RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-05975-CS
ADDRESS: 3256.5 F ROAD
CLIFTON, COLORADO

MAY 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 Michael K. Tucker for
M. TUCKER
DOE PROJECT ENGINEER

DATE August 14, 1985

REA05975:REA-KL002

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-05975-CS, is a commercial structure located at 3256.5 F Road, Clifton, Colorado.

The purpose of this assessment is to evaluate the extent of uranium millsite contamination at this property. This assessment includes recommended remedial action, estimated volume of material to be removed, and estimated cost of the proposed action.

1.2 Evaluation and Recommendation

The action recommended is the removal of contaminated material and restoration of the property to its original condition. The identified residual radioactive material found on this property is tailings; the estimated volume is: exterior, 21 cu. yd.; interior, 74 cu. yd.

Estimated cost to perform remedial action, including dislocation when applicable, is $17,640. Remedial action on this property will take approximately 60 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 3256.5 F Road, Clifton, Colorado

Zoning: Residential (R-4)

Lot Size: Approximately 5,625 sf (0.13 acre)

Legal Description: Lots 1 thru 3, Inc. Humphreys Sub, Sec 2, 1S, 1E, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 8 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:	None

Bordering Properties:

North:	Alley
South:	F Road
East:	Business
West:	Smallwood Lane

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Business
Size:	Approximately 2,550 sf
Construction Date:	Approximately 1940
Construction:	Single-story, slab-on-grade, concrete masonry-unit walls, wood-frame roof
Foundation:	Concrete stemwall and concrete spread footing
Footing Depth:	Approximately 18" to bottom of footing from grade
Basement:	None
Crawl Space:	None
Condition:	Fair; exterior stucco in need of maintenance

General Remarks: Numerous tools and automotive parts are stored inside and outside the structure. 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-05975-CS on February 5, 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 interior contamination in the east half of the building. The presence of exterior contamination was identified near the northwest and northeast corners of the building.

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: 12 to 14 uR/h
Highest Outside Gamma Reading (HOG): 25 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: 12 to 14 uR/h
Highest Inside Gamma Reading (HIG): 32 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 Figure 3.3 shows 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 3.3 and 3.4. 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 3.5a and 3.5b 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 northeast side of the building has contamination under the 4-inch-thick concrete slab. The total depth of the contamination is 18 inches (approximately 792 sf).

(AREA B) The southeast side of the building has contamination under the 4-inch-thick concrete slab. The total depth of the contamination is 15 inches (approximately 616 sf).

(AREA C) Contamination exists under the 4-inch-thick concrete ramps on the south side of the building. The total depth of the contamination is 15 inches (approximately 20 sf).

(AREA D) The soil on the west side of the building is contaminated to a depth of 12 inches (approximately 120 sf).

(AREA E) There is contamination to a depth of 9 inches near the northwest corner of the building (approximately 136 sf).

(AREA F) There is contamination to a depth of 9 inches on the north side of the building (approximately 335 sf).

(AREA G) There are small deposits of contamination present north of the building. The depth of contamination in these areas is 6 inches (approximately 72 sf).

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-05975-CS, includes removal of all areas identified as containing radioactive material (as discussed in Section 3.5 and shown in Appendix Figures 3.5a and 3.5b) 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 be required for this remedial action. Dislocation cost estimates are presented in Appendix Table 4.3. The owner will dislocate all items from the remedial action area. A temporary storage facility is required. The owner shall have 7 days to move the items out and 7 days to move the items back. Dislocation costs, labor, and rent of a temporary storage facility are to be paid by Bendix.

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 $15,150.
Estimated cost of dislocation is $2,490.

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

No legal or other complications are foreseen at this time. The property now has a single owner.

Owner preference is to start remedial action after July 31, 1985.

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
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Appendix Figures:

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Figure 2.2	Site Plan
Figure 3.1	Exterior Grid-Point Exposure Rates
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Figure 3.4	Exterior Sample Locations
Figure 3.5a	Interior Estimated Extent of Contamination
Figure 3.5b	Exterior Estimated Extent of Contamination

Official Survey Report
Memo of Understanding
Team Leader Notes
Deconvolution Graphs (Apparent Radium-226 Concentration)

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
5	155255	03	TC	6.2		*	Near water meter
		06	TC	8.9		*	pit
		09	TC	8.8		*	
		12	TC	6.4		*	
		15	TC	4.8		*	
		18	TC	4.0		*	
		21	TC	3.7		*	
		24	TC	3.6		*	DC = 12 inches
		27	TC	3.5		*	Based on the
		30	TC	3.5		*	deconvolution graph
		33	TC	3.4		*	
		36	TC	3.3		*	
		39	TC	3.3		*	
		42	TC	3.2		*	
		45	TC	3.2		*	
		48	TC	3.2		*	
		51	TC	3.2		*	
		54	TC	3.2		*	
		57	TC	3.3		*	
		60	TC	3.3		*	
		63	TC	3.4		*	
		66	TC	3.5		*	
		69	TC	3.5		*	
6	160257	00	DS	1.8		*	West side of bldg.
		06	DS	<1.0		*	DC = 6 inches
7	163273	03	TC	7.1		*	NW corner of bldg
		06	BH	6.3	3.4	*	
		09	TC	5.0		*	
		12	BH	4.1	1.1	*	
		15	TC	3.8		*	
		18	TC	3.7		*	DC = 9 inches
		21	TC	3.7		*	Based on the
		24	TC	3.6		*	deconvolution graph
		27	TC	3.7		*	
		30	BH	3.6	1.2	*	
		33	TC	3.5		*	
		36	TC	3.6		*	
		39	TC	3.5		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
8	188271	03	TC	4.3		*	Near sewer lines
		06	TC	4.3		*	
		09	TC	4.1		*	
		12	TC	3.9		*	DC = 0 inches
		15	TC	3.8		*	
		18	TC	3.7		*	
		21	TC	3.6		*	
		24	TC	3.5		*	
		27	TC	3.4		*	
9	191233	03	TC	3.2		*	Near water line
		06	TC	3.4		*	
		09	TC	3.5		*	
		12	TC	3.4		*	
		15	TC	3.4		*	
		18	TC	3.4		*	
		21	TC	3.4		*	
		24	TC	3.4		*	
		27	TC	3.3		*	
		30	TC	3.3		*	
		33	TC	3.4		*	DC = 0 inches
		36	TC	3.4		*	
		39	TC	3.4		*	
		42	TC	3.5		*	
		45	TC	3.5		*	
		48	TC	3.4		*	
		51	TC	3.5		*	
		54	TC	3.5		*	
		57	TC	3.6		*	
10	207235	00	DS	<1.0		*	
11	207273	03	TC	9.4		*	North of building
		06	TC	7.6		*	
		09	TC	5.8		*	
		12	TC	4.8		*	
		15	TC	4.0		*	DC = 9 inches
		18	TC	3.8		*	Based on the
		21	TC	3.7		*	deconvolution graph
		24	TC	3.6		*	
		27	TC	3.5		*	
		30	TC	3.5		*	
		33	TC	3.6		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
12	214236	00	DS	2.6		*	On concrete ramp
13	220236	00	DS	3.3		*	On concrete ramp
14	220283	03	TC	6.4		*	North of building
		06	TC	5.0		*	
		09	TC	4.2		*	
		12	TC	3.8		*	
		15	TC	3.6		*	DC = 6 inches
		18	TC	3.5		*	Based on the
		21	TC	3.5		*	deconvolution graph
		24	TC	3.4		*	
		27	TC	3.5		*	
		30	TC	3.4		*	
		33	TC	3.3		*	
15	220292	03	TC	5.2		*	North of building
		06	TC	4.2		*	
		09	TC	3.8		*	
		12	TC	3.6		*	
		15	TC	3.5		*	DC = 6 inches
		18	TC	3.4		*	Based on the
		21	TC	3.4		*	deconvolution graph
		24	TC	3.4		*	
		27	TC	3.3		*	
		30	TC	3.3		*	
16	230300	00	DS	<1.0		*	Background
		00-06	SS			2.1	
		03	TC	3.0		*	
		06	TC	3.2		*	
		09	TC	3.2		*	DC = 0 inches
		12	BH	3.2	1.6	*	
		15	TC	3.3		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
16	230300	18	BH	3.3	<1.0	*	
		21	TC	3.3		*	
		24	TC	3.4		*	
		27	TC	3.4		*	
		30	TC	3.4		*	
		33	TC	3.5		*	

Tool 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

Date of Survey = 02-05-85
Team Leader = R2

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
1		00	DS	14.5		*	
		00-04	SS			1.6	Concrete core
		04-10	SS			212.0	Soil under core
		03	TC	19.3		*	
		06	TC	36.6		*	
		09	TC	60.1		*	
		12	BH	58.2	18.5	*	
		15	TC	35.5		*	
		18	BH	20.4	7.3	*	
		21	TC	13.2		*	
		24	BH	9.5	5.0	*	
		27	TC	7.6		*	DC = 18 inches
		30	TC	6.6		*	Based on the
		33	TC	6.0		*	deconvolution graph
		36	BH	5.6	2.4	*	
		39	TC	5.1		*	
		42	TC	4.5		*	
		45	TC	4.1		*	
		48	TC	3.8		*	
		51	TC	3.9		*	
		54	TC	3.6		*	
		57	TC	3.7		*	
		60	TC	3.7		*	
2		00	DS	8.3		*	
		00-04	SS			2.0	Concrete core
		04-10	SS			36.2	Soil under core
		03	TC	10.5		*	
		06	TC	17.8		*	
		09	TC	19.3		*	
		12	TC	13.0		*	
		15	TC	8.8		*	DC = 15 inches
		18	TC	6.5		*	Based on the
		21	TC	5.3		*	deconvolution graph
		24	TC	4.7		*	
		27	TC	4.3		*	
		30	TC	4.1		*	
		33	TC	4.1		*	
3		00	DS	7.8		*	

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
4		00	DS	<1.0		*	
		00-04	SS			1.9	Concrete core
		04-10	SS			4.2	Soil under core
		03	TC	2.8		*	
		06	TC	3.1		*	
		09	TC	3.3		*	
		12	TC	3.4		*	
		15	TC	3.5		*	DC = 0 inches
		18	TC	3.4		*	
		21	TC	3.5		*	
		24	TC	3.4		*	
		27	TC	3.3		*	
		30	TC	3.3		*	
		33	TC	3.3		*	
		36	TC	3.3		*	

