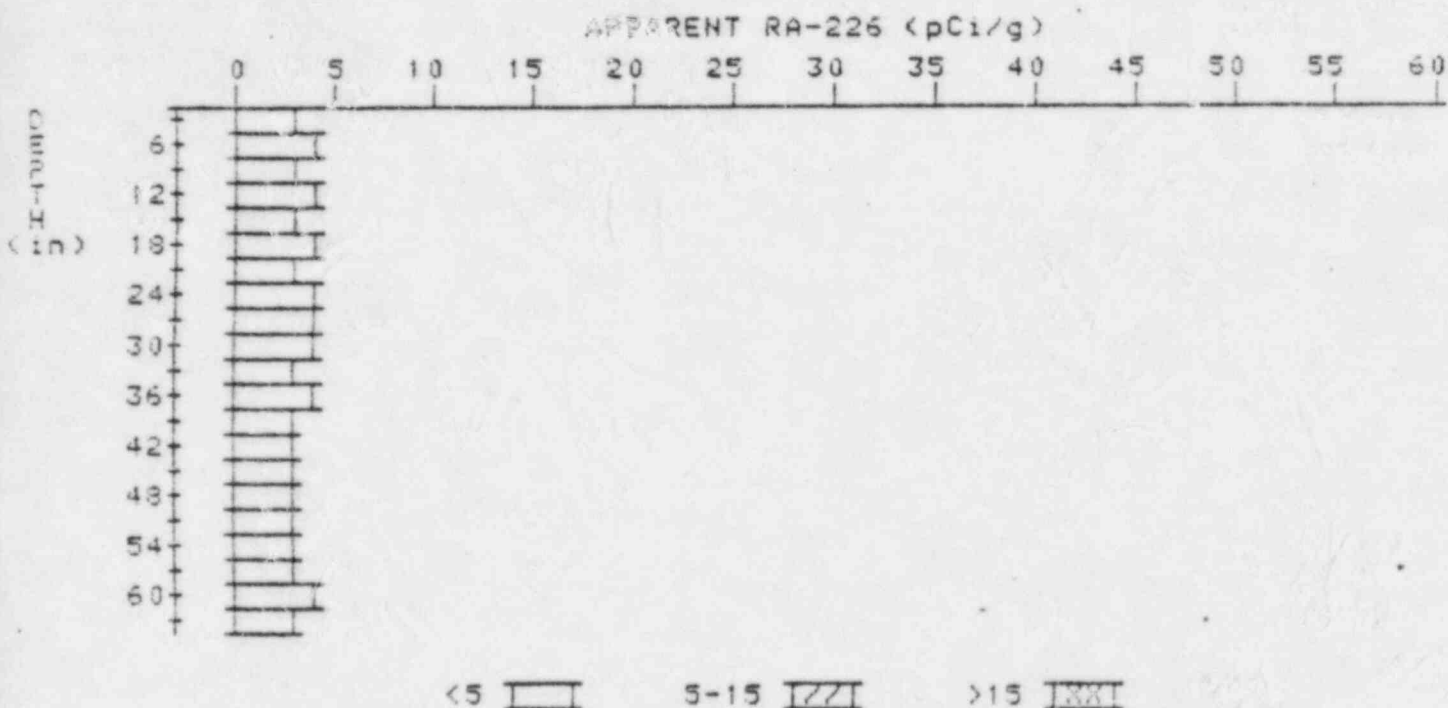
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.1	3.1
6	3.5	3.9
9	3.7	4.1
12	3.7	3.5
15	3.8	4.0
18	3.8	3.6
21	3.9	4.1
24	3.9	3.9
27	3.9	3.9

APPARENT RADIUM-226 CONCENTRATION 3 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-14713-RS

HOLE NUMBER: 3

LOCATION: 238261



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

54
57
60
63

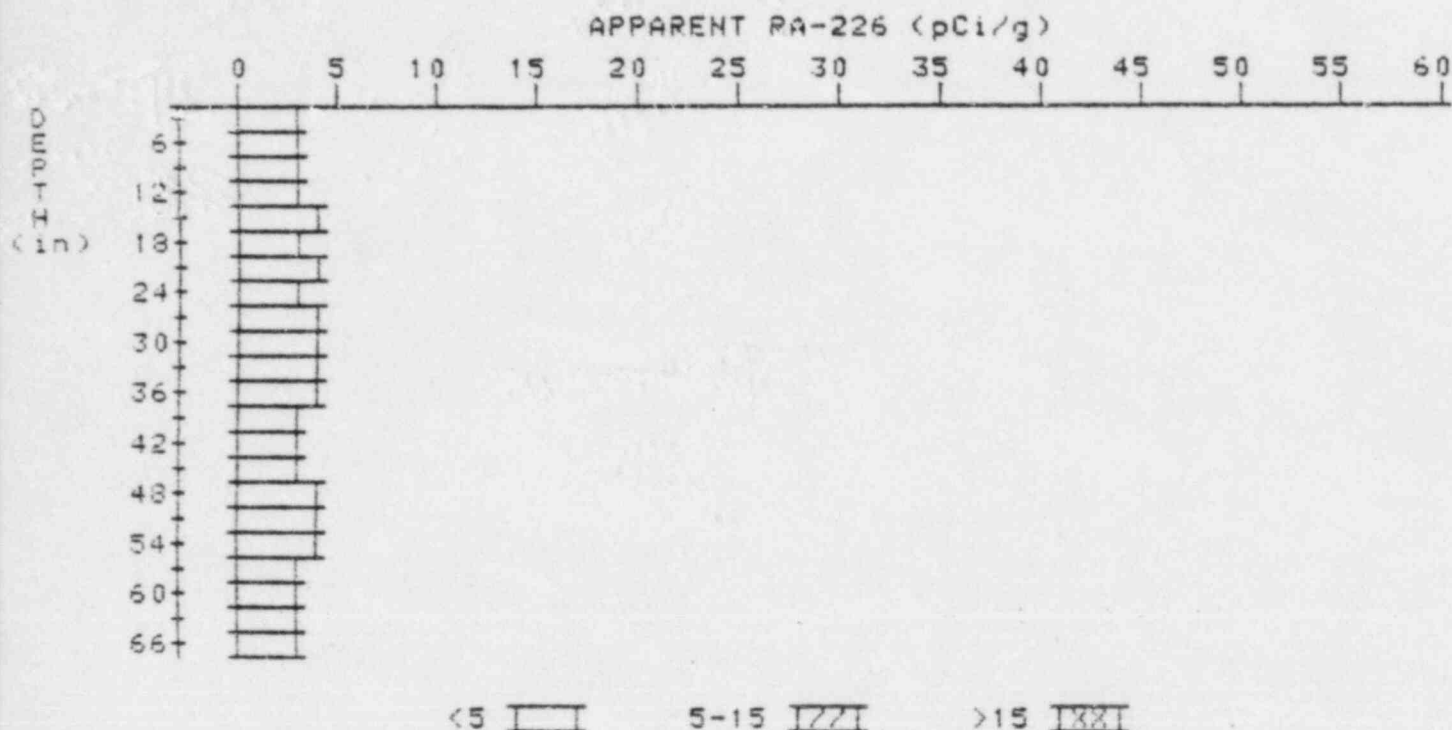
3.3
3.2
3.3
3.2

3.5
2.8
3.7
3.2

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

4

PROPERTY NUMBER: GJ-14713-RS
HOLE NUMBER: 4
LOCATION: 239225



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	2.3	2.3
6	3.1	3.3
9	3.3	3.5
12	3.4	3.4
15	3.5	3.7
18	3.5	3.3
21	3.6	3.3
24	3.6	3.4
27	3.7	3.9
30	3.7	3.7
33	3.7	3.7
36	3.7	4.1
39	3.5	3.3
42	3.4	3.2
45	3.4	3.2
48	3.5	3.7

