

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-00587-MR
ADDRESS: 1724 NORTH 21ST STREET

JULY 1985

FOR

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT OFFICE

ALBUQUERQUE OPERATIONS OFFICE

DEPARTMENT OF ENERGY

BY

BENDIX FIELD ENGINEERING CORPORATION
P.O. Box 1893
Grand Junction, CO 81502

APPROVED BY

M. K. Tucker
M. TUCKER
DOE PROJECT ENGINEER

DATE

August 9, 1985

REA00587:REA-GE004

8508290375 850812
PDR WASTE
WM-54 PDR

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-00587-MR, is a single-family residence located at 1724 North 21st Street, 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, 13 cu. yd.; interior, 11 cu. yd.

Estimated cost to perform remedial action, including dislocation when applicable, is \$8,251. Remedial action on this property will take approximately 15 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 1724 North 21st Street, Grand Junction, Colorado

Zoning: Residential (RSF-8)

Lot Size: Approximately 7,947 sf (0.18 acre)

Legal Description: Lot 2, Block 6, Subdivision Del Rey Replat, 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:	Alley
East:	Single-family residence
West:	North 21st Street

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-family residence
Size:	Approximately 1,526 sf
Construction Date:	1955
Construction:	Wood-frame with aluminum siding
Foundation:	Concrete footing and stem wall at original structure; concrete slab with no footing at family room addition
Footing Depth:	Approximately 36" to bottom of footing from grade at original structure; approximately 6" to bottom of slab from grade at family room addition
Basement:	None
Crawl Space:	Yes; partial
Condition:	Good

Other Structures: None

General Remarks:

Structures, utilities, landscaping, and other special features of this property are included in Appendix Figure 2.2.

Historical Data:

This structure is not over 50 years old. Therefore, it does not meet the eligibility criteria for consideration of inclusion on the National Register of Historic Places.

3.0 RADIOLOGIC SURVEY

3.1 Introduction

Radiologic data were collected by Bendix at DOE ID No. GJ-00587-MR on May 7, 1985. Data collection methods were performed in accordance with procedures fully described in the Radiologic Support Operations Procedures Manual GJ-07(84) (Bendix Field Engineering Corporation, 1984). These data were evaluated to determine the areal and vertical extent of uranium mill tailings contamination at this property as well as any other contaminated material that may have originated from the millsite.

A review of historical information from the files of the Colorado Department of Health (CDH) was conducted. These records indicate contamination under and around a covered carport. Since the time of the CDH survey, the carport has been converted into a family room.

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, and deconvolution graphs are included in the Appendix (Section 6.0).

3.2 Gamma Exposure-Rate Surveys

3.2.1 Exterior Findings

Background Readings: 15 to 17 uR/h
Highest Outside Gamma Reading (HOG): 69 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: 15 to 17 uR/h
Highest Inside Gamma Reading (HIG): 69 uR/h

Interior radium-concentration measurements are presented in Appendix Table 3.2. Interior gamma exposure-rate measurements are summarized in Appendix Table 3.3. Appendix Figures 3.2a and 3.2b show interior exposure rates and locations of these measurements.

3.3 Boreholes, Soil Samples, and Other Measurements

Areas which displayed elevated gamma levels were further investigated; these areas are shown in Appendix Figures 3.2a, 3.2b, and 3.3. Data from these investigations are included in Appendix Tables 3.1 and 3.2.

3.4 Radon/Radon Daughter Concentration (RDC)

The working level was not assessed by CDH. No RDC measurements were taken by Bendix.

3.5 Extent of Contamination

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

- (AREA A) In the family room, under a 4-inch-thick concrete slab, contamination extends to an estimated depth of 8 inches. The total estimated depth of contamination is 12 inches, based on information gathered in Area B (approximately 304 sf).
- (AREA B) South of the primary structure, under a 4-inch-thick concrete slab, the soil is contaminated to a total depth of 12 inches (approximately 80 sf).
- (AREA C) Contamination in the gravelled yard and alley south of the primary structure is 6 inches deep (approximately 192 sf).
- (AREA D) Southeast of the primary structure, contamination extends to a depth of 8 inches under a 4-inch thick concrete stoop. Total estimated depth of contamination at the stoop is 12 inches. The depth of contamination in the gravelled yard surrounding the stoop is 12 inches (approximately 56 sf).
- (AREA E) In the gravelled yard north of Area D, contamination extends to a 6-inch depth (approximately 33 sf).
- (AREA F) The soil in the southeast corner of the property and in a portion of the alley is contaminated to a depth of 6 inches (approximately 242 sf).

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-00587-MR, includes removal of all areas identified as containing radioactive material (as discussed in Section 3.5 and shown in Appendix Figures 3.4a and 3.4b) and transport of removed material to the disposal site.

After remedial action is completed, the areas involved will be restored to original condition in accordance with the Bendix drawings, Vicinity Properties General Construction Specification (Bendix Field Engineering Corporation, 1984), and Statement of Work for Construction Subcontractor.

Dislocation of the occupants will not be required for this remedial action.

4.2 Evaluation of Recommended Remedial Action

Volume calculations of the areas included for remedial action are presented in Appendix Table 4.1. Cost estimates are presented in Appendix Table 4.2.

Estimated cost of remedial action is \$8,251.

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

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

5.0 REFERENCES

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

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

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

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

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

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

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

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

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

6.0 APPENDIX

This Appendix contains the following:

Appendix Tables:

Table 3.1	Radium Concentrations at Exterior Locations
Table 3.2	Radium Concentrations at Interior Locations
Table 3.3	Summary of Interior Gamma Exposure Rates
Table 4.1	Area and Volume Calculations
Table 4.2	Estimated Cost of Decontamination and Restoration

Appendix Figures:

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

Official Survey Report

Team Leader Notes

Deconvolution Graphs (Apparent Radium-226 Concentration)

Radium Concentrations at Exterior Locations

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1724 North 21st Street

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
5	179253	03	TC	3.2		*	Water line
		06	TC	3.5		*	
		09	TC	3.7		*	DC = 0 inches
		12	BH	3.8	1.3	*	
		15	TC	3.8		*	
		18	TC	3.8		*	
		21	TC	3.8		*	
		24	TC	3.7		*	
		27	TC	3.8		*	
		30	BH	3.8	1.3	*	
		33	TC	3.7		*	
		36	TC	3.8		*	
		39	TC	3.7		*	
		42	TC	3.5		*	
		45	TC	3.5		*	
		48	TC	3.5		*	
		51	TC	3.4		*	
		54	TC	3.5		*	
		57	BH	3.5	<1.0	*	
		60	TC	3.5		*	
		63	TC	3.4		*	
6	183272	00	DS	1.7		*	Gas line
		06	DS	1.2		*	
		36	DS	1.4		*	
7	196229	03	TC	3.2		*	Sewer line
		06	TC	3.5		*	
		09	TC	3.5		*	DC = 0 inches
		12	TC	3.7		*	
		15	TC	3.8		*	
		18	TC	3.8		*	
		21	TC	3.9		*	
		24	TC	3.9		*	
		27	TC	3.9		*	
		30	TC	3.8		*	
		33	TC	3.7		*	
		36	TC	3.8		*	
		39	TC	3.8		*	
		42	TC	3.8		*	
		45	TC	3.8		*	
		48	TC	3.8		*	
		51	TC	3.7		*	
		54	TC	3.6		*	

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.		
7	196229	57	TC	3.7		*	
8	202225	03	TC	3.6		*	DC = 0 inches
		06	TC	3.8		*	
		09	TC	4.0		*	
		12	TC	4.0		*	
		15	TC	4.0		*	
		18	TC	4.1		*	
		21	TC	4.1		*	
		24	TC	4.1		*	
		27	TC	4.2		*	
		30	TC	4.3		*	
		33	TC	4.2		*	
		36	TC	4.3		*	
		39	TC	4.3		*	
		42	TC	4.3		*	
		45	TC	4.3		*	
		48	TC	4.2		*	
		51	TC	4.2		*	
		54	TC	4.2		*	
9	202226	00	DS	1.9		*	
		06	DS	1.8		*	
		12	DS	1.5		*	
		15	DS	2.4		*	
		21	DS	2.4		*	
		27	DS	2.3		*	
		33	DS	2.6		*	
10	203226	00	DS	2.4		*	On slab
11	210222	00	DS	40.0		*	
		00-04	SS			3.2	Core
		04-10	SS			174.1	
		03	TC	66.9		*	Slab south of
		06	TC	60.6		*	primary structure
		09	TC	37.6		*	
		12	BH	20.4	23.6	*	DC = 12 inches
		15	TC	12.8		*	
		18	TC	9.1		*	Based on the
		21	TC	7.4		*	deconvolution graph
		24	TC	6.7		*	
		27	TC	6.2		*	
		30	BH	6.0	2.8	*	