Tool 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

Date of Survey = 02-05-85
Team Leader = R2

Table 3.3
Summary of Interior Gamma Exposure Rates

DOE ID No. GJ-05975-CS 3256 1/2 F Road

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)
ROOM A	01	14-14	14	01	14-14	14
ROOM B	03	12-14	13	02	13-14	14
ROOM C	24	12-26	19	24	12-32	22
ROOM D	06	11-12	12	06	11-13	12
ROOM E	06	11-14	13	06	11-15	13
ROOM F	03	12-13	13	03	12-15	14
ROOM G	03	11-12	12	03	11-12	12

*Exposure Rates and Room Locations Shown in Appendix Figure 3.3

Table 4.1
Contaminated Material Calculations
DOE ID No. GJ-05975-CS

AREA	CALCULATIONS(ft)	SF	DEPTH(ft)	CF	CUBIC YARDS
INTERIOR					
	Concrete				
A	44 x 18 =	792	x 0.3 =	238	
B	44 x 14 =	616	x 0.3 =	185	
	Volume of Concrete		=	423 = 423/37 =	16
	Contaminated Fill				
A	44 x 18 =	792	x 1.2 =	950	
B	44 x 14 =	616	x 1.0 =	616	
	Volume of Fill		=	1,566 = 1,566/27 =	58
	TOTAL VOLUME INTERIOR				74
EXTERIOR					
	Concrete				
C	10 x 3 =	30			
	10 x 3 =	30			
		60	x 0.3 =	18	
	Volume of Concrete		=	18 = 18/27 =	1
	Contaminated Fill				
C	10 x 1 =	10			
	10 x 1 =	10			
		20	x 1.0 =	20	
D	20 x 6 =	120	x 1.0 =	120	
E	24 x 5 =	120			
	4 x 4 =	16			
		136	x 0.8 =	109	

Table 4.1
Contaminated Material Calculations
DOE ID No. GJ-05975-CS

AREA	CALCULATIONS(ft)				SF	DEPTH(ft)			CF			CUBIC YARDS
F	3	x	4	=	12							
	2	x	6	=	12							
	8	x	8	=	64							
	6	x	12	=	72							
	8	x	4	=	32							
	6	x	4	=	24							
	14	x	7	=	98							
	7	x	3	=	21							
					335	x	0.8	=	268			
G	4	x	6	=	24							
	10	x	4	=	40							
	2	x	4	=	8							
					72	x	0.5	=	36			
	Volume of Fill							=	553	=	553/27	= 20
	TOTAL VOLUME - EXTERIOR											= 21
	TOTAL VOLUME - INTERIOR											= 74

See Appendix Figures 3.5a and 3.5b For Areas

Table 4.2
Estimated Cost of Decontamination and Restoration
DOE ID No. GJ-05975-CS

EXTERIOR		
Remove identified residual radioactive material 20 cy @ $14.50/cy (exterior - machine)	$	290
Remove 4" exterior concrete slab 60 sf @ $1.48/sf		89
Replace areas of involvement with compacted roadbase 20 cy @ $11.50/cy		230
Replace 4" concrete slab 60 sf @ $1.50/sf		90
TOTAL EXTERIOR	$	699
INTERIOR		
Remove identified residual radioactive material 58 cy @ $ 18.50/cy	$	1,073
Remove 4" interior concrete slab 1,408 sf @ $2.00/sf		2,816
Replace areas of involvement with 3/4" washed rock 49 cy @ $13.50/cy		662
Replace areas of involvement with 2" sandbed 9 cy @ $10.00/cy		90
Replace 4" concrete slab 1,408 sf @ $2.00/sf		2,816
Reconstruct 4' section of trench drain (allowance)		175
Plumbing repairs (allowance)		350
Place 4" radon vent system 146 lf @ $2.50/lf		365
Clean-up (allowance)		400
TOTAL INTERIOR	$	8,747

Table 4.2
Estimated Cost of Decontamination and Restoration
DOE ID No. GJ-05975-CS

TOTAL EXTERIOR	$ 699
TOTAL INTERIOR	8,747
ACCESS CONTROL	250
SUBTOTAL	$ 9,696
CONTINGENCY @ 25%	2,424
SUBTOTAL	$ 12,120
CONTRACTOR OVERHEAD & PROFIT @ 25%	3,030
GRAND TOTAL	$ 15,150

ARIX/5/85
REA05975/REA-KL002

Table 4.3
DISLOCATION ESTIMATED COST SUMMARY
(Commercial)

DOE ID No. : GJ-05975-CS
Address : 3256.5 F Road, Clifton, Colorado

Duration of Dislocation	: Construction Schedule 1 1/2 months. Move out and move back 1/2 month. Total: 2 months.			
Building Rental Cost	: None		TOTAL	$ 0
Building Modification Costs	: None		TOTAL	$ 0
Utility Cost	: None		TOTAL	$ 0
Telephone Transfer Cost	: None		TOTAL	$ 0
Moving Expenses	: Inventory 2 Man days @ $10/hr.	$160		
	Mechanics Instruments Labor 2 Man days @ $10/hr.	160		
	Packing	150		
	Machinist's Lathe Disassembly, Moving, and re-establishment 2 Man days @ $44/hr.	705		
	Fork Lift	100		
	Flat bed truck	50		
	Skids and rollers	75		
	Leveling by qualified machinist	100		
	Heavy material moving engines, frames, and bodies	200		
	Light moving 4 Man days @ $10/hr.	320		
	Vehicle costs	200		
	Miscllaneous packing	180		
			TOTAL	2,400

Storage Cost	: Itemized as follows: Cost per month $45 x 2 months.		
		TOTAL	$ 90
Advertising Expenses	: None		
		TOTAL	$ 0
Special Dislocation Items	: None		
		TOTAL	$ 0
	ESTIMATED TOTAL COST FOR DISLOCATION		$ 2,490

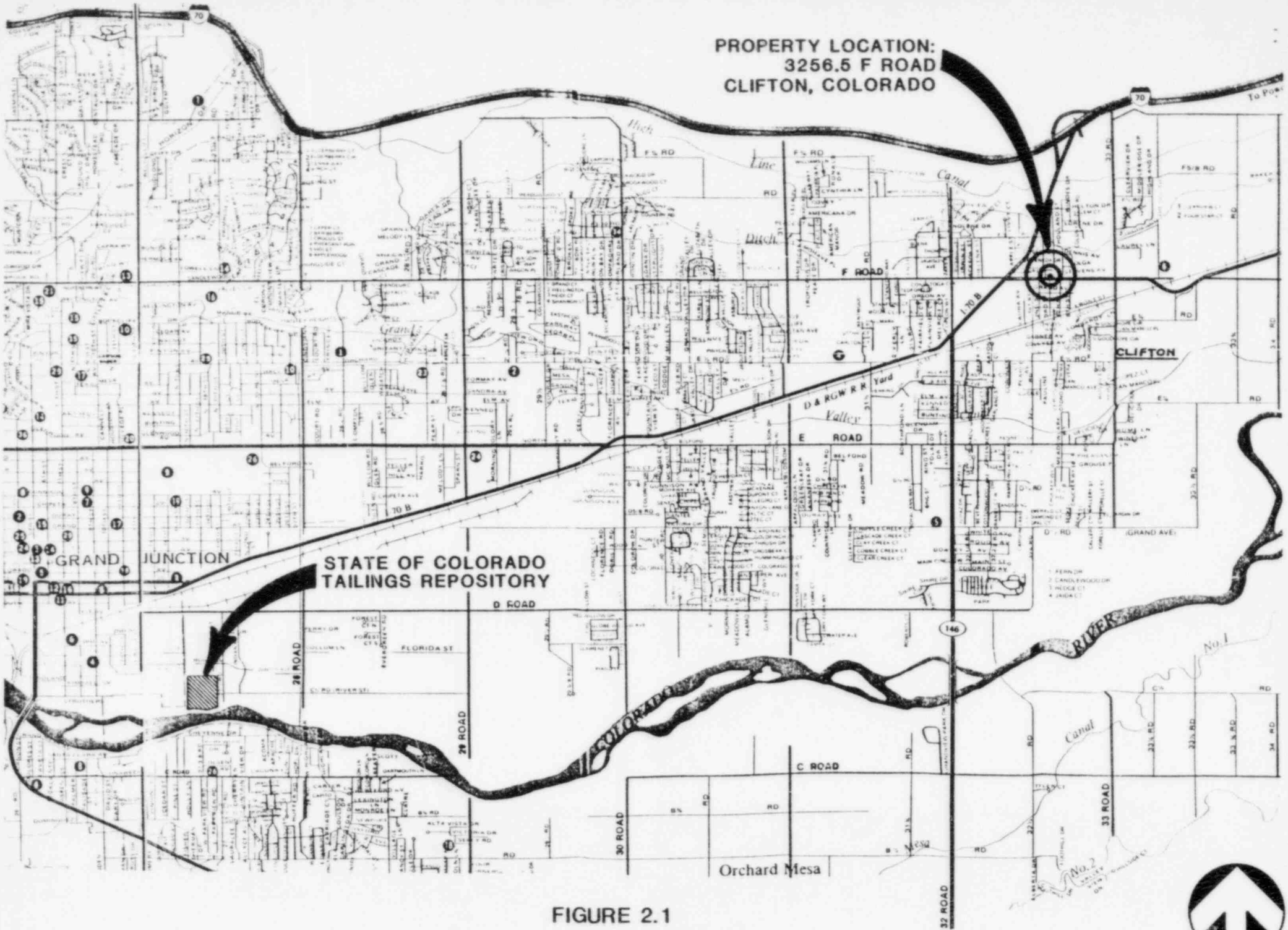
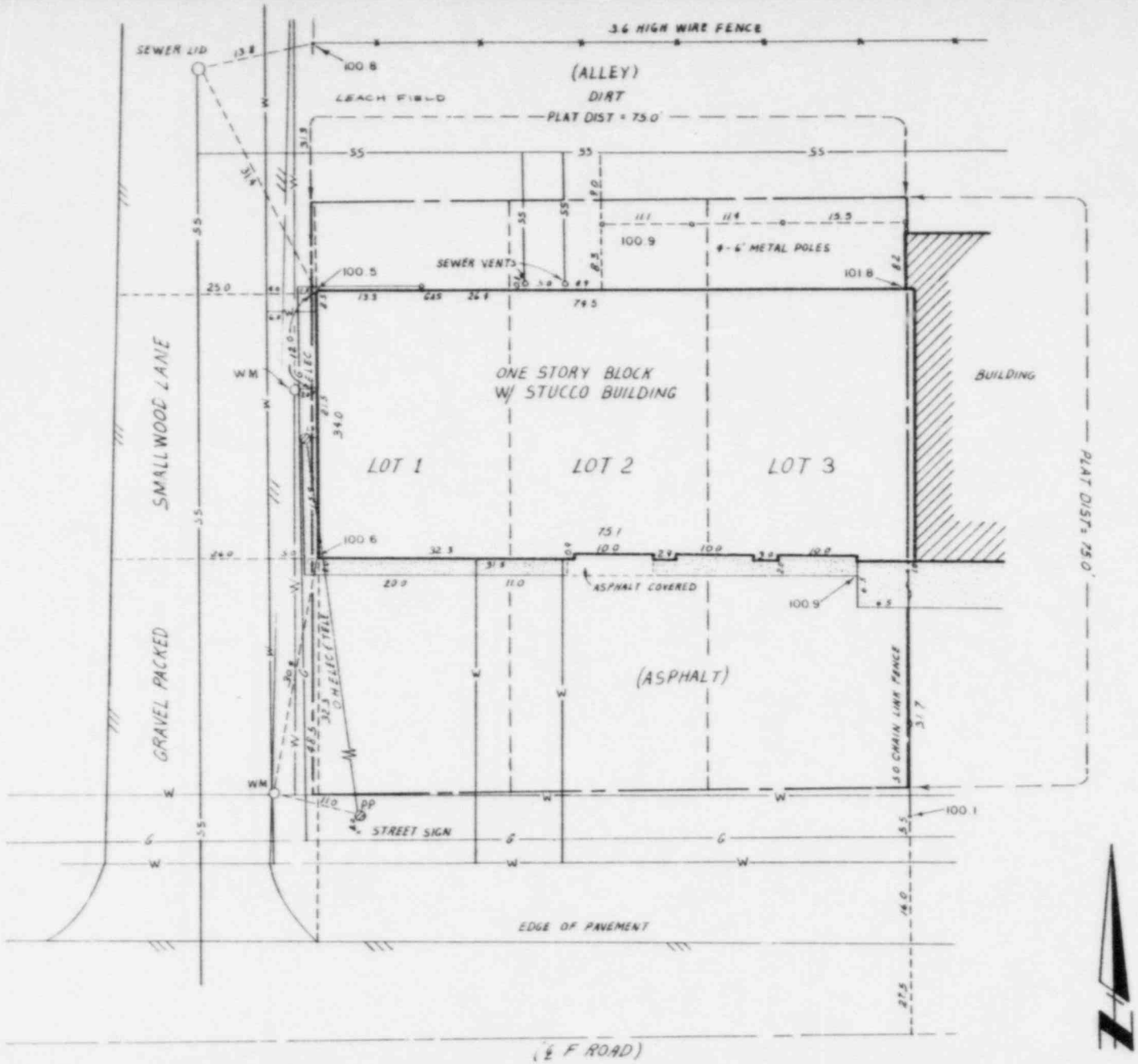


