

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-02197-MR
ADDRESS: 1320 NORTH 18TH STREET

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
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APPROVED BY

Michael K. Tucker
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DOE PROJECT ENGINEER

DATE

September 3, 1985

REA02197:REA-621

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PDR WASTE PDR
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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-02197-MR, is a single-family residence located at 1320 North 18th 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, 9 cu. yd.; interior, 3 cu. yd.

It is recommended that no remedial action be performed on Area A, as discussed in Section 4.0 of this REA.

Estimated cost to perform remedial action, including dislocation when applicable, is \$2,059. Remedial action on this property will take approximately 10 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 1320 North 18th Street, Grand Junction, Colorado

Zoning: Residential (RSF-8)

Lot Size: Approximately 8,360 sf (0.20 acres)

Legal Description: Lot 17, Block 5, Elmwood Plaza Refile, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 2 mile(s) 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:	Alley
West:	North 18th Street

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence
Size:	Approximately 1,500 sf
Construction Date:	1951
Construction:	Wood-frame
Foundation:	Concrete wall on spread footing
Footing Depth:	Not determined
Basement:	None
Crawl Space:	Yes - under entire living area
Condition:	Good

Other Structures:

Type:	Garage
Size:	Approximately 320 sf
Construction:	Wood-frame
Foundation:	None (mud-sill)
Condition:	Fair

General Remarks:

There is a swimming pool located in the rear yard. 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-02197-MR on August 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 the historical information available for this property was conducted to determine the areas of potential contamination identified during previous radiologic assessments.

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: 14 to 16 uR/h
Highest Outside Gamma Reading (HOG): 33 uR/h

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

3.2.2 Interior Findings

Background Readings: 14 to 16 uR/h
Highest Inside Gamma Reading (HIG): 27 uR/h

Interior radium-concentration measurements are presented in Appendix Table 3.2. Interior gamma exposure-rate survey results in the family room are shown in Appendix Figure 3.2. Interior gamma exposure-rate measurements are summarized in Appendix Table 3.3.

3.3 Boreholes, Soil Samples, and Other Measurements

Areas which displayed elevated gamma levels were further investigated; the locations and types of these investigations are shown in Appendix Figures 3.2 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) Surface Material: Wood floor
Direction From Primary Structure: Interior
Other Directions: Family room
Total Depth of Contamination: Estimated at 12 inches
Comments: The depth of contamination is based on data collected in Area B. It is believed that an old contaminated sidewalk, an extension of the exterior contaminated sidewalk, is located under this room.
Approximate Square Footage: 87 - this area is excluded from remedial action.
- (Area B) Surface Material: Concrete
Direction From Primary Structure: North and west
Total Depth of Contamination: 12 inches
Other (height or thickness): 4-inch-thick concrete
Approximate Square Footage: 132
- (Area C) Surface Material: Soil
Direction From Primary Structure: North and west
Other Directions: Adjacent to Area B
Total Depth of Contamination: 6 inches
Comments: This area contains plants and thick ground cover.
Approximate Square Footage: 90
- (Area D) Surface Material: Concrete
Direction From Primary Structure: West
Total Depth of Contamination: Estimated at 12 inches
Other (height or thickness): 4-inch-thick concrete
Comments: The depth of contamination is based on data collected in Area B.
Approximate Square Footage: 36

(Area E) Surface Material: Lawn
Direction From Primary Structure: West
Other Directions: Adjacent to Area D
Total Depth of Contamination: 6 inches
Approximate Square Footage: 36

(Areas Requiring Further Investigation During Remedial Action)

The soil beneath the concrete stoop located on the west side of the primary structure should be checked during remedial action for possible contamination.

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-02197-MR, includes select 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.

