

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-13012-VL
ADDRESS: 237 NORTH SPRUCE STREET

JUNE 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
M. TUCKER
DOE PROJECT ENGINEER

DATE

June 14, 1985

REA13012:REA-606

8507080334 850614
PDR WASTE
WM-54 PDR

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-13012-VL, is a vacant piece of land located at 237 North Spruce 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, 42 cu. yd.

Estimated cost to perform remedial action, including dislocation when applicable, is \$3,722. Remedial action on this property will take approximately 7 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 237 North Spruce Street, Grand Junction, Colorado

Zoning: Industrial (I-1)

Lot Size: Approximately 5,500 sf (0.13 acre)

Legal Description: North 50 feet of Lots 12 to 16 including Block 4 Mobley Subdivision excluding West 15 feet of Lot 12, 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: None
Gas: Underground (abandoned)
Telephone: None
Sewer: Underground
Water: Underground (abandoned)
Cable TV: None

Bordering Properties:

North: White Avenue
South: Residential
East: North Spruce Street
West: Alley

2.2 Existing Facilities and Structures - None

General Remarks:

A concrete foundation and a portion of a sidewalk (demolished residence) occupy this site. Utilities, landscaping, and other special features of this property are included in Appendix Figure 2.2.

3.0 RADIOLOGIC SURVEY

3.1 Introduction

Radiologic data were collected by Bendix at DOE ID No. GJ-13012-VL on May 10, 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 that contamination was found in the city sidewalk along North Spruce Street.

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 3.4, 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: 15 to 16 uR/h
Highest Outside Gamma Reading (HOG): 64 uR/h

Exterior radium-concentration measurements are presented in Appendix Table 3.1. Grid-point survey results are shown in Appendix Figure 3.1.

3.3 Boreholes, Soil Samples, and Other Measurements

Areas which displayed elevated gamma levels were further investigated; these areas are shown in Appendix Figure 3.2. Data from these investigations are included in Appendix Table 3.1.

3.4 Extent of Contamination

Appendix Figure 3.3 shows identified areas and estimated depths of contamination on this property, based on assessments of all measurement taken. As noted in this figure, areas recommended for

remedial action that contain identified residual radioactive materials are:

- (AREA A) Along North Spruce Street, under the 4-inch-thick sidewalk, there is contamination extending to a total depth of 18 inches (approximately 395 sf).
- (AREA B) On both sides of the contaminated sidewalk, contamination extends to a depth of 18 inches (approximately 345 sf).

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-13012-VL, includes removal of all areas identified as containing radioactive material (as discussed in Section 3.4 and shown in Appendix Figure 3.3) 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.

Since this property is a vacant piece of land, there will be no dislocation.

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 \$3,722.

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 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 Sample Locations
Figure 3.3	Estimated Extent of Contamination

Official Survey Report

Exterior Gamma Survey Field Map

Team Leader Note

Deconvolution Graphs (Apparent Radium-226 Concentration)

Radium Concentrations at Exterior Locations

DOE ID #GJ-13012-VL

237 North Spruce Street

Page 1 of 4

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
1	168239	00	DS	<1.0		*	By sewer line Through fill dirt pile
		03	TC	3.2		*	
		06	TC	3.4		*	
		09	TC	3.5		*	DC = 0 inches
		12	TC	3.5		*	
		15	TC	3.5		*	
		18	TC	3.6		*	
		21	TC	3.5		*	
		24	TC	3.6		*	
		27	TC	3.5		*	
		30	TC	3.6		*	
		33	TC	3.7		*	
		36	TC	3.7		*	
		39	TC	3.8		*	
		42	TC	3.9		*	
		45	TC	3.9		*	
		48	TC	4.0		*	
		51	TC	4.0		*	
		54	TC	4.0		*	
		57	TC	4.2		*	
		60	TC	4.2		*	
		63	TC	4.3		*	
		66	TC	4.3		*	
		69	TC	4.2		*	
		72	TC	4.2		*	
		75	TC	4.1		*	
		78	TC	4.1		*	
		81	TC	4.0		*	
		84	TC	3.9		*	
2	200240	00	DS	<1.0		*	Basement area
		03	TC	3.0		*	
		06	TC	3.4		*	
		09	TC	3.6		*	DC = 0 inches
		12	TC	3.7		*	
		15	TC	3.9		*	
		18	TC	3.9		*	
		21	TC	3.9		*	
		24	TC	4.1		*	
		27	TC	4.1		*	
		30	TC	4.1		*	
		33	TC	4.1		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-13012-VL

237 North Spruce Street

Page 2 of 4

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
3	208230	00	DS	<1.0		*	Gas line
		18	DS	<1.0		*	
4	211247	03	TC	3.0		*	Water line
		06	TC	3.2		*	
		09	TC	3.5		*	
		12	TC	3.8		*	DC = 0 inches
		15	TC	3.9		*	
		18	TC	4.0		*	
		21	TC	3.9		*	
		24	TC	3.9		*	
		27	TC	3.9		*	
		30	TC	3.9		*	
		33	TC	3.9		*	
5	234225	03	TC	3.7		*	Southeast of property
		06	TC	3.9		*	
		09	TC	4.0		*	
		12	TC	4.1		*	DC = 0 inches
		15	TC	4.1		*	
		18	TC	4.1		*	
		21	TC	4.2		*	
		24	TC	4.2		*	
		27	TC	4.3		*	
		30	TC	4.3		*	
6	238234	03	TC	3.8		*	By east sidewalk
		06	TC	4.0		*	
		09	TC	4.1		*	
		12	TC	4.1		*	DC = 0 inches
		15	TC	4.1		*	
		18	TC	4.2		*	
		21	TC	4.4		*	
		24	TC	4.4		*	
		27	TC	4.4		*	
		30	TC	4.4		*	
7	244238	00-04	SS				Concrete core
		04-10	SS				
		03	TC	43.3		*	City sidewalk
		06	TC	65.1		*	
		09	TC	52.2		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-13012-VL

237 North Spruce Street

Page 3 of 4

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
7	244238	12	TC	30.5		*	DC = 18 inches Based on the deconvolution graph
		15	TC	17.1		*	
		18	TC	11.8		*	
		21	TC	8.7		*	
		24	TC	6.8		*	
		27	TC	5.8		*	
		30	TC	5.3		*	
		33	TC	4.9		*	
		36	TC	5.0		*	
8	246267	03	TC	6.0		*	Water line Northeast of yard
		06	BH	7.2	5.4	*	
		09	TC	7.8		*	
		12	BH	7.9	4.9	*	DC = 18 inches
		15	TC	7.1		*	
		18	TC	6.3	3.4	*	Based on the deconvolution graph
		21	TC	5.8		*	
		24	TC	5.4	<1.0	*	
		27	TC	5.0		*	
		30	TC	4.8		*	
		33	TC	4.7		*	
		36	TC	4.6		*	
		39	TC	4.6		*	
		42	TC	4.4		*	
9	249246	03	TC	3.3		*	By North Spruce Street
		06	TC	3.6		*	
		09	TC	3.9		*	
		12	TC	4.0		*	
		15	TC	4.1		*	DC = 0 inches
		18	TC	4.1		*	
		21	TC	4.2		*	
		24	TC	4.3		*	
		27	TC	4.3		*	
		30	TC	4.3		*	
		33	TC	4.2		*	
		36	TC	4.2		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-13012-VL