FIGURE 2.1

GRAND JUNCTION VICINITY MAP



LOTS 1, THRU 3, INC HUMPHREYS SUB, SEC 2, 1S, 1E.

10' 5' 0 10' 20'

SCALE IN FEET

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 AREA OFFICE, COLORADO	LOCATION NO. GJ05975CS
ADDRESS 32565 F ROAD CLIFTON COLORADO	Rocky Mountain Field Engineering Corporation
OWNER	TELE. 434-5507
TENENT	TELE.
SURV. R.L.B 1-11-85 DRAFT. J.R.G 11-85	CK
DRAWING NO. 3-C498-F1	SHEET 1 OF 1

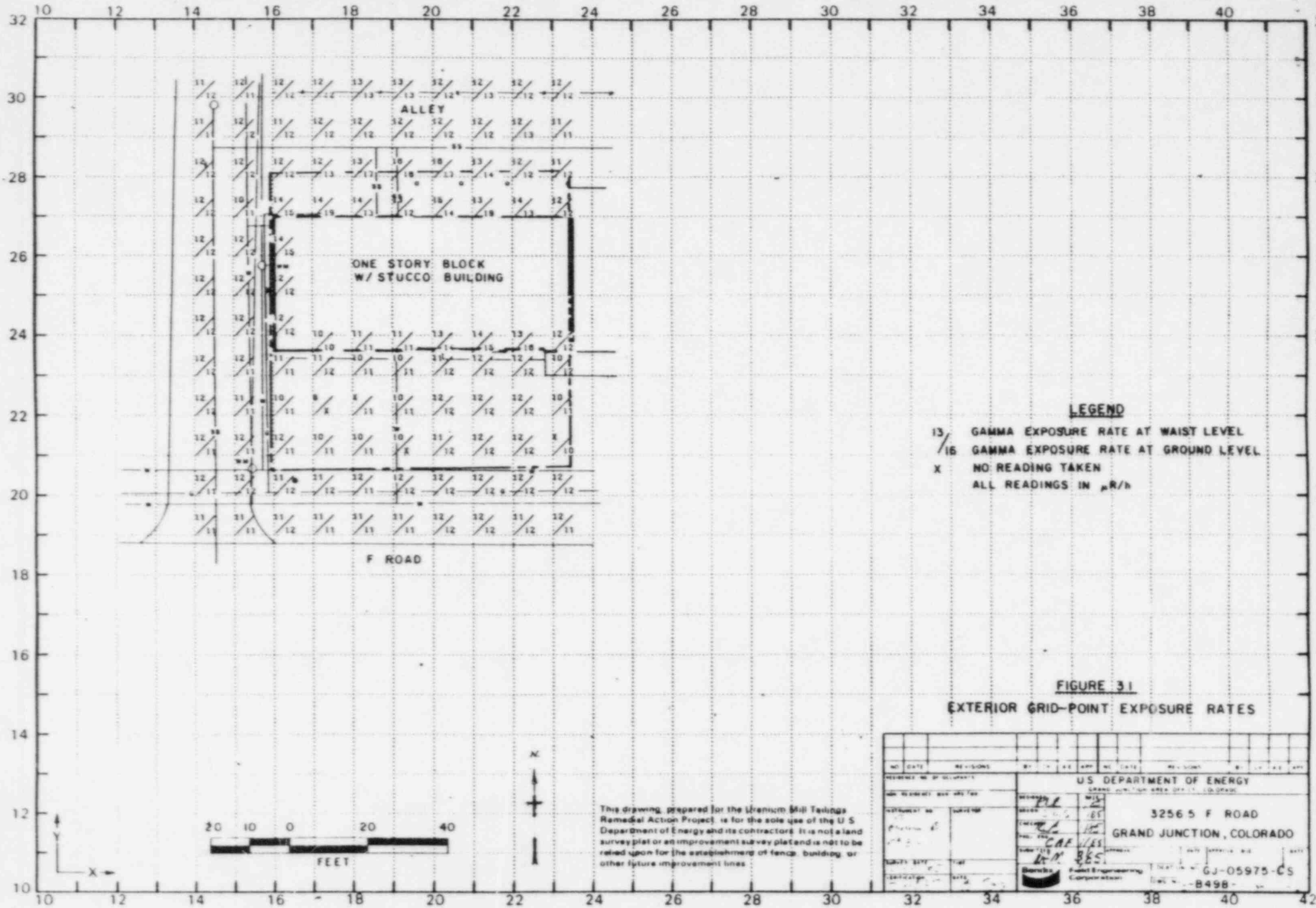


FIGURE 31

EXTERIOR GRID-POINT EXPOSURE RATES

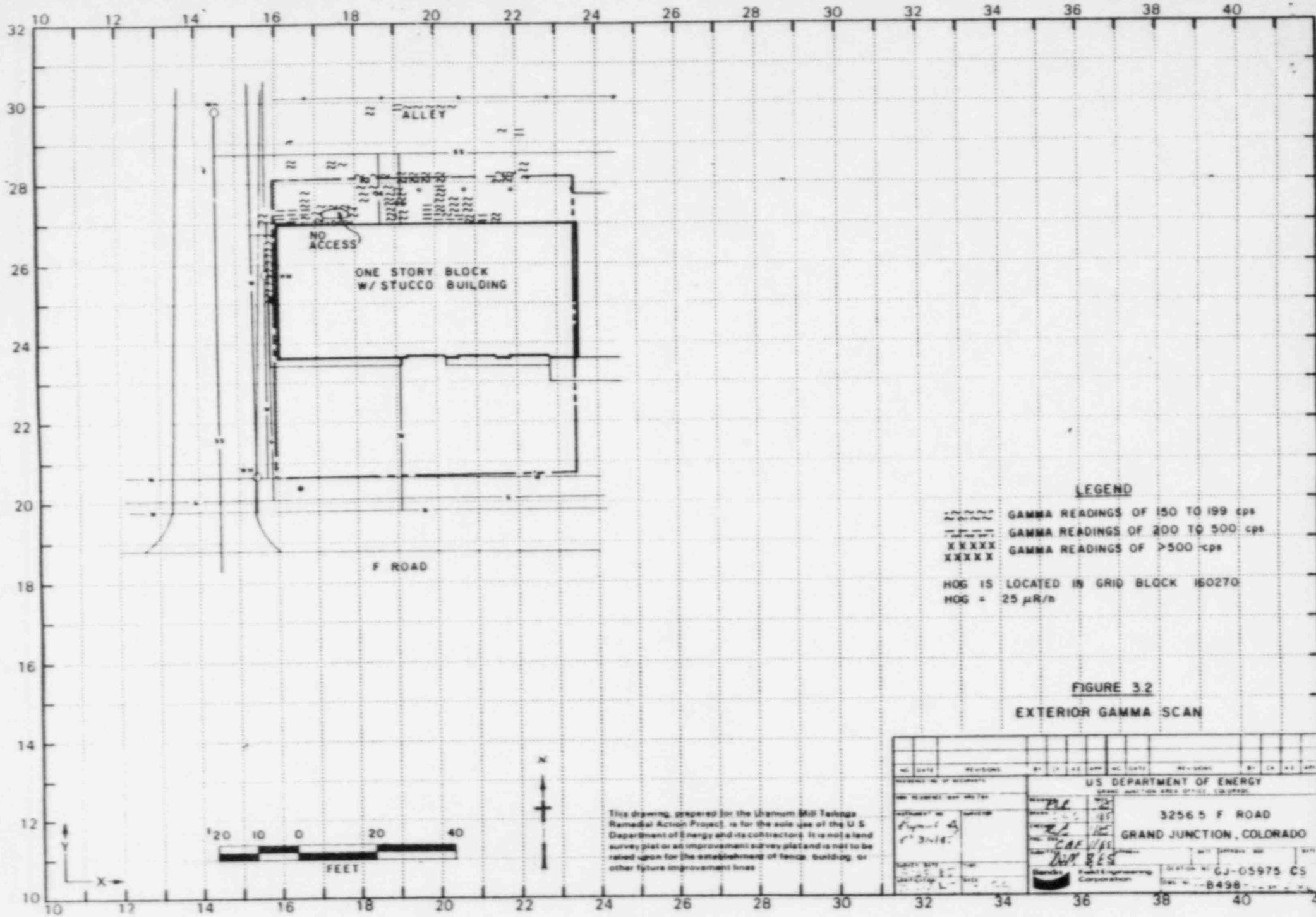


FIGURE 3.2

EXTERIOR GAMMA SCAN

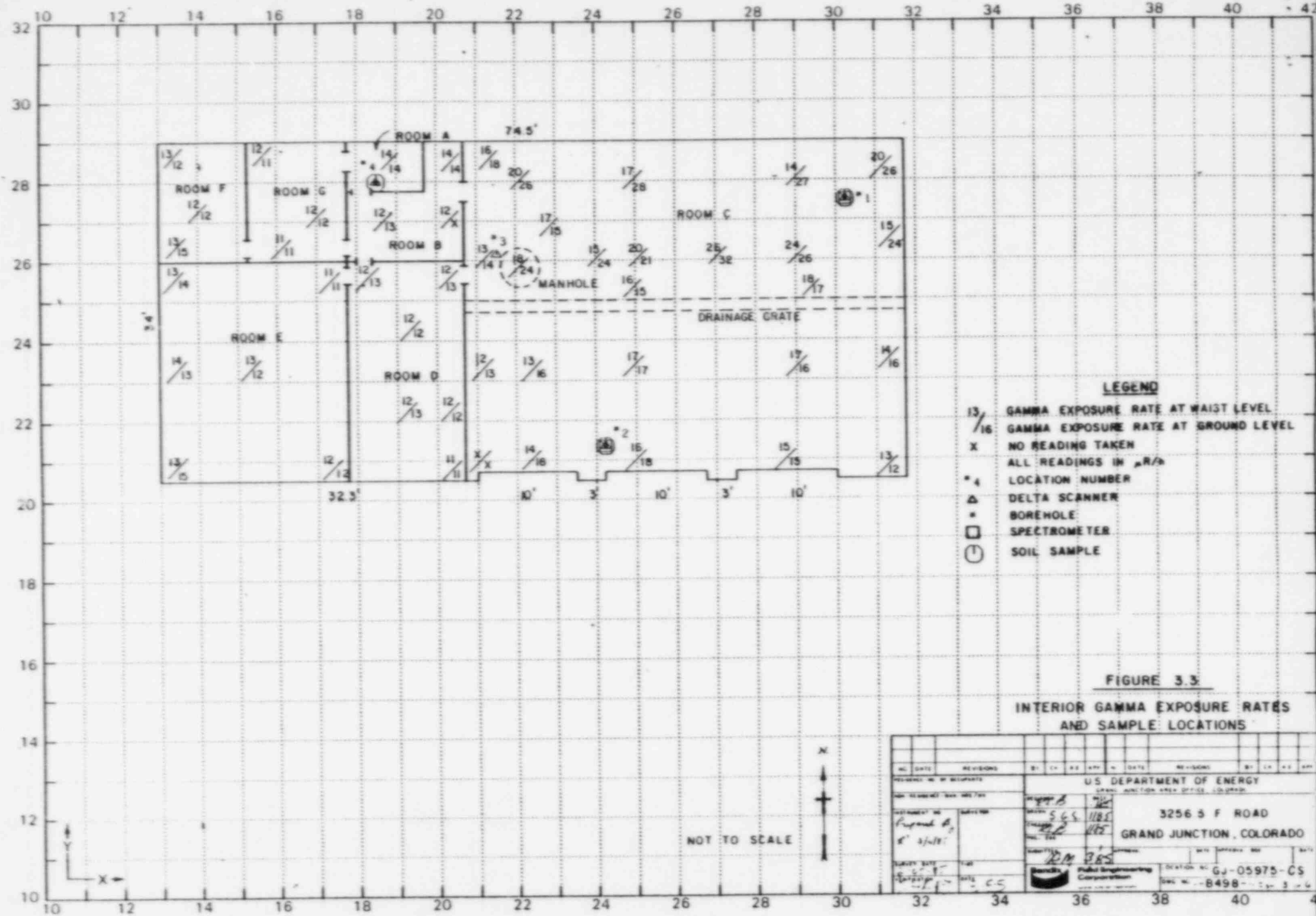


FIGURE 3.3

INTERIOR GAMMA EXPOSURE RATES AND SAMPLE LOCATIONS

U.S. DEPARTMENT OF ENERGY

3256 S F ROAD
GRAND JUNCTION, COLORADO

GJ-05975-CS

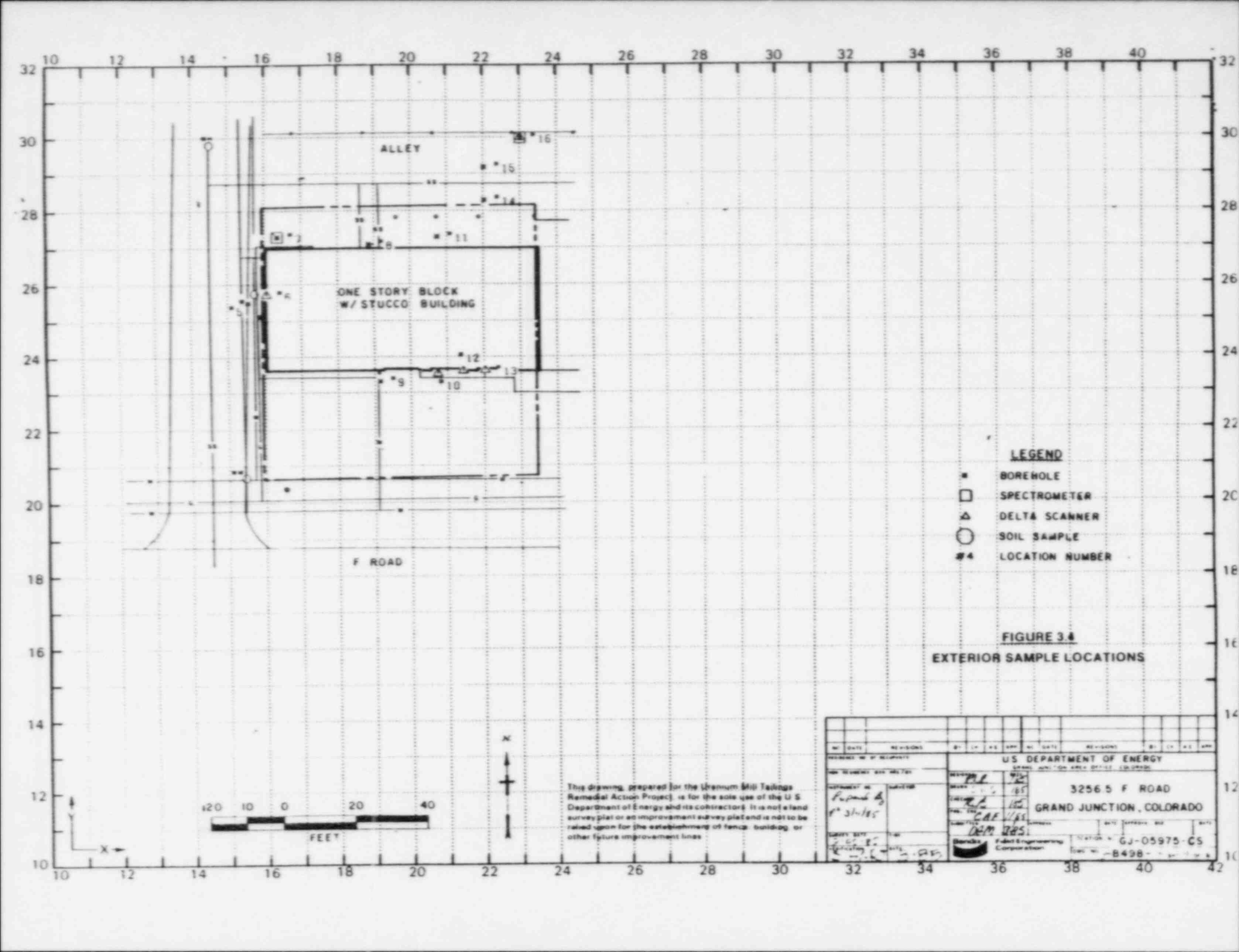


FIGURE 3.4

EXTERIOR SAMPLE LOCATIONS

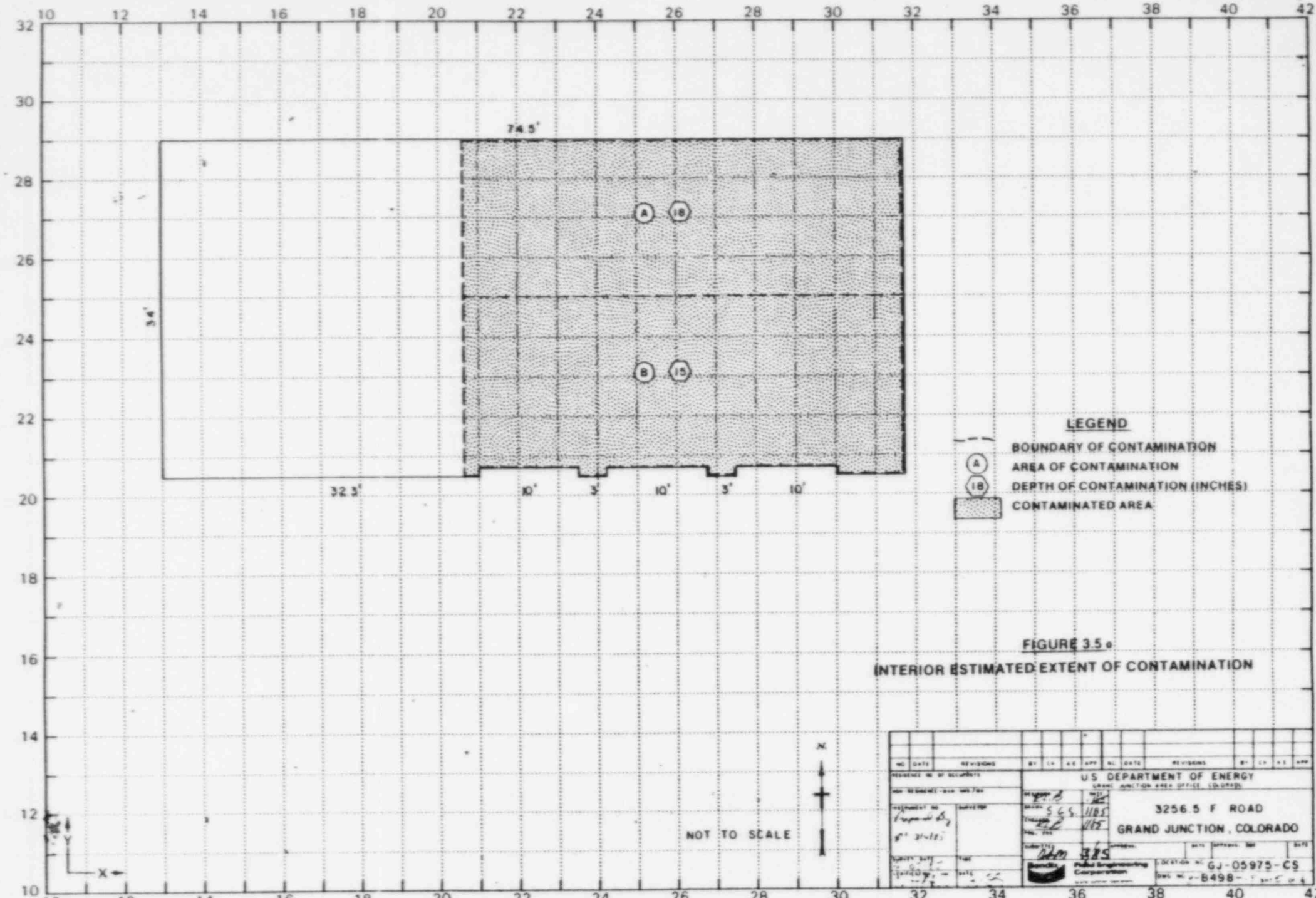


FIGURE 3.5 e

INTERIOR ESTIMATED EXTENT OF CONTAMINATION

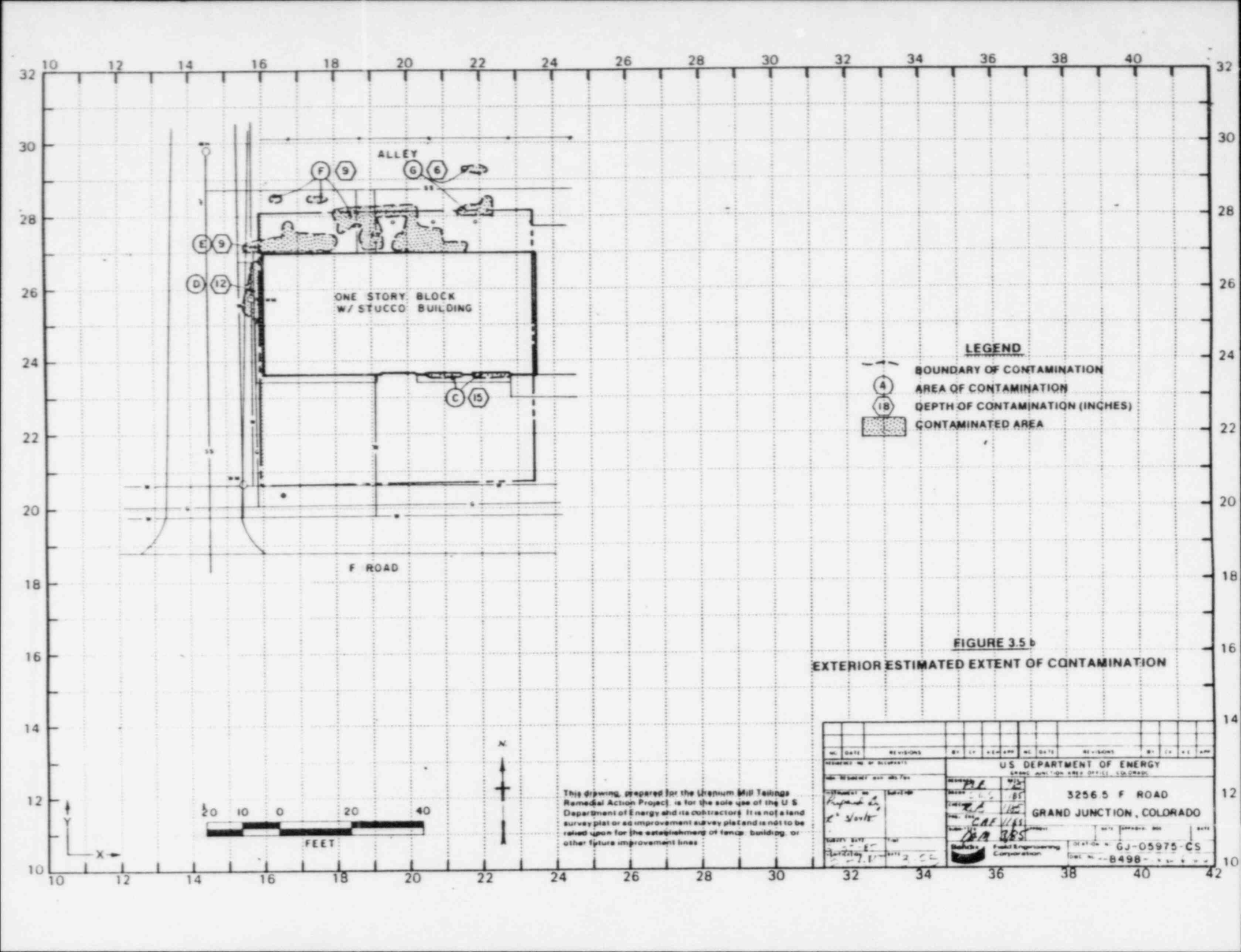


FIGURE 3.5 b

EXTERIOR ESTIMATED EXTENT OF CONTAMINATION

3/85

DOE ID NO. GJ-05975-cS Date March 26, 1985

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

Official Survey Report

Property Address 3256.5 F Road

Property Owner Richard L. and Vera L. Pifer

Address of Owner (if different from above) 609 33 Road

Report Prepared By R. Ryan

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

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

1 XXX 1 Residual ractioactive materials found at the following locations:

1 ___ 1 In open areas.

1 ___ 1 Under or around exterior improvements.

1 XXX 1 Under or around a typically nonoccupied structure.