Remedial action will not be performed on Area A of this property because the levels of radioactivity in this area do not exceed the EPA Standards (40 CFR 192), as described below:

- (1) Indoor radon-decay products shall not exceed a working level of 0.03, nor, to the extent possible, a working level of 0.02. At this property the gross working level was not determined. It is recommended that an indoor RDC measurement be completed on this property. If the RDC measurements exceed EPA standards, then the REA will be revised and remedial action performed on Area A in accordance with the Vicinity Property Management and Implementation Manual. If the EPA standards are not exceeded, then the no-action recommendation for Area A will be considered valid, and a Property Completion Report will be prepared for DOE certification.
- (2) Indoor gamma radiation shall not exceed 20 microroentgens per hour (uR/h) above background levels. (At this location the interior background readings were found to be between 14 and 16 uR/h, with the highest mean surface gamma reading at 20 uR/h.)

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 \$2,059.

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

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

5.0 REFERENCES

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

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

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

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

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

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

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

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

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

6.0 APPENDIX

This Appendix contains the following:

Appendix Tables:

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

Appendix Figures:

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

Official Survey Report

Team Leader Notes

Deconvolution Graphs (Apparent Radium-226 Concentration)

Exterior Gamma Scan Map

Radium Concentrations at Exterior Locations

DOE ID #GJ-02197-MR

1320 North 13th 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.		
6	150250	00	DS	<1.0		*	Background
		03	TC	3.5		*	West of primary
		06	TC	3.7		*	structure
		09	TC	3.8		*	DC = 0 inches
		12	TC	3.9		*	
		15	TC	3.8		*	
		18	TC	3.8		*	
		21	TC	3.7		*	
		24	TC	3.6		*	
		27	TC	3.5		*	
		30	TC	3.4		*	
7	166255	00	DS	3.7		*	Next to west
		06	DS	2.2		*	sidewalk
8	167230	00	DS	3.2		*	Water line
		06	DS	1.6		*	
		03	TC	3.5		*	West of primary
		06	TC	3.7		*	structure
		09	TC	3.7		*	DC = 6 inches
		12	TC	3.5		*	Based on all
		15	TC	3.8		*	available data
		18	TC	3.7		*	
		21	TC	3.7		*	
		24	TC	3.7		*	
		27	TC	3.6		*	
		30	TC	3.7		*	
9	167237	00	DS	12.9		*	Next to west
		06	DS	2.2		*	sidewalk
		06	DS	13.0		*	Horizontal under sidewalk
10	168249	03	TC	16.6		*	Through core
		06	TC	20.5		*	West of primary
		09	TC	14.6		*	structure
		12	TC	9.5		*	DC = 12 inches
		15	TC	6.9		*	Based on the
		18	TC	5.5		*	deconvolution graph
		21	TC	4.7		*	
		24	TC	4.3		*	
		27	TC	4.1		*	
		30	TC	3.9		*	
		33	TC	3.9		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-02197-MR

1320 North 18th 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.		
10	168249	36	TC	3.8		*	
		39	TC	3.7		*	
		42	TC	3.7		*	
		45	TC	3.7		*	
		48	TC	3.6		*	
		51	TC	3.6		*	
		54	TC	3.5		*	
		57	TC	3.5		*	
		60	TC	3.5		*	
		63	TC	3.6		*	
		66	TC	3.7		*	
		69	TC	3.7		*	
		72	TC	3.7		*	
		75	TC	3.9		*	
		78	TC	3.9		*	
		81	TC	3.9		*	
		84	TC	3.9		*	
		87	TC	3.9		*	
		90	TC	4.0		*	
		93	TC	4.0		*	
		96	TC	4.1		*	
		99	TC	4.0		*	
11	169248	[06]	DS	2.4		*	Horizontal on step
		00	DS	11.9		*	On west sidewalk
12	178215	03	TC	3.2		*	Foundation
		06	TC	3.6		*	South of primary
		09	TC	3.7		*	structure
		12	TC	3.8		*	DC = 0 inches
		15	TC	3.7		*	
		18	TC	3.7		*	
		21	TC	3.7		*	
		24	TC	3.7		*	
		27	TC	3.7		*	
13	190262	03	TC	8.2		*	Through core
		06	TC	9.5		*	North of primary
		09	TC	7.0		*	structure
		12	TC	5.5		*	DC = 12 inches
		15	TC	4.7		*	Based on the
		18	TC	4.4		*	deconvolution graph
		21	TC	4.1		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-02197-MR

