

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-02017-RS
ADDRESS: 641 NORTH 3RD 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 1569
Grand Junction, Colorado 81502

APPROVED BY

M.K. Tucker ^{by} *CDH*
M. TUCKER
DOE PROJECT ENGINEER

DATE

July 31, 1985

REA02017:REA-AB005

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PDR WASTE PDR
WM-54

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-02017-RS, is a single family residence located at 641 North 3rd 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, 24 cu. yd.; interior, 0 cu. yd.

Estimated cost to perform remedial action, including dislocation when applicable, is \$3,024. Remedial action on this property will take approximately 10 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 641 North 3rd Street, Grand Junction, Colorado.

Zoning: Residential (RMF-64)

Lot Size: Approximately 3,750 sf (0.09 acres)

Legal Description: North 50 feet of Lots 14, 15, and 16, block 54, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 2 miles northwest 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:	None

Bordering Properties:

North:	Gunnison Avenue
South:	Residence
East:	North 3rd Street
West:	Residence

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence
Size:	Approximately 972 sf
Construction Date:	1922
Construction:	Wood-frame
Foundation:	Wood/mudsill
Footing Depth:	Approximately 66" to bottom of footing from grade
Basement:	Yes - partial
Crawl Space:	Yes - partial
Condition:	Fair

Other Structures:

Type:	Storage shed
Size:	Approximately 100 sf
Construction:	Wood-frame
Foundation:	Wood
Condition:	Fair

Type:	Carport
Size:	Approximately 400 sf
Construction:	Wood-frame
Foundation:	Concrete
Condition:	Fair

General Remarks:

Due to poor condition of wood, the entry steps will be reconstructed in concrete. 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-02017-RS on April 29, 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 associated with two sections of city sidewalk and the sidewalk 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, and deconvolution graphs are included in the Appendix (Section 6.0).

3.2 Gamma Exposure-Rate Surveys

3.2.1 Exterior Findings

Background Readings: 14 to 16 uR/h
Highest Outside Gamma Reading (HOG): 43 uR/h

Exterior radium-concentration measurements are presented in Appendix Table 3.1. Grid-point survey results are shown in Appendix Figure 3.1. Appendix Figure 3.2 presents the ranges of elevated gamma readings and indicates areas of possible contamination.

3.2.2 Interior Findings

Background Readings: 15 to 17 uR/h
Highest Inside Gamma Reading (HIG): 18 uR/h

Interior radium-concentration measurements are summarized in Appendix Table 3.2. Appendix Figures 3.3a and 3.3b 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 Figure 3.4. Data from these investigations are included in Appendix Table 3.1.

3.4 Radon/Radon Daughter Concentration (RDC)

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

3.5 Extent of Contamination

Appendix Figure 3.5 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) The lawn adjacent to the city sidewalk is contaminated to a depth of 12 inches (approximately 252 sf).
- (AREA B) The city sidewalk outside the north property boundary is contaminated to a total depth of 12 inches. The 3-inch-thick concrete pad is not contaminated (approximately 315 sf).
- (AREA C) The city sidewalk outside the northeast property corner is contaminated to a total depth of 15 inches. The 4-inch-thick concrete pad is not contaminated (approximately 24 sf).
- (AREA D) The lawn adjacent to Area C is contaminated to an estimated depth of 15 inches, based on data collected in Area C (approximately 24 sf).
- (AREA E) The 3-inch-thick sidewalk and the concrete pad beneath the wood steps east of the primary structure are constructed of contaminated concrete. The soil underneath is not contaminated (approximately 32 sf).

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-02017-RS, includes removal of all areas identified as containing radioactive material (as discussed in Section 3.5 and shown in Appendix Figure 3.5) and transport of removed material to the disposal site.

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

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

4.2 Evaluation of Recommended Remedial Action

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

Estimated cost of remedial action is \$3,024.

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 Gamma Scan
Figure 3.3a	Interior Gamma Exposure Rates - Basement and Crawl Space
Figure 3.3b	Interior Gamma Exposure Rates - Ground Floor
Figure 3.4	Sample Locations
Figure 3.5	Estimated Extent of Contamination

Official Survey Report

Memo of Understanding

Team Leader Notes

Deconvolution Graphs (Apparent Radium-226 Concentration)

Radium Concentrations at Exterior Locations

DOE ID #GJ-02017-RS

641 North 3rd 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.		
1	159234	00	DS	<1.0		*	West foundation
		03	TC	2.7		*	
		06	TC	3.2		*	
		09	TC	3.4		*	
		12	TC	3.6		*	DC = 0 inches
		15	TC	3.6		*	
		18	TC	3.7		*	
		21	TC	3.8		*	
		24	TC	3.9		*	
		27	TC	4.0		*	
		30	TC	4.0		*	
		33	TC	4.0		*	
2	168283	06	TC	2.4		*	Water meter pit
		09	TC	2.9		*	Metal collar at
		12	TC	3.2		*	top from 0-5 inches
		15	TC	3.4		*	was not logged
		18	TC	3.6		*	
		21	TC	3.6		*	DC = 0 inches
		24	TC	3.5		*	
		27	TC	3.6		*	
		30	TC	3.6		*	
		33	TC	3.7		*	
		36	TC	3.7		*	
		39	TC	3.7		*	
3	185213	00	DS	<1.0		*	Leach field
		00-06	SS			2.1	Background hole
		03	TC	3.1		*	
		06	TC	3.4		*	DC = 0 inches
		09	TC	3.6		*	
		12	TC	3.5		*	
		15	TC	3.7		*	
		18	TC	3.7		*	
		21	TC	3.8		*	
		24	TC	3.7		*	
		27	TC	3.6		*	
		30	TC	3.4		*	
		33	TC	3.4		*	
		36	TC	3.3		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-02017-RS

641 North 3rd 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.		
4	185226	00	DS	<1.0		*	South foundation
		03	TC	3.3		*	Next to sidewalk
		06	TC	3.5		*	
		09	TC	3.6		*	
		12	TC	3.6		*	
		15	TC	3.6		*	
		18	TC	3.6		*	DC = 0 inches
		21	TC	3.7		*	
		24	TC	3.7		*	
		27	TC	3.7		*	
		30	TC	3.6		*	
5	190253	12	DS	<1.0		*	Shovel hole, gas line
6	198253	03	TC	2.9		*	Water line by north foundation
		06	BH	3.2	1.2	*	
		09	TC	3.4		*	
		12	TC	3.4		*	
		15	TC	3.4		*	
		18	TC	3.4		*	
		21	TC	3.4		*	
		24	TC	3.5		*	
		27	TC	3.6		*	
		30	TC	3.6		*	
		33	TC	3.5		*	DC = 0 inches
		36	TC	3.4		*	
		39	TC	3.4		*	
		42	TC	3.4		*	
		45	TC	3.4		*	
		48	TC	3.5		*	
		51	TC	3.6		*	
		54	TC	3.6		*	
		57	TC	3.5		*	
		60	TC	3.6		*	
		63	TC	3.5		*	
		66	BH	3.6	1.4	*	
		69	TC	3.6		*	
7	198262	00	DS	10.3		*	Grass by sidewalk
		03	TC	12.1		*	
		06	BH	13.1	15.2	*	
		09	TC	10.6		*	DC = 15 inches
		12	TC	8.0		*	Based on the
		15	TC	6.2		*	deconvolution graph

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	198262	18	TC	5.5		*	
		21	TC	5.0		*	
		24	TC	4.8		*	
		27	TC	4.7		*	
		30	TC	4.5		*	
		33	BH	4.4	1.7	*	
8	198265	00	DS	17.1		*	Sidewalk
		00-03	SS			3.8	Core
		03-09	SS			41.8	Sandy soil
		03	TC	21.4		*	
		06	BH	35.0	41.8	*	
		09	TC	25.9		*	
		12	TC	16.2		*	
		15	TC	10.4		*	DC = 12 inches
		18	TC	7.6		*	Based on the
		21	TC	6.2		*	deconvolution graph
		24	TC	5.4		*	
		27	TC	5.0		*	
		30	TC	4.6		*	
		33	TC	4.4		*	
		36	TC	4.3		*	
		39	TC	4.3		*	
		42	TC	4.2		*	
		45	TC	4.1		*	
		48	TC	4.1		*	
		51	TC	4.1		*	
		54	TC	4.0		*	
		57	TC	3.9		*	
		60	TC	3.8		*	
		63	TC	3.9		*	
		66	BH	3.8	1.4	*	
		69	TC	3.7		*	
		72	TC	3.8		*	
9	207230	00	DS	<1.0		*	Water line
		03	TC	2.9		*	
		06	TC	3.2		*	Southeast corner
		09	TC	3.4		*	of primary structure
		12	TC	3.4		*	
		15	TC	3.4		*	DC = 0 inches
		18	TC	3.5		*	
		21	TC	3.5		*	
		24	TC	3.5		*	
		27	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.		
9	207230	30	TC	3.7		*	
		33	TC	3.6		*	
		36	TC	3.7		*	
		39	TC	3.7		*	
		42	TC	3.6		*	
		45	TC	3.6		*	
		48	TC	3.6		*	
		51	TC	3.7		*	
		54	TC	3.7		*	
		57	TC	3.6		*	
		60	TC	3.6		*	
		63	TC	3.5		*	
		66	TC	3.5		*	
		69	TC	3.3		*	
10	208242	00-02	SS			12.6	Concrete chips from porch
11	211244	00	DS	6.3		*	Sidewalk
		00-03	SS			16.2	Concrete core
		03-09	SS			3.5	Soil
		03	TC	5.8		*	
		06	BH	6.1	4.9	*	DC = 3 inches
		09	TC	5.0		*	Based on soil
		12	TC	4.3		*	sample data
		15	TC	3.9		*	
		18	TC	3.6		*	
		21	TC	3.6		*	
		24	TC	3.5		*	
		27	TC	3.6		*	
		30	BH	3.6	1.3	*	
		33	TC	3.6		*	
		36	TC	3.6		*	
12	222267	00	DS	<1.0		*	Adjacent to sidewalk on grass
13	230282	06	TC	2.2		*	Water meter pit
		09	TC	2.7		*	Metal collar from
		12	TC	3.0		*	0-5 inches not logged
		15	TC	3.2		*	
		18	TC	3.3		*	DC = 0 inches
		21	TC	3.4		*	
		24	TC	3.4		*	
		27	TC	3.5		*	