51
54
57
60
63
66

3.5
3.5
3.4
3.3
3.2
3.3

3.5
3.7
3.4
3.3
2.8
3.3

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

5

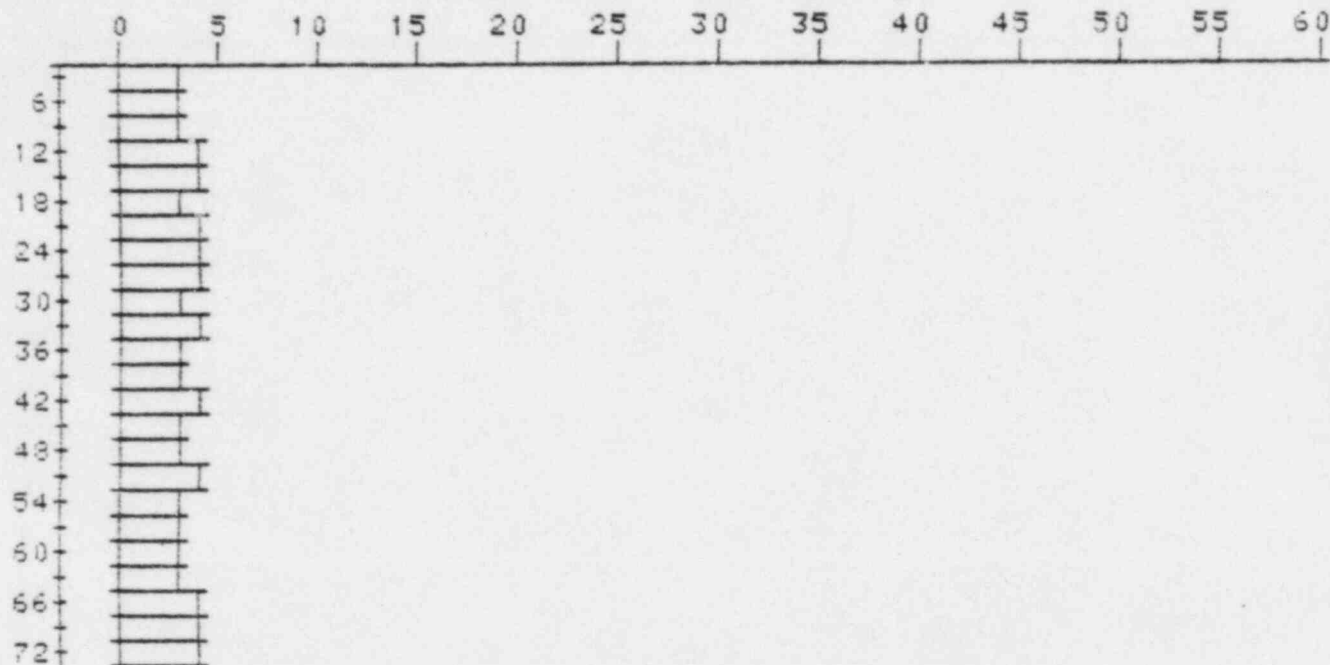
PROPERTY NUMBER: GJ-14713-RS

HOLE NUMBER: 5

LOCATION: 244280

APPARENT RA-226 (pCi/g)

DEPTH
(in)



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

48
51
54
57
60
63
66
69
72

3.4
3.5
3.4
3.4
3.4
3.4
3.5
3.5
3.5

3.4
3.9
3.2
3.4
3.4
3.2
3.7
3.5
3.5

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

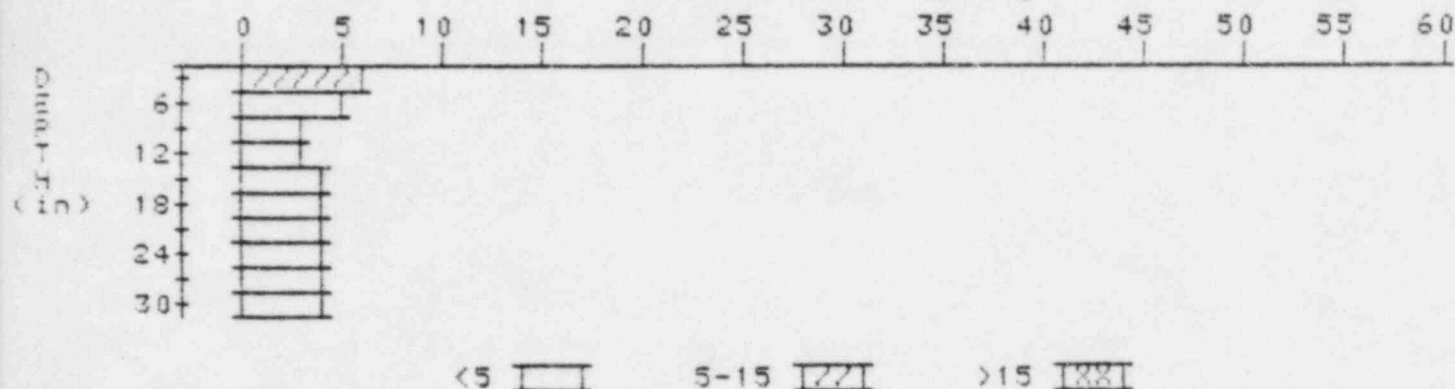
9

PROPERTY NUMBER: GJ-14713-RS

HOLE NUMBER: 9

LOCATION: 252284

APPARENT RA-226 (pCi/g)



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	6.3	6.3
6	5.2	4.8
9	4.3	3.4
12	3.9	3.2
15	3.9	3.9
18	3.9	3.9
21	3.9	3.9
24	3.9	3.7
27	4.0	4.2
30	4.0	4.0

