RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-01205-MR
ADDRESS: 2555 KENNEDY COURT

AUGUST 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 SS CWT
M. TUCKER
DOE PROJECT ENGINEER

DATE August 14, 1985

REA01205:REA-KL015

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-01205-MR, is a single-family residence located at 2555 Kennedy Court, 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, 56 cu. yd.; interior, 4 cu. yd.

Estimated cost to perform remedial action, including dislocation when applicable, is $10,978. Remedial action on this property will take approximately 10 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 2555 Kennedy Court, Grand Junction, Colorado

Zoning: Residential (RSF-8)

Lot Size: Approximately 6,820 sf (0.2 acres)

Legal Description: Lot 14, Block 2, 2nd Houlton Re-sub, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 2 miles north of the State of Colorado Tailings Repository. Appendix Figure 2.1 shows the property location relative to its surroundings.

Utilities: Utility locations are shown in Appendix Figure 2.2.

Electrical:	Overhead
Gas:	Underground
Telephone:	Overhead
Sewer:	Underground
Water:	Underground
Cable TV:	Overhead

Bordering Properties:

North:	Single-family residence
South:	Single-family residence
East:	Kennedy Court
West:	Alley

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-family residence
Size:	Approximately 1,205 sf
Construction Date:	1956
Construction:	Wood-frame
Foundation:	Concrete spread footing
Footing Depth:	Approximately 20" to bottom of footing from grade
Basement:	None
Crawl Space:	Yes - full
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-01205-MR on May 24, 1985. Data collection methods were performed in accordance with procedures fully described in the Radiologic Support Operations Procedures Manual GJ-07(84) (Bendix Field Engineering Corporation, 1984). These data were evaluated to determine the areal and vertical extent of uranium mill tailings contamination at this property as well as any other contaminated material that may have originated from the millsite.

A review of historical information from the files of the Colorado Department of Health (CDH) and the inclusion data from Oak Ridge National Laboratory (ORNL) was conducted. These records indicate elevated gamma readings associated with the carport, driveway, and sidewalk.

The Bendix radiologic survey was designed to investigate the entire property, with emphasis on previously identified areas of contamination. Conclusions based upon data analyses are discussed in Section 3.5, Extent of Contamination. Photocopies of the Official Survey Report, team leader notes, deconvolution graphs, and 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: 13 to 16 uR/h
Highest Outside Gamma Reading (HOG): 93 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: 12 to 14 uR/h
Highest Inside Gamma Reading (HIG): 25 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 3.2b 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) The 6-inch-thick concrete floor of the two storage rooms located at the end of the carport is contaminated (approximately 154 sf).

(AREA B) The 6-inch-thick concrete floor of the three storage rooms adjacent to the north of the carport is contaminated (approximately 54 sf).

(AREA C) The 6-inch-thick concrete driveway/carport and associated stoop and step are contaminated (approximately 719 sf).

(AREA D) The soil beneath the 5-inch-thick concrete sidewalk southeast of the primary structure is contaminated to a total depth of 15 inches (approximately 275 sf).

(AREA E) A narrow strip of soil that abuts Area D is contaminated to a depth of 15 inches (approximately 106 sf).

(AREA F) The soil beneath the 5-inch-thick concrete sidewalk northeast of the primary structure is contaminated to a total depth of 18 inches (approximately 240 sf).

(AREA G) A narrow strip of soil that abuts Area F is contaminated to a depth of 18 inches (approximately 176 sf).

(AREA H) A deposit adjacent to the concrete slab southeast of the primary structure is contaminated to a depth of 6 inches (approximately 57 sf).

(AREA I) A small mound of soil located in the northwest corner of the property is contaminated to a depth of 6 inches (approximately 20 sf).

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-01205-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 $10,978.

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.

Areas A and B are included in this remedial action because they are storage additions that were built on top of the original contaminated concrete driveway slab. This remedial action recommends a monolithic slab continuous from the new driveway to the new floors of the storage units to prevent possible structural movement due to expansive soils.

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 - Crawl Space
Figure 3.2b	Interior Gamma Exposure Rates and Sample Locations - Ground Floor
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)
Exterior Gamma Scan

RADRPT V85.1<850513.1530> Table 3.1

Radium Concentrations at Exterior Locations

DOE ID #GJ-01205-MR 2555 Kennedy Court

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
6	158153	00	DS	2.6		*	Mound by power
		06	DS	2.1		*	pole
7	164207	00	DS	1.5		*	
		06	DS	<1.0		*	
8	169260	00	DS	<1.0		*	Gas line
		22	DS	<1.0		*	
9	170290	00	DS	55.0		*	On sidewalk
10	175288	03	TC	7.9		*	DC = 18 inches
		06	TC	7.9		*	Based on the
		09	TC	7.3		*	deconvolution graph
		12	TC	6.3		*	
		15	TC	5.5		*	
		18	TC	4.9		*	
		21	TC	4.5		*	
		24	TC	4.3		*	
		27	TC	4.1		*	
		30	TC	3.9		*	
		33	TC	3.8		*	
		36	TC	3.7		*	
11	180215	03	TC	4.8		*	Through core in
		06	TC	4.3		*	driveway
		09	TC	4.1		*	DC = 6 inches
		12	TC	3.8		*	Based on all
		15	TC	3.8		*	available data
		18	TC	3.8		*	
		21	TC	3.7		*	
		24	TC	3.7		*	
		27	TC	3.7		*	
		30	TC	3.8		*	
		33	TC	3.7		*	
		36	TC	3.6		*	
12	180286	00	DS	<1.0		*	By water meter
13	190292	00	DS	13.7		*	On sidewalk
14	196250	03	TC	3.4		*	Water line
		06	TC	3.7		*	Sewer line
		09	TC	3.7		*	DC = 0 inches

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
14	196250	12	TC	3.8		*	
		15	TC	3.8		*	
		18	TC	3.8		*	
		21	TC	3.7		*	
		24	TC	3.8		*	
		27	TC	3.8		*	
		30	TC	3.8		*	
		33	TC	3.8		*	
15	197290	03	TC	6.8		*	DC = 18 inches
		06	TC	6.8		*	Based on all
		09	TC	6.2		*	available data
		12	TC	5.6		*	
		15	TC	5.1		*	
		18	TC	4.7		*	
		21	TC	4.3		*	
		24	TC	4.2		*	
		27	TC	4.0		*	
		30	TC	3.8		*	
		33	TC	3.8		*	
		36	TC	3.6		*	
		39	TC	3.5		*	
		42	TC	3.5		*	
16	200288	00	DS	1.0		*	By water meter
17	200290	00	DS	2.9		*	By water meter
		06	DS	4.3		*	
18	200294	00	DS	42.1		*	On sidewalk
19	201222	00	DS	2.5		*	
		06	DS	1.2		*	
20	201239	00	DS	2.5		*	Off of front porch
		06	DS	1.2		*	
21	210260	00	DS	<1.0		*	Background
		00	GS		<1.0	*	DC = 0 inches
		03	TC	3.4		*	
		06	TC	3.6		*	
		09	TC	3.8		*	
		12	TC	3.9		*	
		15	TC	3.7		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
21	210260	18	TC	3.8		*	
		21	TC	3.7		*	
		24	TC	3.5		*	
		27	TC	3.5		*	
		30	TC	3.5		*	
		33	TC	3.4		*	
22	221270	00	DS	6.1		*	
23	222230	00	DS	6.1		*	
		06	DS	22.9		*	
		03	TC	41.0		*	Along sidewalk
		06	TC	43.9		*	DC = 15 inches
		09	TC	32.2		*	Based on all
		12	TC	19.8		*	available data
		15	TC	13.3		*	
		18	TC	10.2		*	
		21	TC	8.3		*	
		24	TC	7.1		*	
		27	TC	6.0		*	
		30	TC	5.2		*	
		33	TC	4.6		*	
		36	TC	4.4		*	
		39	TC	4.0		*	
		42	TC	3.9		*	
		45	TC	3.8		*	
		48	TC	3.7		*	
		51	TC	3.6		*	
		54	TC	3.5		*	
		57	TC	3.5		*	
		60	TC	3.4		*	
		63	TC	3.4		*	
		66	TC	3.5		*	
24	222267	00	DS	6.5		*	Next to sidewalk
		06	DS	2.0		*	
25	223255	03	TC	4.2		*	Front yard
		06	TC	4.3		*	DC = 0 inches
		09	TC	4.3		*	
		12	TC	4.2		*	
		15	TC	4.1		*	
		18	TC	4.1		*	
		21	TC	4.0		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	In Situ Ra-226 (pCi/g) Spectr.	Chem Ra-226 (pCi/g)	Comments
25	223255	24	TC	3.9		*	
		27	TC	3.9		*	
		30	TC	3.8		*	
		33	TC	3.7		*	
26	225225	00	DS	28.5		*	On sidewalk
27	225235	00	DS	35.0		*	On sidewalk
		00	GS		24.7	*	
		03	TC	65.9		*	Through core in
		06	TC	62.3		*	sidewalk
		09	TC	39.3		*	DC = 15 inches
		12	TC	22.7		*	Based on the
		15	TC	12.9		*	deconvolution graph
		18	TC	9.2		*	
		21	TC	7.3		*	
		24	TC	6.1		*	
		27	TC	5.4		*	
		30	TC	5.0		*	
		33	TC	4.7		*	
		36	TC	4.4		*	
		39	TC	4.3		*	
		42	TC	4.1		*	
		45	TC	3.9		*	
		48	TC	3.8		*	
		51	TC	3.6		*	
		54	TC	3.3		*	
		57	TC	3.3		*	
		60	TC	3.2		*	
28	225268	00	DS	2.3		*	On sidewalk
		00	GS		1.5	*	
29	230255	00	DS	43.6		*	On sidewalk