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.		
11	210222	33	TC	5.7		*	
		36	TC	5.6		*	
		39	TC	5.4		*	
		42	TC	5.3		*	
		45	TC	5.2		*	
		48	TC	5.1		*	
		51	TC	5.0		*	
		54	TC	4.8		*	
		57	BH	4.7	3.0	*	
		60	TC	4.6		*	
12	215213	00	DS	11.1		*	
		06	DS	1.8		*	DC = 6 inches
		03	TC	3.4		*	
		06	TC	3.6		*	Based on the
		09	TC	3.9		*	delta readings
		12	TC	3.9		*	
		15	TC	4.0		*	
		18	TC	3.9		*	
		21	TC	4.0		*	
		24	TC	4.0		*	
		27	TC	4.0		*	
		30	TC	4.0		*	
		33	TC	4.0		*	
13	218259	03	TC	3.1		*	Northeast corner of
		06	TC	3.4		*	primary structure
		09	TC	3.5		*	
		12	TC	3.5		*	DC = 0 inches
		15	TC	3.5		*	
		18	TC	3.6		*	
		21	TC	3.6		*	
		24	TC	3.5		*	
		27	TC	3.5		*	
		30	TC	3.6		*	
		33	TC	3.6		*	
		36	TC	3.7		*	
		39	TC	3.8		*	
14	219221	00	DS	7.0		*	
		06	DS	3.0		*	
		12	DS	1.4		*	

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.		
15	220236	03	TC	5.0		*	East side of the primary structure DC = 6 inches Based on the deconvolution graph
		06	TC	4.5		*	
		09	TC	4.4		*	
		12	BH	4.3	1.8	*	
		15	TC	4.1		*	
		18	BH	4.1	2.2	*	
		21	TC	4.0		*	
		24	TC	4.0		*	
		27	TC	4.0		*	
		30	BH	4.0	2.1	*	
16	225230	03	TC	3.2		*	DC = 0 inches
		06	TC	3.6		*	
		09	TC	3.7		*	
		12	TC	3.7		*	
		15	TC	3.8		*	
		18	TC	3.8		*	
		21	TC	3.8		*	
		24	TC	3.8		*	
		27	TC	3.9		*	
		30	TC	4.0		*	
17	257214	03	TC	3.5		*	DC = 0 inches
		06	TC	3.7		*	
		09	TC	3.7		*	
		12	TC	3.9		*	
		15	TC	3.8		*	
		18	TC	4.0		*	
		21	TC	4.0		*	
		24	TC	4.2		*	
		27	TC	4.2		*	
18	260260	00	DS	<1.0		*	Background
		00-06	SS			2.4	
		03	TC	3.1		*	DC = 0 inches
		06	TC	3.4		*	
		09	TC	3.7		*	
		12	BH	3.7	1.2	*	
		15	TC	3.8		*	
		18	BH	3.8	1.3	*	
		21	TC	3.9		*	
		24	TC	4.0		*	
		27	TC	4.1		*	
		30	BH	4.3	1.6	*	

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.		
19	270220	00	DS	1.2		*	
		06	DS	1.4		*	
		12	DS	<1.0		*	
20	273213	00	DS	22.9		*	
		06	DS	2.1		*	
		12	DS	1.2		*	
21	278212	03	TC	12.9		*	
		06	TC	8.2		*	DC = 6 inches
		09	TC	5.7		*	Based on the
		12	BH	4.4	2.5	*	deconvolution graph
		15	TC	4.1		*	
		18	BH	3.8	1.5	*	
		21	TC	3.8		*	
		24	TC	3.9		*	
		27	TC	4.0		*	
		30	TC	4.1		*	
		33	TC	4.2		*	

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

Notes: DC = Depth of Contamination
* = No Soil Sample Taken
[n] = Reading Taken n-Inches
Above Floor or Ground
Date of Survey = 05-07-85
Team Leader = JDG

Radium Concentrations at Interior 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		00	DS	1.4		*	Crawl space
2		00	DS	1.2		*	Crawl space
3		00	DS	1.3		*	Crawl space
4		00	DS	44.0		*	Family room

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

Notes: DC = Depth of Contamination
 * = No Soil Sample Taken
 [n] = Reading Taken n-Inches
 Above Floor or Ground
 Date of Survey = 05-07-85
 Team Leader = JDG

Table 3.3
Summary of Interior Gamma Exposure Rates
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Location *	Number of Readings Taken at Waist Level	Range at Waist Level (uR/h)	Mean at Waist Level (uR/h)	Number of Readings Taken at Surface	Range at Surface (uR/h)	Mean Surface (uR/h)
CRAWL SPACE	01	17	17	21	17-19	18
ROOM A	07	15-15	15	07	14-16	15
ROOM B	07	14-15	15	07	15-16	15
ROOM C	03	15-15	15	02	15-16	16
ROOM D	03	15-17	16	03	16-17	16
ROOM E	02	14-15	15	02	14-15	15
ROOM F	02	14-14	14	02	14-15	15
ROOM G	06	14-15	15	06	15-15	15
ROOM H	09	15-27	19	09	15-21	17
ROOM I	07	35-50	43	07	44-67	53

*Exposure Rates and Room Locations Shown in Appendix Figures 3.2a and 3.2b

Table 4.1
Area and Volume Calculations
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<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
-------------	-------------------------	-----------	------------------	-----------	--------------------

INTERIOR

Concrete

A	16 x 19	=	304	x	0.3	=	91
---	---------	---	-----	---	-----	---	----

	Volume of Concrete =	91	=	91/27	=	3
--	----------------------	----	---	-------	---	---

Contaminated Fill

A	16 x 19	=	304	x	0.7	=	213
---	---------	---	-----	---	-----	---	-----

	Volume of Contaminated Fill =	213	=	213/27	=	8
--	-------------------------------	-----	---	--------	---	---

TOTAL VOLUME - INTERIOR		=	11
-------------------------	--	---	----

EXTERIOR

Concrete

B	16 x 5	=	80	x	0.3	=	24
---	--------	---	----	---	-----	---	----

D	2 x 6	=	12	x	0.3	=	4
---	-------	---	----	---	-----	---	---

	Volume of Concrete =	28	=	28/27	=	1
--	----------------------	----	---	-------	---	---

Contaminated Fill

B	16 x 5	=	80	x	0.7	=	56
---	--------	---	----	---	-----	---	----

C	18 x 4	=	72				
	5 x 6	=	30				
	15 x 6	=	90				

		192	x	0.5	=	96
--	--	-----	---	-----	---	----

Table 4.1
Area and Volume Calculations
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<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
D	4 x 14 =	56	x 0.7 =	39	
E	11 x 3 =	33	x 0.5 =	17	
F	22 x 11 =	242	x 0.5 =	121	

Volume of Contaminated Fill = 329 = 329/27 = 12

TOTAL VOLUME - EXTERIOR = 13

See Appendix Figures 3.4a and 3.4b For Areas

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Table 4.2
Estimated Cost of Decontamination and Restoration
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INTERIOR

Remove and replace new wood-frame storage room Lump Sum	\$ 650
Remove and replace new gypsum board and insulation Lump Sum	250
Remove concrete slab and steps 304 sf @ \$3.50/sf	1,064
Remove contaminated fill beneath concrete slab 8 cy @ \$100/cy	800
Replace roadbase 8 cy @ \$12/cy	96
Replace concrete slab and steps 304 sf @ \$3/sf	912
Replace new concrete thickened edge 2 cy @ \$175/cy	350
	<hr/>
TOTAL INTERIOR	\$ 4,122