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

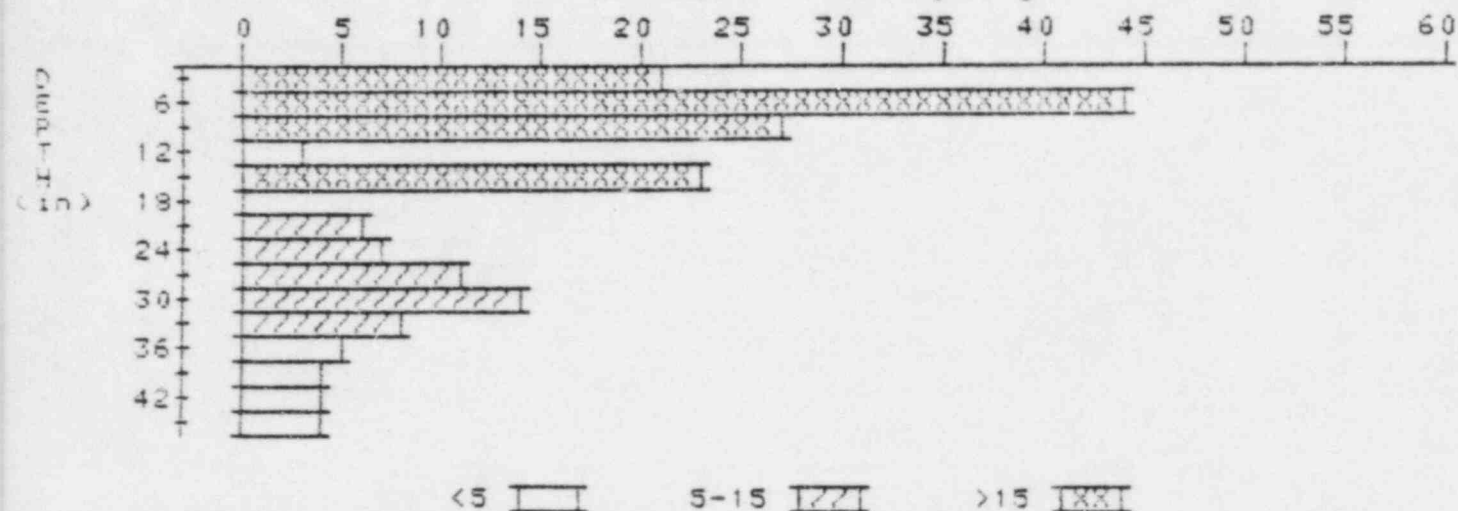
11

PROPERTY NUMBER: GJ-14713-RS

HOLE NUMBER: 11

LOCATION: 260275

APPARENT RA-226 (pCi/g)

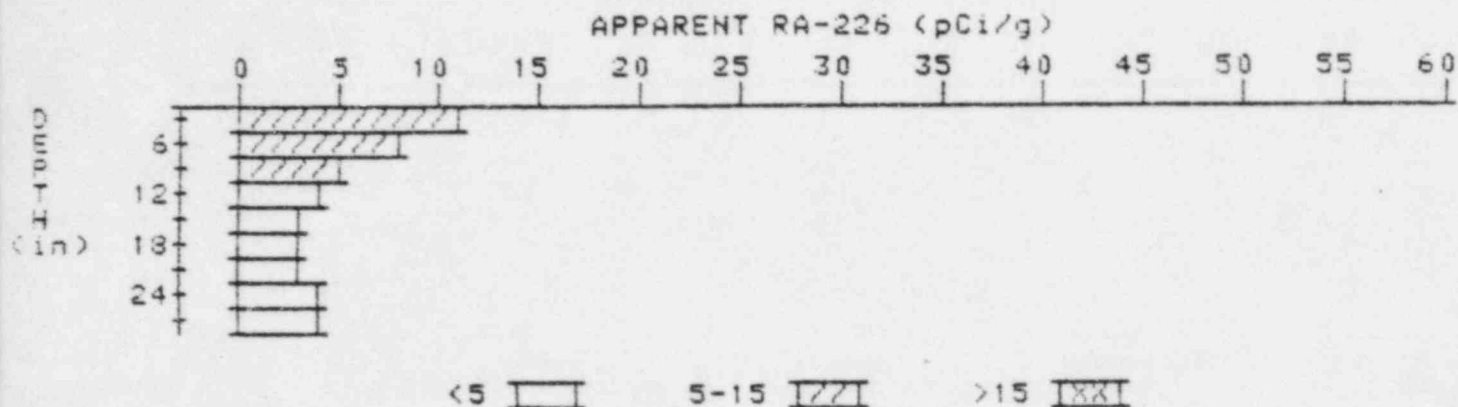


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	21.2	21.2
6	26.6	44.0
9	22.2	27.4
12	14.9	3.2
15	14.2	22.9
18	8.6	- .1
21	7.9	5.8
24	8.4	7.3
27	9.5	10.6
30	10.0	14.3
33	8.1	8.1
36	6.2	5.0
39	5.0	3.9
42	4.4	3.7
45	4.2	4.2

APPARENT RADIUM-226 CONCENTRATION 12

DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-14713-RS
HOLE NUMBER: 12
LOCATION: 260295



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	11.4	11.4
6	8.7	7.6
9	6.6	5.4
12	5.2	4.3
15	4.3	3.4
18	3.9	3.4
21	3.8	3.4
24	3.9	4.1
27	3.9	3.9

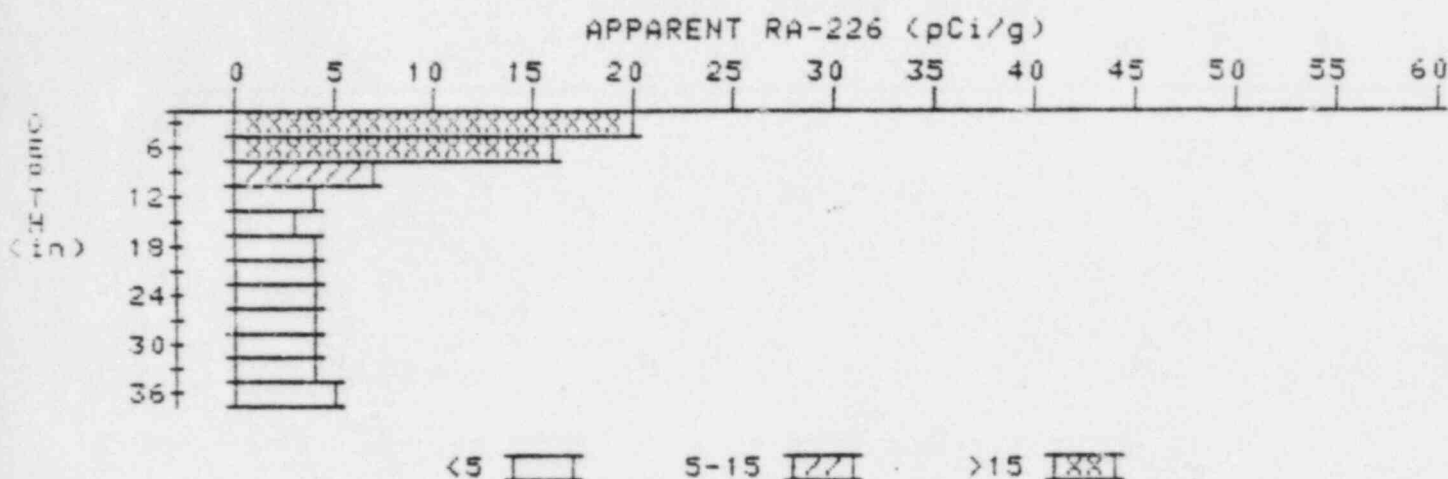
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

16

PROPERTY NUMBER: GJ-14713-RS

HOLE NUMBER: 16

LOCATION: 270280



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	19.7	19.7
6	15.3	16.4
9	10.3	7.3
12	7.0	4.3
15	5.2	3.1
18	4.6	3.9
21	4.4	4.2
24	4.3	4.1
27	4.3	4.3
30	4.3	3.9
33	4.5	4.3
36	4.8	4.8