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 = 05-24-85
Team Leader = DF

RADRPT V85.1<850513.1530> Table 3.2

Radium Concentrations at Interior Locations

DOE ID #GJ-01205-MR 2555 Kennedy Court

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	In Situ Ra-226 (pCi/g) Spectr.	Chem Ra-226 (pCi/g)	Comments
1		00	DS	6.1		*	Storage room
2		00	DS	4.6		*	Storage room
3		00	DS	5.8		*	Storage room
4		00	DS	5.4		*	Storage room
5		00	DS	5.7		*	Storage room

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 = 05-24-85
Team Leader = DF

Table 3.3
Summary of Interior Gamma Exposure Rates

DOE ID #GJ-01205-MR 2555 Kennedy Court

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	-	-	12	14-17	16
ROOM A	03	16-20	18	04	21-25	24
ROOM B	04	13-18	16	04	21-25	23
ROOM C	02	13-13	13	02	14-15	15
ROOM D	00	-	-	01	23-23	23
ROOM E	01	17-17	17	01	24-24	24
ROOM F	01	17-17	17	01	23-23	23
GROUND FLOOR	*	*	*	*	12-14	*

* A walking scan was performed on the ground floor of the primary structure. These data and the exposure rates and room locations are shown in Appendix Figures 3.2a and 3.2b.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-01205-MR

AREA	CALCULATIONS(ft)		SF		DEPTH(ft)		CF				CUBIC YARDS
INTERIOR											
	Concrete										
A	14 x 11	=	154	x	0.5	=	77				
B	18 x 3	=	54	x	0.5	=	27				
	TOTAL VOLUME - INTERIOR					=	104	=	104/27	=	4
EXTERIOR											
	Concrete										
C	3 x 4	=	12	x	1.2	=	14				
	1 x 4	=	4	x	0.8	=	3				
	27 x 11	=	297	x	0.5	=	149				
	29 x 14	=	406	x	0.5	=	203				
							369				
D	21 x 5	=	105								
	29 x 5	=	145								
	5 x 5	=	25								
			275	x	0.4	=	110				
F	48 x 5	=	240	x	0.4	=	96				
	Volume of Concrete					=	575	=	575/27	=	21
	Contaminated Fill										
D	21 x 5	=	105								
	29 x 5	=	145								
	5 x 5	=	25								
			275	x	0.9	=	248				

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-01205-MR

AREA	CALCULATIONS(ft)		SF		DEPTH(ft)		CF				CUBIC YARDS
E	50 x 2	=	100								
	3 x 2	=	6								
			106	x	1.3	=	138				
F	48 x 5	=	240	x	1.1	=	264				
G	22 x 5	=	110								
	22 x 3	=	66								
			176	x	1.5	=	264				
H	19 x 3	=	57	x	0.5	=	29				
I	5 x 4	=	20	x	0.5	=	10				
	Volume of Contaminated Fill					=	953	=	953/27	=	35
	TOTAL VOLUME - EXTERIOR									=	56

See Appendix Figures 3.4a and 3.4b For Areas

Table 4.2
Estimated Cost of Decontamination and Restoration
DOE ID No. GJ-01205-MR

INTERIOR		
Remove interior concrete slab (6")		
208 sf @ $3/sf	$	624
Replace interior flatwork (4")		
208 sf @ $2.25/sf		468
Install bulk concrete (reinforced), turned-down edge of slab		
1 cy @ $175/cy		175
Install Dowels, #4x12"		
10 @ $1/ea		10
Undermine and shore wood-frame wall		
91 lf @ $3/lf		273
Cleanup		100
TOTAL INTERIOR	$	1,650
EXTERIOR		
Remove identified residual radioactive materials		
35 cy @ $14.50/cy (machine)	$	508
Replace roadbase		
23 cy @ $11.50/cy		265
Replace topsoil		
12 cy @ $9.50/cy		114
Remove concrete, 6" flatwork - driveway, carport		
703 sf @ $2/sf		1,406
Remove concrete, 5" flatwork - sidewalk, curb, and gutter		
515 sf @ $1.75/sf		901
Remove reinforced bulk concrete - stoop, step		
1 cy @ $100/cy		100
Saw cut concrete sidewalk, curb and gutter		
20 lf @ $1.50/lf		30

Table 4.2
Estimated Cost of Decontamination and Restoration
DOE ID No. GJ-01205-MR

Replace concrete, 4" flatwork - driveway, carport 703 sf @ $2/sf		$ 1,406
Replace concrete - sidewalk, curb and gutter 515 sf @ $1.75/sf		901
Replace reinforced bulk concrete - stoop, step, turned-down edge of slab 1 cy @ $175/cy		175
Replace sod 339 sf @ $.50/sf		170
Replace sprinkler system 282 sf of ground @ $.40/sf		113
Undermine and shore wood columns 3 @ $15/ea		45
	TOTAL EXTERIOR	$ 6,134
	TOTAL INTERIOR	1,650
	ACCESS CONTROL	200
	SUBTOTAL	$ 7,984
	CONTINGENCY @ 10%	798
	SUBTOTAL	$ 8,782
	CONTRACTOR OVERHEAD & PROFIT @ 25%	2,196
	GRAND TOTAL	$ 10,978