Radium Concentrations at Exterior Locations

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
13	230282	30	TC	3.6		*	
		33	TC	3.7		*	
		36	TC	3.7		*	
		39	TC	3.7		*	
		42	TC	3.6		*	
14	234265	00	DS	<1.0		*	Sidewalk
15	237265	00	DS	17.2		*	Sidewalk
		00-04	SS			2.2	Core
		04-10	SS			39.1	Sandy soil
		03	TC	20.1		*	
		06	BH	34.2	40.9	*	DC = 15 inches
		09	TC	29.0		*	Based on the
		12	TC	17.3		*	deconvolution graph
		15	TC	13.8		*	
		18	TC	7.8		*	
		21	TC	6.1		*	
		24	TC	5.2		*	
		27	TC	4.7		*	
		30	TC	4.4		*	
		33	TC	4.3		*	
		36	BH	4.1	2.3	*	

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 = 04-29-85
 Team Leader = CRK

Table 3.2

Summary of Interior Gamma Exposure Rates

DOE ID No. GJ-02017-RS 641 North 3rd Street

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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	00	-	-	07	13-15	15
BASEMENT	06	16-17	17	13	13-18	16
GROUND FLOOR	*	*	*	*	12-14	*
STORAGE	09	11-13	13	05	13-14	13

* The CDH and ORNL data indicate the absence of contamination in the primary structure. This information was investigated by performing a walking gamma scan. This area and the range of gamma measurements are shown in Appendix Figure 3.3b. Exposure rates in the crawl space, basement, and storage are shown in Appendix Figures 3.3a and 3.3b.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-02017-RS

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<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
EXTERIOR					
	Concrete				
B	63 x 5 =	315	x 0.3 =	95	
C	6 x 4 =	24	x 0.3 =	7	
E	2 x 4 =	8			
	8 x 3 =	24			
		<hr/> 32	x 0.3 =	10	
	Volume of Concrete			<hr/> 112	= 112/27 = 4
	Contaminated Fill				
A	63 x 2 =	126			
	63 x 2 =	126			
		<hr/> 252	x 1.0 =	252	
B	63 x 5 =	315	x 0.7 =	221	
C	6 x 4 =	24	x 1.0 =	24	
D	6 x 2 =	12			
	6 x 2 =	12			
		<hr/> 24	x 1.3 =	31	
	Volume of Fill			<hr/> 528	= 528/27 = 20
	TOTAL VOLUME - EXTERIOR				<hr/> 24

See Appendix Figure 3.5 For Areas

EXTERIOR

Saw-cut sidewalk 15 lf @ \$1.50/lf (3" deep)	\$ 23
Remove concrete sidewalk 371 sf @ \$1.48/sf	549
Remove and discard wood porch steps *	10
Remove identified residual radioactive material 20 cy @ \$14.50/cv (open - machine)	290
Replace topsoil 9 cy @ \$9.50/cy	86
Replace road base 11 cy @ \$11.50/cy	127
Replace concrete flatwork - (exterior 4") *	
389 sf @ \$1.50/sf	584
Replace sod 276 sf @ \$0.50/sf	138