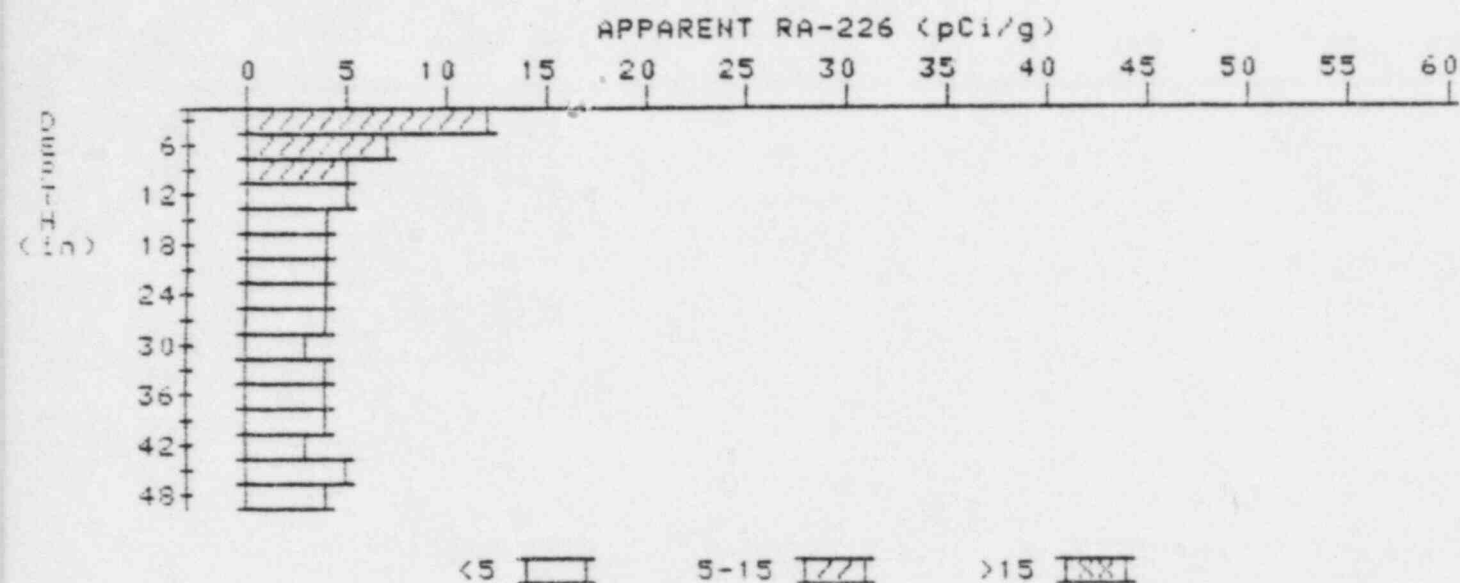
APPARENT RADIUM-226 CONCENTRATION 17

DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-14713-RS

HOLE NUMBER: 17

LOCATION: 271213



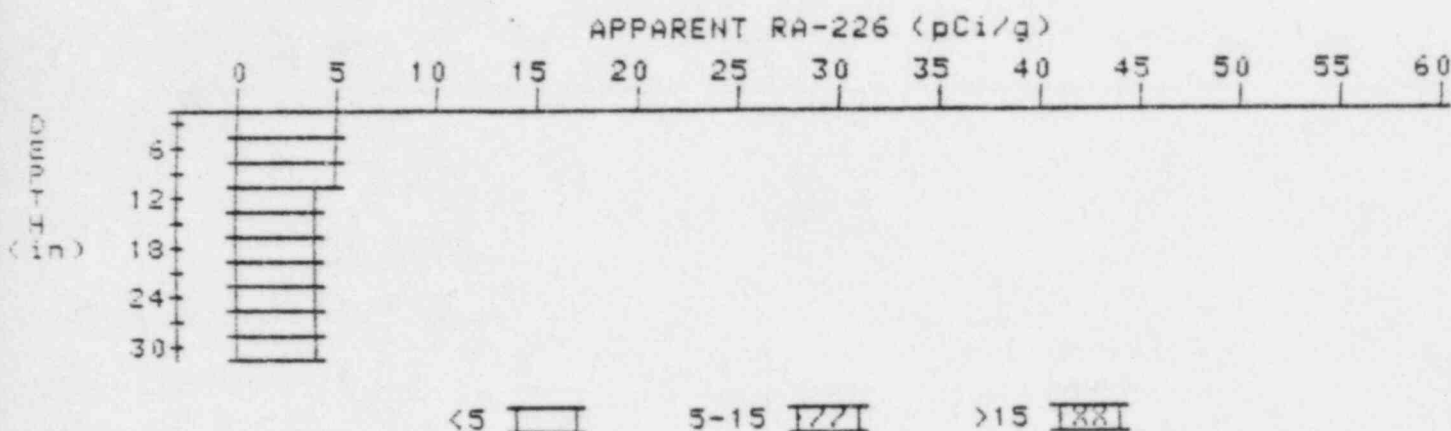
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
=====	=====	=====
3	11.9	11.9
6	8.9	7.3
9	6.8	5.2
12	5.6	4.9
15	4.8	4.3
18	4.3	3.6
21	4.2	4.4
24	4.0	3.8
27	3.9	3.9
30	3.8	3.4
33	3.9	4.1
36	3.9	4.1
39	3.8	3.6
42	3.8	3.4
45	4.0	4.5
48	3.9	3.9

APPARENT RADIUM-226 CONCENTRATION 22 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-14713-RS

HOLE NUMBER: 22

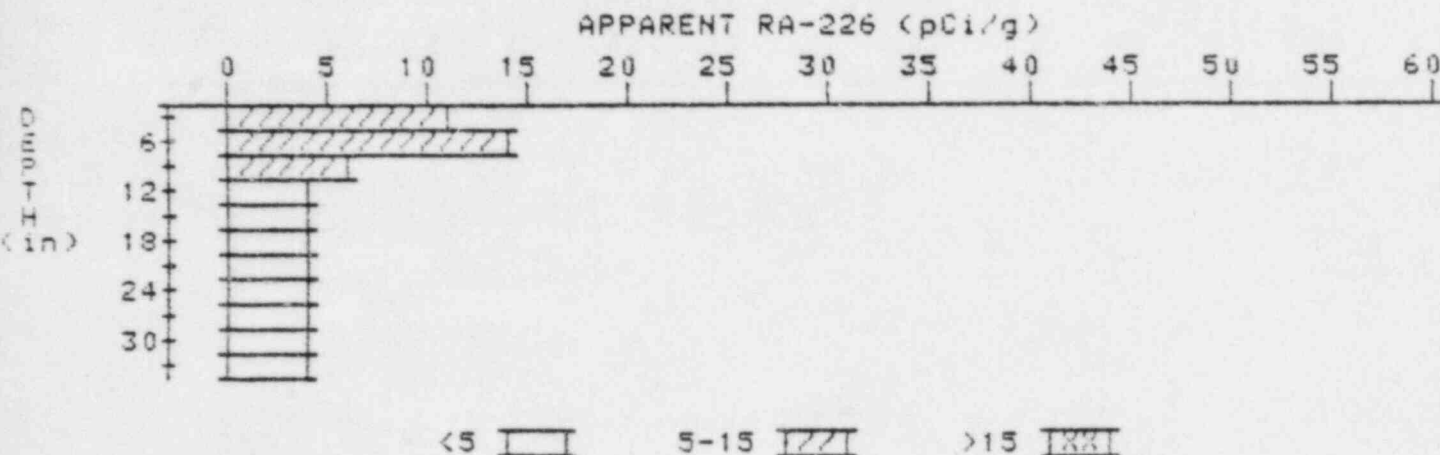
LOCATION: 280295



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.7	4.7
6	4.6	4.8
9	4.4	4.6
12	4.1	3.9
15	3.9	3.7
18	3.8	3.6
21	3.8	3.6
24	3.9	4.1
27	3.9	3.7
30	4.0	4.0