1320 North 18th 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.		
13	190262	24	TC	4.0		*	
		27	TC	3.9		*	
		30	TC	4.0		*	
		33	TC	3.8		*	
		36	TC	3.8		*	
		39	TC	3.8		*	
		42	TC	3.7		*	
		45	TC	3.7		*	
		48	TC	3.8		*	
		51	TC	3.7		*	
		54	TC	3.6		*	
		57	TC	3.7		*	
		60	TC	3.7		*	
		63	TC	3.6		*	
		66	TC	3.6		*	
		69	TC	3.7		*	
		72	TC	3.9		*	
		75	TC	3.9		*	
		78	TC	3.9		*	
		81	TC	4.0		*	
14	220235	00	DS	<1.0		*	Gas line
		14	DS	1.2		*	On gas line
15	235245	03	TC	3.4		*	Sewer line
		06	TC	3.7		*	DC = 0 inches
		09	TC	3.8		*	
		12	TC	3.8		*	
		15	TC	3.9		*	
		18	TC	3.9		*	
		21	TC	3.9		*	
		24	TC	3.9		*	
		27	TC	3.9		*	
		30	TC	3.9		*	
		33	TC	3.9		*	
		36	TC	3.9		*	
		39	TC	3.9		*	
		42	TC	3.9		*	
		45	TC	3.9		*	
		48	TC	3.8		*	

Radium Concentrations at Exterior Locations

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1320 North 18th 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.		
15	235245	51	TC	3.9		*	
		54	TC	3.8		*	
		57	TC	3.8		*	

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 = 08-05-85
Team Leader = DF

Radium Concentrations at Interior Locations

DOE ID #GJ-02197-MR

1320 North 18th 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		00	DS	3.8		*	Southeast corner of family room
2		00	DS	1.7		*	Southwest corner of family room
3		00	DS	8.1		*	Center of room
4		00	DS	1.3		*	Northwest corner of family room
5		00	DS	1.9		*	Northeast corner of family room

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

Notes: DC = Depth of Contamination
 * = No Soil Sample Taken
 [n] = Reading Taken n-Inches
 Above Floor or Ground
 Date of Survey = 08-05-85
 Team Leader = DF

Table 3.3

Summary of Interior Gamma Exposure Rates

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Location	Number of Readings Taken at Waist Level	Range at Waist Level (uR/h)	Mean at Waist Level (uR/h)	Number of Readings Taken at Surface	Range at Surface (uR/h)	Mean Surface (uR/h)
Basement	*	*	*	*	14-16	*
Family Room	05	16-22	18	05	17-27	20
Ground Floor	*	*	*	*	14-16	*
Garage	*	*	*	*	16-16	*

* Walking gamma scans were performed to confirm the absence of interior contamination. Exposure rates for the family room are shown in Appendix Figure 3.2

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-02197-MR

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<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
-------------	-------------------------	-----------	------------------	-----------	--------------------

INTERIOR

Concrete

A*	3 x 29	=	87	x	0.3	=	26
----	--------	---	----	---	-----	---	----

	=	26	=	26/27	=	1
--	---	----	---	-------	---	---

Contaminated Fill

A*	3 x 29	=	87	x	0.7	=	61
----	--------	---	----	---	-----	---	----

	=	61	=	61/27	=	2
--	---	----	---	-------	---	---

TOTAL VOLUME - INTERIOR	=	3
-------------------------	---	---

EXTERIOR

Concrete

B	3 x 32	=	96
	12 x 3	=	36

132	x	0.3	=	40
-----	---	-----	---	----

D	12 x 3	=	36	x	0.3	=	11
---	--------	---	----	---	-----	---	----

	=	51	=	51/27	=	2
--	---	----	---	-------	---	---

Contaminated Fill

B	3 x 32	=	96
	12 x 3	=	36

132	x	0.7	=	92
-----	---	-----	---	----

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-02197-MR

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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>
C	3 x 30	=	90	x	0.5	=	45	
D	12 x 3	=	36	x	0.7	=	25	
E	3 x 12	=	36	x	0.5	=	18	
							180	
Volume of Fill							=	180/27 = 7
TOTAL VOLUME - EXTERIOR							=	9

*Note: Area A is excluded from remedial action.