EXTERIOR

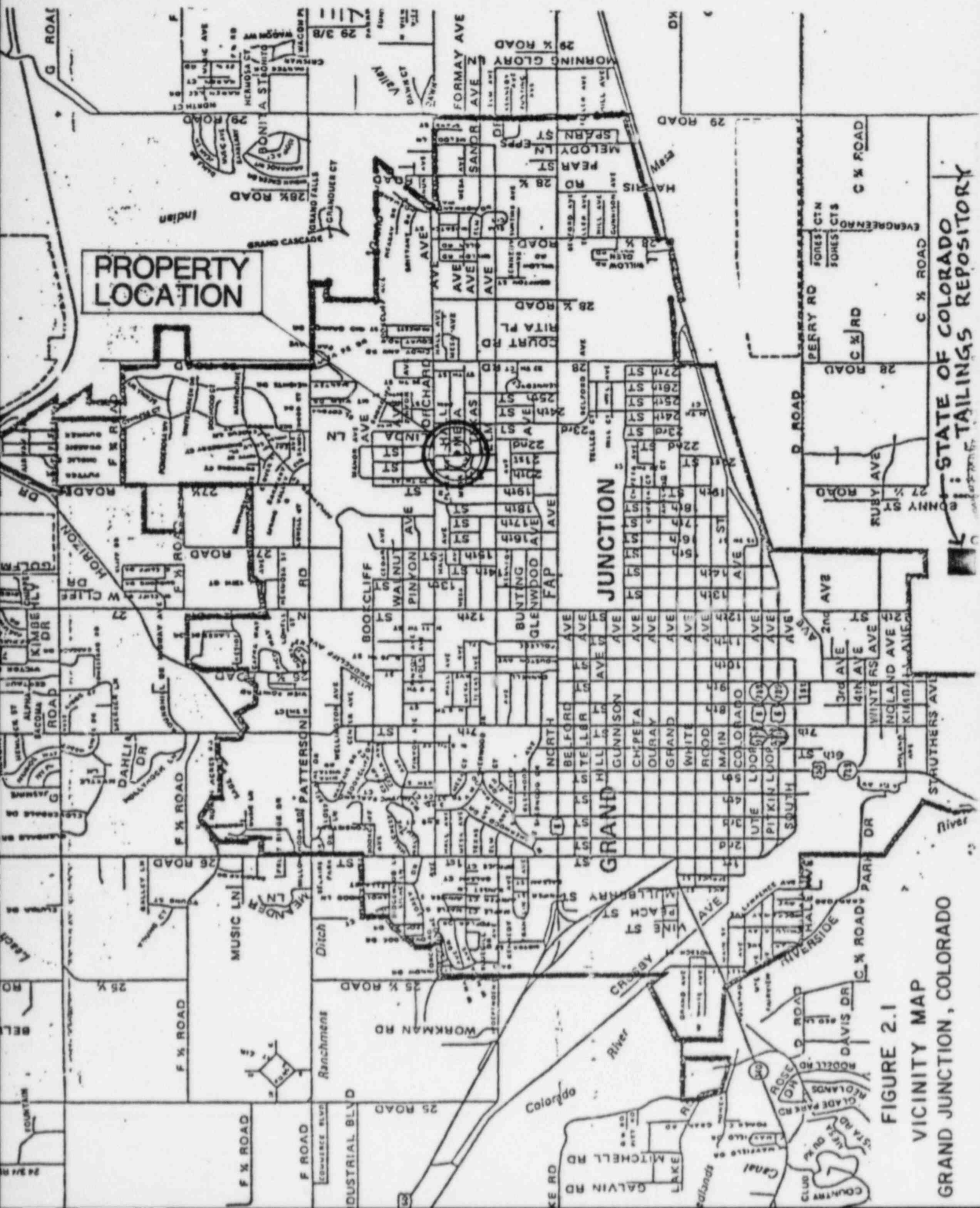
Remove identified residual radioactive material (manual open) 12 cy @ \$44/cy	\$ 528
Remove concrete slabs 92 sf @ \$3/sf	276

Table 4.2
Estimated Cost of Decontamination and Restoration
DOE ID No. GJ-00587-MR

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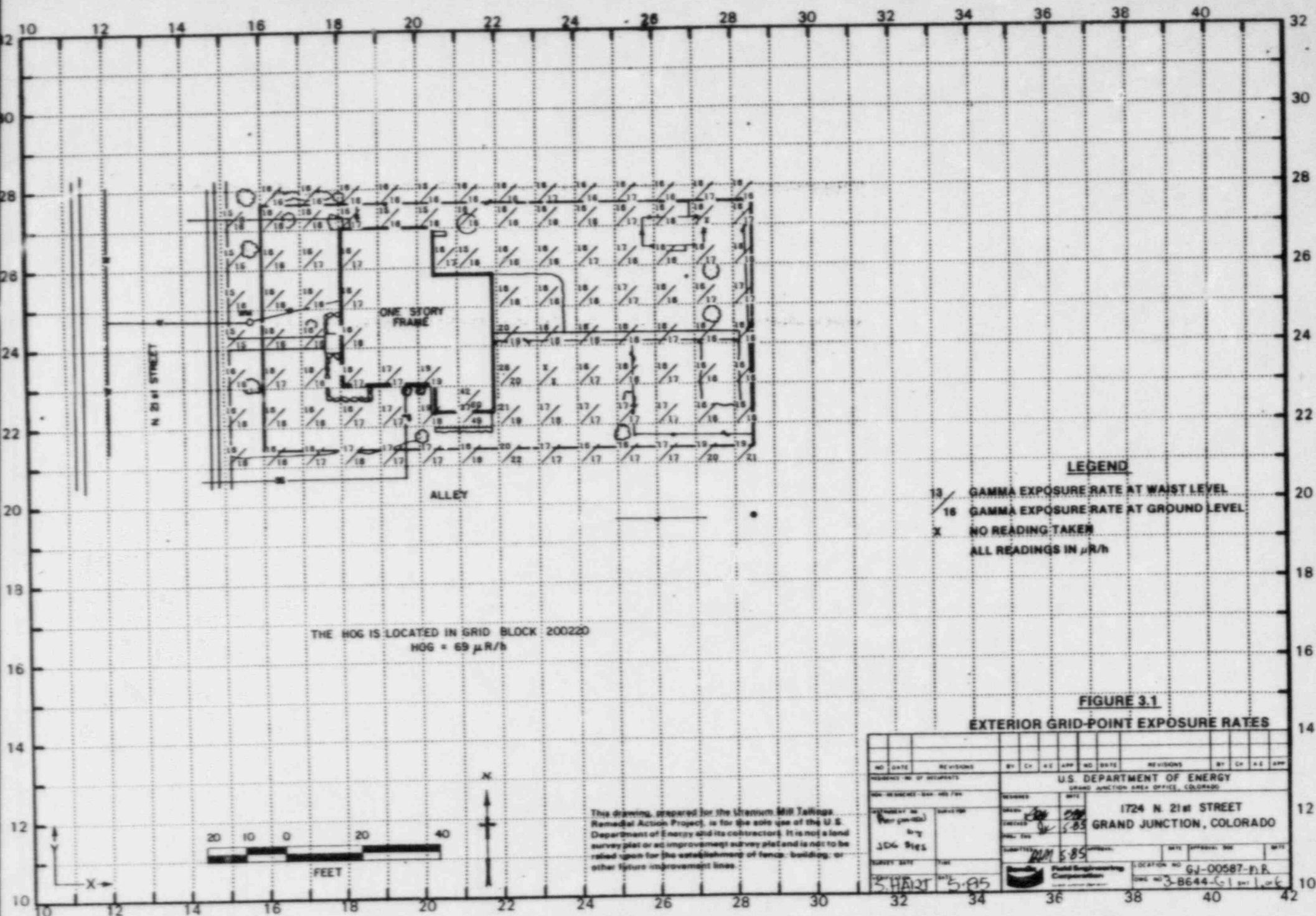
Replace roadbase 7 cy @ \$12/cy	84
Replace concrete slab 92 sf @ \$2.50/sf	230
Remove and replace new shrub Lump Sum	50
Replace topsoil 5 cy @ \$10/cy	50
	<hr/>
TOTAL EXTERIOR	\$ 1,218
TOTAL INTERIOR	\$ 4,122
ACCESS CONTROL	400
	<hr/>
SUBTOTAL	\$ 5,740
CONTINGENCY @ 15%	861
	<hr/>
SUBTOTAL	\$ 6,601
CONTRACTOR OVERHEAD & PROFIT @ 25%	1,650
	<hr/>
GRAND TOTAL	\$ 8,251