237 North Spruce Street

Page 4 of 4

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
10	255276	00-04	SS				Concrete core
		04-10	SS				Moist
		03	TC	50.5		*	City sidewalk
		06	TC	90.1		*	
		09	TC	103.3		*	
		12	TC	89.7		*	DC = 18 inches
		15	TC	56.6		*	
		18	TC	34.3		*	Based on the
		21	TC	20.1		*	deconvolution graph
		24	TC	13.2		*	
		27	TC	9.3		*	
		30	TC	7.6		*	
		33	TC	6.8		*	
		36	TC	7.3		*	

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

Notes: DC = Depth of Contamination
* = No Soil Sample Taken
[n] = Reading Taken n-Inches
Above Floor or Ground
Date of Survey = 05-10-85
Team Leader = MR

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-13012-VL

Page 1 of 1

<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
EXTERIOR					
	Concrete				
A	5 x 3 =	15			
	73 x 5 =	365			
	5 x 20 =	100			
		<hr/>			
		480	x 0.3 =	144	
				<hr/>	
	Volume of Concrete			= 144 =	144/27 = 5
	Contaminated Fill				
A	59 x 5 =	295			
	5 x 20 =	100			
		<hr/>			
		395	x 1.2 =	474	
				<hr/>	
B	5 x 54 =	270			
	5 x 13 =	65			
	5 x 2 =	10			
		<hr/>			
		345	x 1.5 =	518	
				<hr/>	
	Volume of Fill			992 =	992/27 = 37
					<hr/>
	TOTAL VOLUME - EXTERIOR				= 42

See Appendix Figure 3.3 For Areas

EXTERIOR

Remove/replace concrete (4") 480 sf @ \$3/sf	\$ 1,440
Remove identified residual radioactive material 37 cy @ \$14.50/cy	537
Replace area with compacted roadbase 37 cy @ \$11.50/cy	426
Cleanup Lump sum	100
<hr/>	
TOTAL EXTERIOR	\$ 2,503
ACCESS CONTROL	100
<hr/>	
SUBTOTAL	\$ 2,603
CONTINGENCY @ 10%	260
<hr/>	
SUBTOTAL	\$ 2,863
CONTRACTOR OVERHEAD & PROFIT @ 30%	859
<hr/>	
GRAND TOTAL	\$ 3,722

=====

CK061285
REAL3012/REA-606/LMR

20 CURB GUTTER

36.9

(WHITE AVENUE)