APPARENT RADIUM-226 CONCENTRATION 24 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-14713-RS
 HOLE NUMBER: 24
 LOCATION: 286252



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	11.1	11.1
6	10.4	14.3
9	7.5	5.9
12	5.5	3.5
15	4.6	3.7
18	4.2	3.7
21	4.1	4.1
24	4.0	4.0
27	3.9	3.9
30	3.8	3.8
33	3.7	3.7

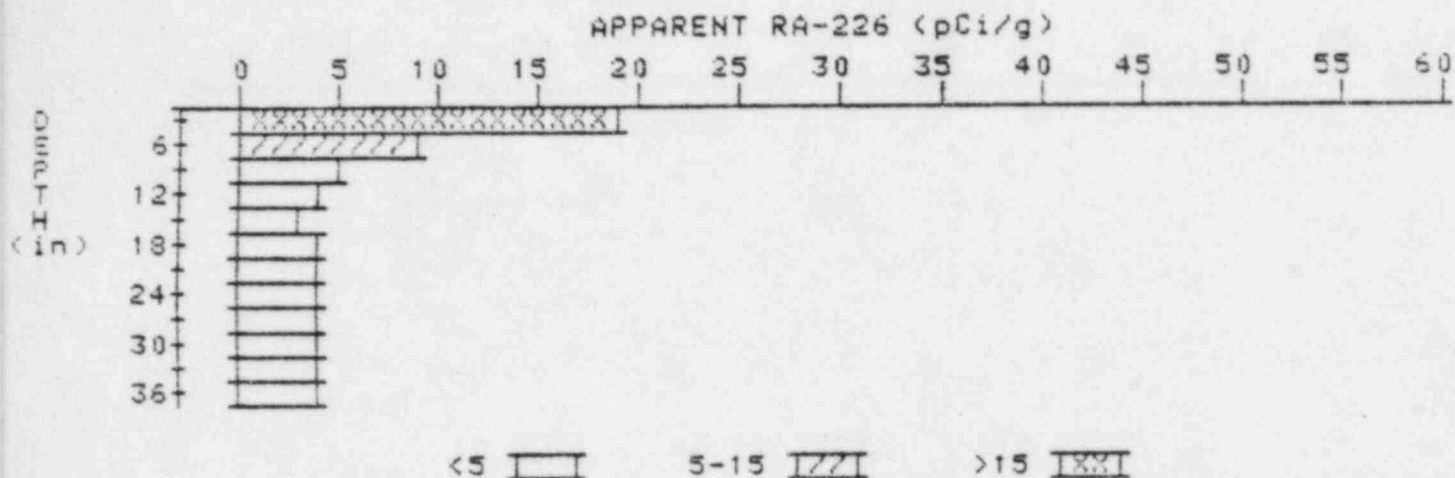
APPARENT RADIUM-226 CONCENTRATION 26

DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-14713-RS

HOLE NUMBER: 26

LOCATION: 290275



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	18.9	18.9
6	12.6	9.2
9	8.2	4.6
12	5.8	3.7
15	4.6	3.2
18	4.2	3.8
21	4.0	3.6
24	4.0	4.0
27	4.0	4.2
30	3.9	3.9
33	3.8	3.6
36	3.8	3.8

APPARENT RADIUM-226 CONCENTRATION 39

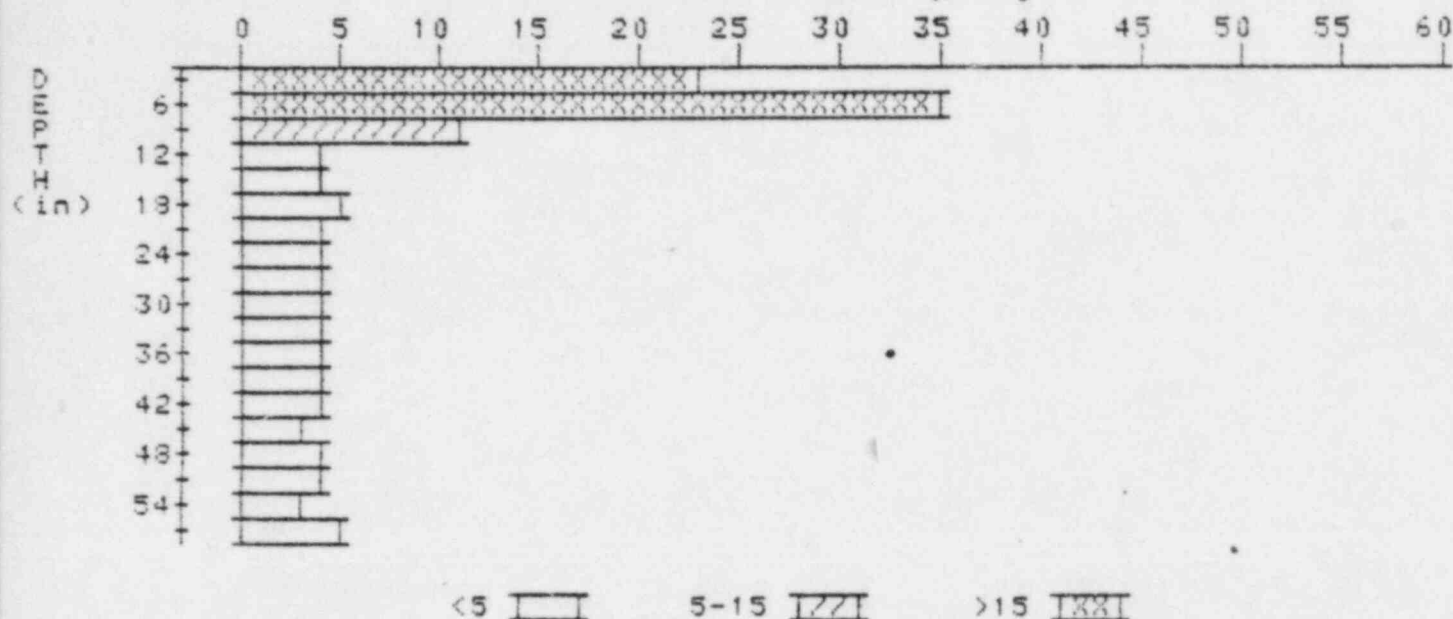
DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-14713-RS

HOLE NUMBER: 39

LOCATION: 335227

APPARENT RA-226 (pCi/g)