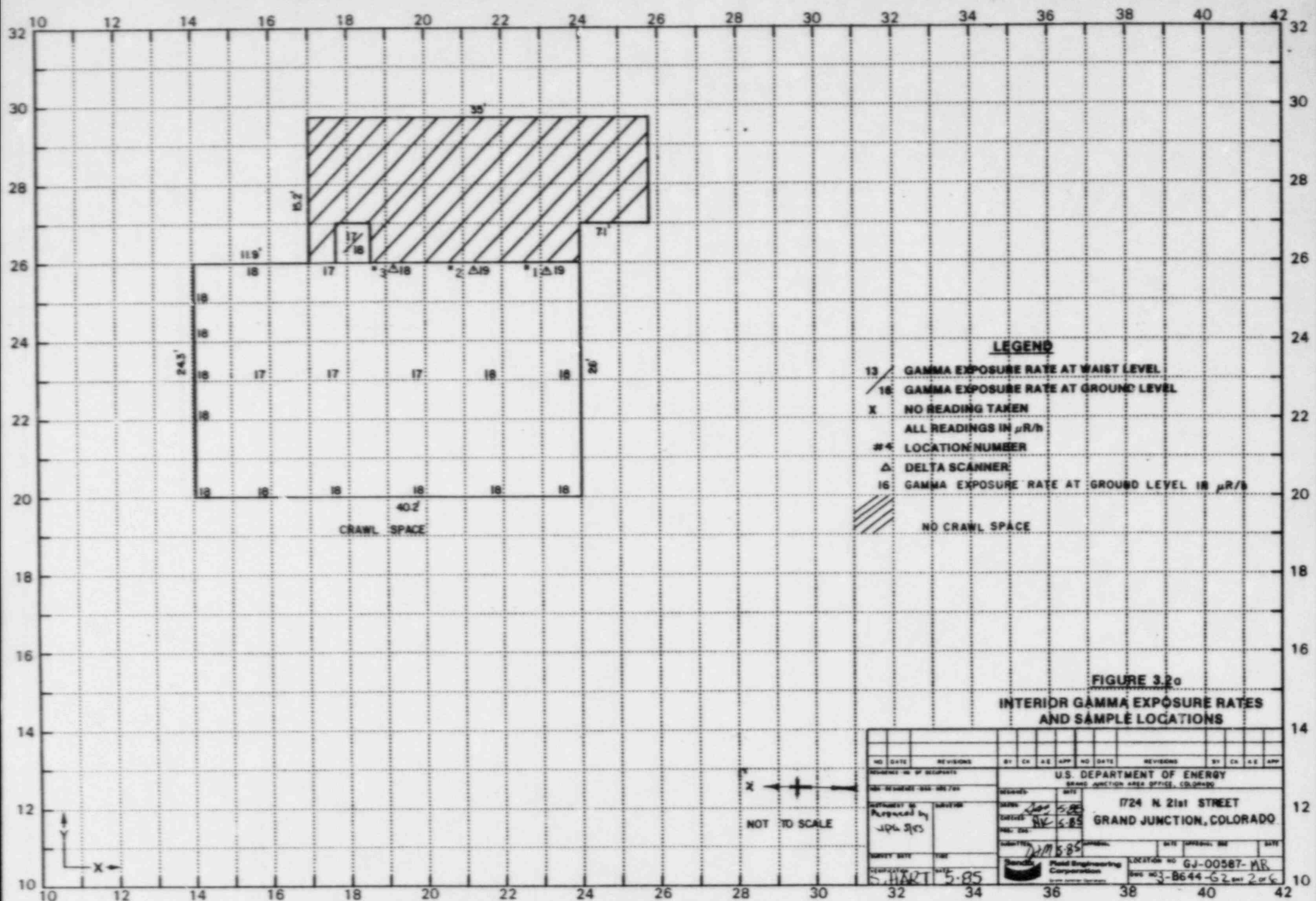
RDJ072685
REA00587.GE/REA-GE004:AP



STATE OF COLORADO
TAILINGS REPOSITORY

FIGURE 2.1
VICINITY MAP
GRAND JUNCTION, COLORADO





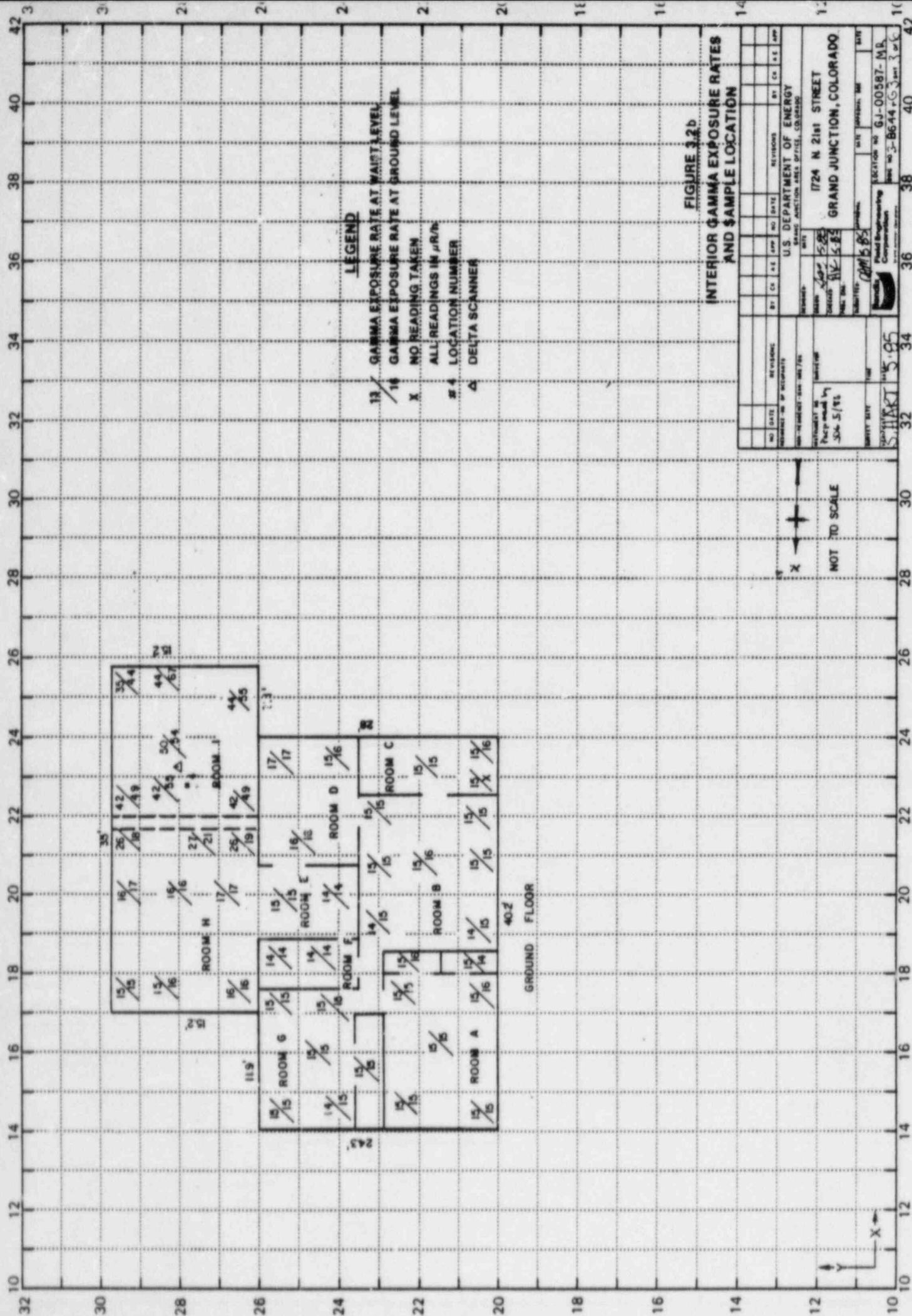
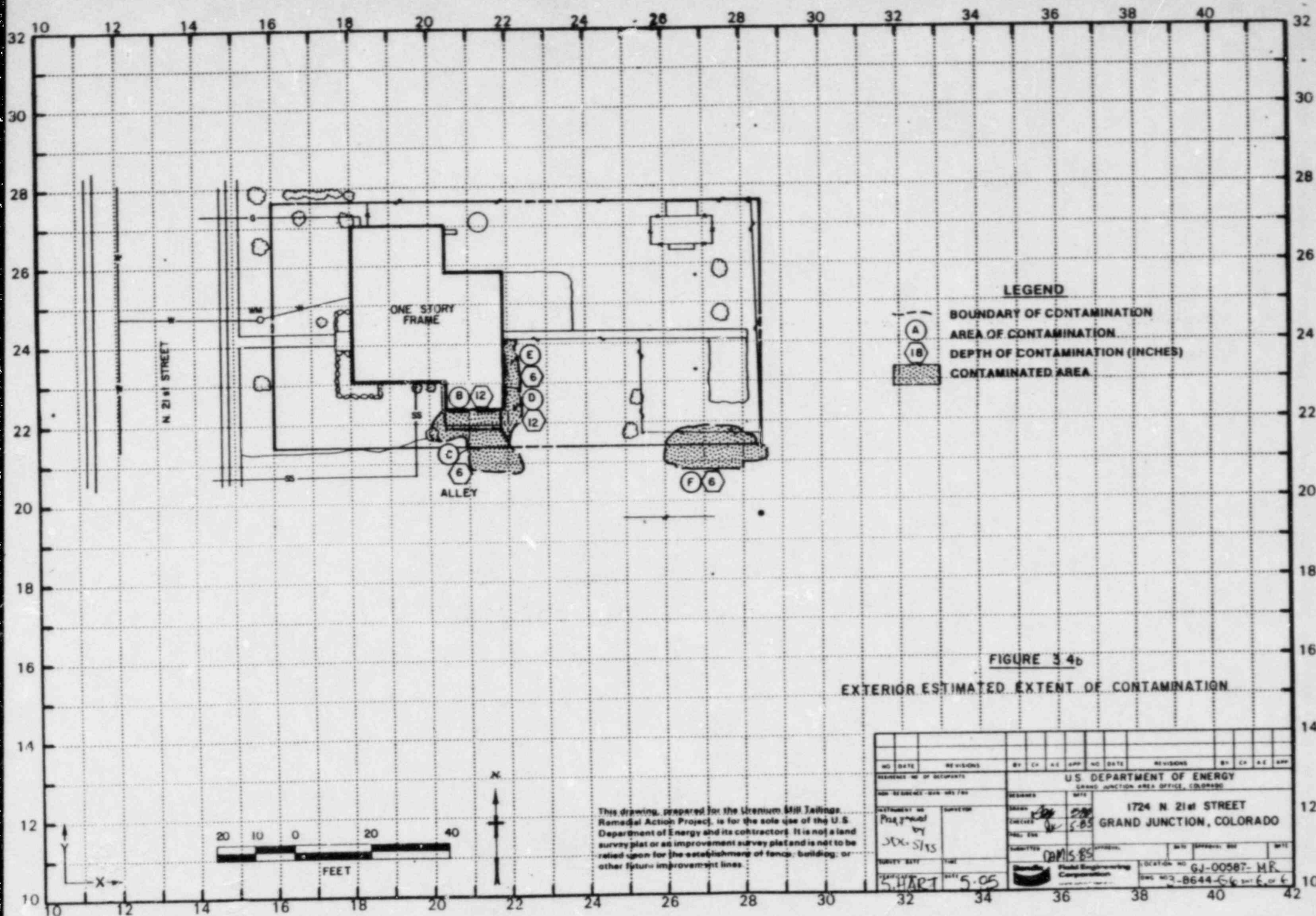