BRASS CAP

40.7

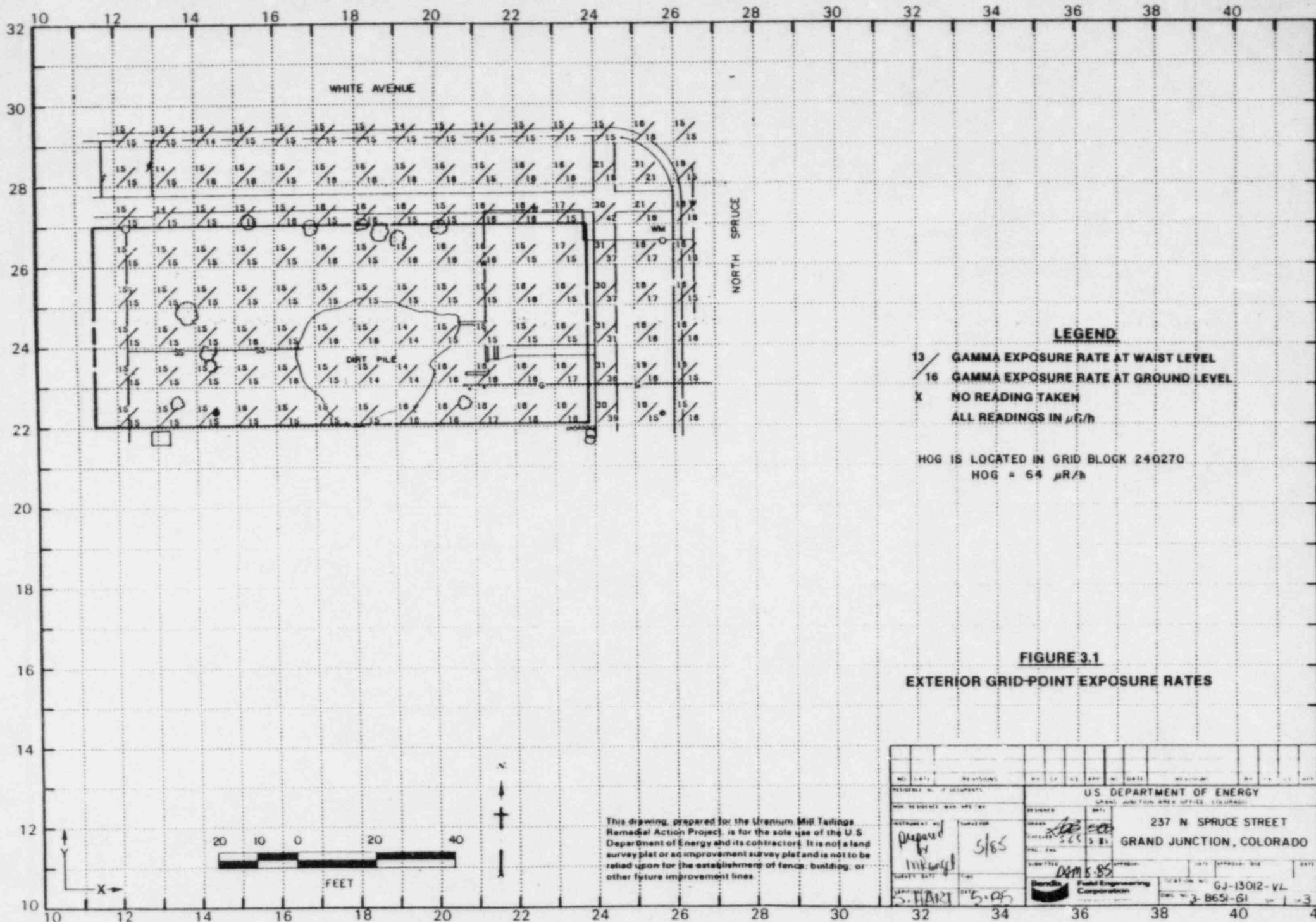


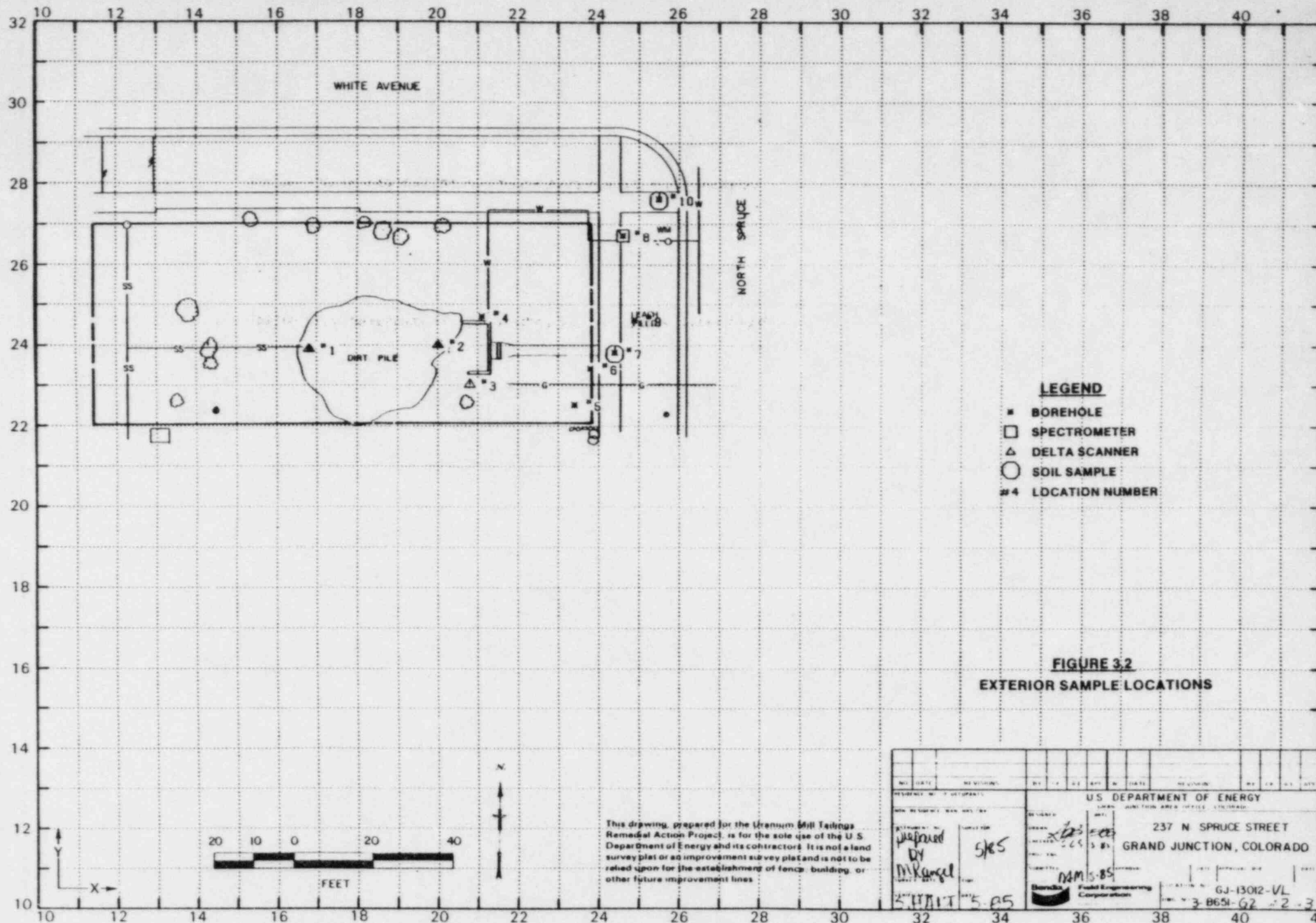
FIGURE 2.2
SITE PLAN

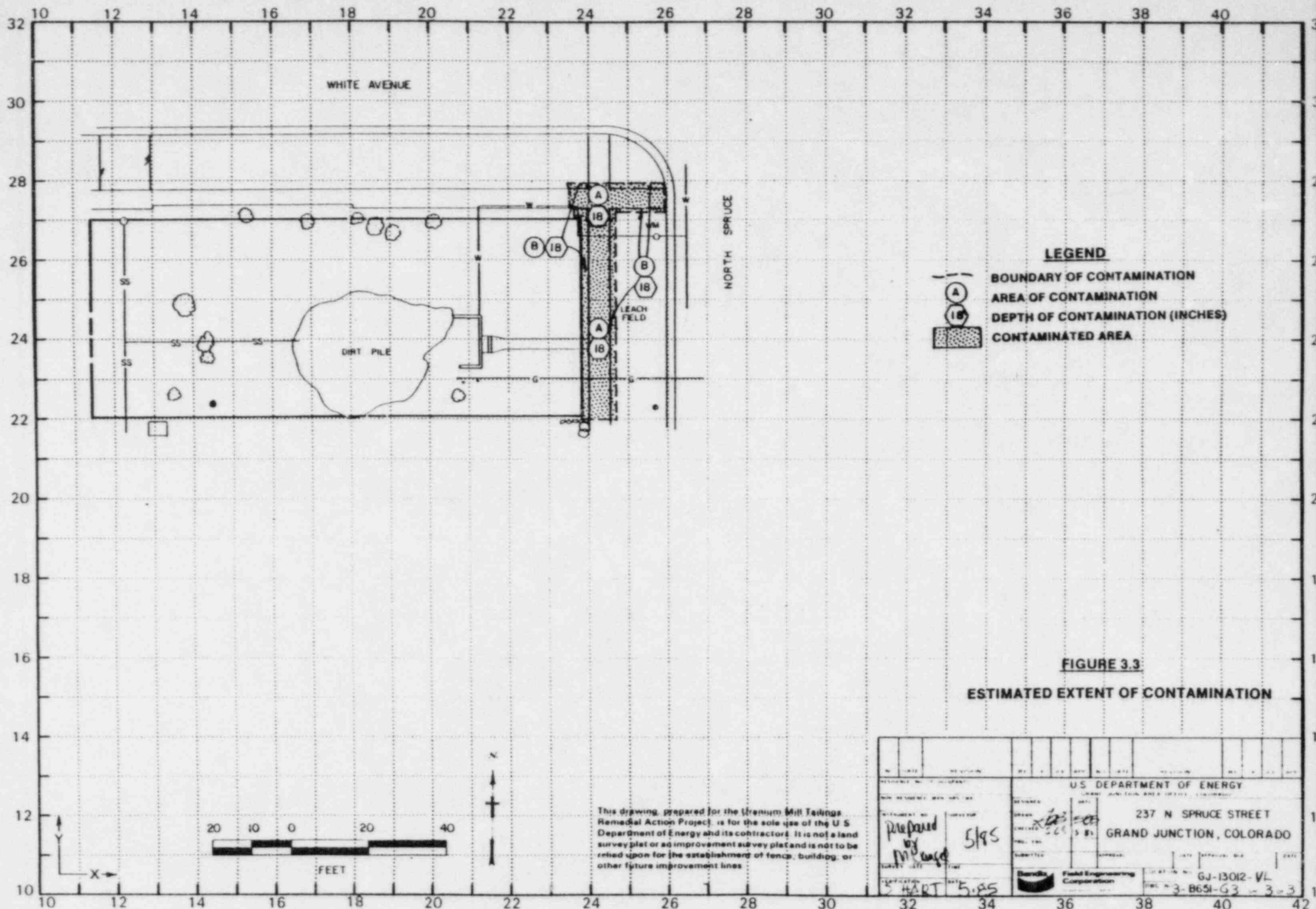


This drawing, prepared for the Uranium Mill Tailings Remedial Action Project, is for the sole use of the U. S. Department of Energy and its contractors. It is not a land survey plot or an improvement survey plot and is not to be relied upon for the establishment of fences, building, or other future improvement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

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION PROJECT OFFICE COLORADO		DOE ID NO GJ-13012-VL
ADDRESS 237 N SPRUCE STREET GRAND JUNCTION, COLORADO		Allied Building Services Building & Engineering Corporation Grants - 13012 Operations
SURV T J F + 26-85	DRAFT J R G / 5-3-85	CR NGF / 5-5-85
DRAWING NO 3-C-651-F1		SHEET / OF 1







DOE ID NO. GJ-13012-VL Date 5/20/85U.S. DEPARTMENT OF ENERGY
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT
GRAND JUNCTION VICINITY PROPERTIESOfficial Survey ReportProperty Address 237 North Spruce Street
Property Owner E.D. and L.A. Buescher
Address of Owner (if different from above) _____