VD/080785
REA01205/REA-KL015

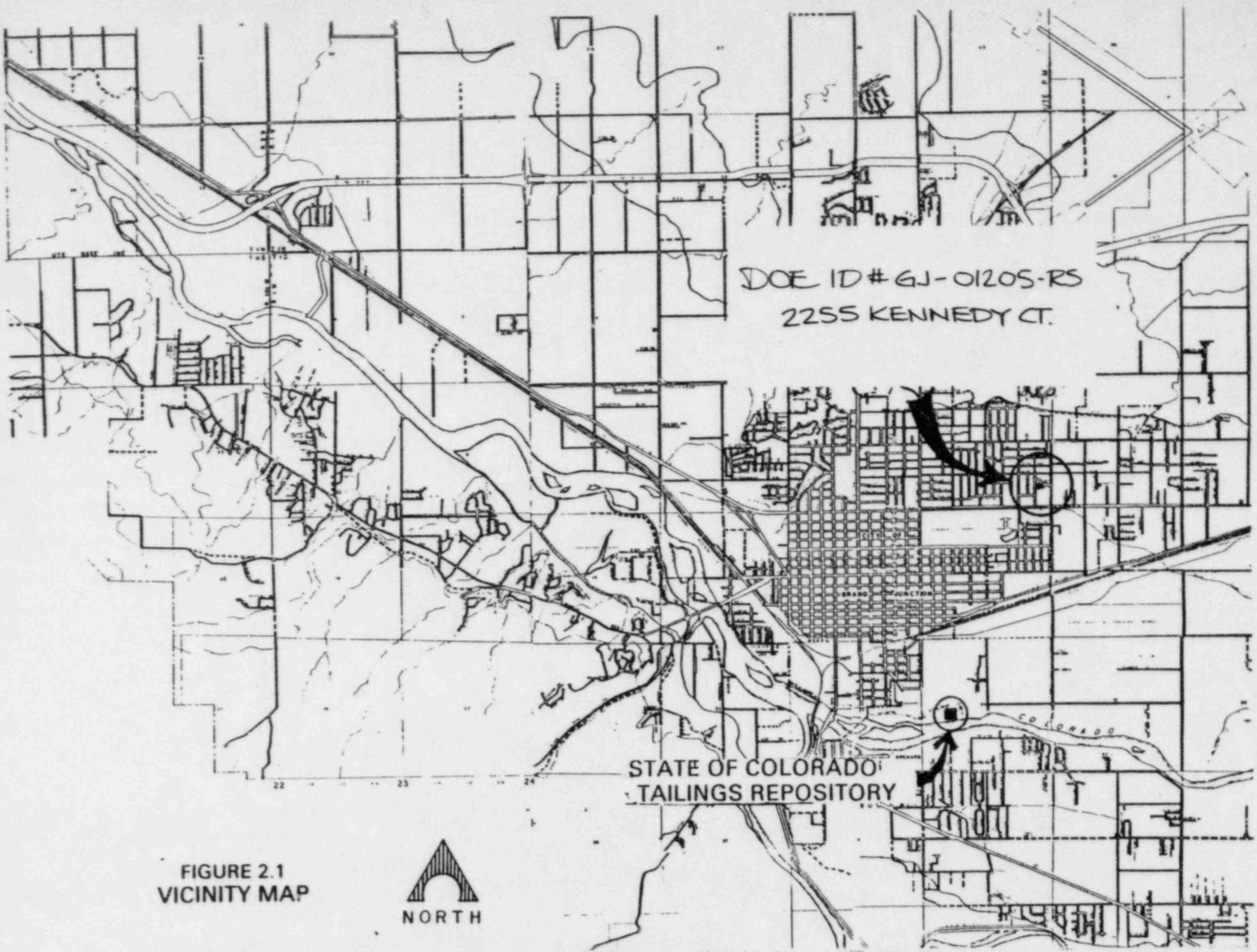
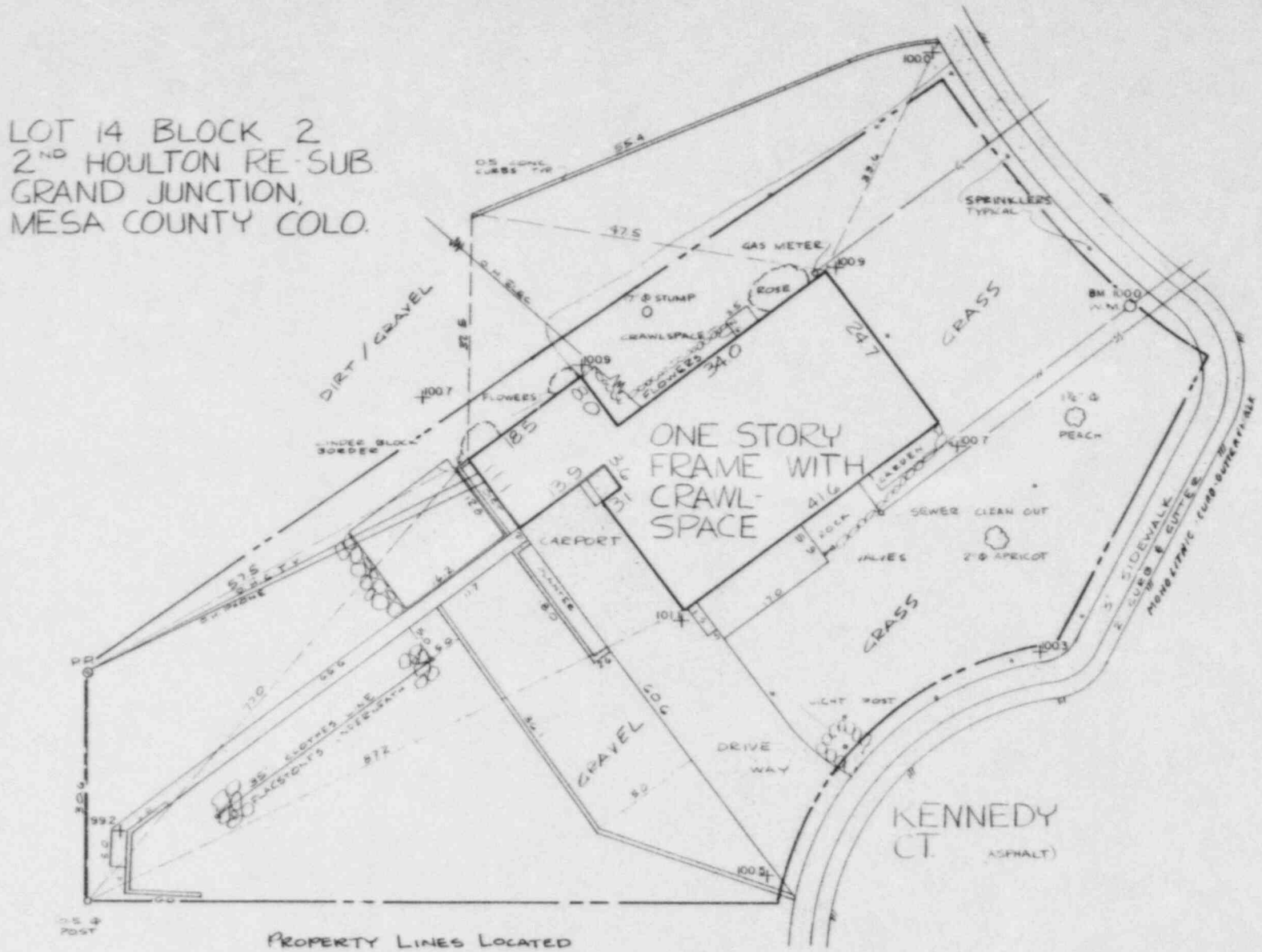


FIGURE 2.1
VICINITY MAP



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 GRAND JUNCTION PROJECT OFFICE COLORADO	DOE ID NO. GJ 01205 MR
ADDRESS 2555 KENNEDY CT GRAND JUNCTION, COLO	ALLIED Bendix Aerospace Bendix Field Engineering Corporation Grand Junction Operations
SURV 5 13 85 DRAFT TJ 5 17 85	CK NCT
DRAWING NO 3C 680 F1	SHEET OF