FIGURE 3.2b

INTERIOR GAMMA EXPOSURE RATES
AND SAMPLE LOCATION

NO.	DATE	REVISIONS	BY	CK	APP
U.S. DEPARTMENT OF ENERGY					
NATIONAL BUREAU OF STANDARDS					
1724 N 21st STREET					
GRAND JUNCTION, COLORADO					
PROJECT NO. 5-85 DRAWING NO. 5-85 SCALE 5/16 DATE 5/85 BY J. B. B.					
PROJECT NO. 5-85 DRAWING NO. 5-85 SCALE 5/16 DATE 5/85 BY J. B. B.					
PROJECT NO. 5-85 DRAWING NO. 5-85 SCALE 5/16 DATE 5/85 BY J. B. B.					



REVISIONS										REVISIONS									
NO.	DATE	BY	CH	AE	APP	NO.	DATE	BY	CH	AE	APP								
U.S. DEPARTMENT OF ENERGY																			
GRAND JUNCTION AREA OFFICE, COLORADO																			
1724 N 21st STREET																			
GRAND JUNCTION, COLORADO																			
DRAWN BY: J. HART						CHECKED BY: J. HART													
DATE: 5-05						DATE: 5-05													
PROJECT NO: GJ-00587-MR						PROJECT NO: GJ-00587-MR													
SHEET NO: 6 OF 6						SHEET NO: 6 OF 6													

3/85

DOE ID NO. GJ-00587-MR

Date 5/15/85

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

Official Survey Report

Property Address 1724 North 21st Street

Property Owner Nina and Carolyn Crawford

Address of Owner (if different from above) _____

Report Prepared By James D. Garcia

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

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

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

1 xxx 1 In open areas.

1 1 Under or around exterior improvements.

1 1 Under or around a typically nonoccupied structure.

1 xxxx 1 Under or around a typically occupied structure.

II. RESULTS OF RADIOLOGIC ASSESSMENT

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

1 xxxx 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 = 69 uR/h
HOG = 69 uR/h

ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado 81501

DATE: May 7, 1985

TO: Files

FROM: James Garcia

SUBJECT: Team Leader Notes - GJ-00587-MR

Address: 1724 North 21st Street

Owner: Nina and Carolyn Crawford

Telephone: 243-4459

Team Members

J. Garcia (Team Leader)	H. Mattison
P. Tuhey	A. Raabe
I. Caley	V. Rothman
R. Herman	

Instruments

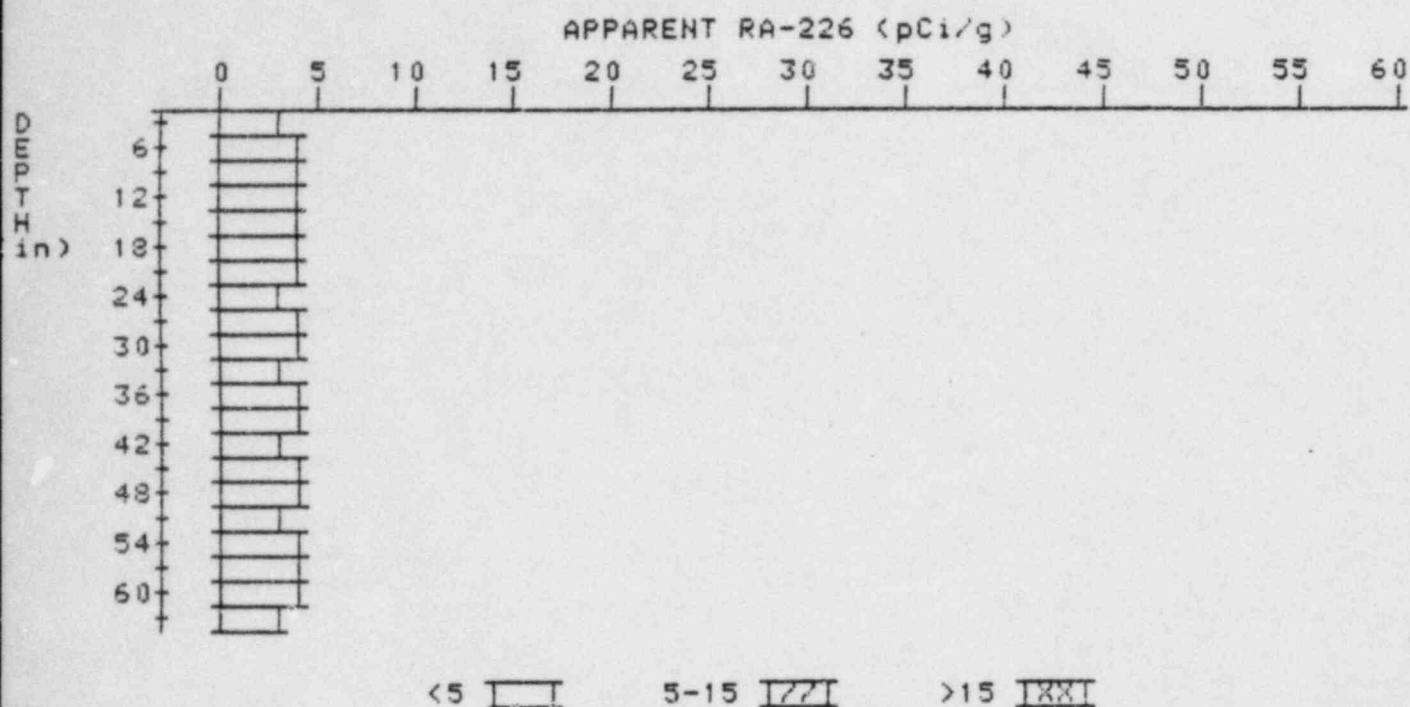
Downhole Spectrometer - C-0498
Crutch Scintillometer - C-1205, C-1208, C-1168, C-1118
Delta Scintillometer - C-3935, C-3937
Total Count - C-3959

Mrs. Crawford stated that the floor of the family room was a carport which they had converted into part of the house. The floor of the family room continued to the south of the house. Therefore, I cored outside of the house since it was a continuous slab. The contaminated slab is actually under only half of the family room. I measured the length of the slab that has tailings beneath it. It was approximately 22 feet in length. A section of the slab has a floor built over it.

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

5

PROPERTY NUMBER: GJ-00587-MR
HOLE NUMBER: 5
LOCATION: 179253



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.2	3.2
6	3.5	3.7
9	3.7	3.9
12	3.8	4.0
15	3.8	3.8
18	3.8	3.8
21	3.8	4.0
24	3.7	3.3
27	3.8	4.0
30	3.8	4.0
33	3.7	3.3
36	3.8	4.2
39	3.7	3.9
42	3.5	3.1
45	3.5	3.5
48	3.5	3.7
51	3.4	3.0