TOTAL EXTERIOR \$ 1,807

TOTAL INTERIOR 0

ACCESS CONTROL 250

SUBTOTAL \$ 2,057

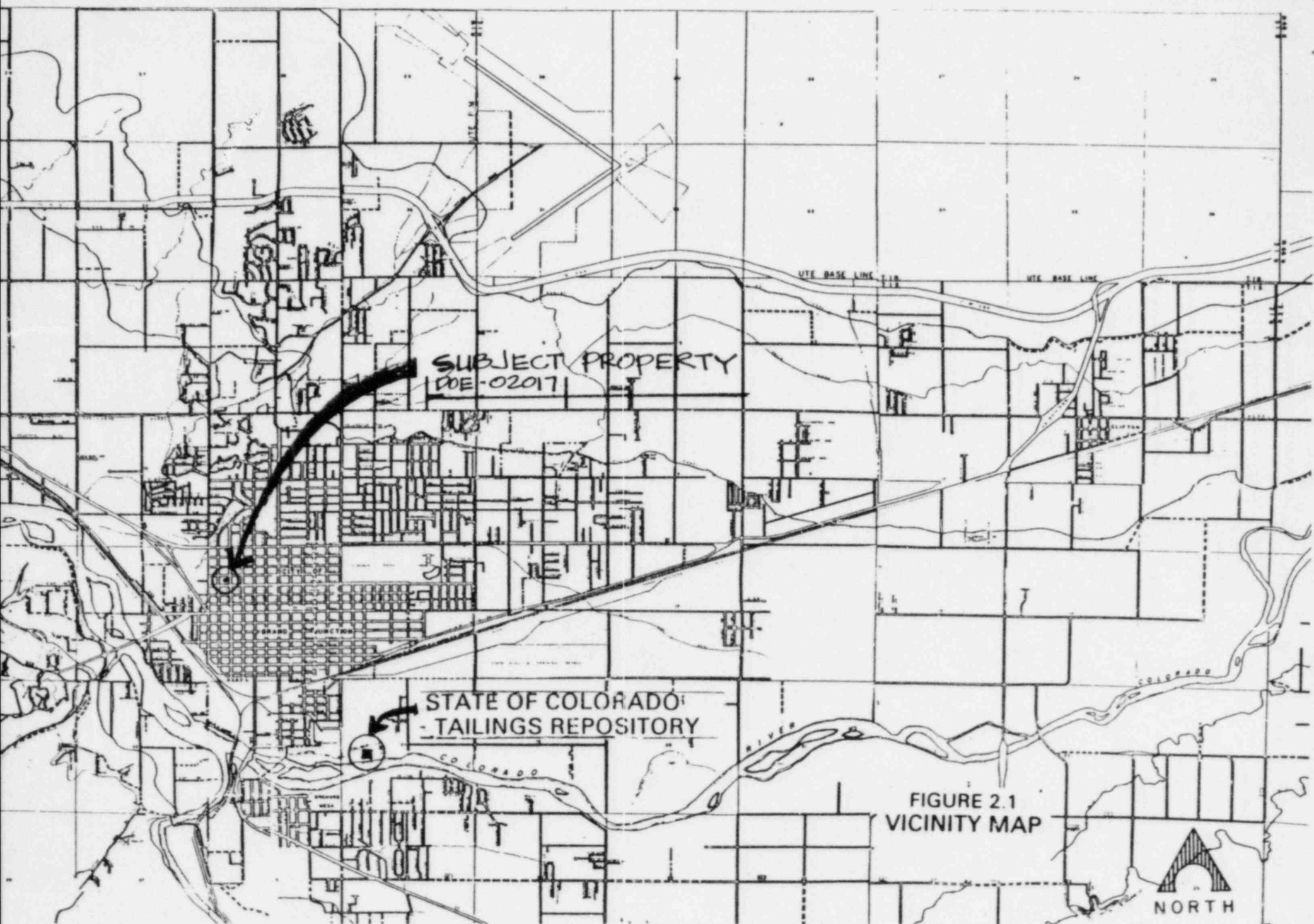
CONTINGENCY @ 5% 103

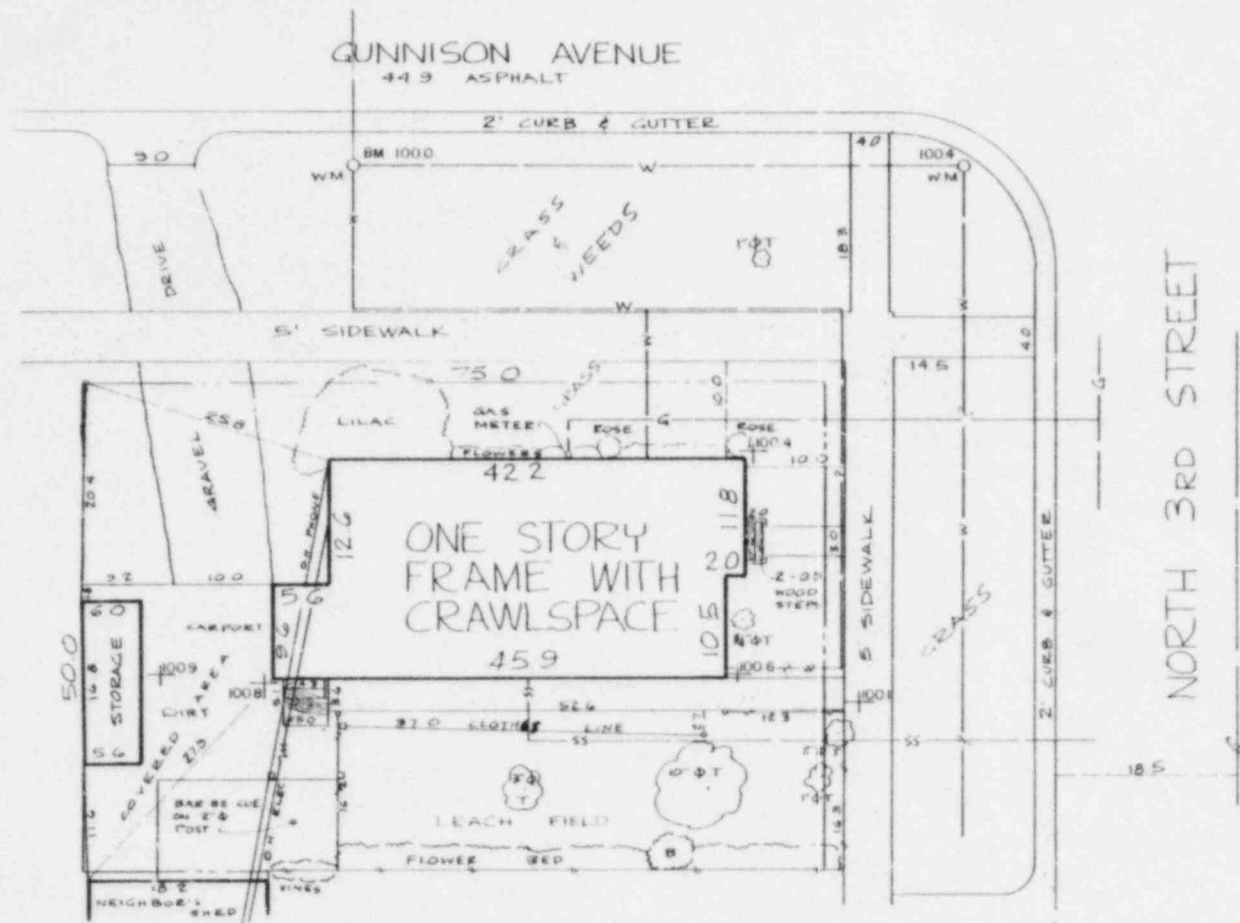
SUBTOTAL \$ 2,160

CONTRACTOR OVERHEAD & PROFIT @ 40% 864

GRAND TOTAL \$ 3,024

* Due to poor condition of wood entry steps they will be reconstructed in concrete.





NORTH 50 FT. OF LOTS 14, 15, 16
BLOCK 54. GRAND JUNCTION
MESA COUNTY COLORADO

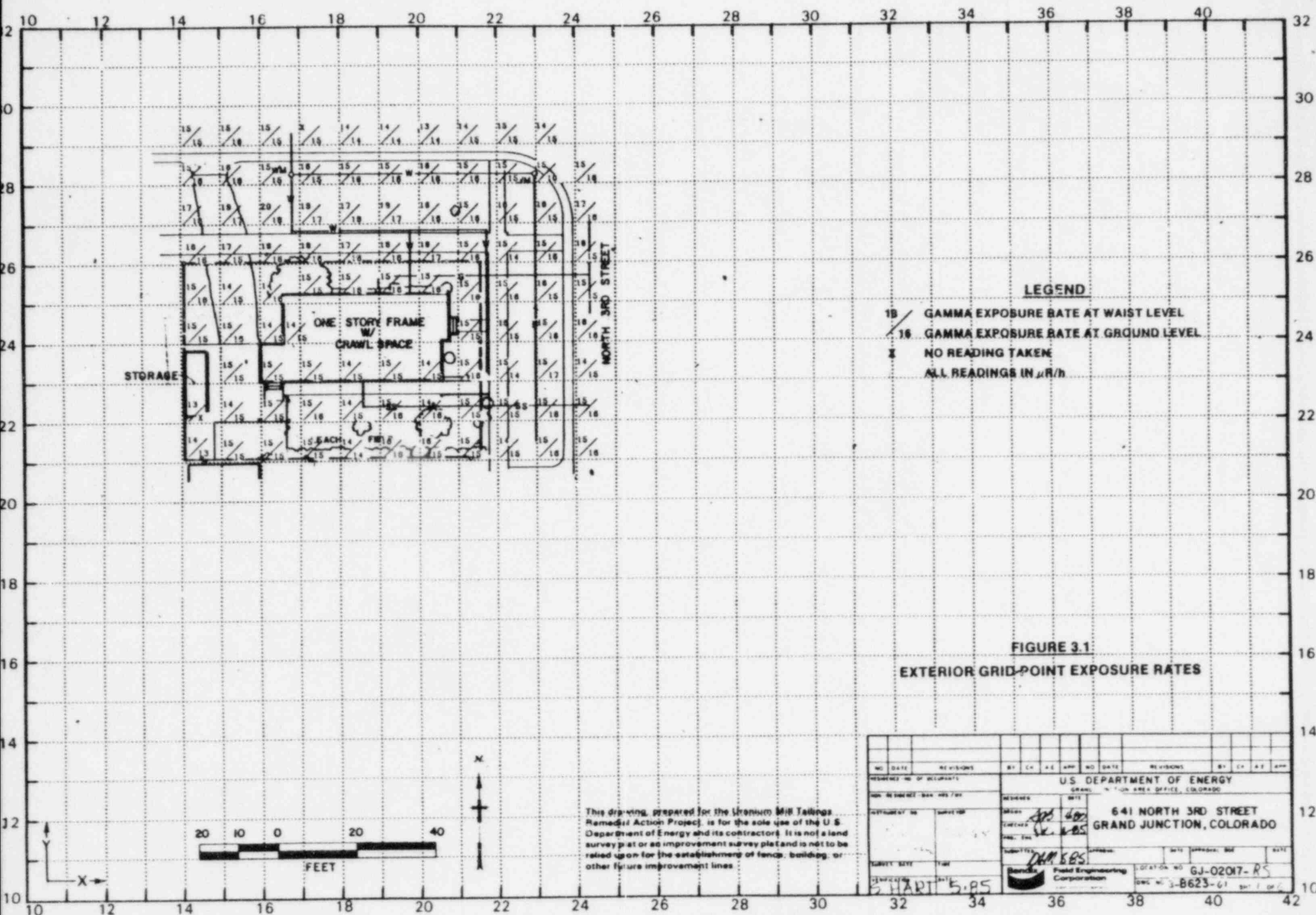


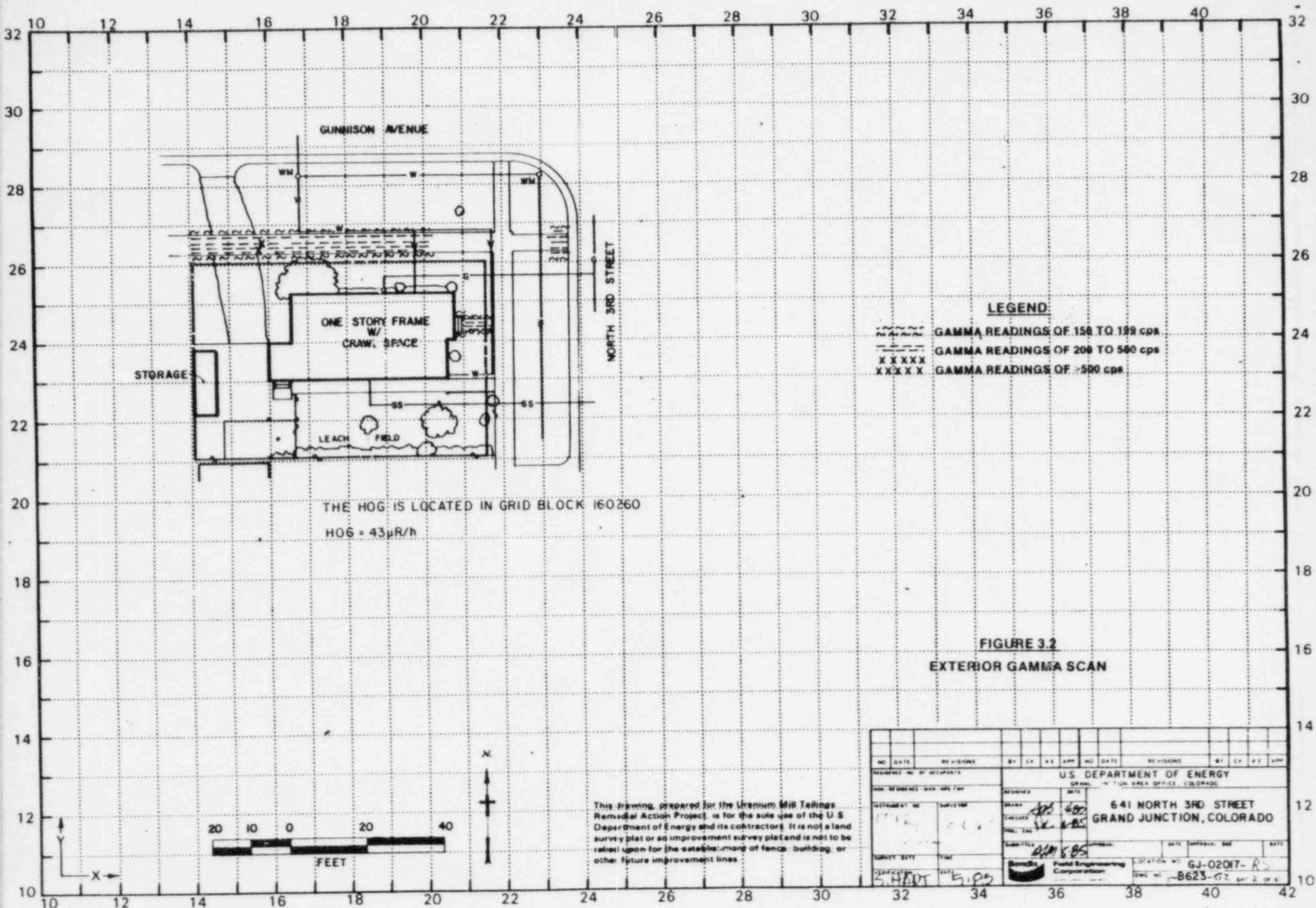
This drawing, prepared for the Uranium Mill Tailings Remedial Action Project, is for the sole use of the U.S. Department of Energy and its contractors. It is not a land survey plat or an improvement survey plat and is not to be relied upon for the establishment of fence, building, or other future improvement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