1 ___ 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 XXX 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 = 32 uR/h
HOG = 25 uR/h

* Richard Pifer has informed Bendix that Vera L. Pifer is no longer joint owner of this property.

Bendix

Field Engineering Corporation

March 26, 1985

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

ATTN: Elaine Brummett

Dear Elaine:

This letter is in follow-up of the Technical Review on property number GJ-05975-CS (3256.5 'F' Road).

The areas that require additional field work or comments are as follows:

1. This building is not being used as a residence. The east side is being used as a mechanic garage and the west side is being used mainly for storage at the present time.

2. It is not known if the west side is an addition or not. There is no visual indication of this.

3. The southeast quadrant of the building was changed from a depth of 18-inches to 15-inches on the Extent of Contamination map, Figure 3.5a.

4. The delta reading on the west side of the building was not contaminated, however, elevated gamma readings were found along the west side and a borehole on the west side showed contamination to a depth of 12-inches. In the process of selecting the sample location for the delta a 'clean' spot was probably selected.

5. When this property was investigated, all of the ground was frozen and depth deltas were difficult. The contamination north of the building was shallow, so the adjacent small deposit depths were based on known depths, based on borehole logs.

Bendix

6. Our procedures are to only report the contamination to the center of the alley. Since the contamination is not continuous across the center of the alley, the two small areas on the north side of the alley will be erased on this map.

7. I do not know the address of the residence north of the alley. The contamination was not continuous across the property line, so the property north of the alley was not further investigated.

Thank you for you time and cooperation. If you have any additional questions or comments, please contact me at 242-8621, extension 298.

Sincerely,

Rick M. Ryan

Rick Ryan
RSD Tech Team Leader

RR:pr

INTERNAL
MEMORANDUM

Bendix Field Engineering Corporation
Grand Junction Projects Office (GJPO)

Date: February 5, 1985

To: Files

From: Rick Ryan

Subject: Team Leader Notes, GJ-05975-CS

Weather: Cold, Sunny
Occupancy: 0

Team Members

B. Vialpando	P. Tuhey	I. Caley
V. Young	C. Adams	J. Garcia
S. Milton	R. Ryan - TL	M. Duran

The owner was not able to be present during the survey so his mother was present.

Contamination was found inside the east portion of the building. This side of the building is used as a mechanics garage. Two cores and augers were taken in this side of the building. The west side of the building showed no elevated gamma readings, another core and auger will be placed here to confirm the absence of contamination.

Contamination was found north of the building which extended north to and including the alley. Also, elevated readings were found near the west side of the building.

The water line on the south side of the building was investigated with a borehole.

The water line and gas line on the west side of the building was investigated with an auger.