54
57
60
63

3.5
3.5
3.5
3.4

3.7
3.5
3.7
3.4

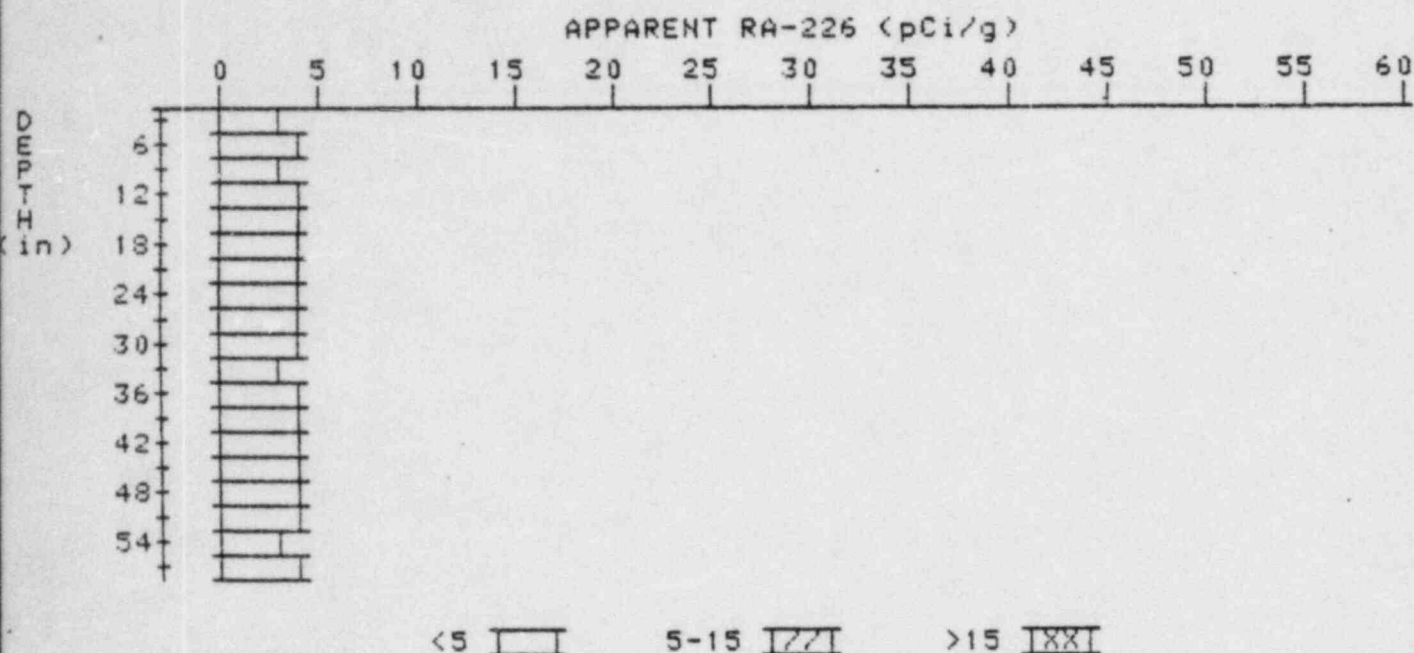
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

7

PROPERTY NUMBER: GJ-00587-MR

HOLE NUMBER: 7

LOCATION: 196229



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

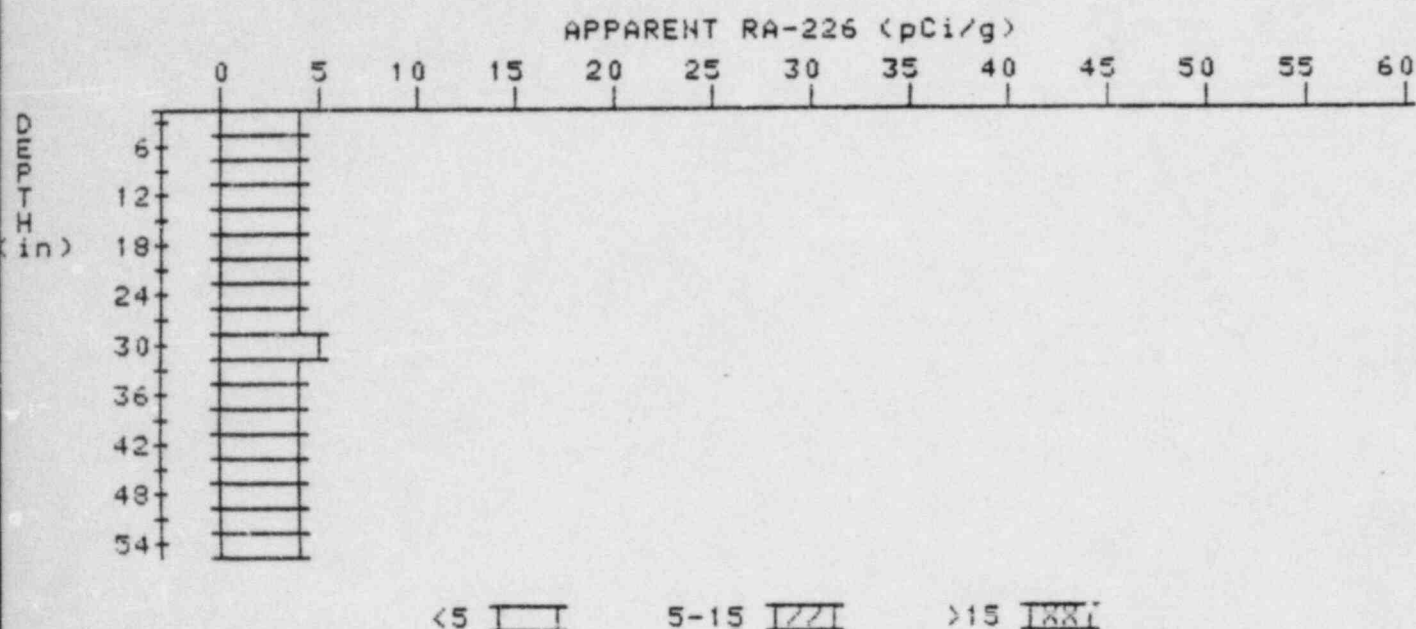
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

8

PROPERTY NUMBER: GJ-00587-MR

HOLE NUMBER: 8

LOCATION: 202225



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.6	3.6
6	3.8	3.8
9	4.0	4.4
12	4.0	4.0
15	4.0	3.8
18	4.1	4.3
21	4.1	4.1
24	4.1	3.9
27	4.2	4.2
30	4.3	4.7
33	4.2	3.8
36	4.3	4.5
39	4.3	4.5
42	4.3	4.5
45	4.3	4.5
48	4.2	4.0
51	4.2	4.2
54	4.2	4.2

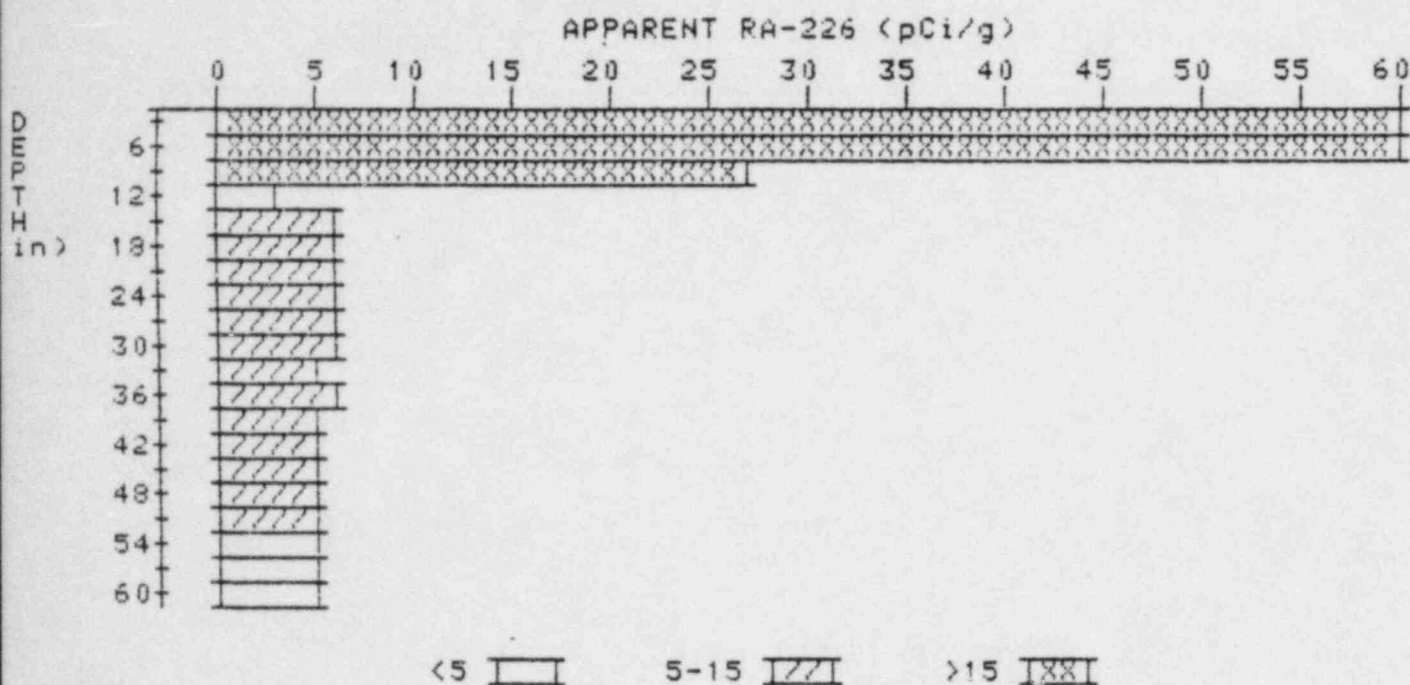
APPARENT RADIUM-226 CONCENTRATION 11

DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-00587-MR

HOLE NUMBER: 11

LOCATION: 210222



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	66.9	66.9
6	60.6	90.3
9	37.6	27.3
12	20.4	3.3
15	12.8	5.9
18	9.1	5.5
21	7.4	5.6
24	6.7	6.3
27	6.2	5.7
30	6.0	6.2
33	5.7	5.3
36	5.6	5.8
39	5.4	5.2
42	5.3	5.3
45	5.2	5.2
48	5.1	5.1
51	5.0	5.2
54	4.8	4.6