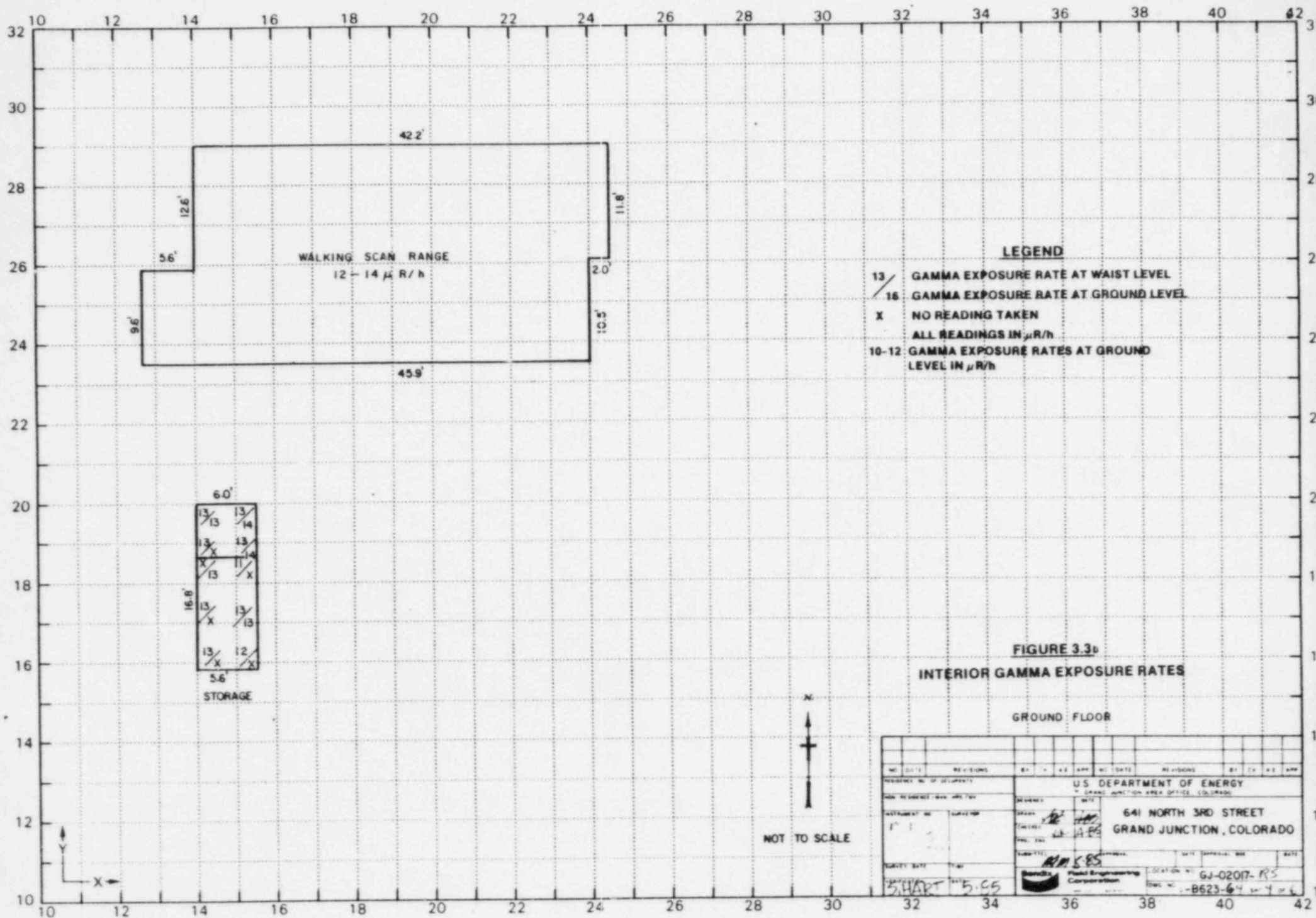
FIGURE 2.2 SITE PLAN

U.S. DEPARTMENT OF ENERGY		DOE ID NO.
GRAND JUNCTION PROJECT OFFICE, COLORADO		GJ 02017RS
ADDRESS 641 NORTH 3RD ST		
GRAND JUNCTION, COLO		
SURV RLB/41785	DRAFT TJ/41985	CK WCF/4-1985
DRAWING NO. 3 C 623	F1	SHEET 1 OF 1

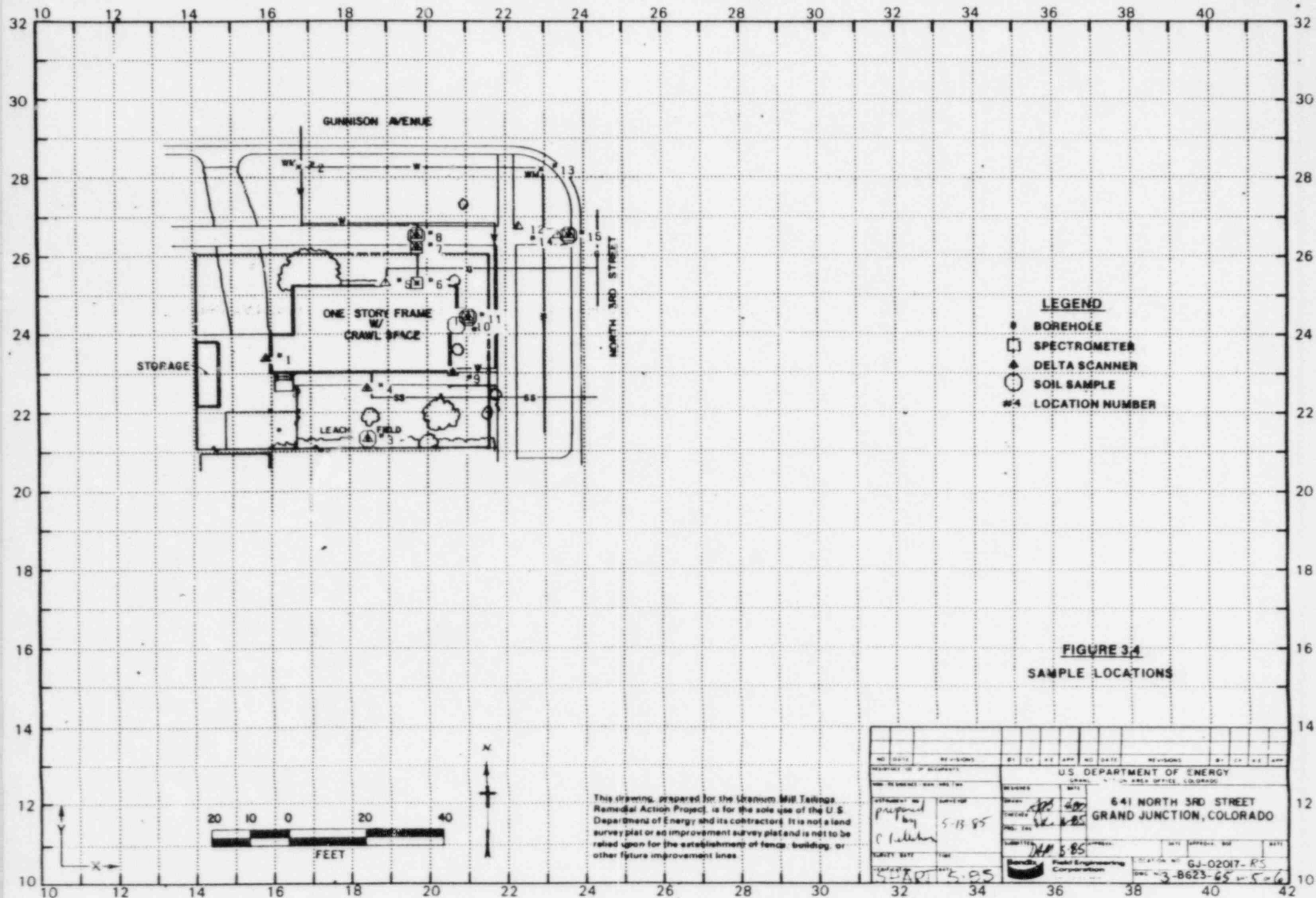
ALLIED
Boulder, Colorado
Boulder, Colorado
Boulder, Colorado