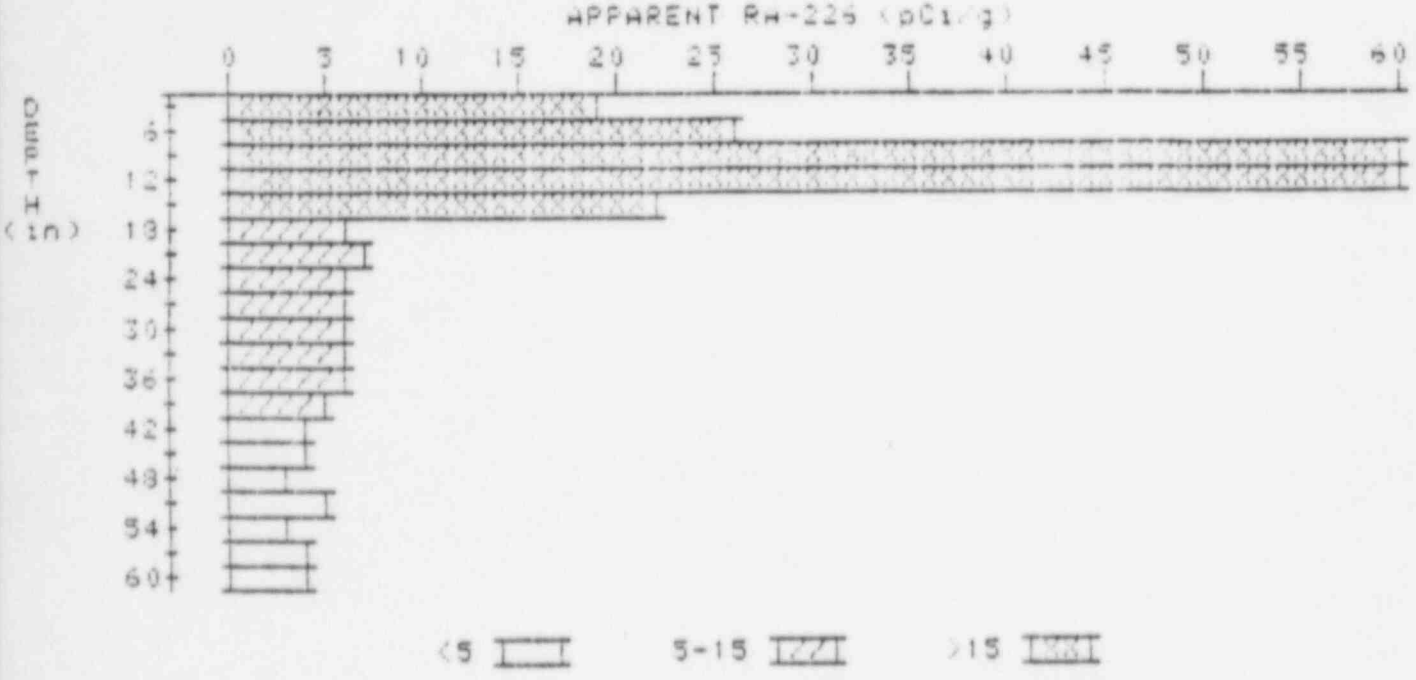
The sewer lines on the north side of the building were investigated with an auger.

Elevated gamma readings were noted on the concrete ramps on the south side of the building. This appears to be continuations of the interior contamination and the elevated readings were located at the building indentions for the garage doors.

All Team Members were frisked before leaving the site.

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-05975-C1
HOLE NUMBER: 1
LOCATION:

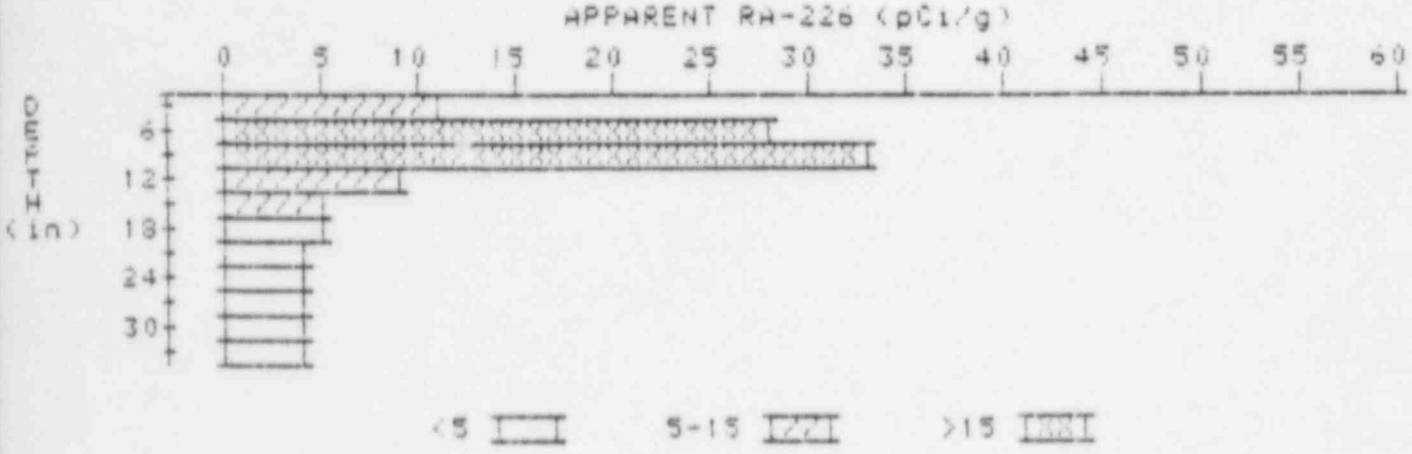


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	19.3	19.3
6	36.6	25.6
9	60.1	105.3
12	58.2	95.2
15	35.5	22.0
18	20.4	6.4
21	13.2	7.0
24	9.5	6.3
27	7.6	6.0
30	6.6	5.9
33	6.0	5.6
36	5.6	5.3
39	5.1	5.3
42	4.5	4.1
45	4.1	3.9
48	3.8	3.1
51	3.9	4.6
54	3.6	2.9

"	"	57	3.7	3.9
		60	3.7	3.7

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

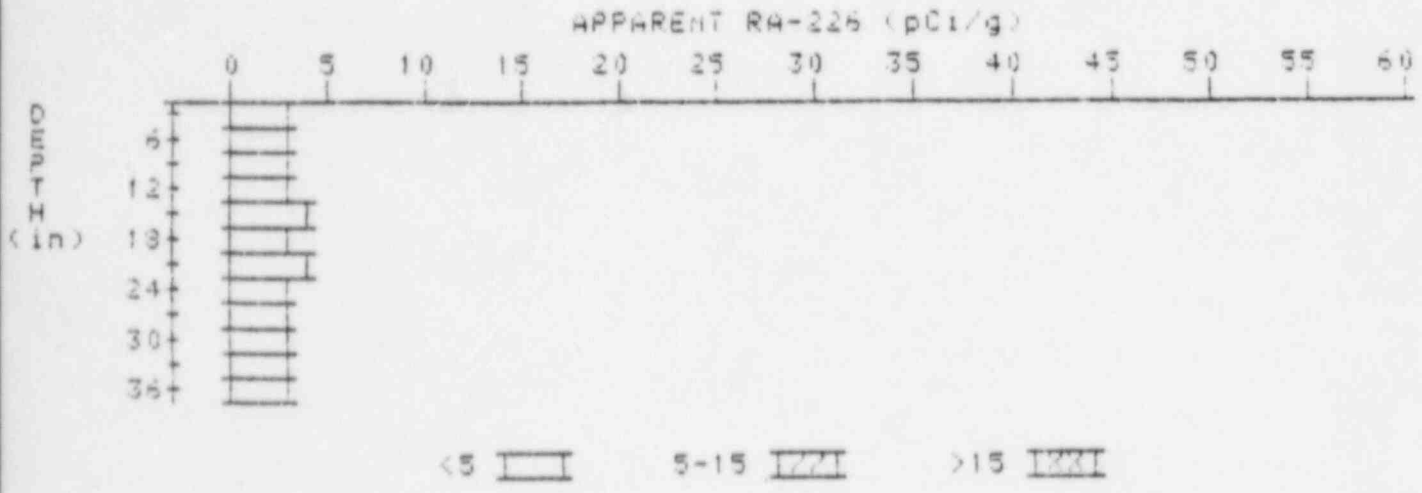
PROPERTY NUMBER: GJ-03975-C6
HOLE NUMBER: 2
LOCATION:



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	10.5	10.5
6	17.8	28.1
9	19.3	33.2
12	13.0	9.3
15	8.8	5.4
18	6.5	4.5
21	5.3	4.2
24	4.7	4.3
27	4.3	3.9
30	4.1	3.7
33	4.1	4.1

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

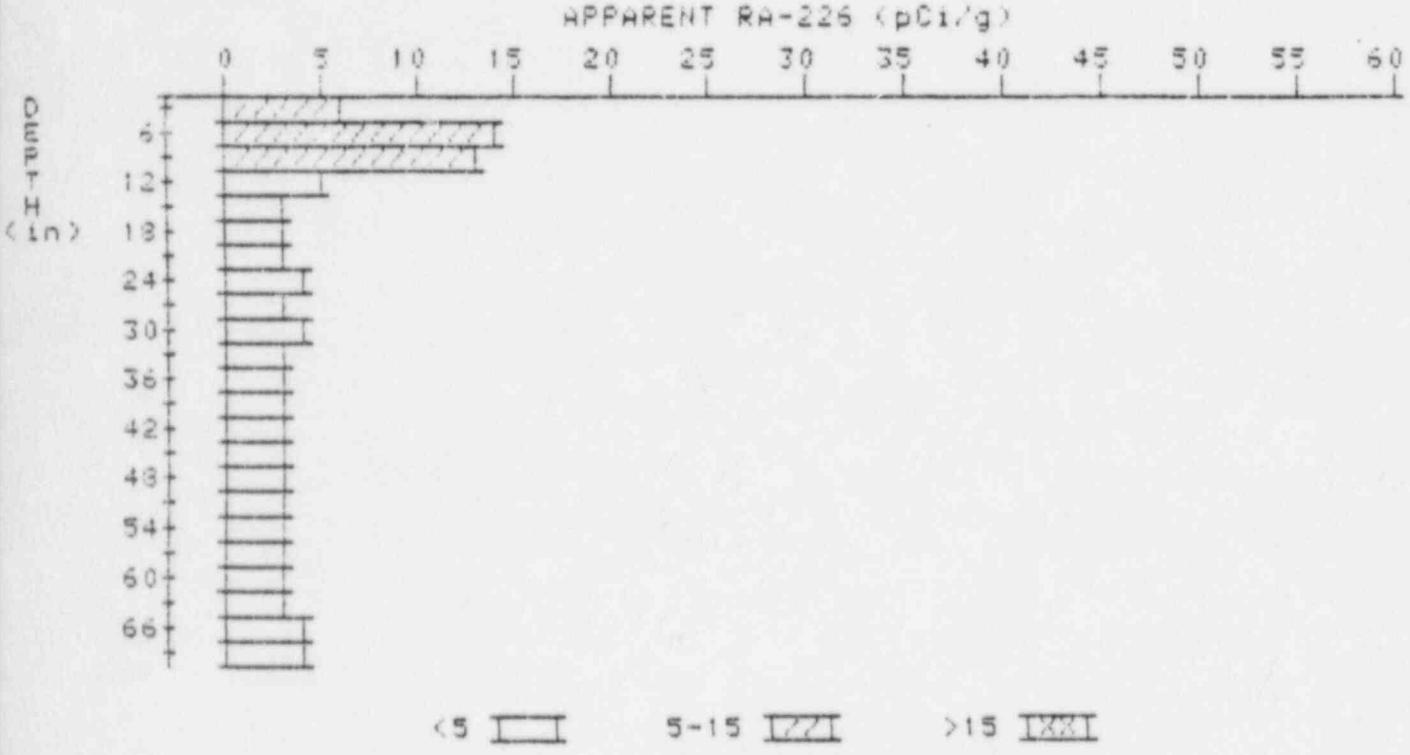
PROPERTY NUMBER: GJ-05975-C3
HOLE NUMBER: 4
LOCATION:



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	2.8	2.8
6	3.	3.3
9	3.3	3.5
12	3.4	3.4
15	3.5	3.9
18	3.4	3.0
21	3.5	3.9
24	3.4	3.4
27	3.3	3.1
30	3.3	3.3
33	3.3	3.3
36	3.3	3.3

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: CJ-05975-C3
HOLE NUMBER: 5
LOCATION: 155255

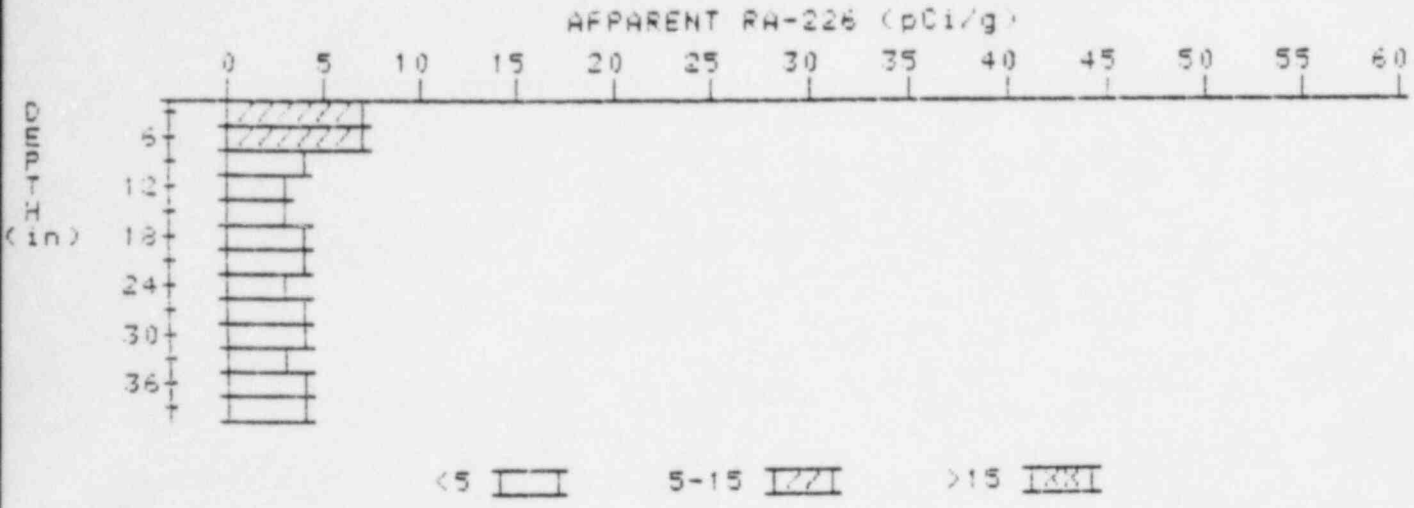


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	6.2	6.2
6	8.9	13.9
9	8.8	12.9
12	6.4	5.0
15	4.8	3.4
18	4.0	3.1
21	3.7	3.3
24	3.6	3.6
27	3.5	3.3
30	3.5	3.7
33	3.4	3.4
36	3.3	3.1
39	3.3	3.5
42	3.2	3.0
45	3.2	3.2

"	"	48	3.2	3.2
		51	3.2	3.2
		54	3.2	3.0
		57	3.3	3.5
		60	3.3	3.1
		63	3.4	3.4
		66	3.5	3.7
		69	3.5	3.5

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

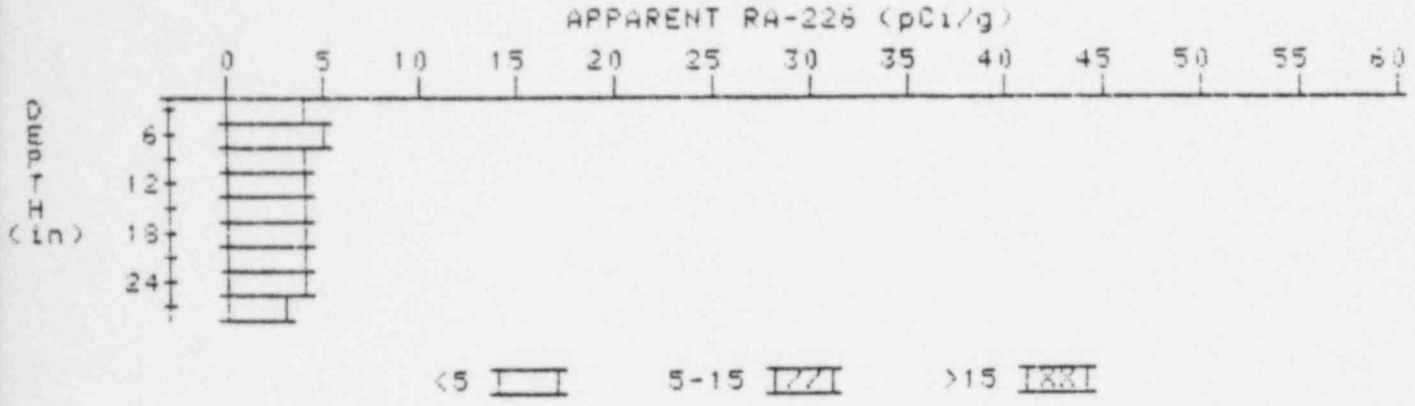
PROPERTY NUMBER: GJ-05975-CS
HOLE NUMBER: 7
LOCATION: 163273



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	7.1	7.1
6	6.3	7.2
9	5.0	4.3
12	4.1	3.0
15	3.8	3.4
18	3.7	3.5
21	3.7	3.9
24	3.6	3.2
27	3.7	4.1
30	3.6	3.6
33	3.5	3.1
36	3.6	4.0
39	3.5	3.5

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

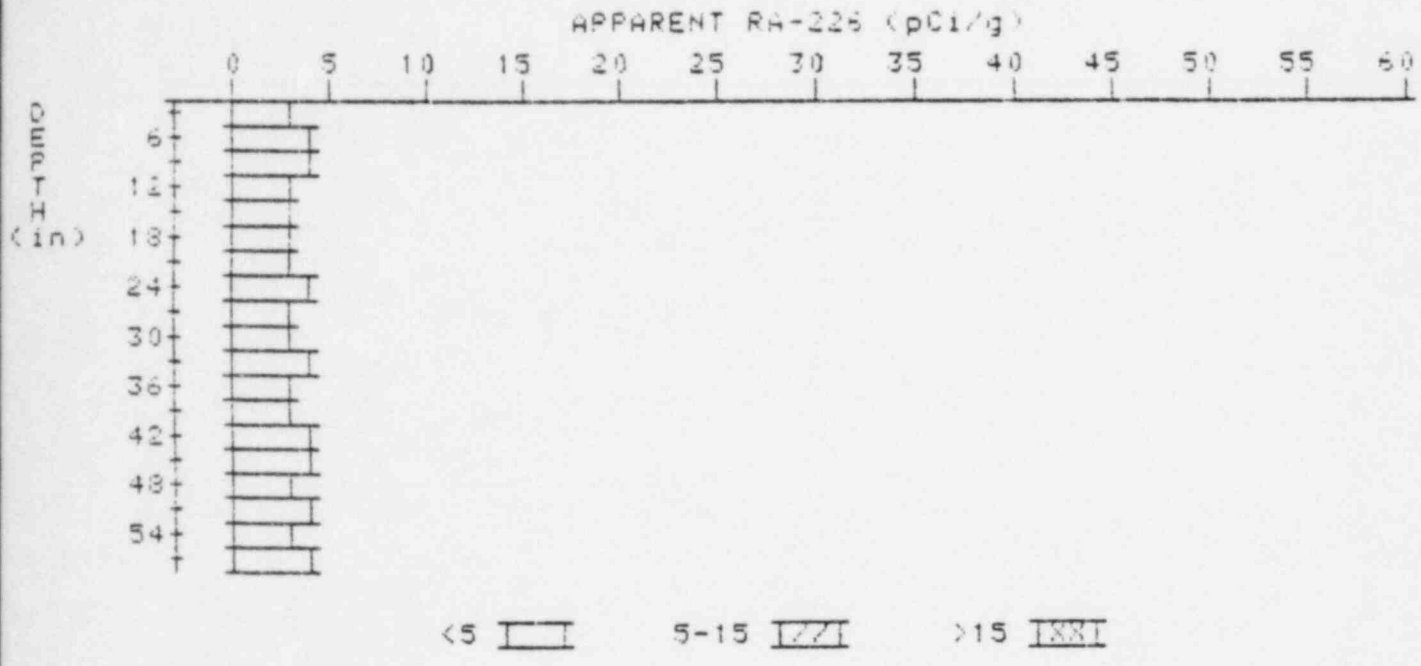
PROPERTY NUMBER: GJ-05975-CS
HOLE NUMBER: 8
LOCATION: 183271



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.3	4.3
6	4.3	4.7
9	4.1	4.1
12	3.9	3.7
15	3.8	3.8
18	3.7	3.7
21	3.6	3.6
24	3.5	3.5
27	3.4	3.4