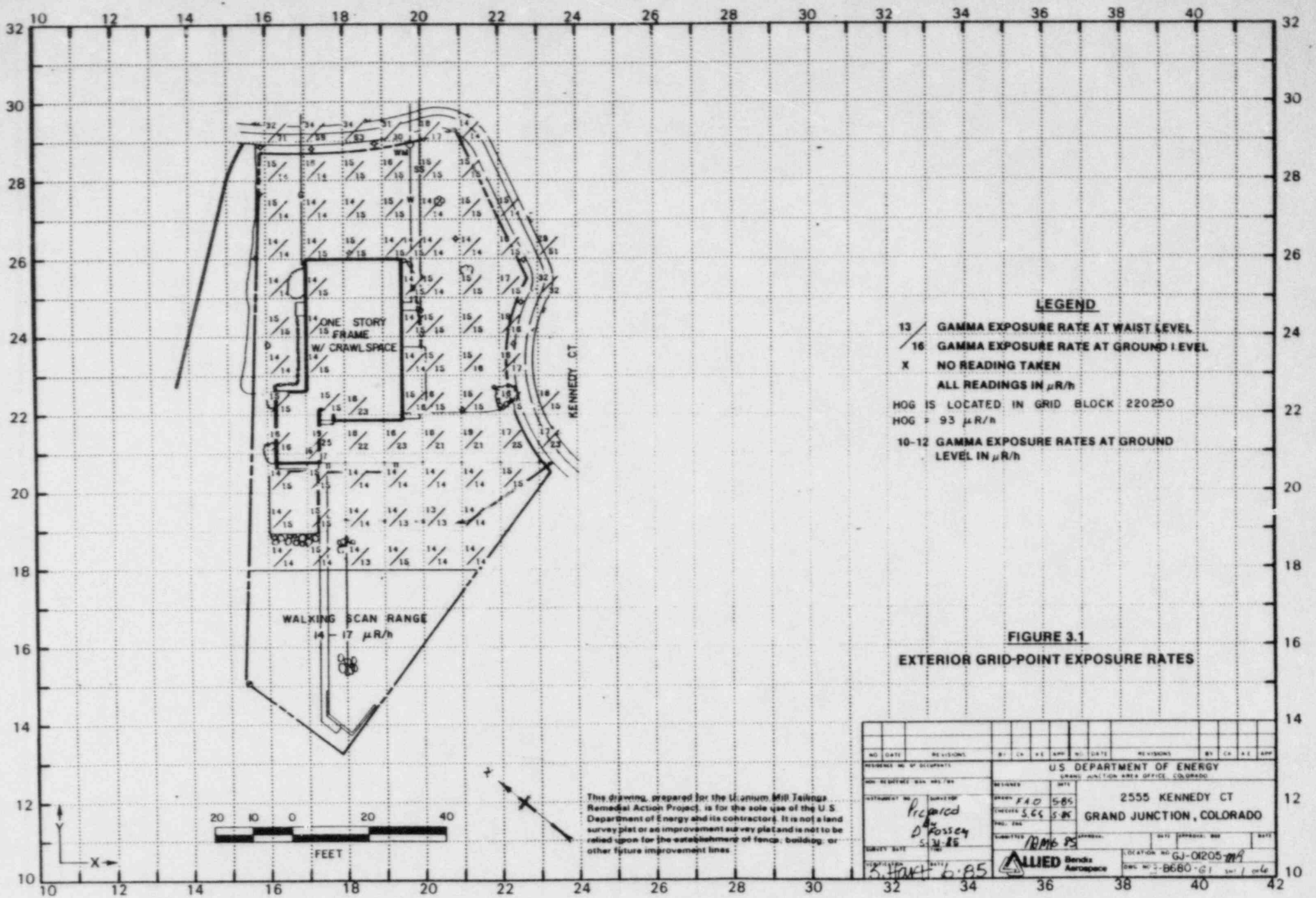


FIGURE 3.1

EXTERIOR GRID-POINT EXPOSURE RATES

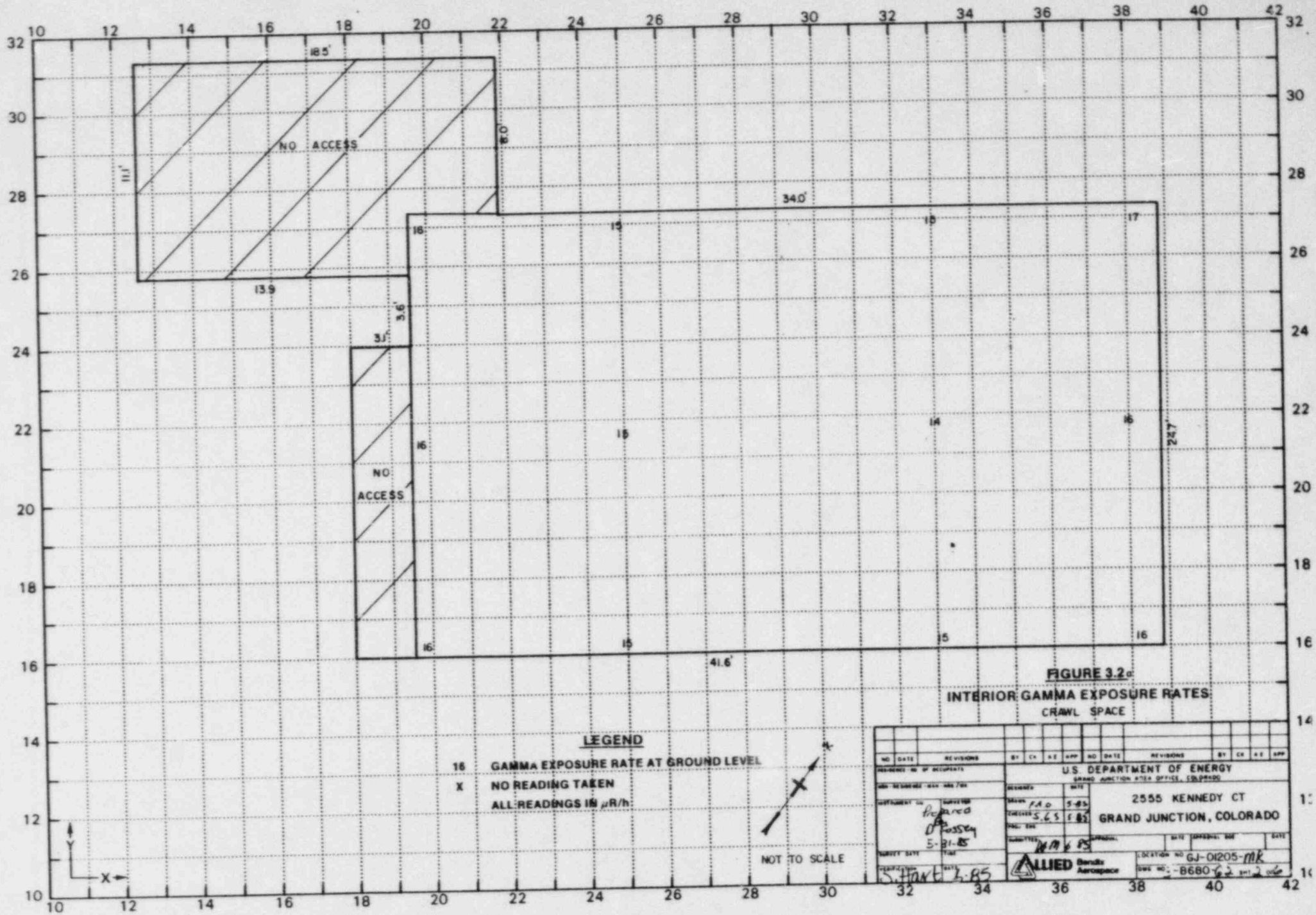


FIGURE 3.2a

INTERIOR GAMMA EXPOSURE RATES

CRAWL SPACE

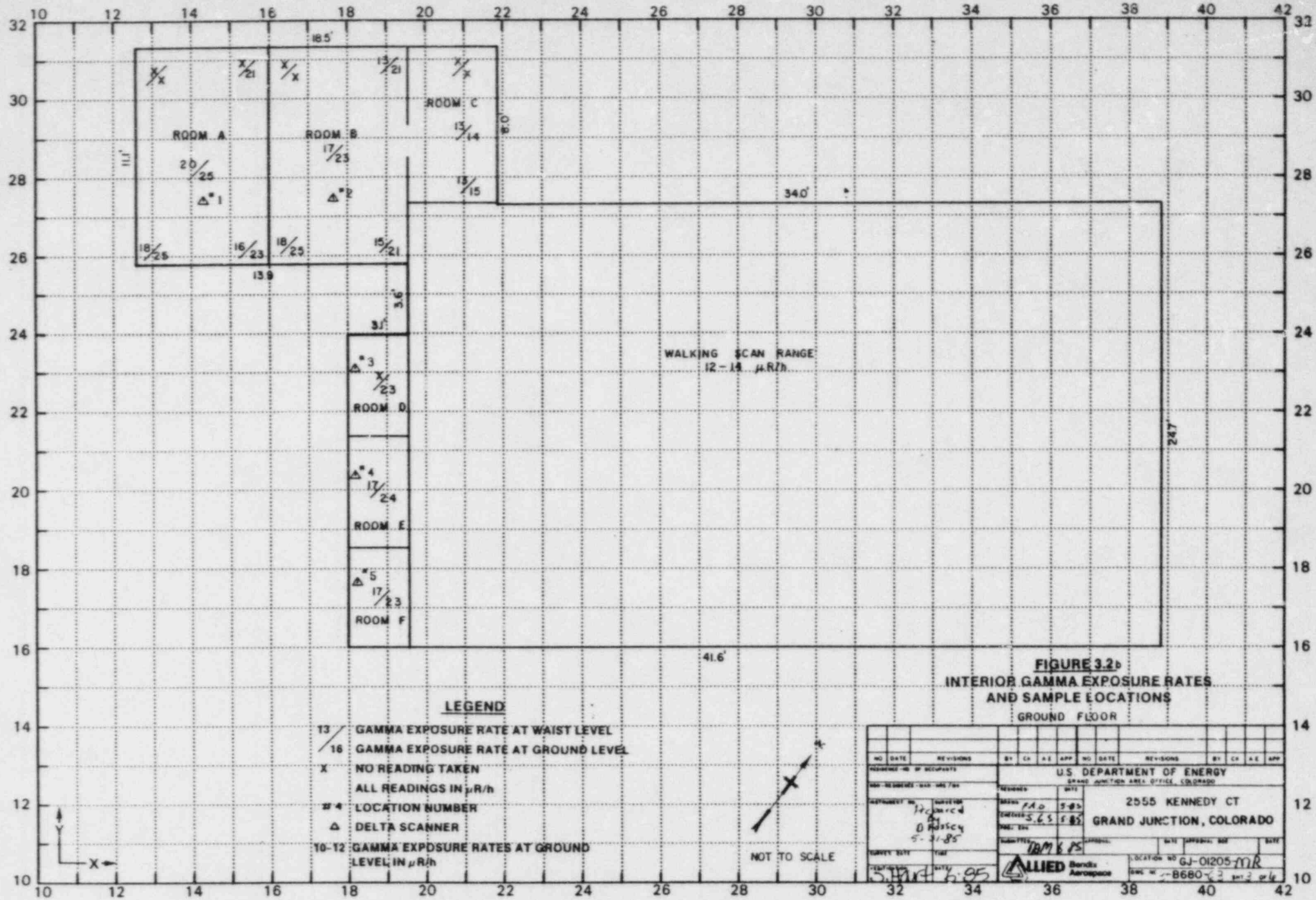


FIGURE 3.2b
INTERIOR GAMMA EXPOSURE RATES AND SAMPLE LOCATIONS
GROUND FLOOR

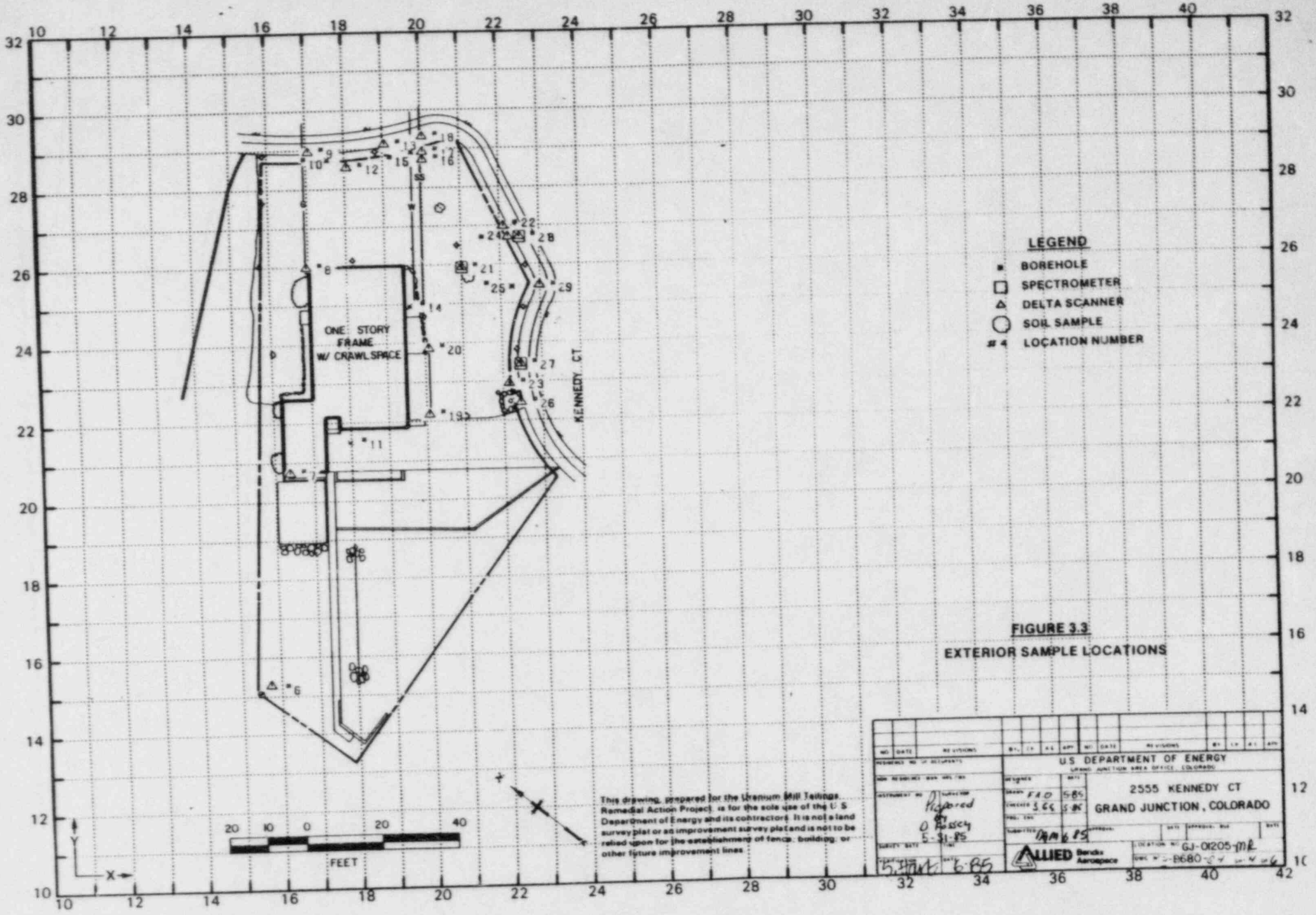


FIGURE 3.3

EXTERIOR SAMPLE LOCATIONS

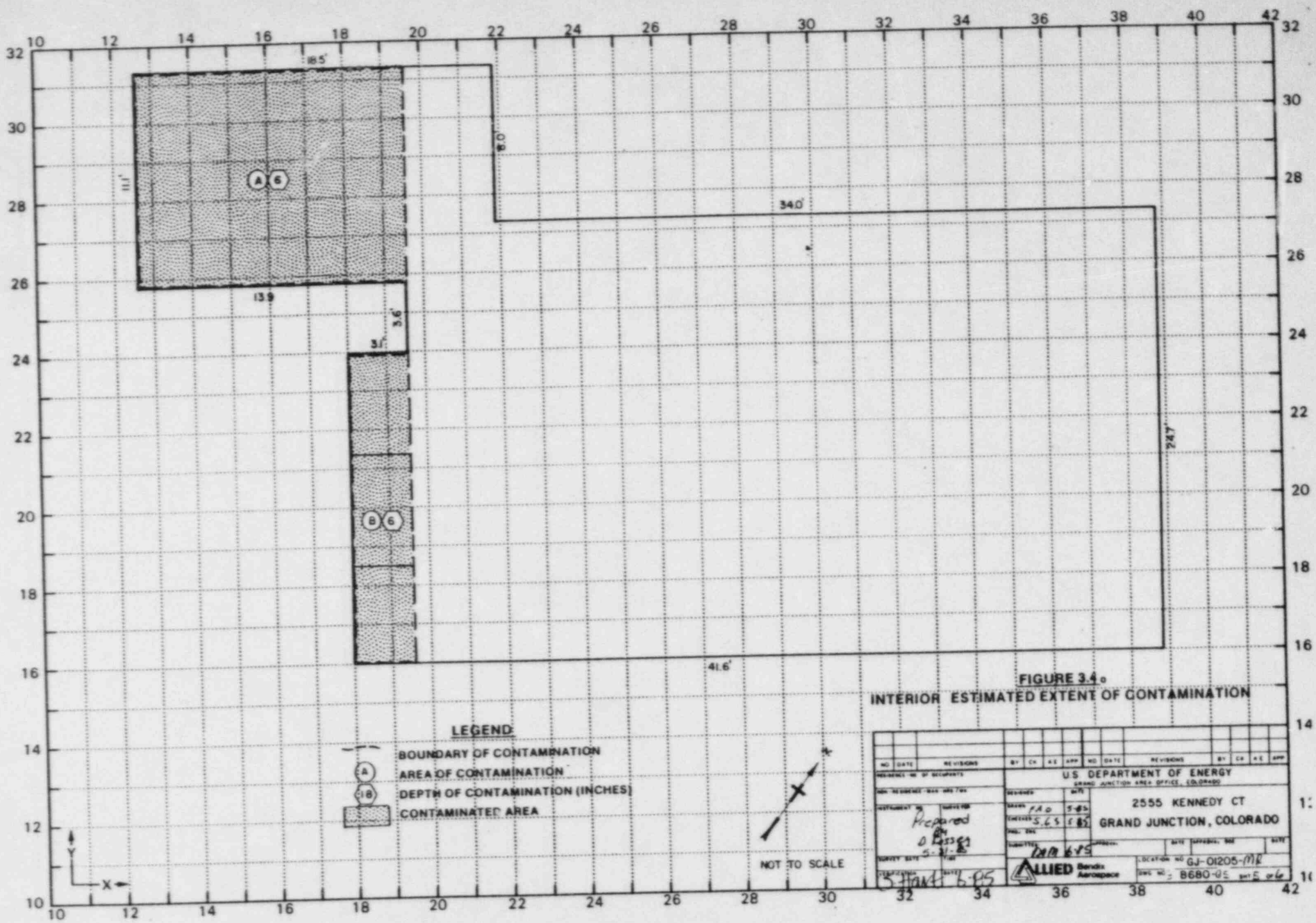


FIGURE 3.4
INTERIOR ESTIMATED EXTENT OF CONTAMINATION

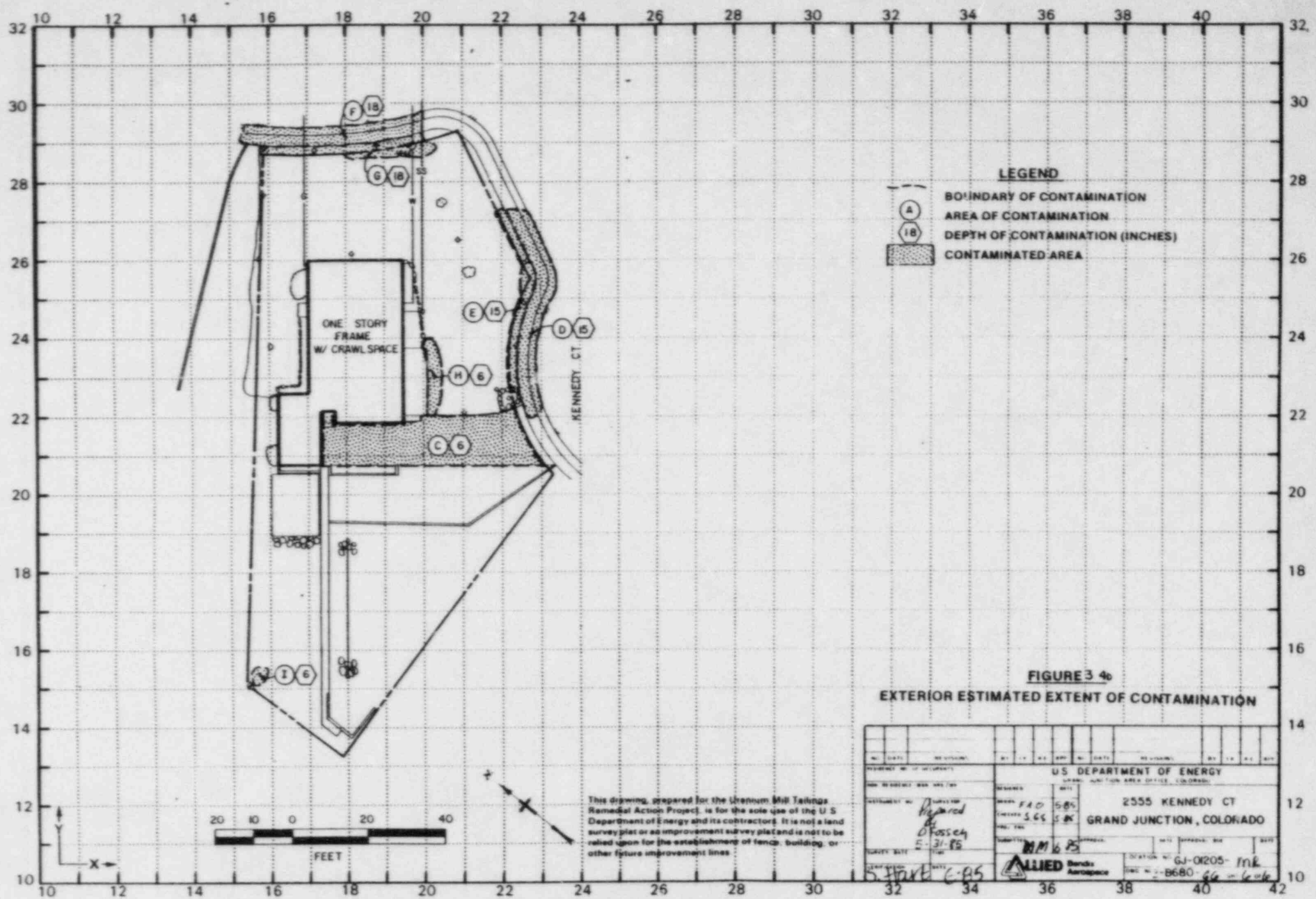


FIGURE 3 4b

EXTERIOR ESTIMATED EXTENT OF CONTAMINATION

3/85

DOE ID NO. GJ-01205-MR Date 06/01/85

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

Official Survey Report

Property Address 2555 Kennedy Court

Property Owner Vera O. Lambert

Address of Owner (if different from above) _____

Report Prepared By Daniel P. Fossey

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

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

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

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

II. RESULTS OF RADIOLOGIC ASSESSMENT

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

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

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

HIG = 25 uR/h
HOG = 93 uR/h

MEMORANDUM

ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado

Date: May 28, 1985

To: Files

From: Dan Fossey

Subject: Team Leader Notes - GJ 01205-MR

Address: 2555 Kennedy Court

Owner: Vera O. Lambert

Telephone: 242-4633

Team Members

D. Fossey (Team Leader)
N. Wallace
D. Bell
H. Mattison
D. Dow
P. Hardy
S. Southern

Instruments

See Equipment Summary Sheet.