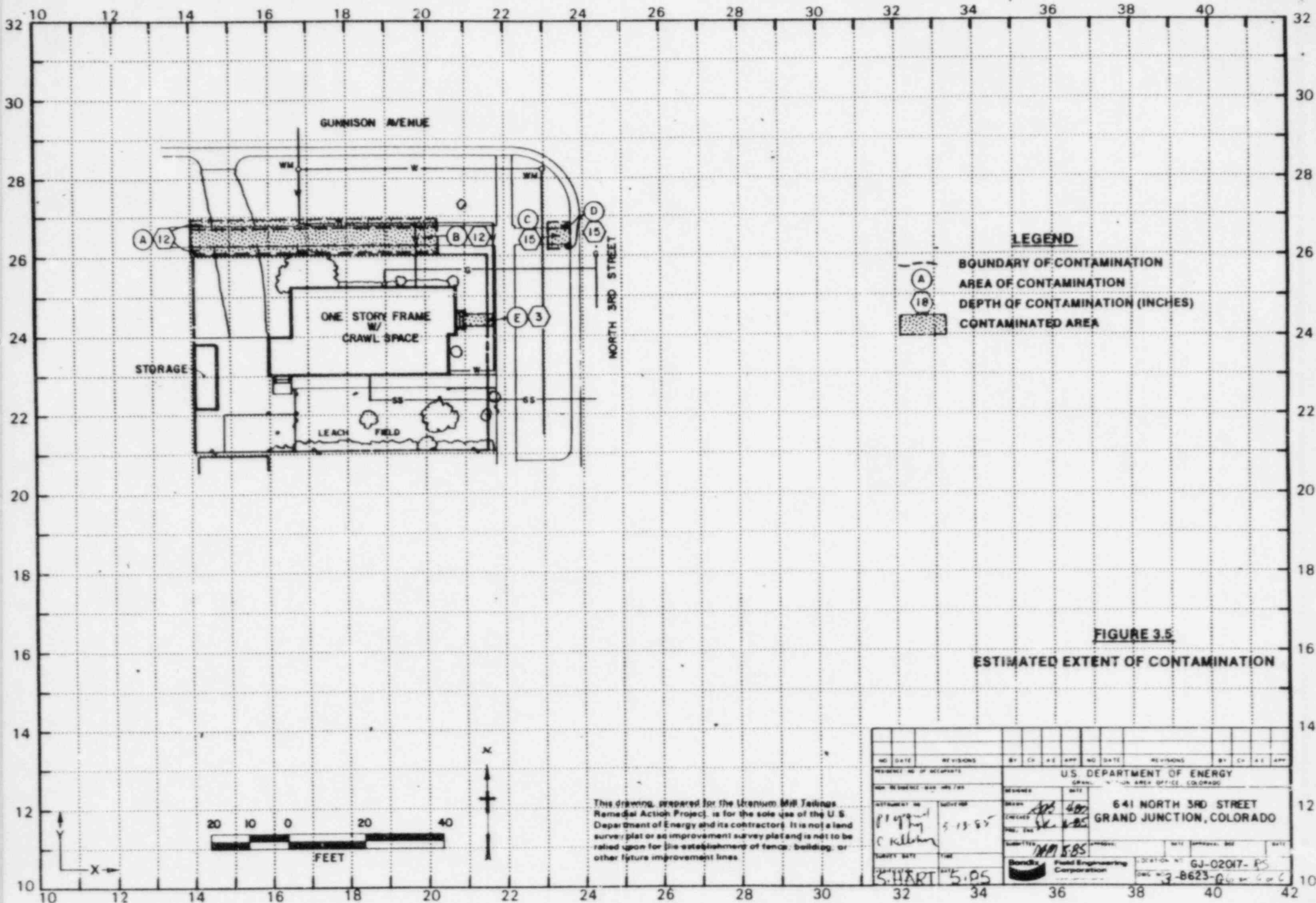




NO.	DATE	REVISIONS	BY	CHKD	APP.	NO.	DATE	REVISIONS	BY	CHKD	APP.
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION AREA OFFICE, COLORADO											
641 NORTH 3RD STREET GRAND JUNCTION, COLORADO						DATE: 5-85 DRAWN: [Signature] CHECKED: [Signature] SCALE: 1" = 10'					
PROJECT: 5.55 DRAWN: [Signature] CHECKED: [Signature] SCALE: 1" = 10'						LOCATION: GJ-02017-RS DATE: 5-85 SCALE: 1" = 10'					



NO. DATE		REVISIONS		BY		CHK		APP		NO. DATE		REVISIONS		BY		CHK		APP	
DESIGNED BY: [Signature]										U.S. DEPARTMENT OF ENERGY									
DRAWN BY: [Signature]										641 NORTH 3RD STREET									
CHECKED BY: [Signature]										GRAND JUNCTION, COLORADO									
DATE: 5-15-85										PROJECT NO. GJ-02017-R5									
SCALE: 1" = 40'										SHEET NO. 3-8623-65-5-6									



NO. DATE		REVISIONS		BY	CH	AE	APP	NO. DATE		REVISIONS		BY	CH	AE	APP
RESUBMIT NO. OF RECAPS															
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION AREA OFFICE, COLORADO								641 NORTH 3RD STREET GRAND JUNCTION, COLORADO							
DESIGNER CHECKED DATE: 5-13-85				SUBMITTER DATE: 5-15-85				REVIEWER DATE: 5-15-85				DATE: 5-15-85			
PROJECT NO. 81-10-10				DRAWING NO. 5-13-85				SUBMITTER DATE: 5-15-85				REVIEWER DATE: 5-15-85			
SURVEY DATE 5-15-85				TIME 5:05				SUBMITTER DATE: 5-15-85				REVIEWER DATE: 5-15-85			
CHART 5-15-85				DATE 5-15-85				SUBMITTER DATE: 5-15-85				REVIEWER DATE: 5-15-85			
LOCATION NO. GJ-02047-PS				DATE 5-15-85				SUBMITTER DATE: 5-15-85				REVIEWER DATE: 5-15-85			
3-8623-0000				3-8623-0000				3-8623-0000				3-8623-0000			

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

Official Survey Report

Property Address 641 North 3rd Street
Property Owner Cleotilda Garcia
Address of Owner (if different from above) same
Report Prepared By Catherine R. Kelleher

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

☐ No evidence of residual radioactive material on surveyed property.

☒ Residual radioactive materials found at the following locations:

☐ In open areas.

☒ Under or around exterior improvements.

☐ Under or around a typically nonoccupied structure.

☐ Under or around a typically occupied structure.

II. RESULTS OF RADIOLOGIC ASSESSMENT

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

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

cc:

G. A. Franz, III, GJ/CDH

J. Themelis, Mgr. UMTRA Proj. Off.

HIG = 18 uR/h
HOG = 43 uR/h



ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
P. O. Box 1569
Grand Junction, CO 81502-1569
Telephone (303) 242-8621
Telex: 454-338

May 10, 1985

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

ATTN: Jon Luellen

SUBJECT: GJ-02017-RS (641 North 3rd Street)

Dear Jon:

Following our discussion of this property, I have changed the depth of contamination at grid location 237267 to 15 inches.

Thank you for your time and cooperation. If you should have additional questions or comments you may contact me at 242-8621, extension 432.

Sincerely,

Cathy Kelleher
RSD Survey Team Leader

CK:pr

CDH.LETTER:02017.KELLEHER

ALLIED Bendix
Aerospace

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

DATE: April 29, 1985
TO: Files
FROM: Cathy Kelleher
SUBJECT: Team Leader Notes - GJ-02017-RS

Address: 641 North 3rd
Owners: Cleotilda Garcia
Weather: Warm and sunny
Occupancy: One

Team Members Kelleher T.L., Herman, Wilkins, Schouten, Young, Larsen,
Mattison

Instruments

Scintillometers - C-3502, C-1042, C-1149, C-1128
Delta - C-3942
PRS-1 - C-3957, C-3959
GAD-6 - C-3413

CDH and ORNL data indicate contamination in two sections of city sidewalk and sidewalk in front of house. Our gamma scan confirmed this and indicated no additional areas of contamination.

Utilities:

Gas Lines: A hole was dug and the gas line was located. A delta reading was taken in the bottom of the hole. It was negative.

Water: Two water lines are shown coming into the building. A check of the crawl space showed this was correct and the locations on the maps were also correct as shown. Auger holes were done over each line. Two water meter pits were also logged.

Sewer: Location shown on maps was checked in crawl space, and was correct. A hole was augered next to the sidewalk approximately 3-feet out from the house to investigate this trench. The old leach field also had an auger hole.

Telephone and Electric: Were overhead utility lines.

The background hole at location 185226 was filled in before it could be logged with a downhole spectrometer.

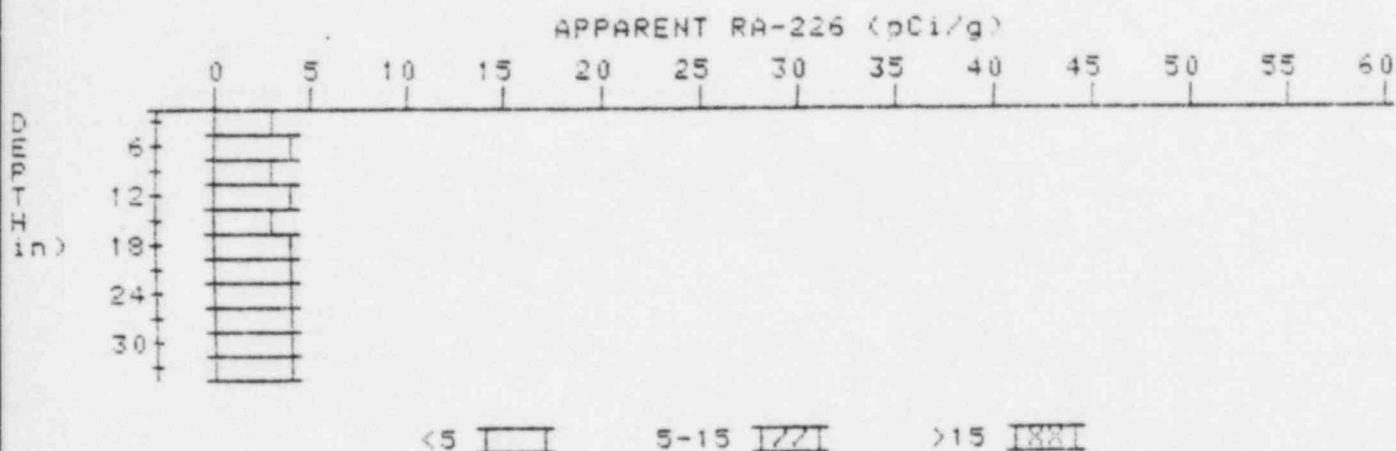
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

1

PROPERTY NUMBER: GJ-02017-RS

HOLE NUMBER: 1

LOCATION: 159234



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	2.7	2.7
6	3.2	3.7
9	3.4	3.4
12	3.6	4.0
15	3.6	3.4
18	3.7	3.7
21	3.8	3.8
24	3.9	3.9
27	4.0	4.2
30	4.0	4.0
33	4.0	4.0