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

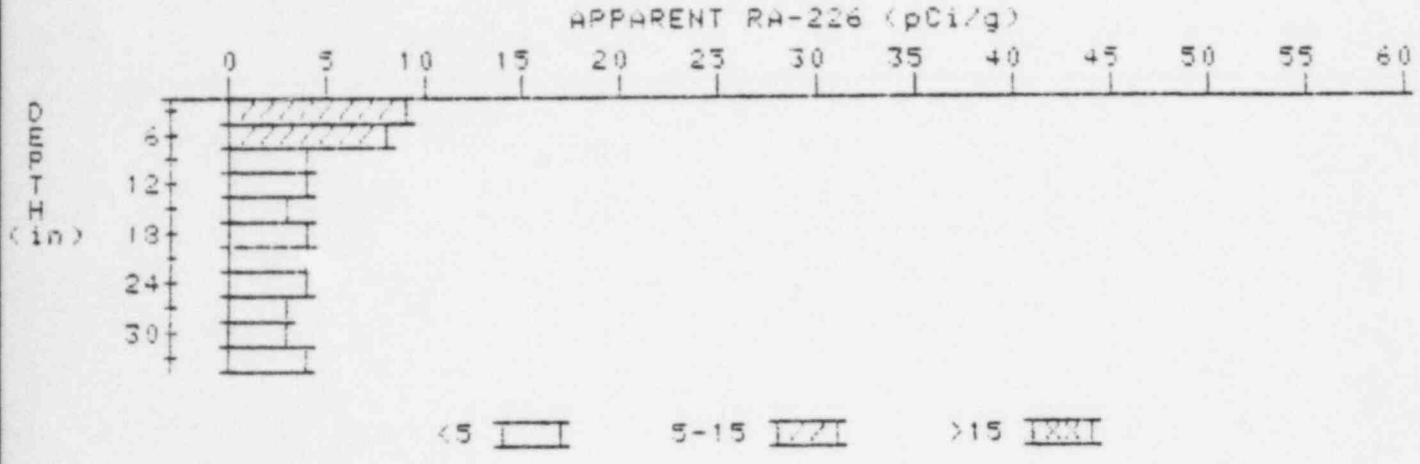
PROPERTY NUMBER: GJ-05975-C6
HOLE NUMBER: 9
LOCATION: 191233



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.2	3.2
6	3.4	3.6
9	3.5	3.9
12	3.4	3.2
15	3.4	3.4
18	3.4	3.4
21	3.4	3.4
24	3.4	3.6
27	3.3	3.1
30	3.3	3.1
33	3.4	3.6
36	3.4	3.4
39	3.4	3.2
42	3.5	3.7
45	3.5	3.7
48	3.4	3.0
51	3.5	3.7
54	3.5	3.3

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 11

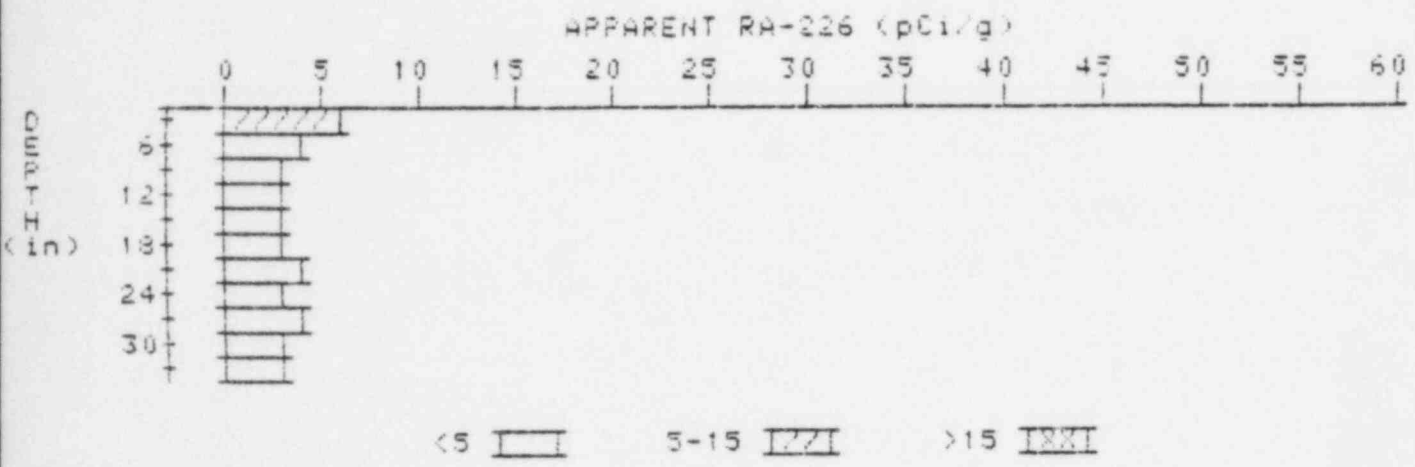
PROPERTY NUMBER: GJ-05975-05
HOLE NUMBER: 11
LOCATION: 207273



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	9.4	9.4
6	7.6	7.6
9	5.8	4.4
12	4.8	4.4
15	4.0	2.9
18	3.8	3.6
21	3.7	3.7
24	3.6	3.6
27	3.5	3.3
30	3.5	3.3
33	3.6	3.6

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 14

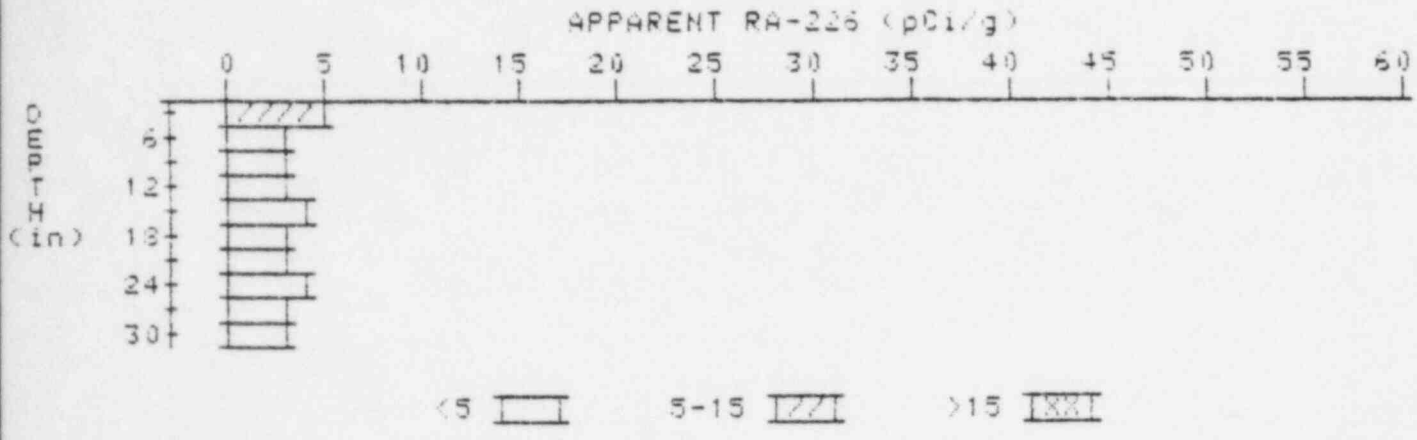
PROPERTY NUMBER: GJ-05975-05
HOLE NUMBER: 14
LOCATION: 220283



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	6.4	6.4
6	5.0	3.9
9	4.2	3.5
12	3.8	3.4
15	3.6	3.4
18	3.5	3.3
21	3.5	3.7
24	3.4	3.0
27	3.5	3.9
30	3.4	3.4
33	3.3	3.3

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

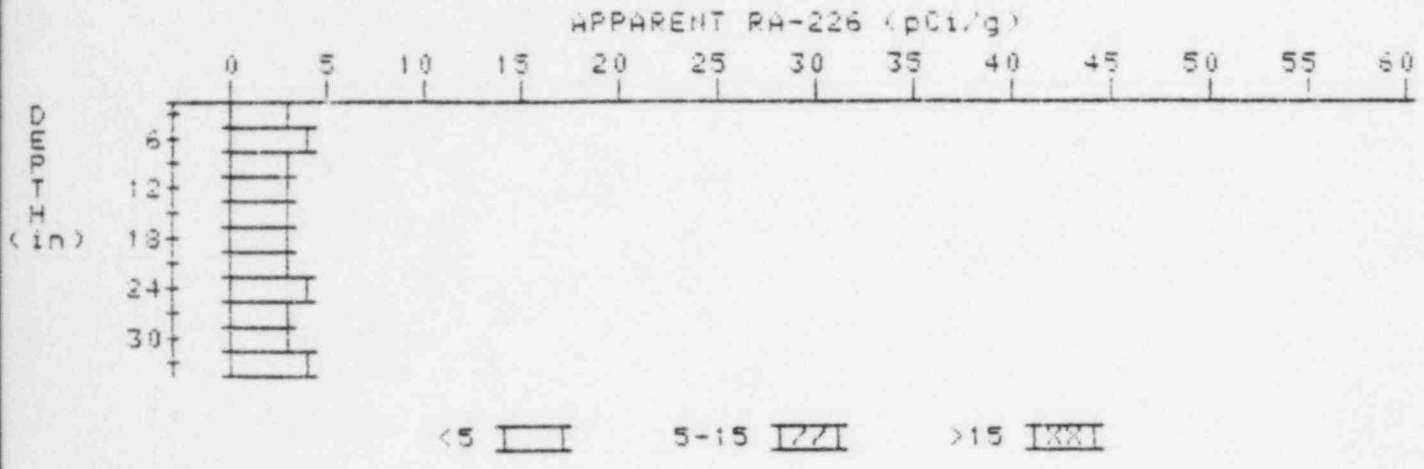
PROPERTY NUMBER: GJ-05975-CS
HOLE NUMBER: 15
LOCATION: 220292



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	5.2	5.2
6	4.2	3.1
9	3.8	3.4
12	3.6	3.4
15	3.5	3.5
18	3.4	3.2
21	3.4	3.4
24	3.4	3.6
27	3.3	3.1
30	3.3	3.3

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-05975-C3
HOLE NUMBER: 16
LOCATION: 230300



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.0	3.0
6	3.2	3.6
9	3.2	3.2
12	3.2	3.0
15	3.3	3.5
18	3.3	3.3
21	3.3	3.1
24	3.4	3.6
27	3.4	3.4
30	3.4	3.2
33	3.5	3.5