Team members arrived on the site at 7:45 A.M.

The gamma scan showed elevated readings in the carport, on the driveway, and on two sections of the sidewalk as indicated by the Colorado Department of Health (CDH) and Oak Ridge National Laboratory (ORNL).

The property owner, Vera Lambert, indicated that the primary structure and city sidewalk were built in 1955-1956. She also indicated that two sections of the city sidewalk had to be replaced in 1960 due to the soil settling under the sidewalk. These two sections of the sidewalk are the ones with elevated gamma readings. Furthermore, she stated that the concrete driveway and the carport were added at the same time that the sidewalk was repaired.

While augering the boreholes to investigate contamination associated with the sidewalk team members located, southeast of the primary structure, what appears to be tailings.

While conducting a walking scan of the northwestern portion of the property, team members found a small mound of soil with slightly elevated gamma readings (180 cps). This area was gridded and further investigated with delta measurements.

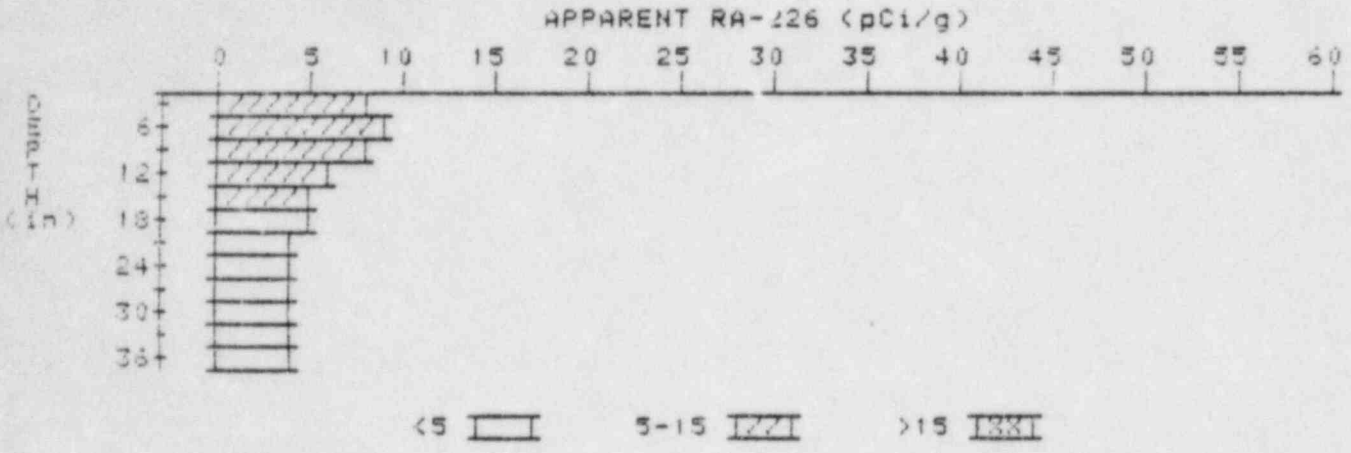
The survey was completed at 12:45 P.M.

All team members were frisked before returning to the compound.

DECON V85.1(850524.0823)

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 10

PROPERTY NUMBER: GJ-01205-MR
HOLE NUMBER: 10
LOCATION: 175288

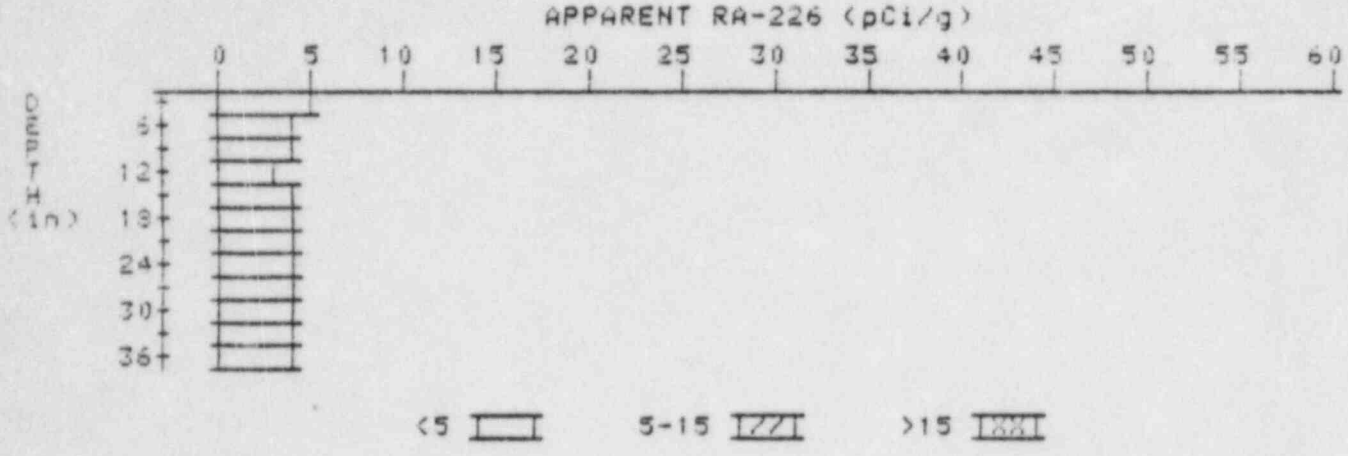


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	7.9	7.9
6	7.9	9.0
9	7.3	8.0
12	6.3	5.9
15	5.5	5.1
18	4.9	4.5
21	4.5	4.1
24	4.3	4.3
27	4.1	4.1
30	3.9	3.7
33	3.8	3.8
36	3.7	3.7

DECON V85.1<850524.0823>

APPARENT RADIUM-226 CONCENTRATION 11
DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-01205-MR
HOLE NUMBER: 11
LOCATION: 180215

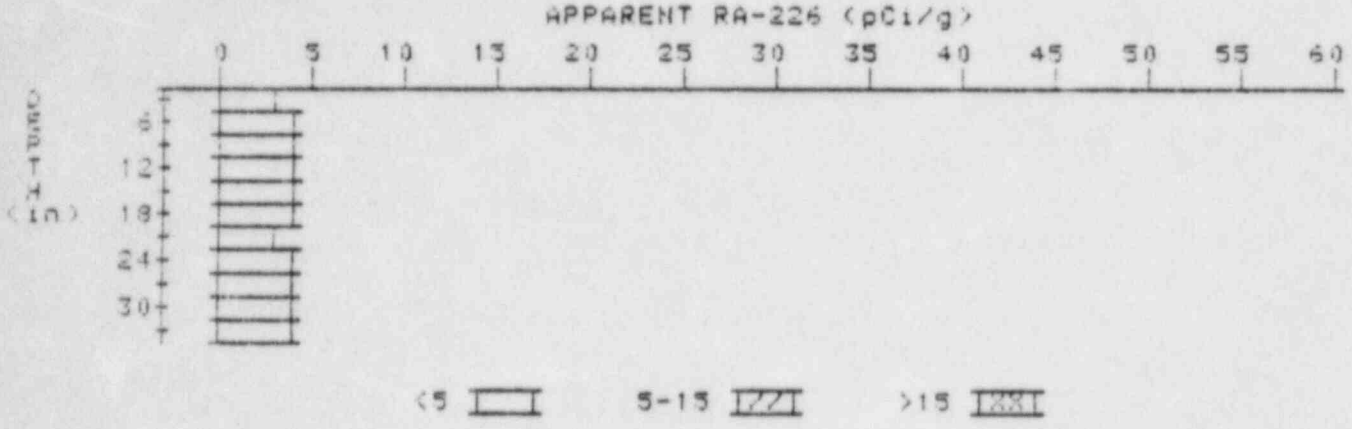


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.8	4.8
6	4.3	3.8
9	4.1	4.3
12	3.8	3.3
15	3.8	3.8
18	3.8	4.0
21	3.7	3.5
24	3.7	3.7
27	3.7	3.5
30	3.8	4.2
33	3.7	3.7
36	3.6	3.6

DECON V85.1(850524.0823)