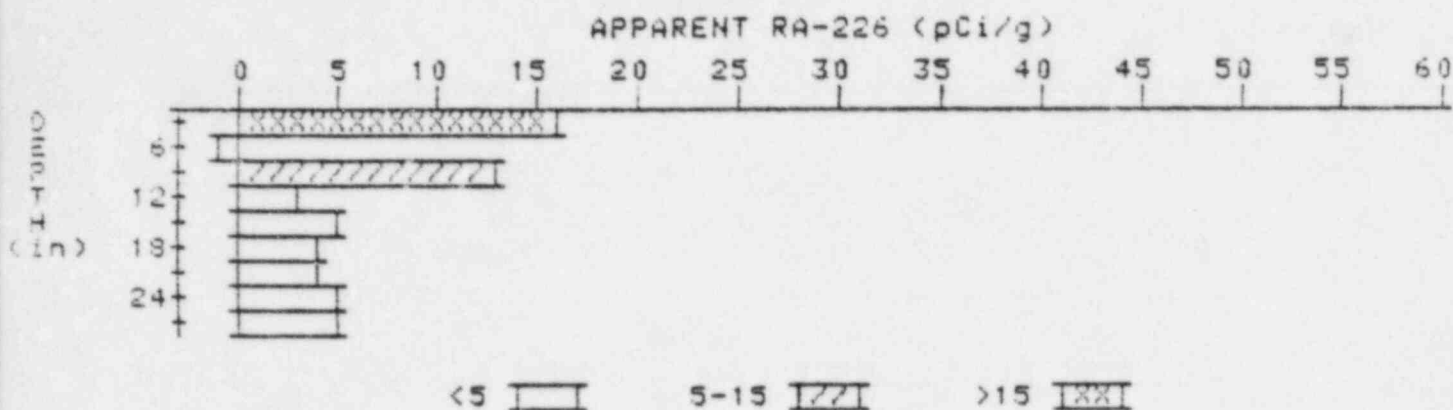
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	23.2	23.2
6	22.4	34.7
9	14.7	10.6
12	9.3	4.1
15	6.8	4.5
18	5.6	4.7
21	4.9	4.4
24	4.5	4.1
27	4.3	4.3
30	4.1	3.9
33	4.0	3.8
36	4.0	4.2
39	3.9	3.7
42	3.9	4.1
45	3.8	3.4
48	3.9	4.1
51	3.9	3.7
54	4.0	3.3

APPARENT RADIUM-226 CONCENTRATION 40 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-14713-RS

HOLE NUMBER: 40

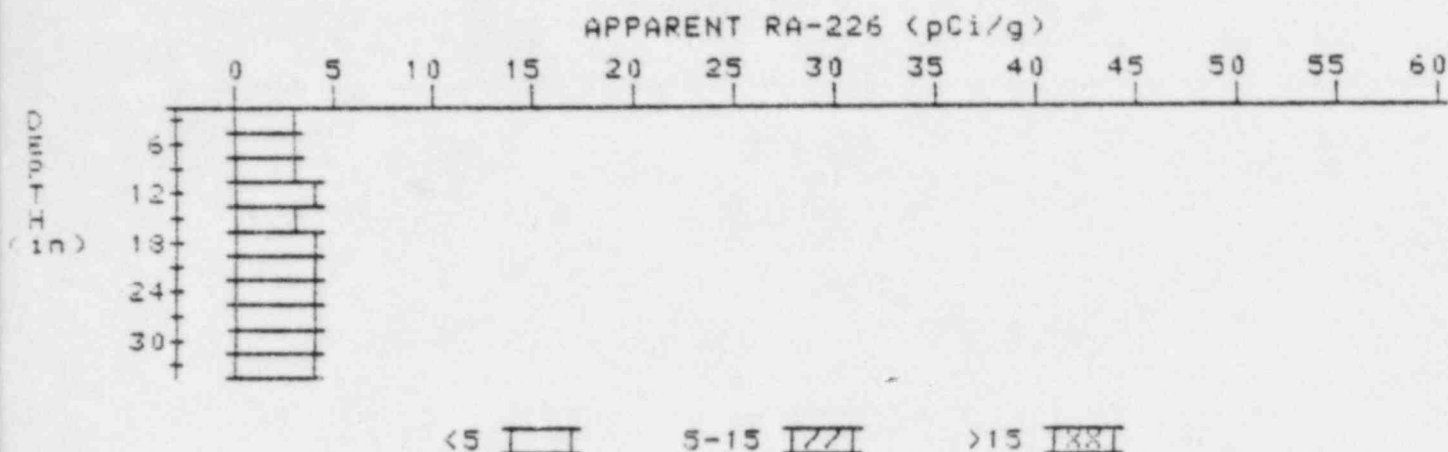
LOCATION: 338215



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	16.2	16.2
6	9.8	- .5
9	9.2	13.3
12	6.3	2.9
15	5.3	4.6
18	4.7	4.0
21	4.5	4.0
24	4.6	4.6
27	4.7	4.7

APPARENT RADIUM-226 CONCENTRATION 46 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-14713-RS
HOLE NUMBER: 46
LOCATION: 230273



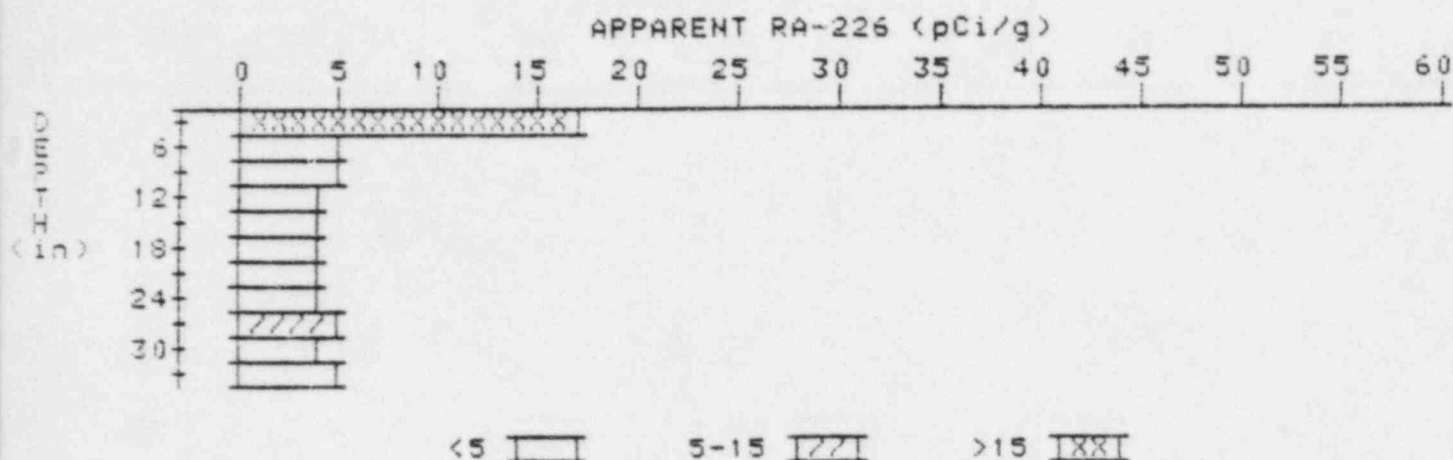
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	2.7	2.7
6	2.9	2.9
9	3.1	2.9
12	3.4	3.8
15	3.5	3.3
18	3.7	3.9
21	3.8	4.0
24	3.8	4.0
27	3.7	3.5
30	3.7	3.7
33	3.7	3.7

APPARENT RADIUM-226 CONCENTRATION 55 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-14713-RS

HOLE NUMBER: 55

LOCATION: 275225



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	17.0	17.0
6	10.5	4.6
9	7.3	4.6
12	5.6	4.0
15	4.8	4.1
18	4.4	3.9
21	4.3	3.9
24	4.4	4.2
27	4.6	5.1
30	4.5	4.1
33	4.6	4.6