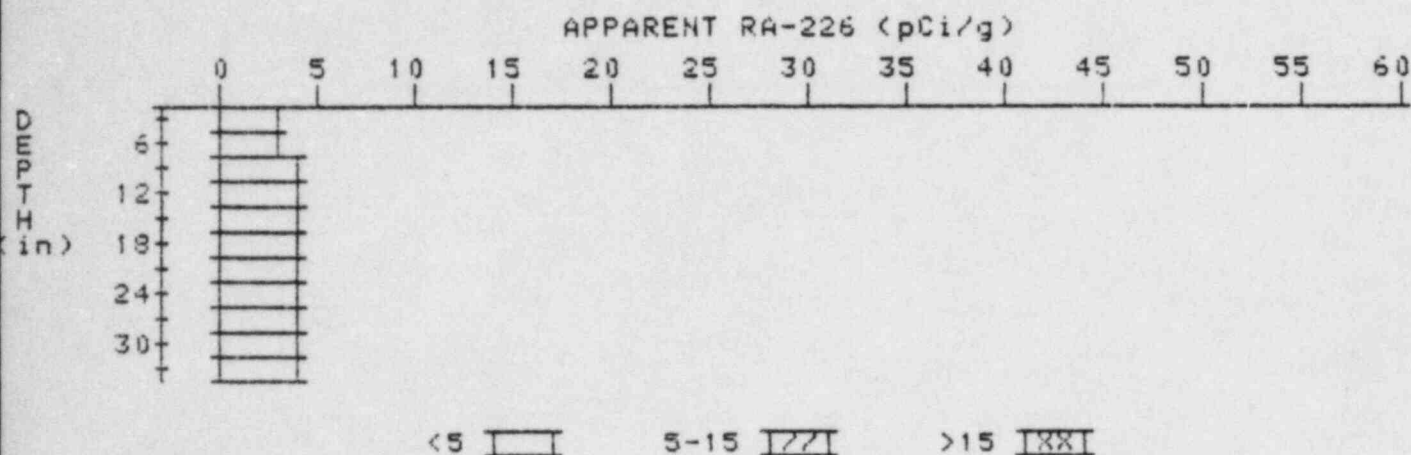
57
60

4.7
4.6

4.7
4.6

APPARENT RADIUM-226 CONCENTRATION 12 DECONVOLUTION GRAPH

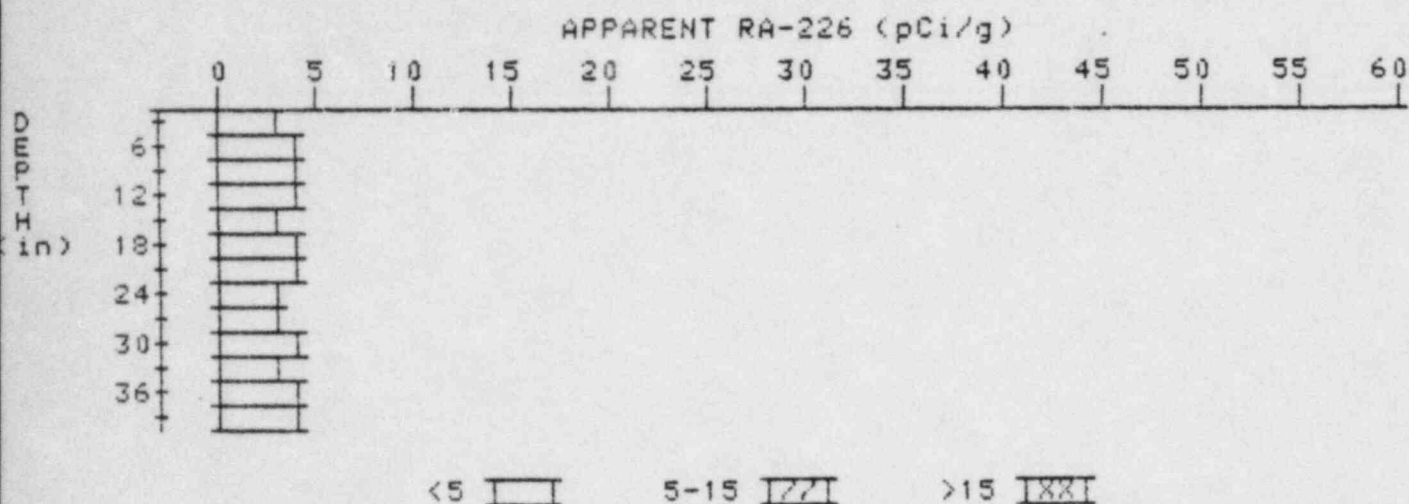
PROPERTY NUMBER: GJ-00587-MR
HOLE NUMBER: 12
LOCATION: 215213



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

APPARENT RADIUM-226 CONCENTRATION 13 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-00587-MR
HOLE NUMBER: 13
LOCATION: 218259



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

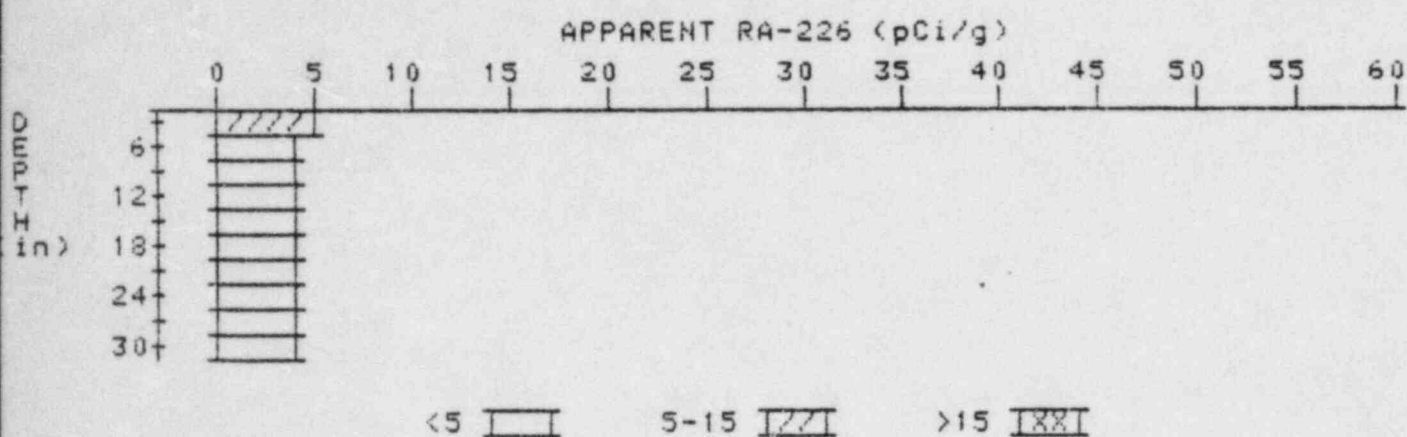
APPARENT RADIUM-226 CONCENTRATION 15

DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-00587-MR

HOLE NUMBER: 15

LOCATION: 220236



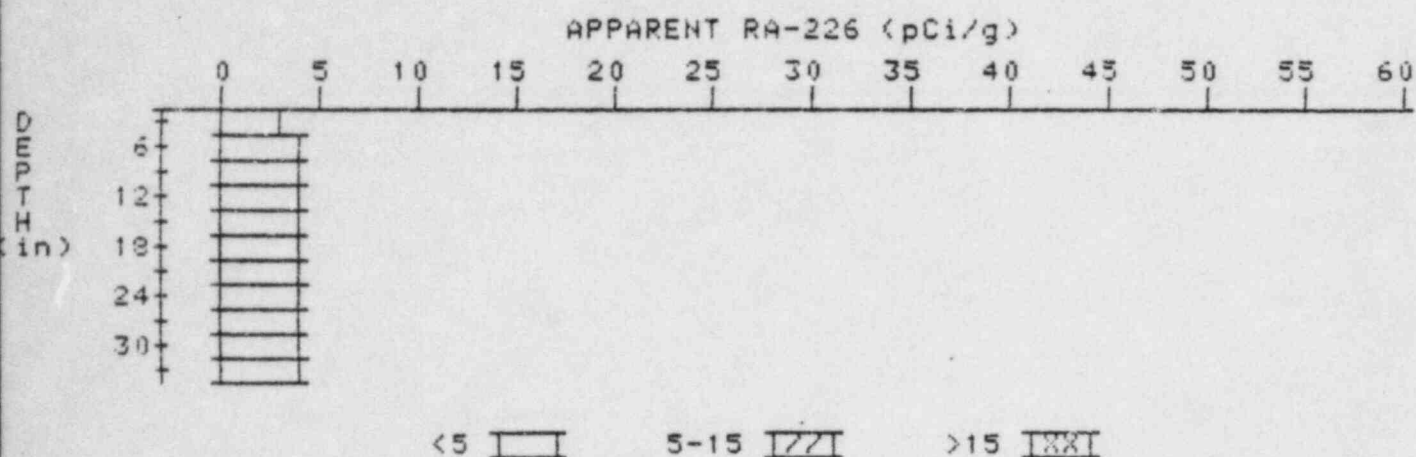
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	5.0	5.0
6	4.5	3.8
9	4.4	4.4
12	4.3	4.5
15	4.1	3.7
18	4.1	4.3
21	4.0	3.8
24	4.0	4.0
27	4.0	4.0
30	4.0	4.0