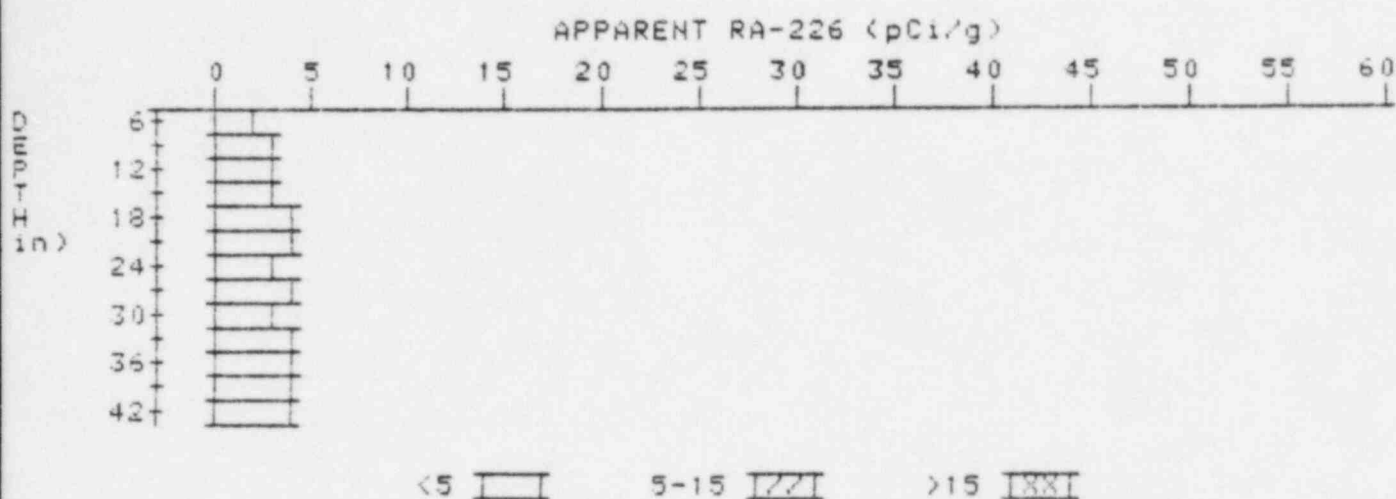
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

2

PROPERTY NUMBER: GJ-02017-RS

HOLE NUMBER: 2

LOCATION: 168283



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
6	2.4	2.4
9	2.9	3.3
12	3.2	3.4
15	3.4	3.4
18	3.6	4.0
21	3.6	3.8
24	3.5	3.1
27	3.6	3.8
30	3.6	3.4
33	3.7	3.9
36	3.7	3.7
39	3.7	3.5
42	3.8	3.8

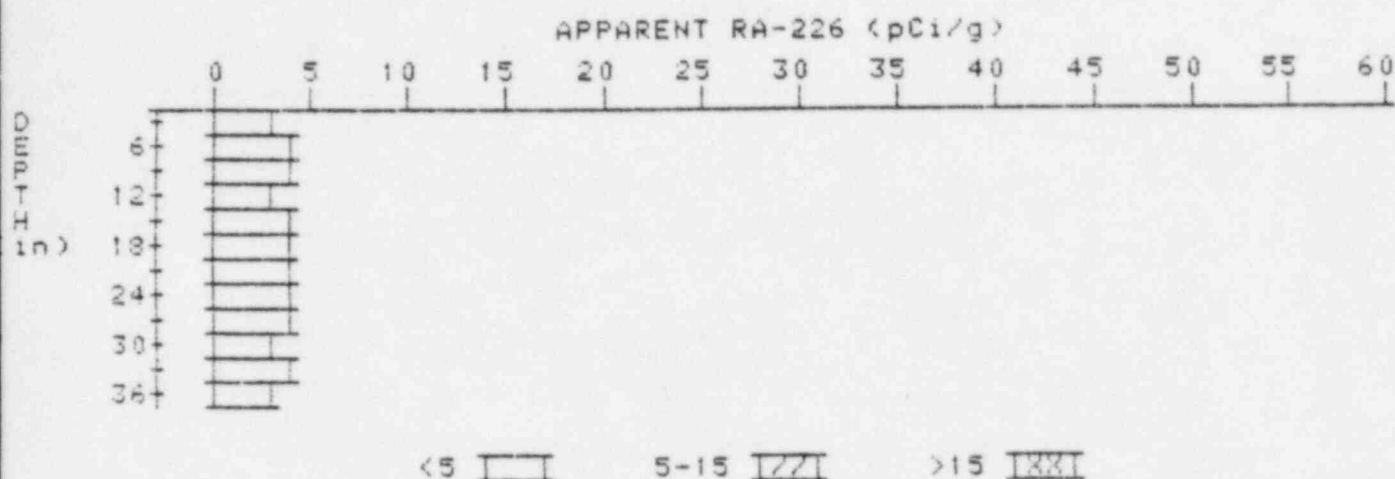
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

3

PROPERTY NUMBER: GJ-02017-RS

HOLE NUMBER: 3

LOCATION: 135213



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.1	3.1
6	3.4	3.6
9	3.6	4.1
12	3.5	3.0
15	3.7	4.1
18	3.7	3.5
21	3.8	4.2
24	3.7	3.7
27	3.6	3.8
30	3.4	3.0
33	3.4	3.6
36	3.3	3.3

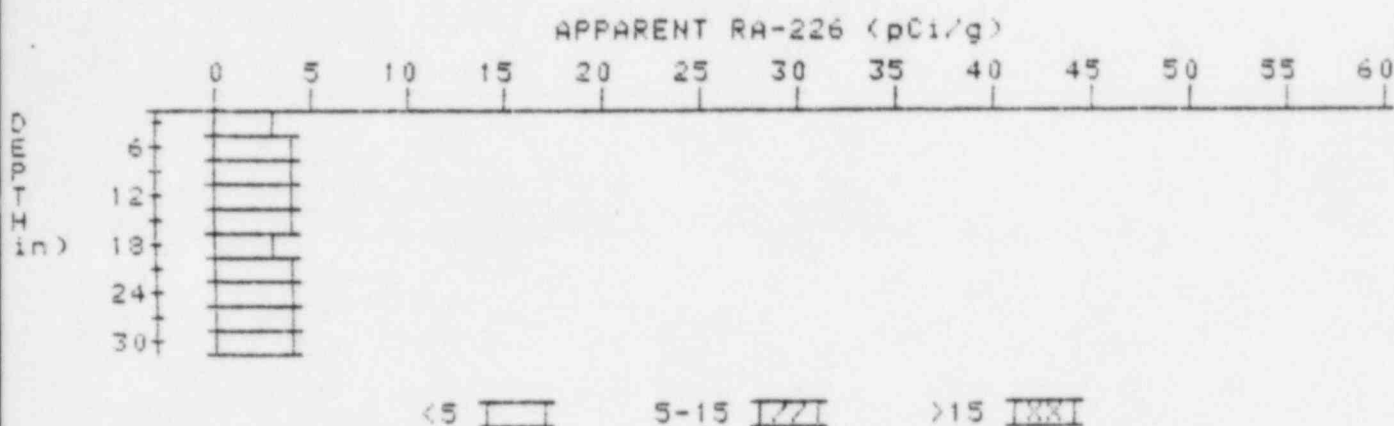
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

4

PROPERTY NUMBER: GJ-02017-RS

HOLE NUMBER: 4

LOCATION: 185226



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.3	3.3
6	3.5	3.7
9	3.6	3.8
12	3.6	3.6
15	3.6	3.6
18	3.6	3.4
21	3.7	3.9
24	3.7	3.7
27	3.7	3.9
30	3.6	3.6

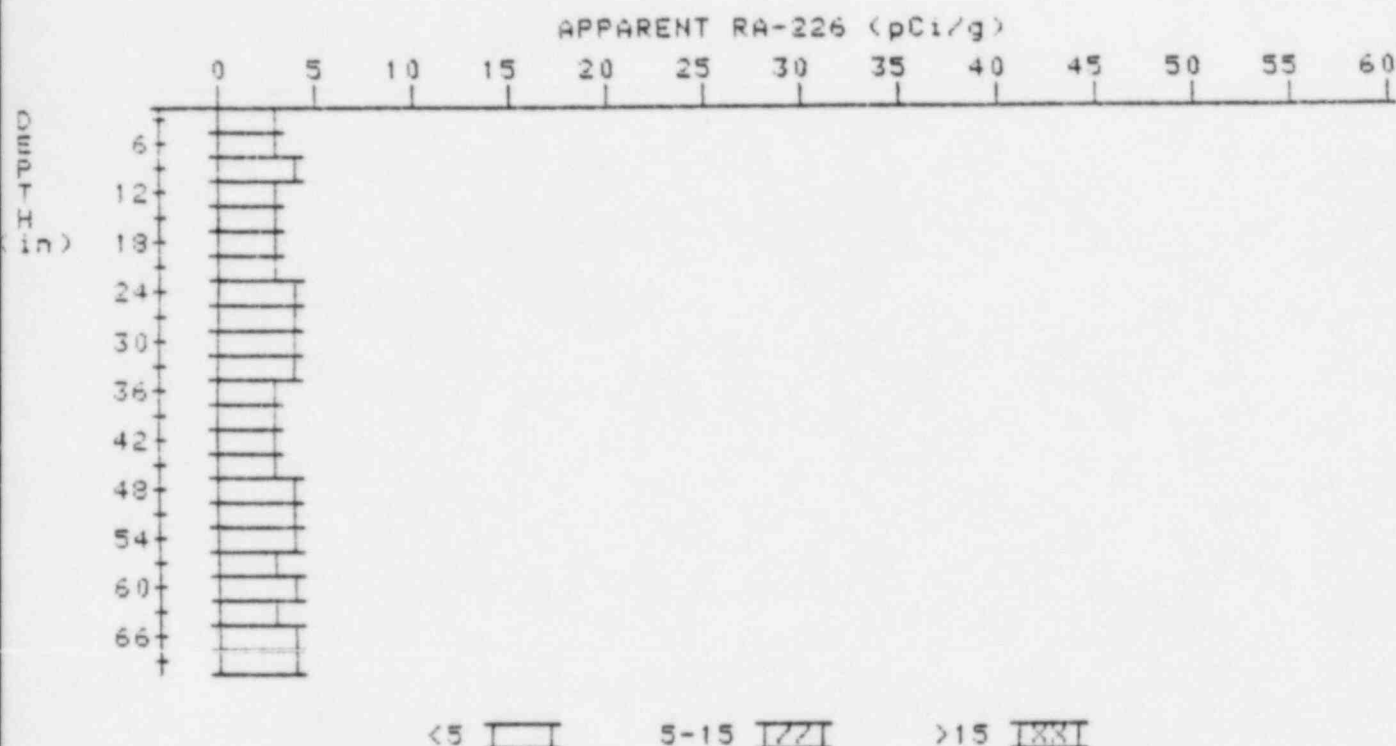
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