Report Prepared By Mark Rangel

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

1 1 No evidence of residual radioactive material on surveyed property.1 XXX 1 Residual radioactive materials found at the following locations:1 1 In open areas.1 XX 1 Under or around exterior improvements.1 1 Under or around a typically nonoccupied structure.1 1 Under or around a typically occupied structure.

II. RESULTS OF RADIOLOGIC ASSESSMENT

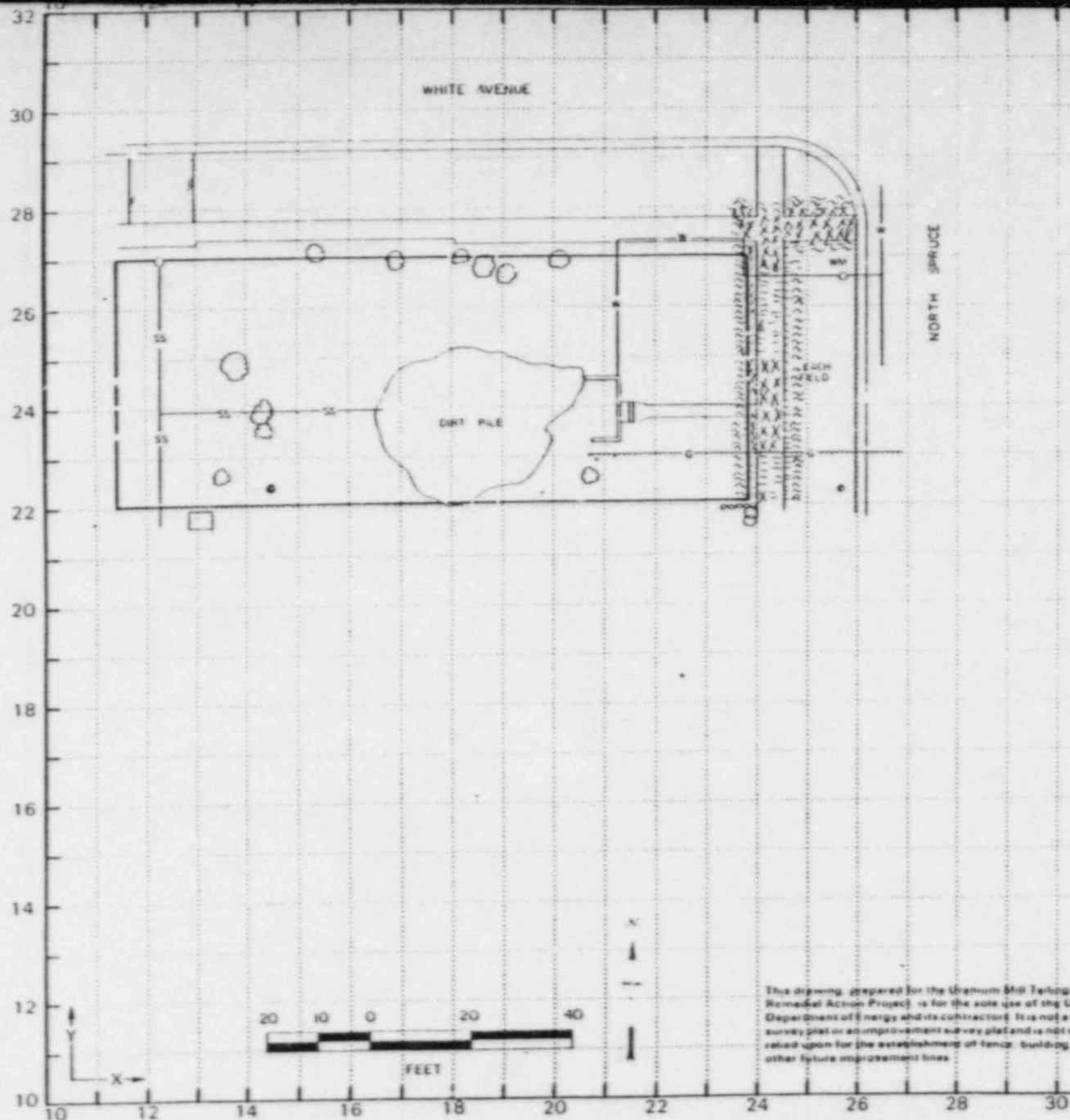
1 1 Levels of radiation from residual radioactive materials, if any, do not exceed EPA Standards and no action is required under the Uranium Mill Tailings Remedial Action Project.1 XX 1 Levels of radiation from residual radioactive materials exceed EPA Standards such that Remedial Action is recommended and will be accomplished, with your consent, as soon as budget and schedule permit.

cc:

G. A. Franz, III, GJ/CDH

J. Themelis, Mgr. UMTRA Proj. Off.

HIG = N/A uR/h
HOG = 64 uR/h



Exterior Gamma Survey Field Map

LEGEND

- GAMMA READINGS OF 150 TO 199 cps
- GAMMA READINGS OF 200 TO 500 cps
- XXXXX GAMMA READINGS OF >500 cps

APPENDIX COPY

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.