APPARENT RADIUM-226 CONCENTRATION 16 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-00587-MR

HOLE NUMBER: 16

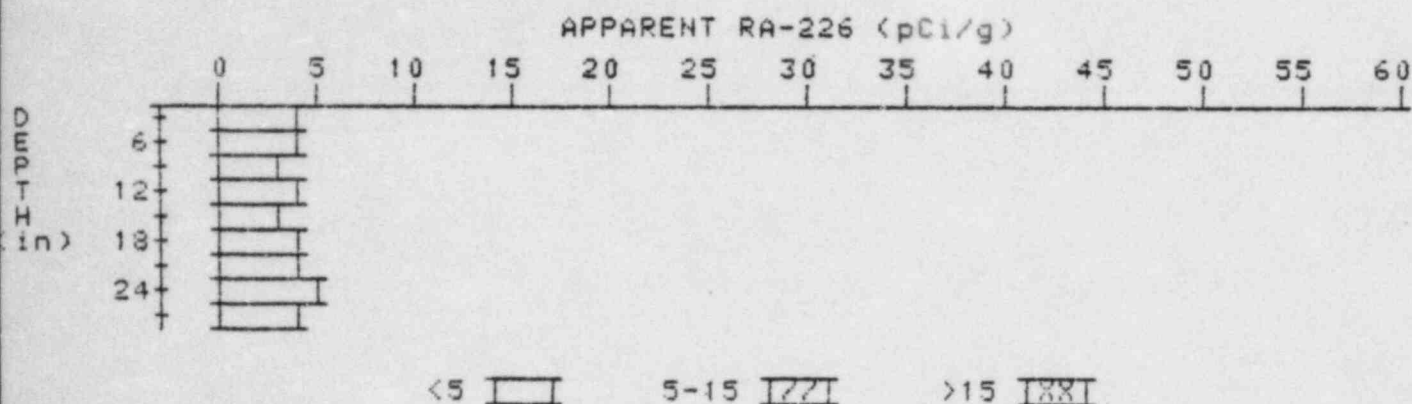
LOCATION: 225230



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.2	3.2
6	3.6	4.1
9	3.7	3.9
12	3.7	3.5
15	3.8	4.0
18	3.8	3.8
21	3.8	3.8
24	3.8	3.6
27	3.9	3.9
30	4.0	4.2
33	4.0	4.0

APPARENT RADIUM-226 CONCENTRATION 17 DECONVOLUTION GRAPH

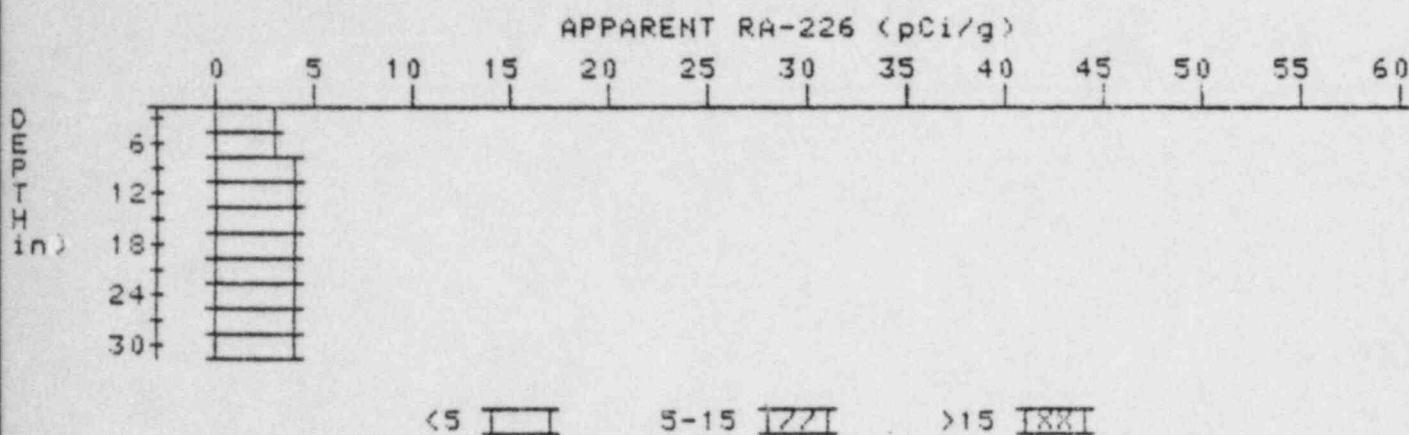
PROPERTY NUMBER: GJ-00537-MR
HOLE NUMBER: 17
LOCATION: 257214



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.5	3.5
6	3.7	4.1
9	3.7	3.3
12	3.9	4.4
15	3.8	3.3
18	4.0	4.4
21	4.0	3.6
24	4.2	4.6
27	4.2	4.2

APPARENT RADIUM-226 CONCENTRATION 18 DECONVOLUTION GRAPH

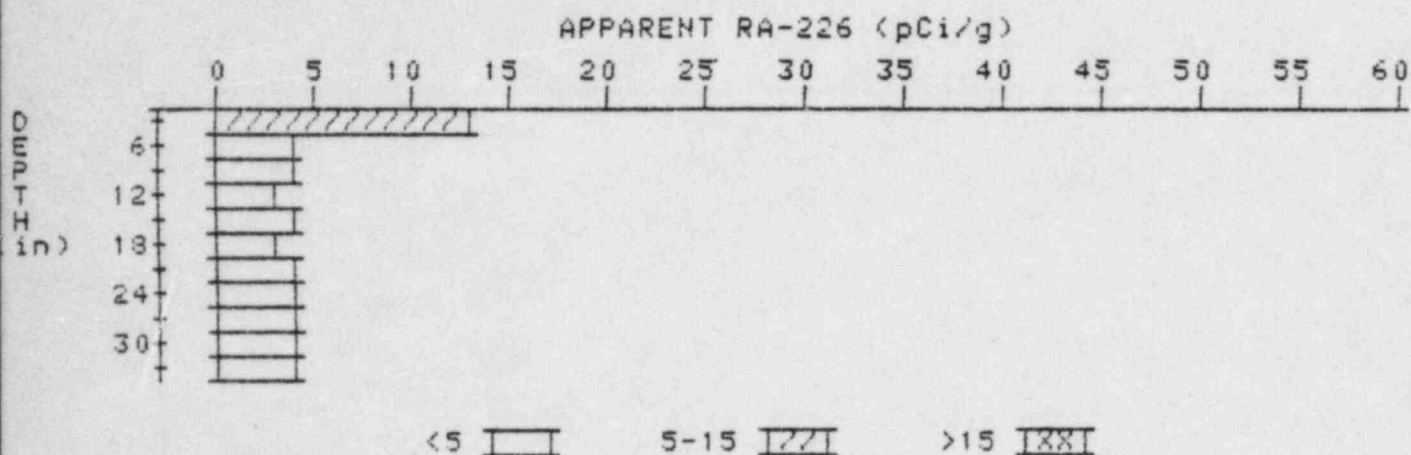
PROPERTY NUMBER: GJ-00587-MR
HOLE NUMBER: 18
LOCATION: 260260



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

APPARENT RADIUM-226 CONCENTRATION 21 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-00537-MR
HOLE NUMBER: 21
LOCATION: 279212



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	12.9	12.9
6	8.2	4.3
9	5.7	3.6
12	4.4	2.6
15	4.1	4.1
18	3.8	3.3
21	3.8	3.6
24	3.9	3.9
27	4.0	4.0
30	4.1	4.1
33	4.2	4.2