APPARENT RADIUM-226 CONCENTRATION 57

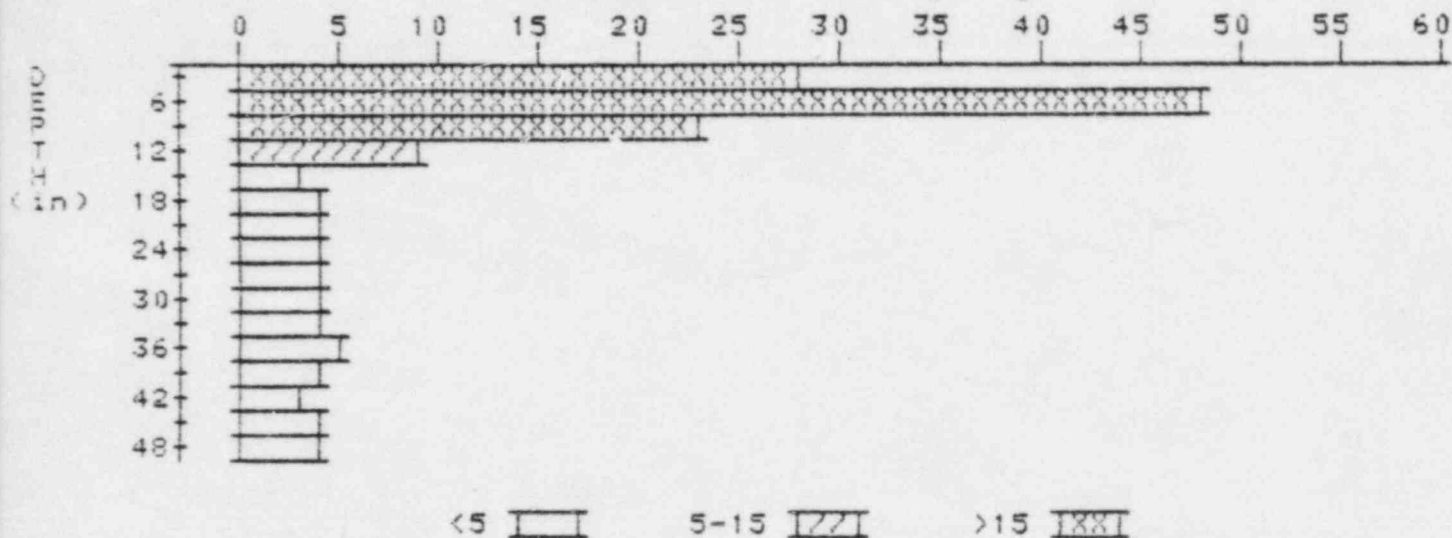
DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-14713-RS

HOLE NUMBER: 57

LOCATION: 280210

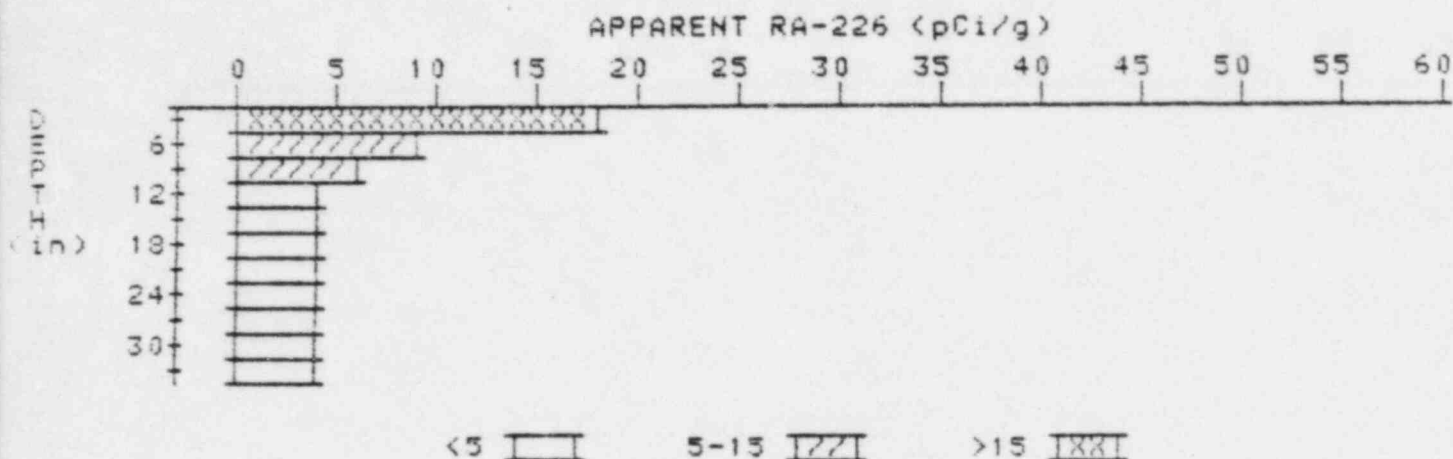
APPARENT RA-226 (pCi/g)



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	27.9	27.9
6	30.2	48.2
9	22.4	23.5
12	14.0	8.7
15	8.6	3.3
18	6.2	3.9
21	5.1	4.2
24	4.5	3.8
27	4.3	4.3
30	4.1	3.9
33	4.0	3.6
36	4.1	4.6
39	3.9	3.7
42	3.8	3.4
45	3.9	3.9
48	4.0	4.0

APPARENT RADIUM-226 CONCENTRATION 67 DECONVOLUTION GRAPH

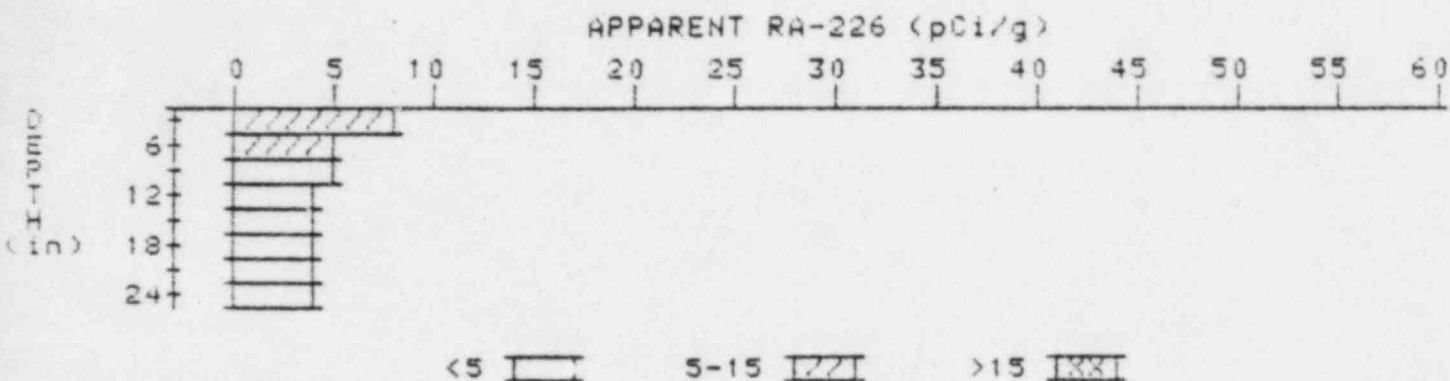
PROPERTY NUMBER: GJ-14713-RS
HOLE NUMBER: 67
LOCATION: 320215



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	17.5	17.5
6	12.2	9.4
9	8.5	6.0
12	6.2	4.1
15	5.1	4.2
18	4.5	4.0
21	4.2	4.0
24	4.0	3.6
27	4.0	4.0
30	4.0	3.8
33	4.1	4.1