U.S. DEPARTMENT OF ENERGY	
937 N. SPRUCE STREET GRAND JUNCTION, COLORADO	
Project: <i>Uranium Mill Tailings Remedial Action Project</i>	Field Engineering Corporation
Drawn by: <i>W. J. Angel</i>	Checked by: <i>W. J. Angel</i>
GJ-13012-VL 0-8629-G-5	

ALLIED Bendix
Aerospace

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

DATE: May 10, 1985

TO: Files

FROM: Mark Rangel

SUBJECT: Team Leader Notes - GJ-13012-VL

Address: 237 North Spruce Street

Team Members

M. Rangel (Team Leader)	P. Hardy
V. Rothman	D. Bell
B. Wilkins	

Instruments

C-1247, C-1184, C-1205, C-3938, C-3939, C-4006, C-3957, C-0498,
C-3431, C-6966

This is a vacant lot.

Part of the original foundation is still present. The west half of the foundation walls are covered with dirt 4.5 feet high. The fill used in this area is clean. 4.5 feet high.

Two cores were drilled in the city sidewalk. Contamination seems to be from the fill beneath the sidewalk.

All personnel were frisked before leaving the site, no problems.

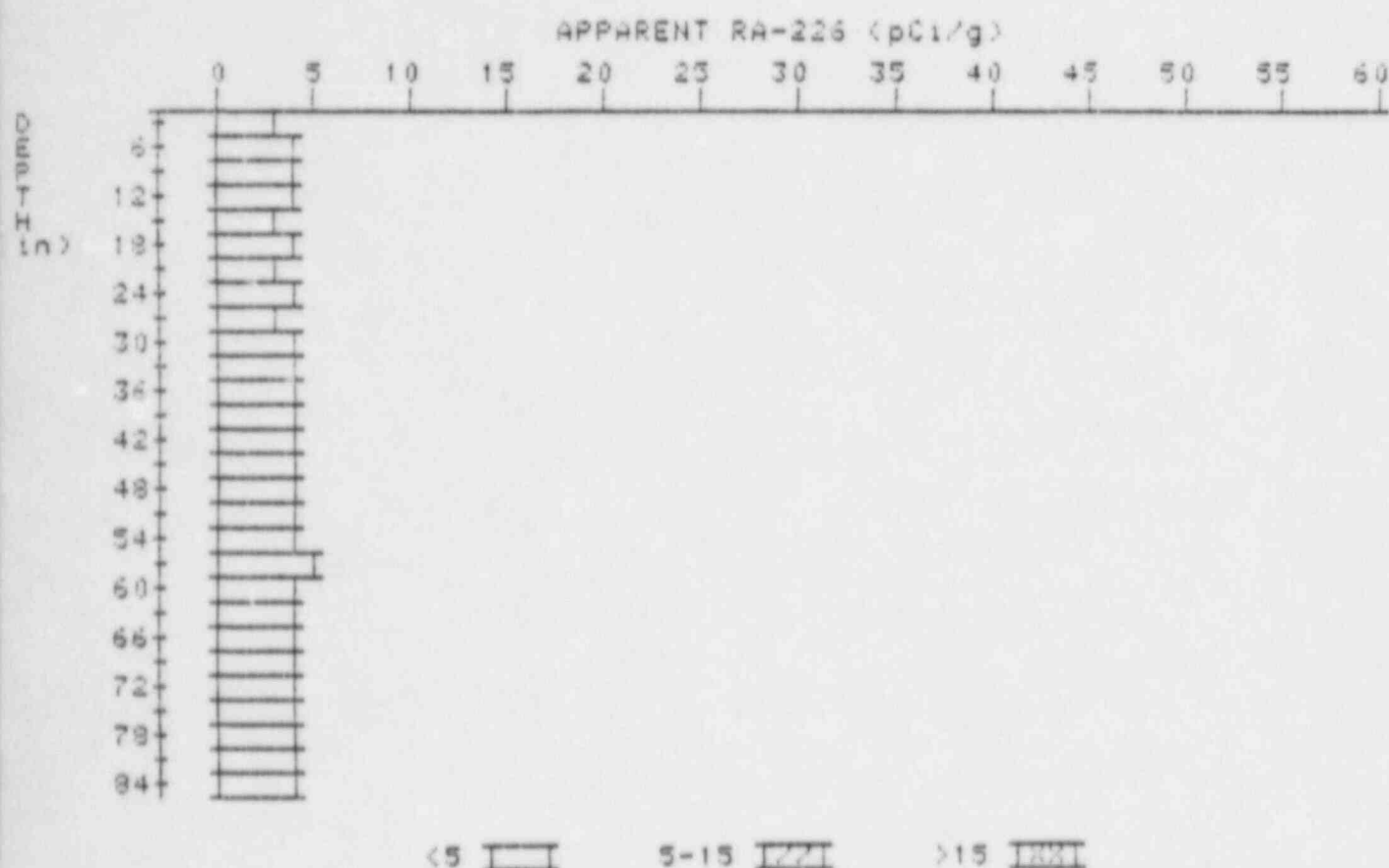
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

1

PROPERTY NUMBER: GJ-13012-VL

HOLE NUMBER: 1

LOCATION: 168239



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	3.7
12	3.5	3.8
15	3.5	3.3
18	3.6	4.0
21	3.5	3.1
24	3.6	4.0
27	3.5	3.1
30	3.6	3.6
33	3.7	3.9
36	3.7	3.5