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 14

PROPERTY NUMBER: GJ-01205-MR
HOLE NUMBER: 14
LOCATION: 196250

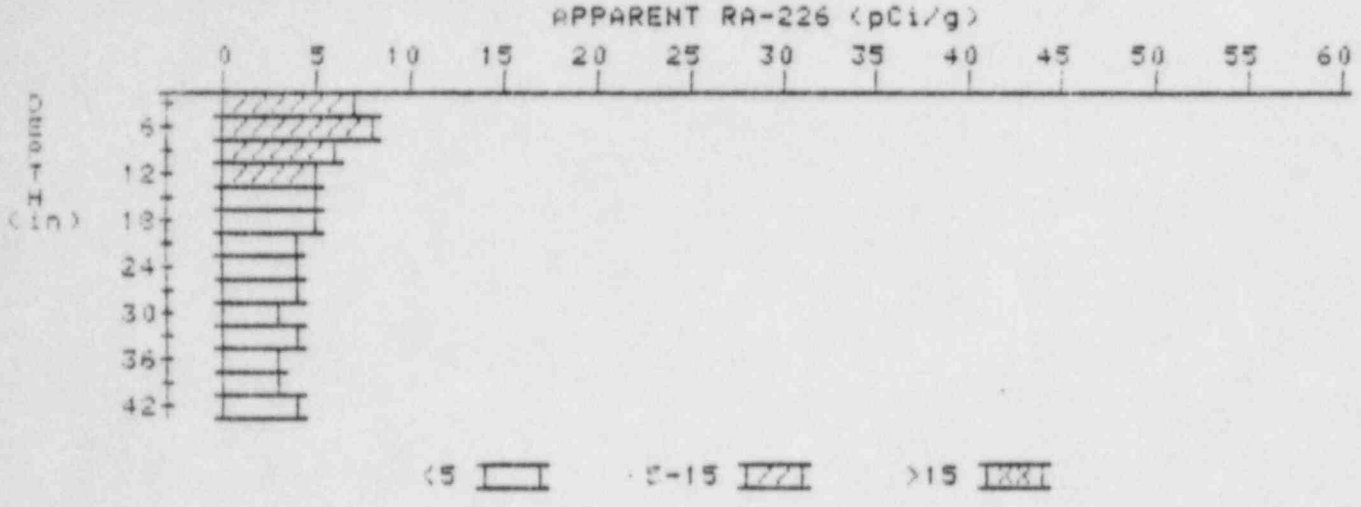


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.4	3.4
6	3.7	4.2
9	3.7	3.5
12	3.8	4.0
15	3.8	3.8
18	3.8	4.0
21	3.7	3.3
24	3.8	4.0
27	3.8	3.8
30	3.8	3.8
33	3.8	3.8

DECON V85.1(850524.0823)

APPARENT RADIUM-226 CONCENTRATION 15
DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-01205-MR
HOLE NUMBER: 15
LOCATION: 197290

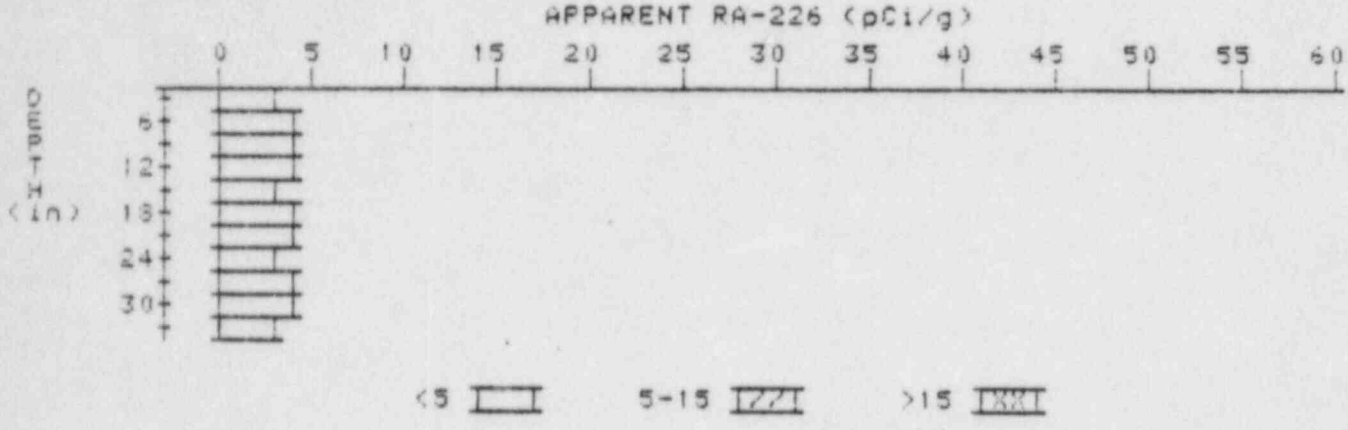


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	6.8	6.8
6	6.8	7.9
9	6.2	6.2
12	5.6	5.4
15	5.1	4.9
18	4.7	4.7
21	4.3	3.8
24	4.2	4.4
27	4.0	4.0
30	3.8	3.4
33	3.8	4.2
36	3.6	3.4
39	3.5	3.3
42	3.5	3.5

DECON V85.1(850524.0823)

APPARENT RADIUM-226 CONCENTRATION 21
DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-01205-MR
HOLE NUMBER: 21
LOCATION: 210260

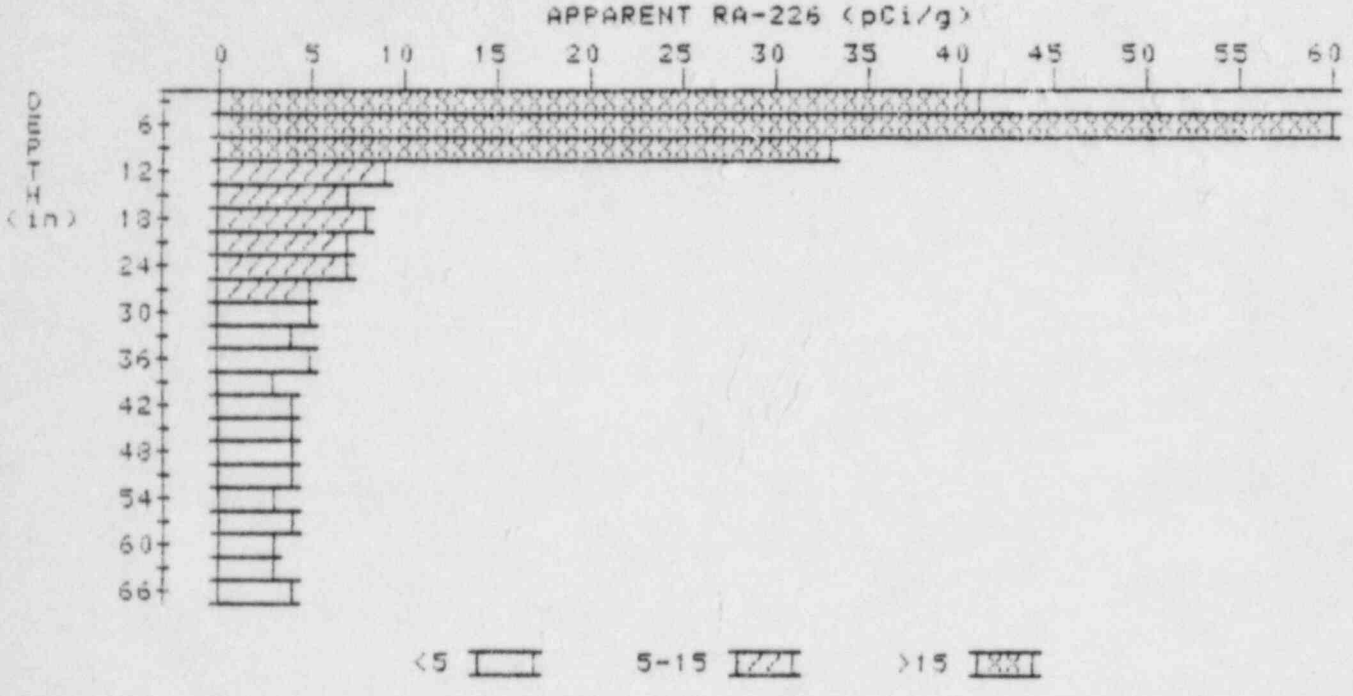


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.4	3.4
6	3.6	3.6
9	3.8	4.0
12	3.9	4.4
15	3.7	3.2
18	3.8	4.2
21	3.7	3.9
24	3.5	3.1
27	3.5	3.5
30	3.5	3.7
33	3.4	3.4

DECON V85.1(850524.0823)

APPARENT RADIUM-226 CONCENTRATION 23
DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-01205-MR
HOLE NUMBER: 23
LOCATION: 222230



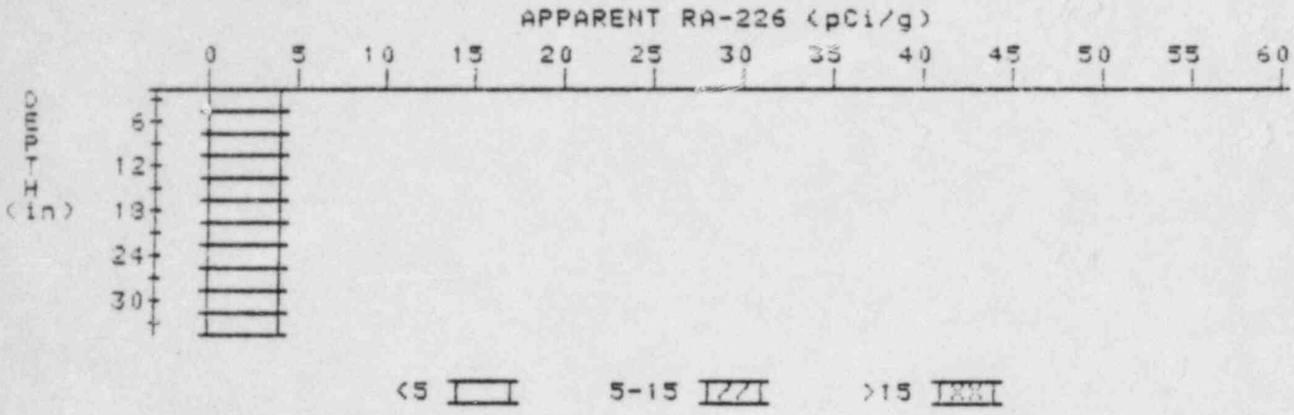
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	41.0	41.0
6	43.9	69.9
9	32.2	33.4
12	19.8	9.3
15	13.3	7.3
18	10.2	8.1
21	8.3	7.1
24	7.1	6.9
27	6.0	5.5
30	5.2	4.8
33	4.6	3.9
36	4.4	4.8
39	4.0	3.5
42	3.9	3.9
45	3.8	3.8
48	3.7	3.7