APPARENT RADIUM-226 CONCENTRATION 69 DECONVOLUTION GRAPH

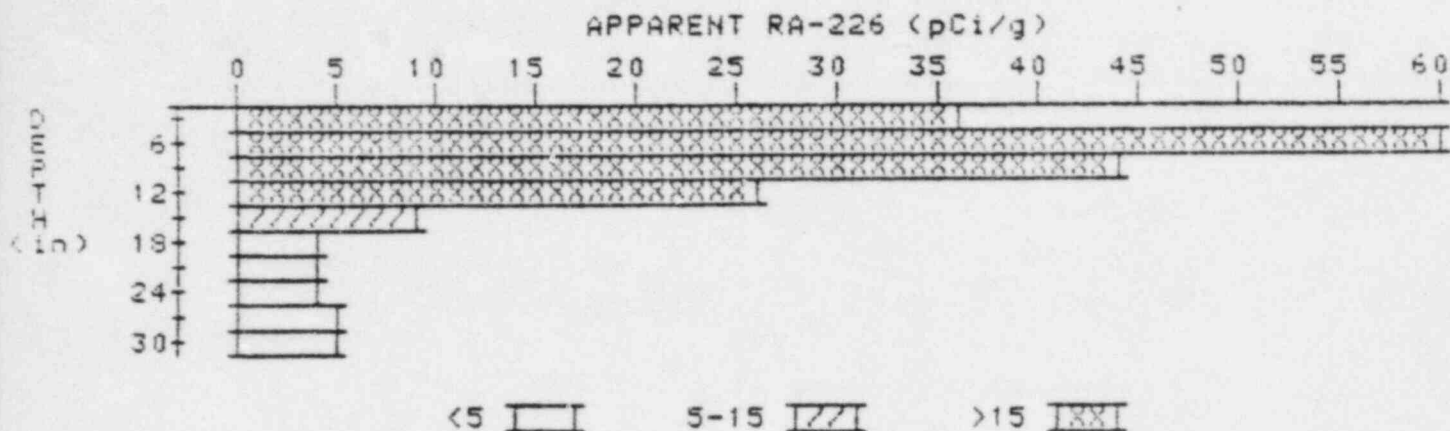
PROPERTY NUMBER: GJ-14713-RS
HOLE NUMBER: 69
LOCATION: 328207



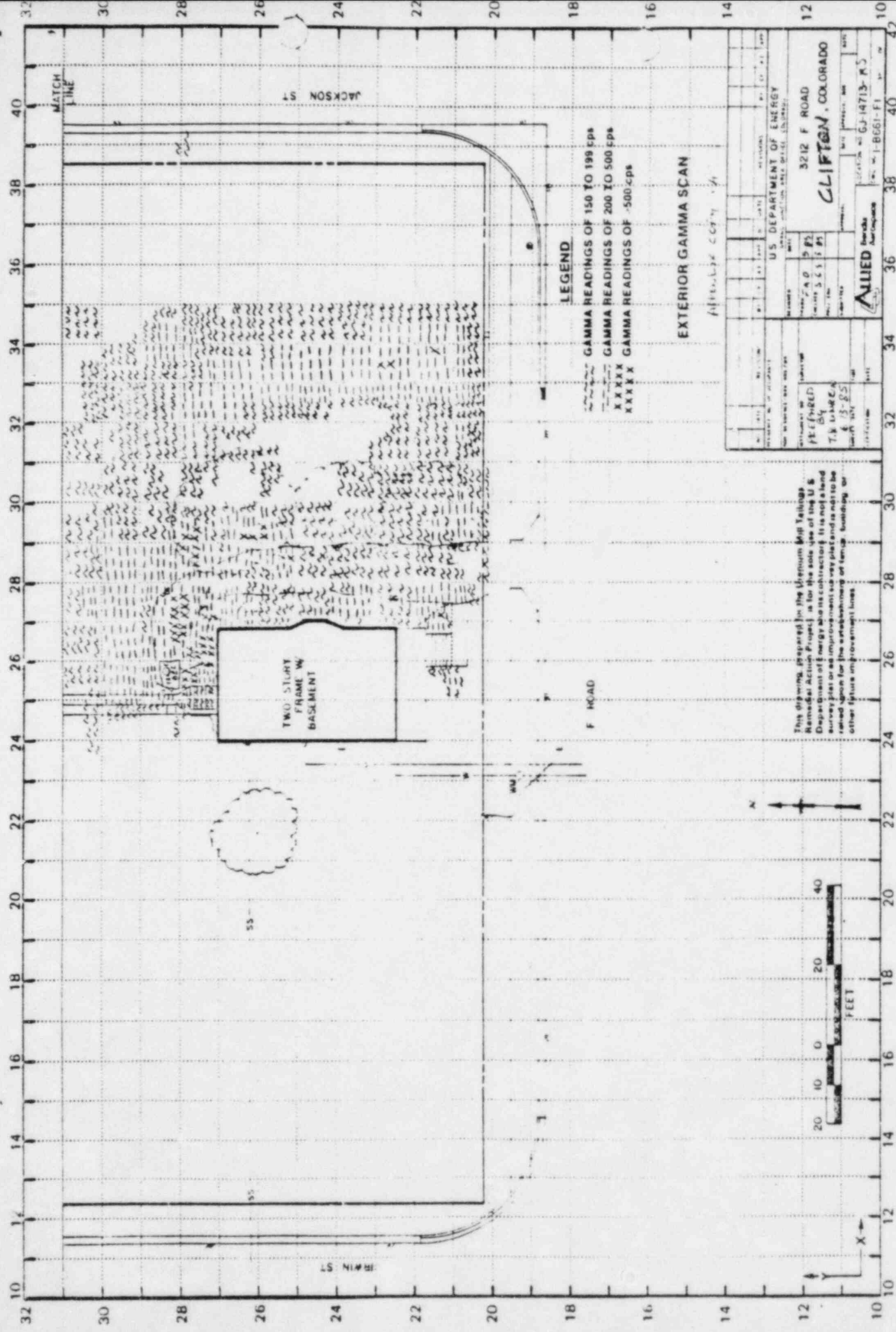
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	7.7	7.7
6	6.2	5.3
9	5.2	4.7
12	4.5	3.8
15	4.2	3.7
18	4.2	4.4
21	4.1	3.9
24	4.1	4.1

APPARENT RADIUM-226 CONCENTRATION 71 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-14713-RS
HOLE NUMBER: 71
LOCATION: 343225



Depth (in)	Apparent Radium-226 (pCi/g)	Apparent Radium-226 (pCi/g)
	Undeconvolved	Deconvolved
3	35.8	35.8
6	41.0	59.7
9	35.7	44.1
12	25.7	25.5
15	15.8	9.2
18	9.6	3.6
21	6.8	4.0
24	5.6	4.4
27	5.1	4.9
30	4.7	4.7



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