6

PROPERTY NUMBER: GJ-02017-R6

HOLE NUMBER: 6

LOCATION: 198253



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

48	3.5	3.5
51	3.6	3.8
54	3.6	3.8
57	3.5	3.1
60	3.6	4.0
63	3.5	3.1
66	3.6	3.8
69	3.6	3.6

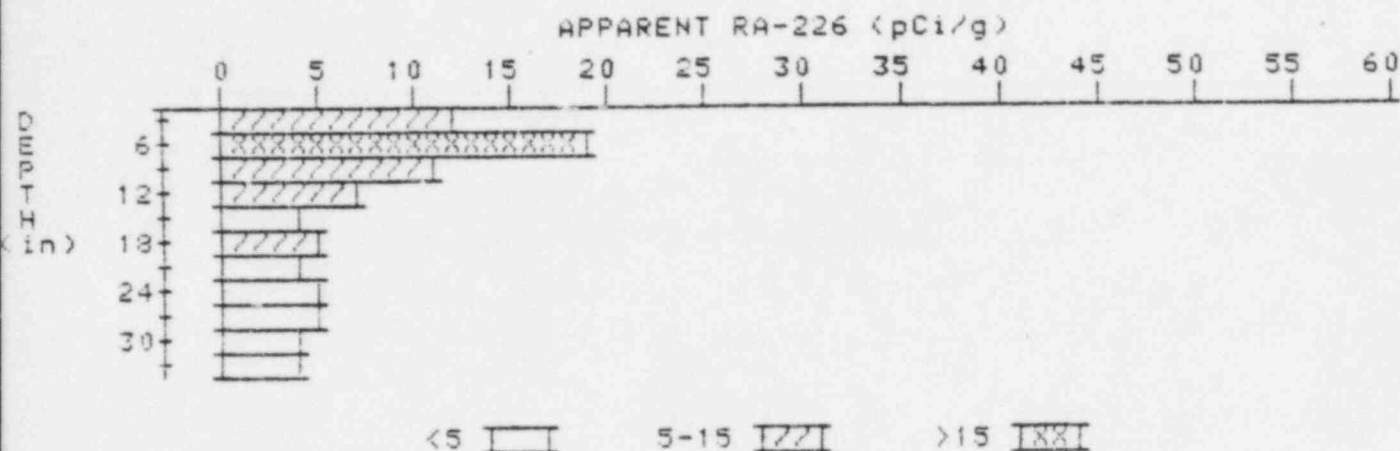
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

7

PROPERTY NUMBER: GJ-02017-RS

HOLE NUMBER: 7

LOCATION: 193262



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	12.1	12.1
6	13.1	19.3
9	10.6	10.8
12	8.0	6.6
15	6.2	4.2
18	5.5	5.1
21	5.0	4.5
24	4.8	4.6
27	4.7	4.9
30	4.5	4.3
33	4.4	4.4

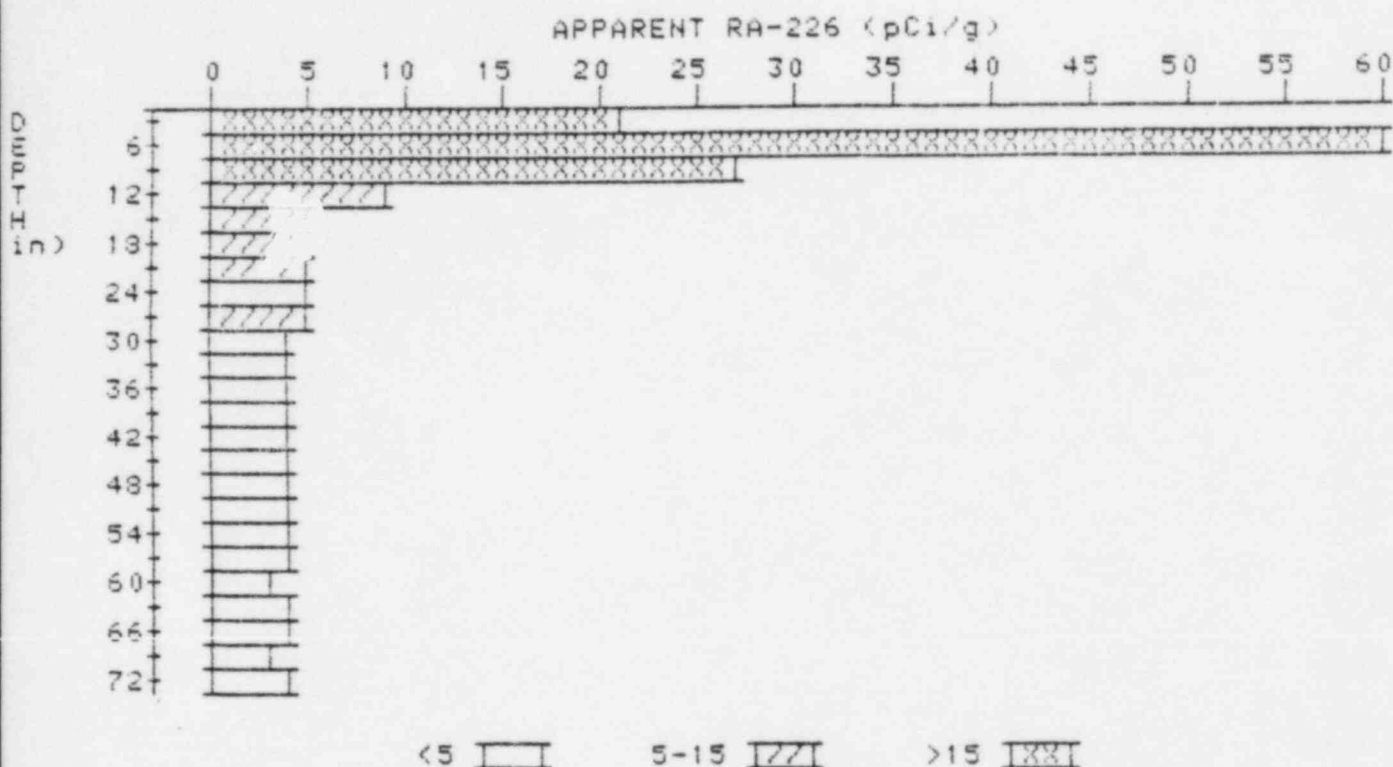
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

8

PROPERTY NUMBER: GJ-02017-R5

HOLE NUMBER: 8

LOCATION: 198265



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	21.4	21.4
6	35.0	75.4
9	25.9	27.0
12	16.2	9.3
15	10.4	5.1
18	7.6	5.1
21	6.2	5.1
24	5.4	4.7
27	5.0	5.0
30	4.6	4.2
33	4.4	4.2
36	4.3	4.1
39	4.3	4.5
42	4.2	4.2
45	4.1	3.9

48	4.1	4.1
51	4.1	4.3
54	4.0	4.0
57	3.9	3.9
60	3.8	3.4
63	3.9	4.3
66	3.8	3.8
69	3.7	3.3
72	3.8	3.8

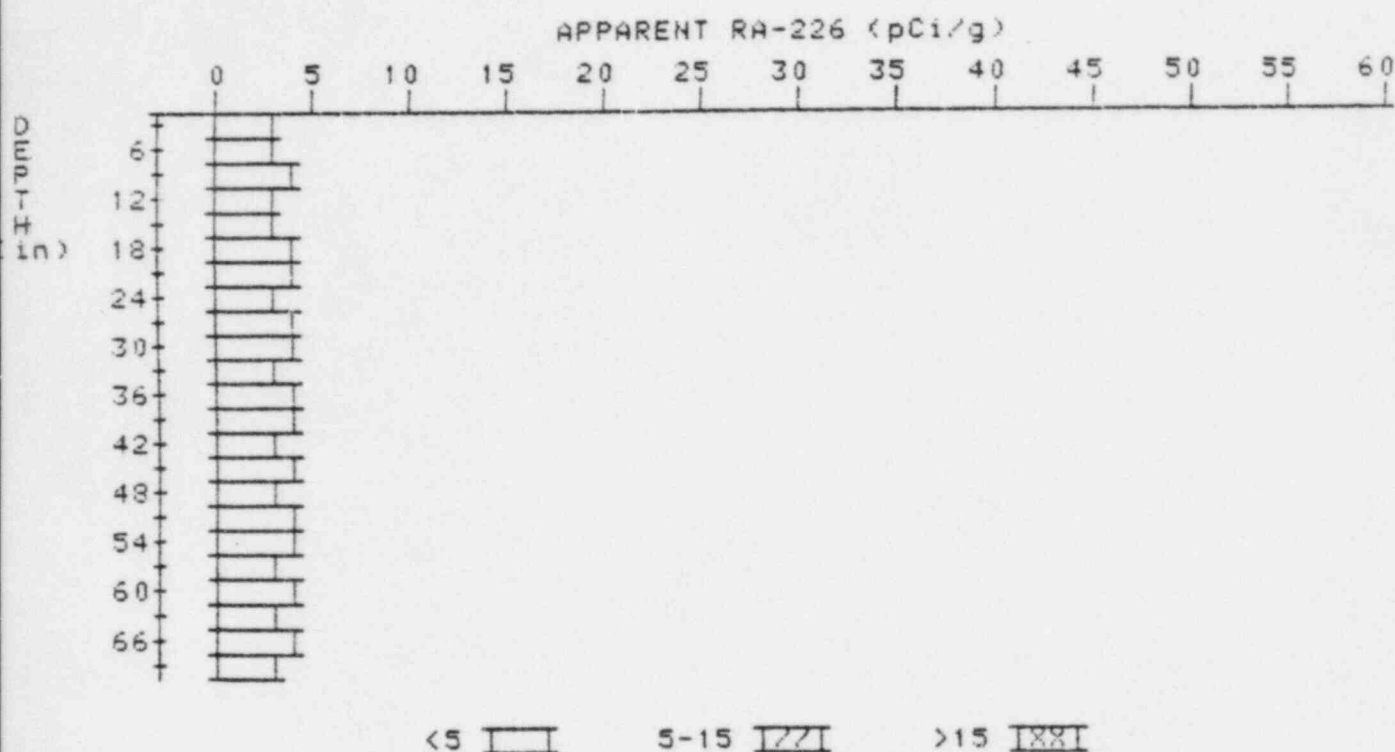
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