3.9
4.2
4.6
4.6
5.1
5.4
5.7
6.0
6.3
6.6
6.9
7.2
7.5
7.8
8.1
8.4

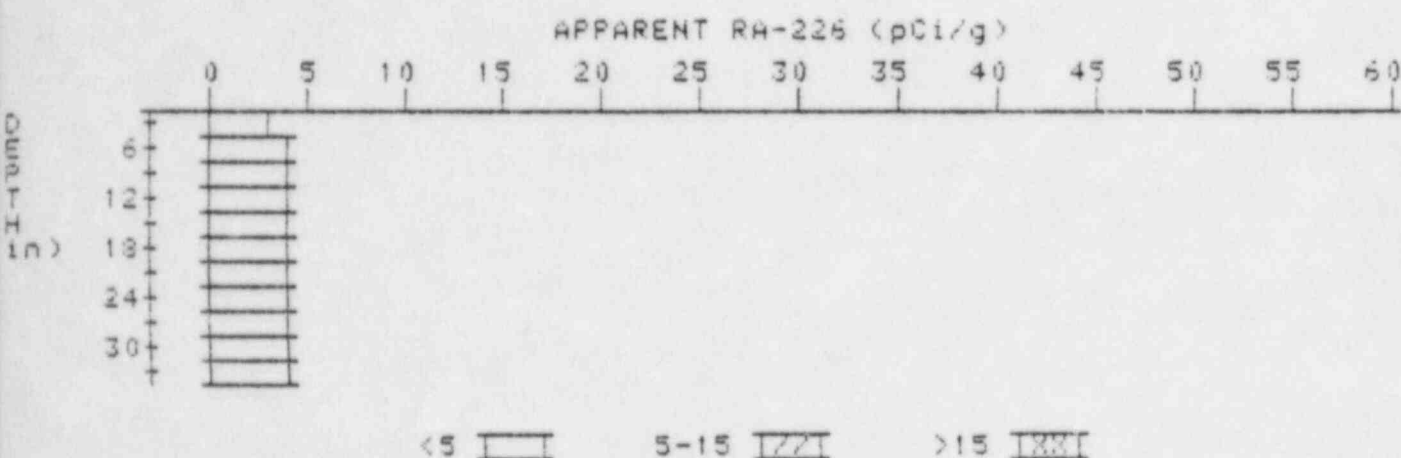
3.8
3.9
3.9
4.0
4.0
4.0
4.2
4.2
4.3
4.3
4.2
4.2
4.1
4.1
4.0
3.9

3.8
4.1
3.7
4.2
4.0
3.6
4.3
4.0
4.8
4.0
4.4
3.9
4.3
4.0
3.9

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

2

PROPERTY NUMBER: GJ-13012-VL
HOLE NUMBER: 2
LOCATION: 200240



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.0	3.0
6	3.4	3.8
9	3.6	3.8
12	3.7	3.5
15	3.9	4.3
18	3.9	3.9
21	3.9	3.5
24	4.1	4.5
27	4.1	4.1
30	4.1	4.1
33	4.1	4.1

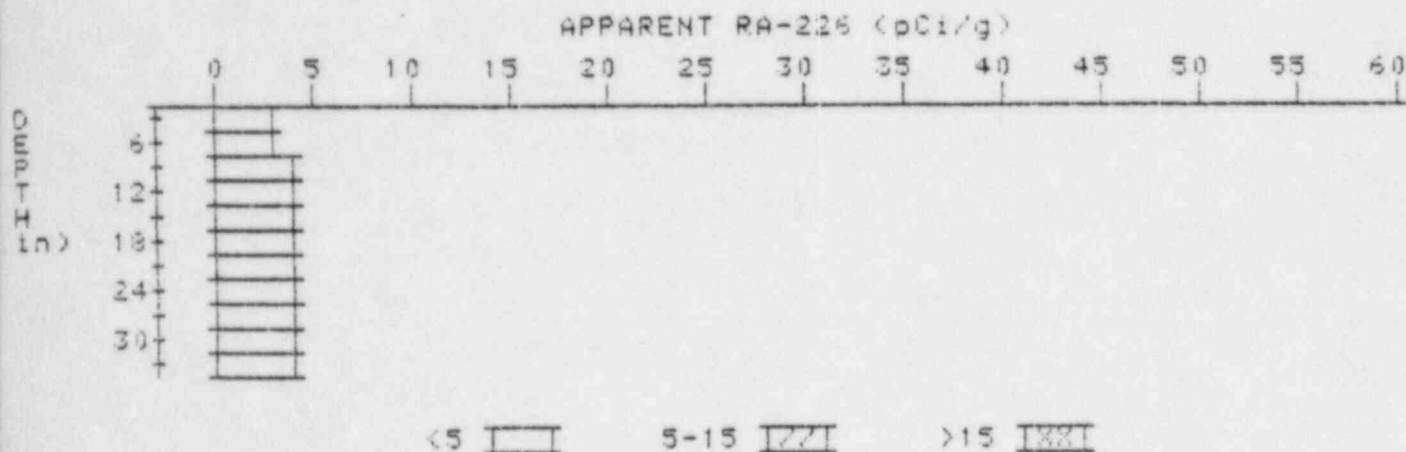
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

4

PROPERTY NUMBER: GJ-13012-VL

HOLE NUMBER: 4

LOCATION: 211247



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.0	3.0
6	3.2	3.0
9	3.5	3.5
12	3.8	4.2
15	3.9	3.9
18	4.0	4.4
21	3.9	3.7
24	3.9	3.9
27	3.9	3.9
30	3.9	3.9
33	3.9	3.9

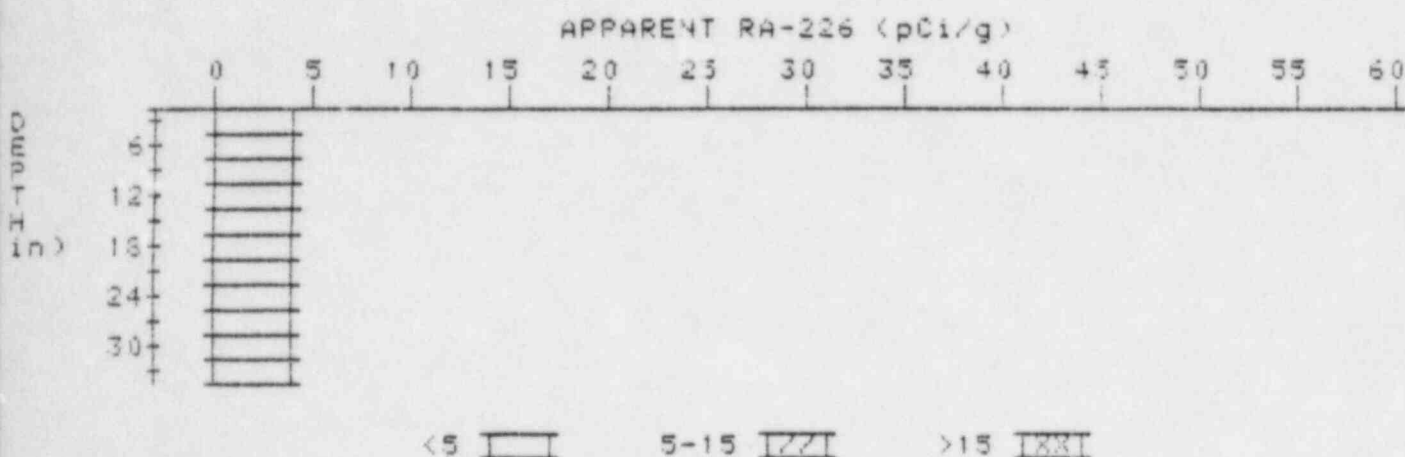
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

5

PROPERTY NUMBER: GJ-13012-VL

HOLE NUMBER: 5

LOCATION: 234225



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.7	3.7
6	3.9	4.1
9	4.0	4.0
12	4.1	4.3
15	4.1	4.1
18	4.1	3.9
21	4.2	4.4
24	4.2	4.0
27	4.3	4.5
30	4.3	4.3
33	4.3	4.3