51	3.6	3.6
54	3.5	3.3
57	3.5	3.7
60	3.4	3.2
63	3.4	3.2
66	3.5	3.5

DECON V85.1(850524.0823)

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 25

PROPERTY NUMBER: GJ-01205-MR
HOLE NUMBER: 25
LOCATION: 223255

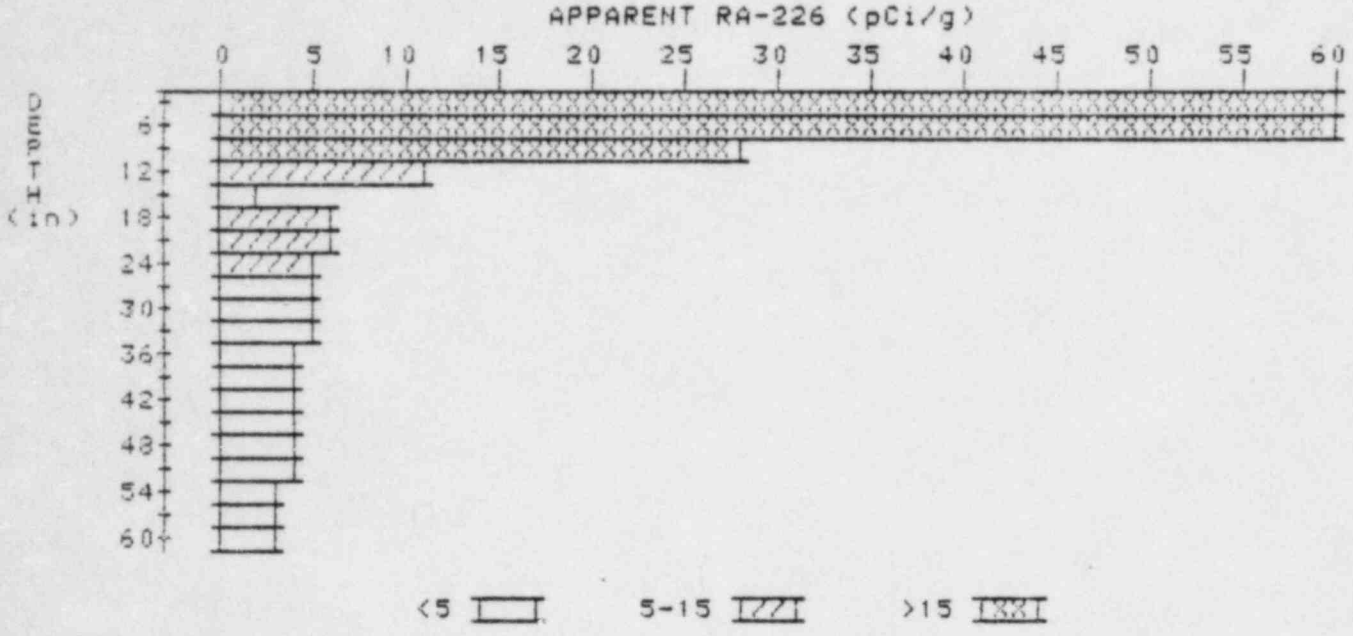


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.2	4.2
6	4.3	4.5
9	4.3	4.5
12	4.2	4.2
15	4.1	3.9
18	4.1	4.3
21	4.0	4.0
24	3.9	3.7
27	3.9	4.1
30	3.8	3.8
33	3.7	3.7

DECON V85.1(850524.0823)

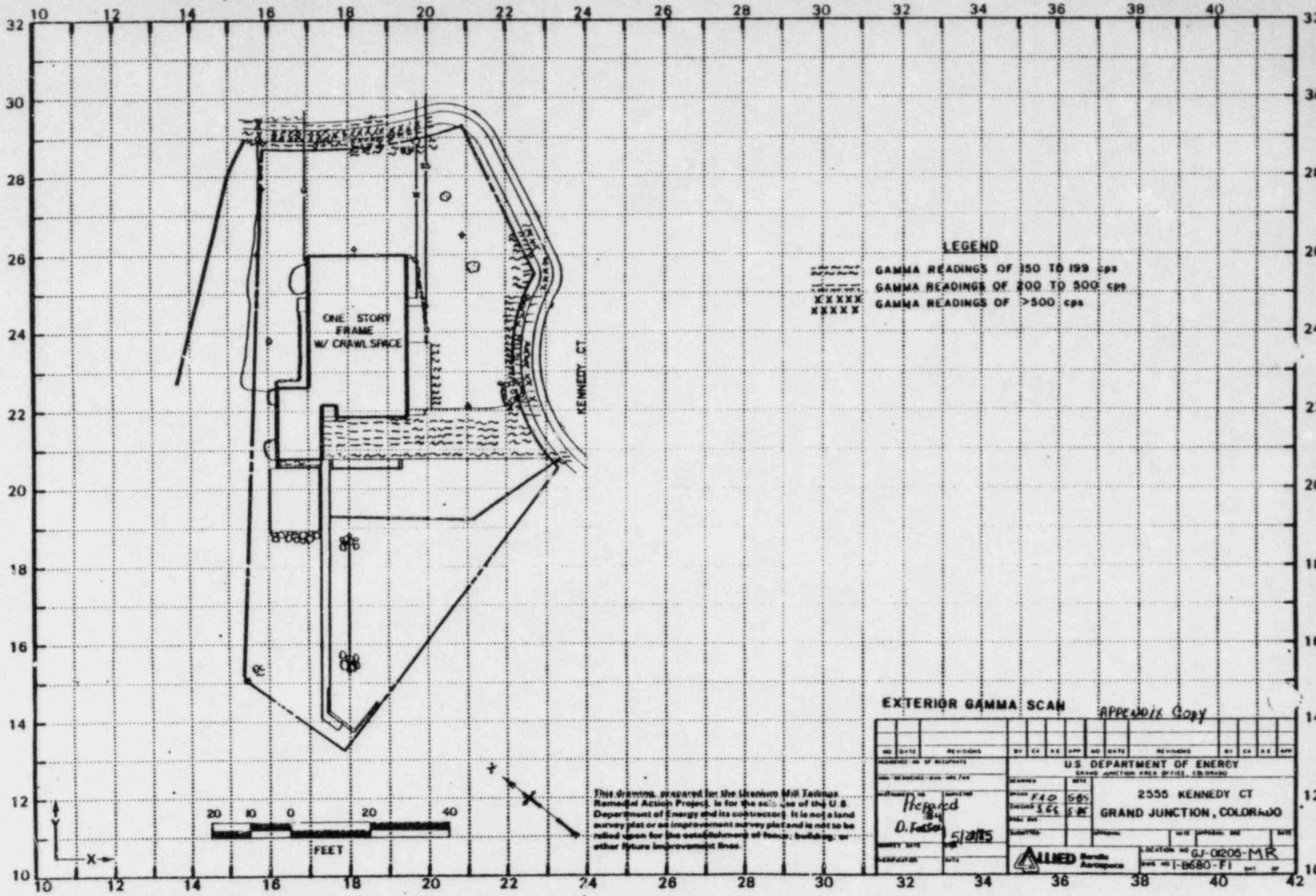
APPARENT RADIUM-226 CONCENTRATION 27
DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-01205-MR
HOLE NUMBER: 27
LOCATION: 225235



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	65.9	65.9
6	62.3	96.8
9	39.3	27.9
12	22.7	10.6
15	12.9	2.1
18	9.2	6.0
21	7.3	6.1
24	6.1	5.2
27	5.4	4.9
30	5.0	4.8
33	4.7	4.7
36	4.4	4.0
39	4.3	4.5
42	4.1	4.1
45	3.9	3.7
48	3.8	4.0
51	3.6	3.8
54	3.3	2.8

57	3.3	3.5
60	3.2	3.2



LEGEND

GAMMA READINGS OF 150 TO 199 cps

GAMMA READINGS OF 200 TO 500 cps

XXXXX
XXXXX GAMMA READINGS OF >500 cps

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.

EXTERIOR GAMMA SCAN

Appendix Copy

NO	DATE	REVISIONS	BY	CK	E.E	APP

Prepared D. Foster 5/2/85

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

2555 KENNEDY CT
GRAND JUNCTION, COLORADO

ALLIED Bendix Aerospace

LOCATION NO GJ-0206-MR

DRAWING NO I-8680-F1