9

PROPERTY NUMBER: GJ-02017-R3

HOLE NUMBER: 9

LOCATION: 207230



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	2.9	2.9
6	3.2	3.4
9	3.4	3.8
12	3.4	3.4
15	3.4	3.2
18	3.5	3.7
21	3.5	3.5
24	3.5	3.3
27	3.6	3.6
30	3.7	4.1
33	3.6	3.2
36	3.7	3.9
39	3.7	3.9
42	3.6	3.4
45	3.6	3.6

48
51
54
57
60
63
66
69

3.6
3.7
3.7
3.6
3.6
3.5
3.5
3.5

3.4
3.9
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3.4
3.6
3.5
3.5
3.5

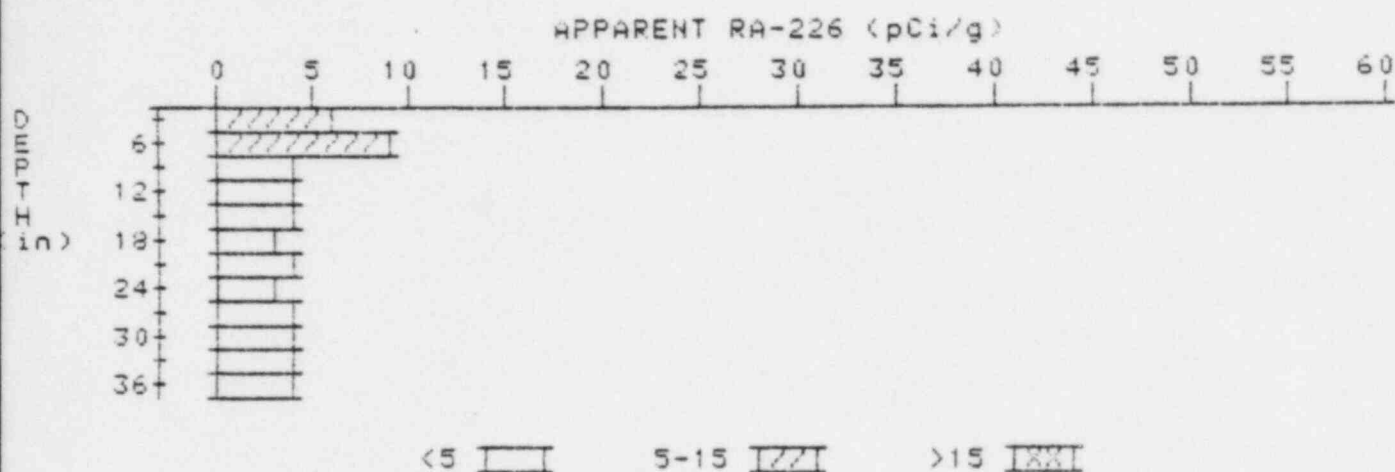
APPARENT RADIUM-226 CONCENTRATION 11

DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-02017-RS

HOLE NUMBER: 11

LOCATION: 211244



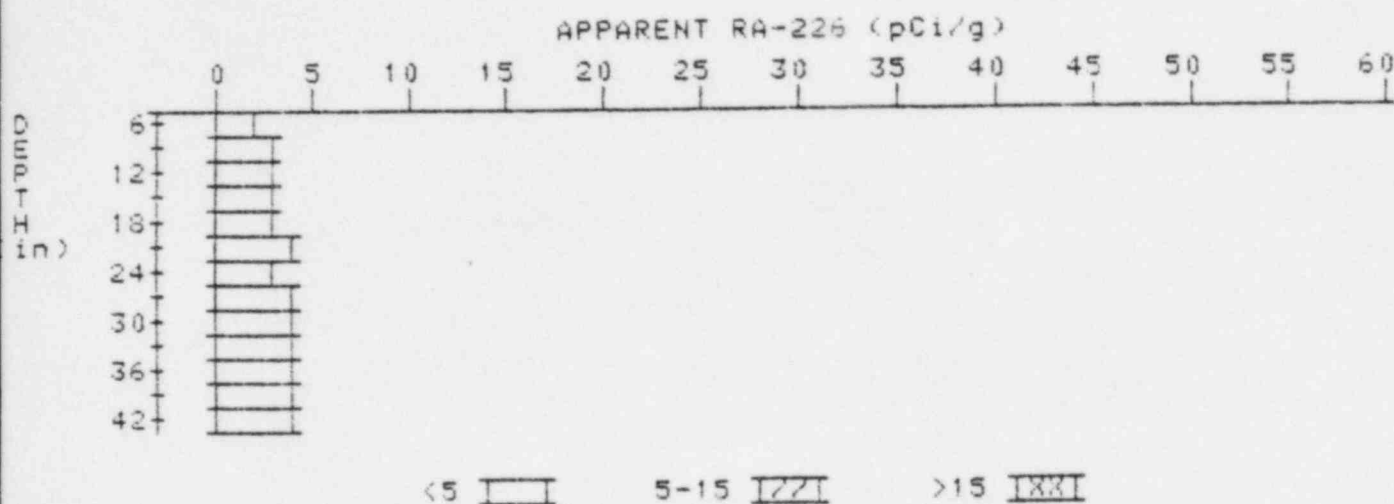
Depth (in)	Apparent Radium-226 (pCi/g)	Apparent Radium-226 (pCi/g)
	Undeconvolved	Deconvolved
3	5.8	5.8
6	6.1	8.6
9	5.0	4.3
12	4.3	3.8
15	3.9	3.7
18	3.6	3.1
21	3.6	3.8
24	3.5	3.1
27	3.6	3.8
30	3.6	3.6
33	3.6	3.6
36	3.6	3.6

APPARENT RADIUM-226 CONCENTRATION 13 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-02017-RS

HOLE NUMBER: 13

LOCATION: 230282



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
6	2.2	2.2
9	2.7	3.1
12	3.0	3.2
15	3.2	3.4
18	3.3	3.3
21	3.4	3.6
24	3.4	3.2
27	3.5	3.5
30	3.6	3.6
33	3.7	3.9
36	3.7	3.7
39	3.7	3.9
42	3.6	3.6

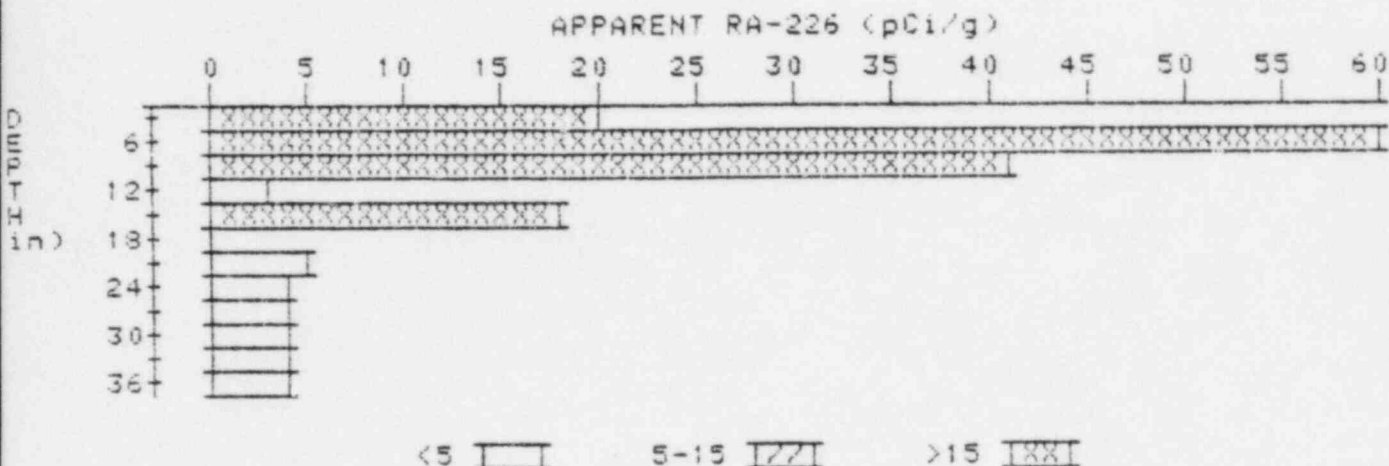
APPARENT RADIUM-226 CONCENTRATION 15

DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-02017-RS

HOLE NUMBER: 15

LOCATION: 237265



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	20.1	20.1
6	34.2	68.5
9	29.0	40.6
12	17.3	2.7
15	13.8	18.2
18	7.8	.2
21	6.1	4.7
24	5.2	4.5
27	4.7	4.3
30	4.4	4.0
33	4.3	4.5
36	4.1	4.1