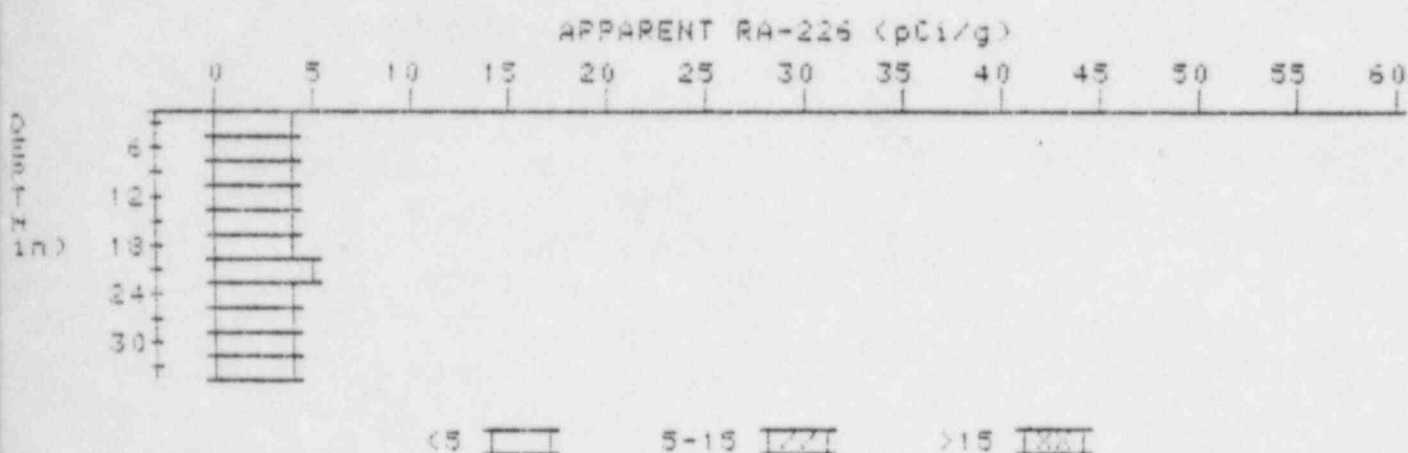
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

6

PROPERTY NUMBER: GJ-13012-VL

HOLE NUMBER: 6

LOCATION: 238234

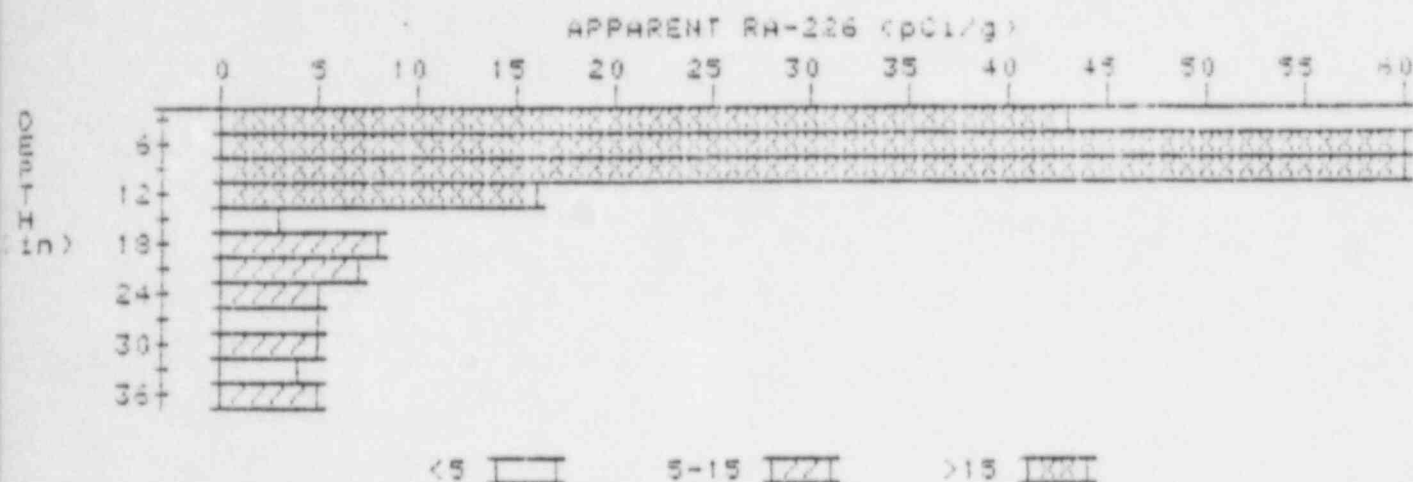


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.8	3.8
6	4.0	4.2
9	4.1	4.3
12	4.1	4.1
15	4.1	3.9
18	4.2	4.0
21	4.4	4.8
24	4.4	4.4
27	4.4	4.4
30	4.4	4.4
33	4.4	4.4

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

7

PROPERTY NUMBER: GJ-13012-VL
HOLE NUMBER: 7
LOCATION: 244238



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	43.3	43.3
6	65.1	126.8
9	52.2	67.8
12	30.5	15.7
15	17.1	2.7
18	11.8	7.9
21	8.7	6.6
24	6.8	3.2
27	5.8	4.9
30	3.3	5.1
33	4.9	4.0
36	5.0	5.0

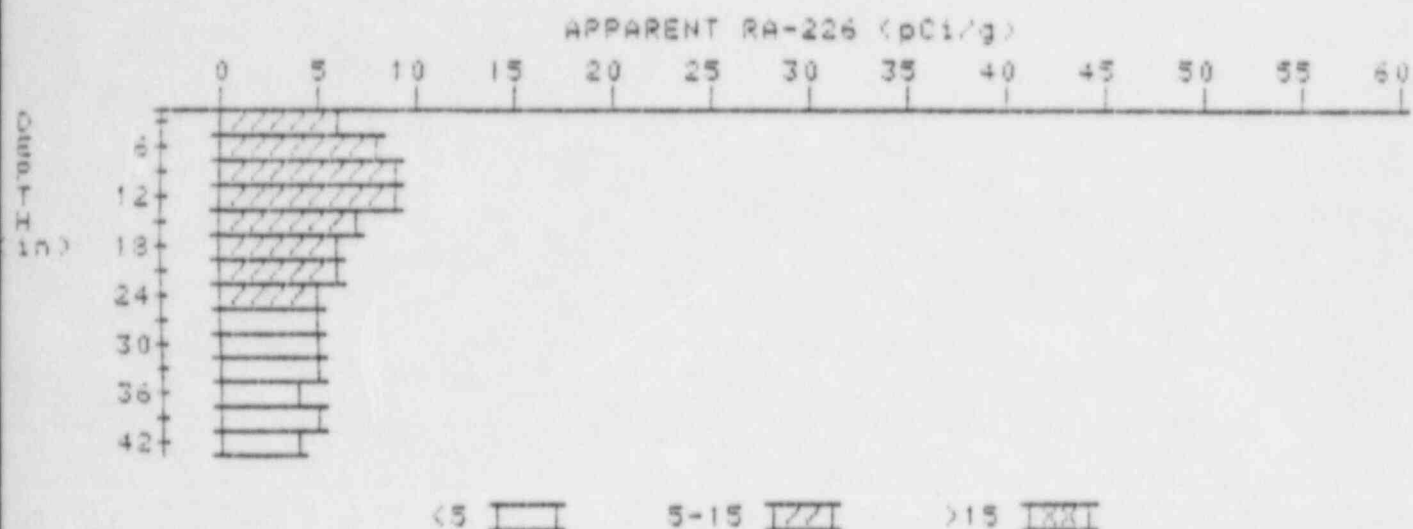
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

8

PROPERTY NUMBER: GJ-13012-VL

HOLE NUMBER: 8

LOCATION: 246267



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	6.0	6.0
6	7.2	8.3
9	7.8	8.7
12	7.9	9.5
15	7.1	7.1
18	6.3	5.8
21	5.8	5.6
24	5.4	5.4
27	5.0	4.6
30	4.8	4.6
33	4.7	4.7
36	4.6	4.4
39	4.6	5.0
42	4.4	4.4

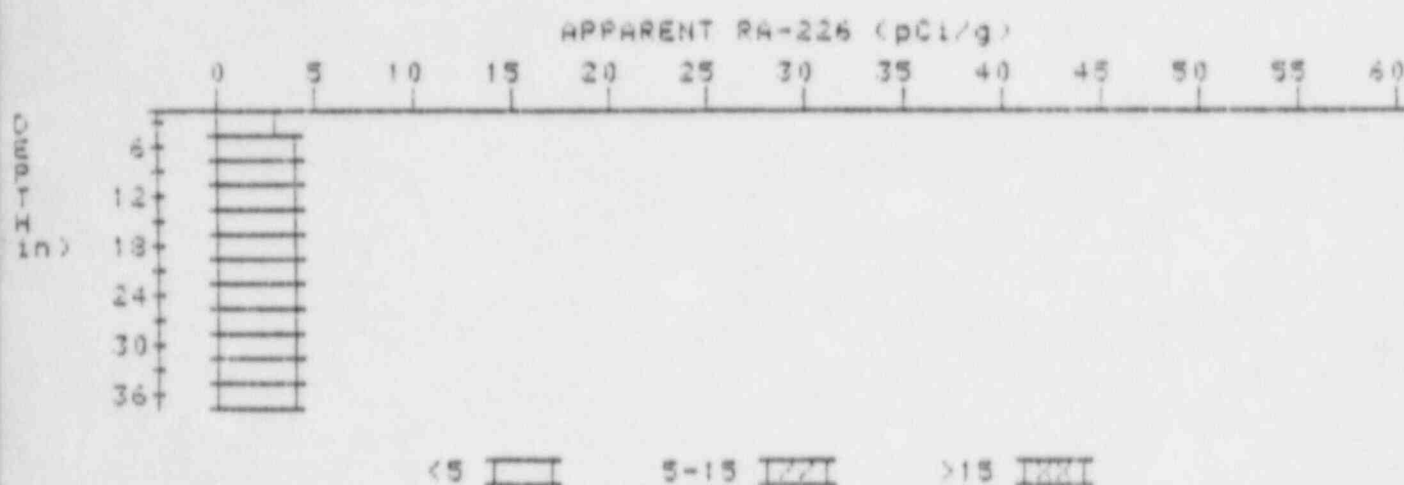
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

9

PROPERTY NUMBER: GJ-13012-VL

HOLE NUMBER: 9

LOCATION: 249246

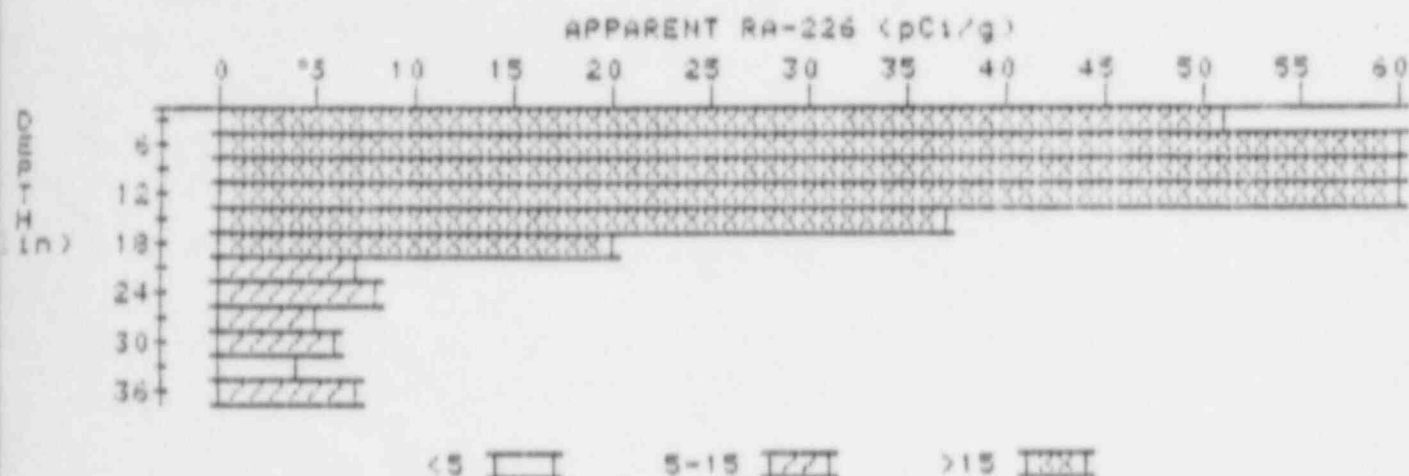


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.3	3.3
6	3.6	3.6
9	3.9	4.3
12	4.0	4.0
15	4.1	4.3
18	4.1	3.9
21	4.2	4.2
24	4.3	4.3
27	4.3	4.3
30	4.3	4.3
33	4.2	4.0
36	4.2	4.2

APPARENT RADIUM-226 CONCENTRATION 10

DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-13012-VL
 HOLE NUMBER: 10
 LOCATION: 255276



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	50.5	50.5
6	90.1	137.0
9	103.3	150.9
12	89.7	124.4
15	56.6	37.4
18	34.3	19.9
21	20.1	7.1
24	13.2	7.9
27	9.3	5.4
30	7.6	6.0
33	6.9	4.5
36	7.3	7.3