See Appendix Figures 3.4a and 3.4b For Areas

=====

EXTERIOR

Remove/replace concrete sidewalks 168 sf @ \$3/sf	\$ 504
Remove/replace wood platform Lump sum	50
Remove identified residual radioactive material 4 cy @ \$14.50/cy (machine-open)	58
3 cy @ \$44/cy (manual-open)	132
Replace areas with topsoil 3 cy @ \$9.50/cy	29
Replace areas with roadbase 4 cy @ \$11.50/cy	46
Replace areas with plantings/ground cover Lump sum	400
Replace area with sod 36 sf @ \$.50/sf	18

TOTAL EXTERIOR \$ 1,237

TOTAL INTERIOR 0

ACCESS CONTROL 100

SUBTOTAL \$ 1,337

CONTINGENCY @ 10% 134

SUBTOTAL \$ 1,471

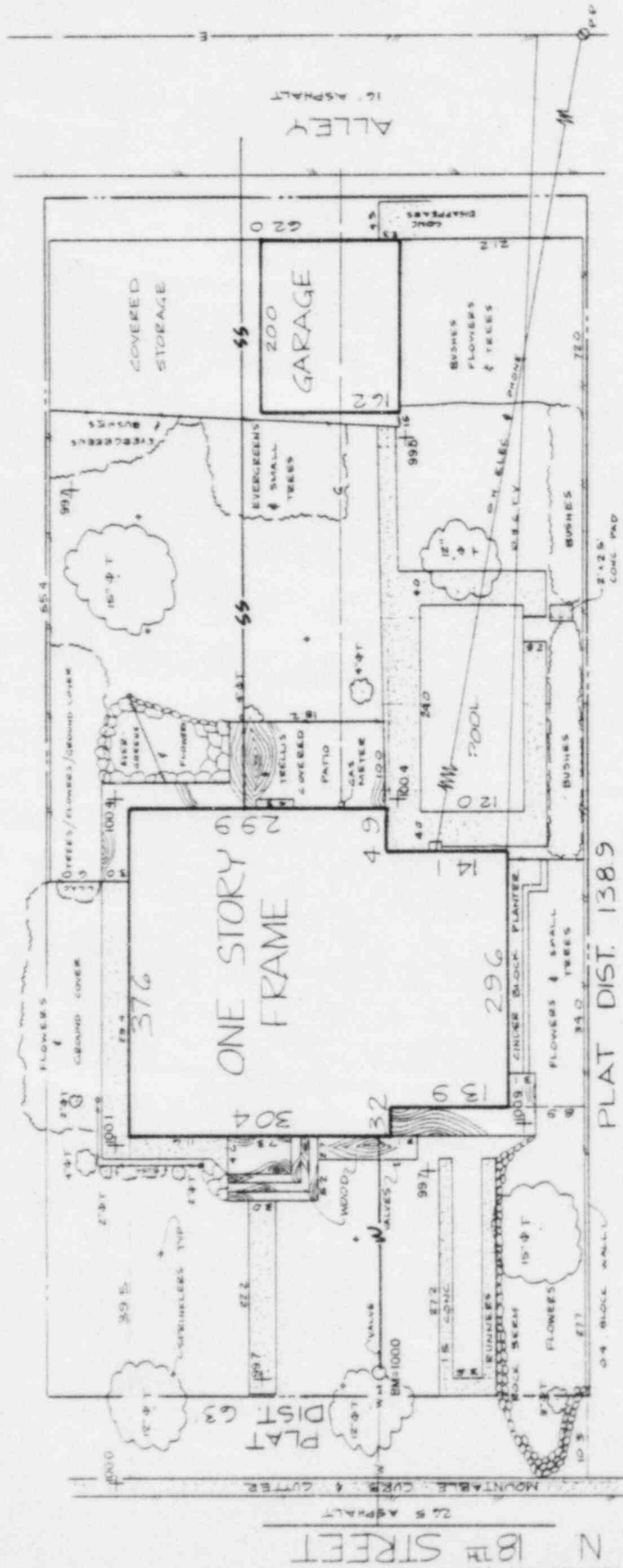
CONTRACTOR OVERHEAD & PROFIT @ 40% 588

GRAND TOTAL \$ 2,059



FIGURE 2.1
VICINITY MAP





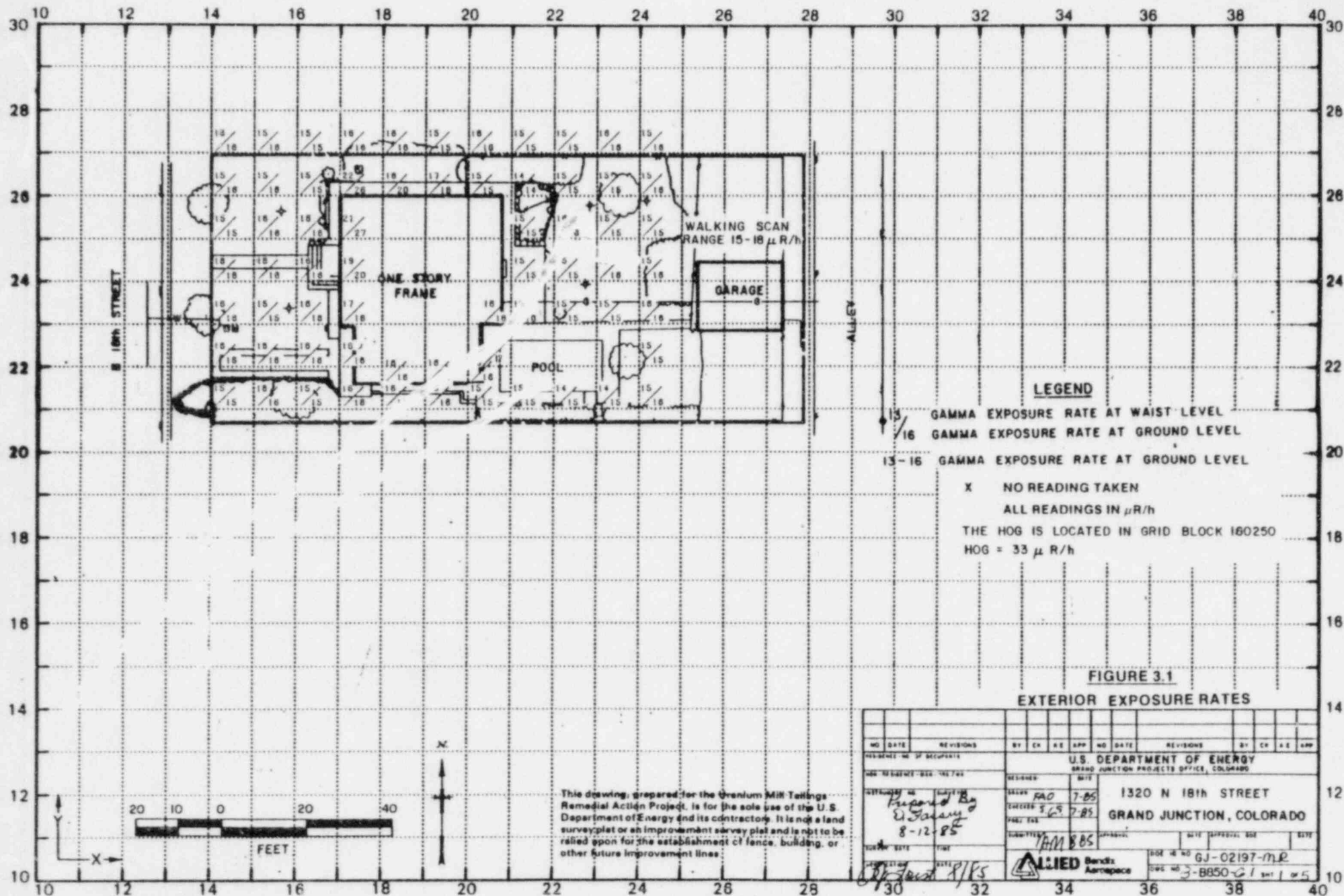
LOT 17 BLOCK 5 ELMWOOD PLAZA REFIL
 GRAND JCT. MESA COUNTY COLO

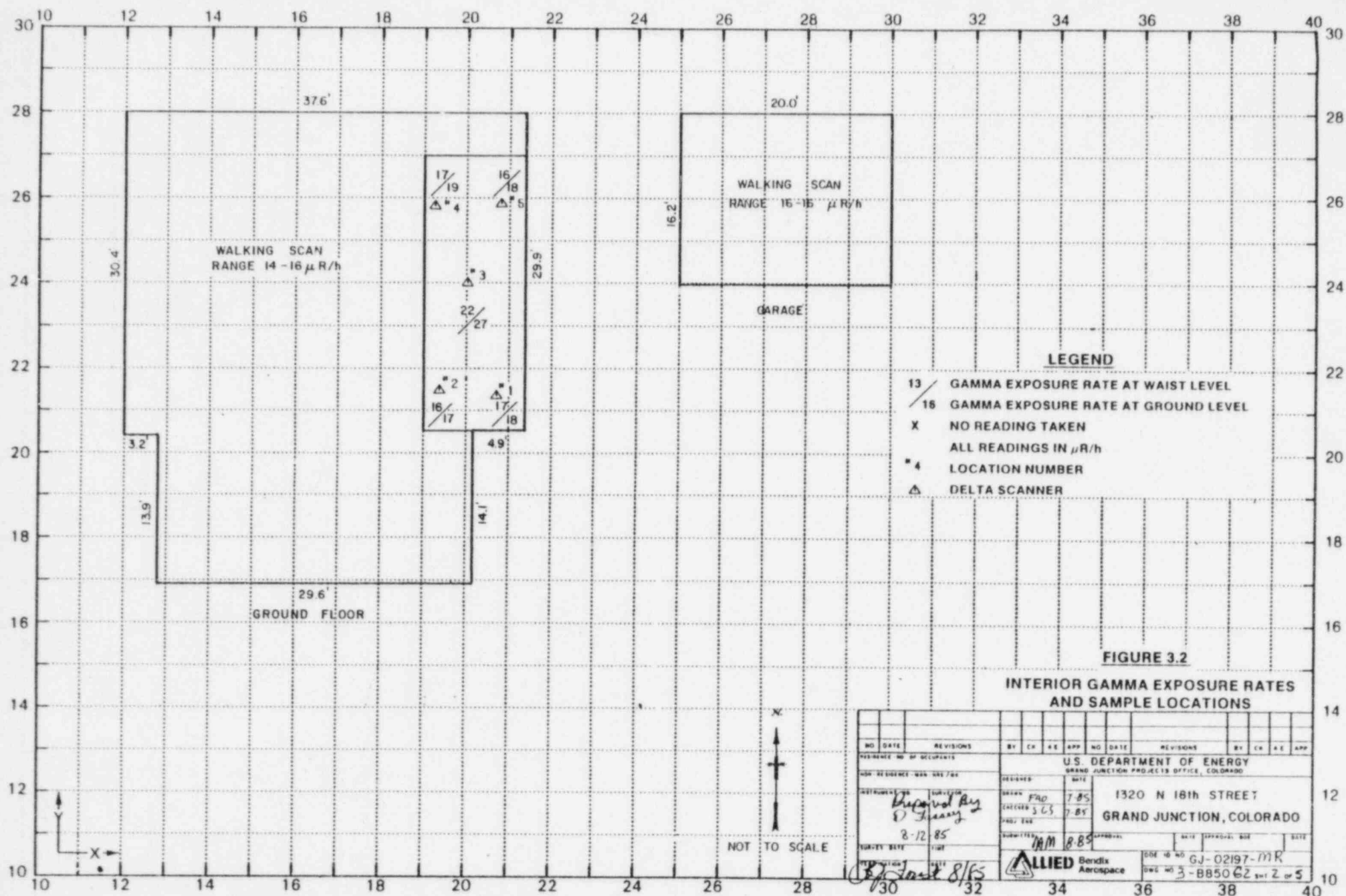
FIGURE 2.2 SITE PLAN

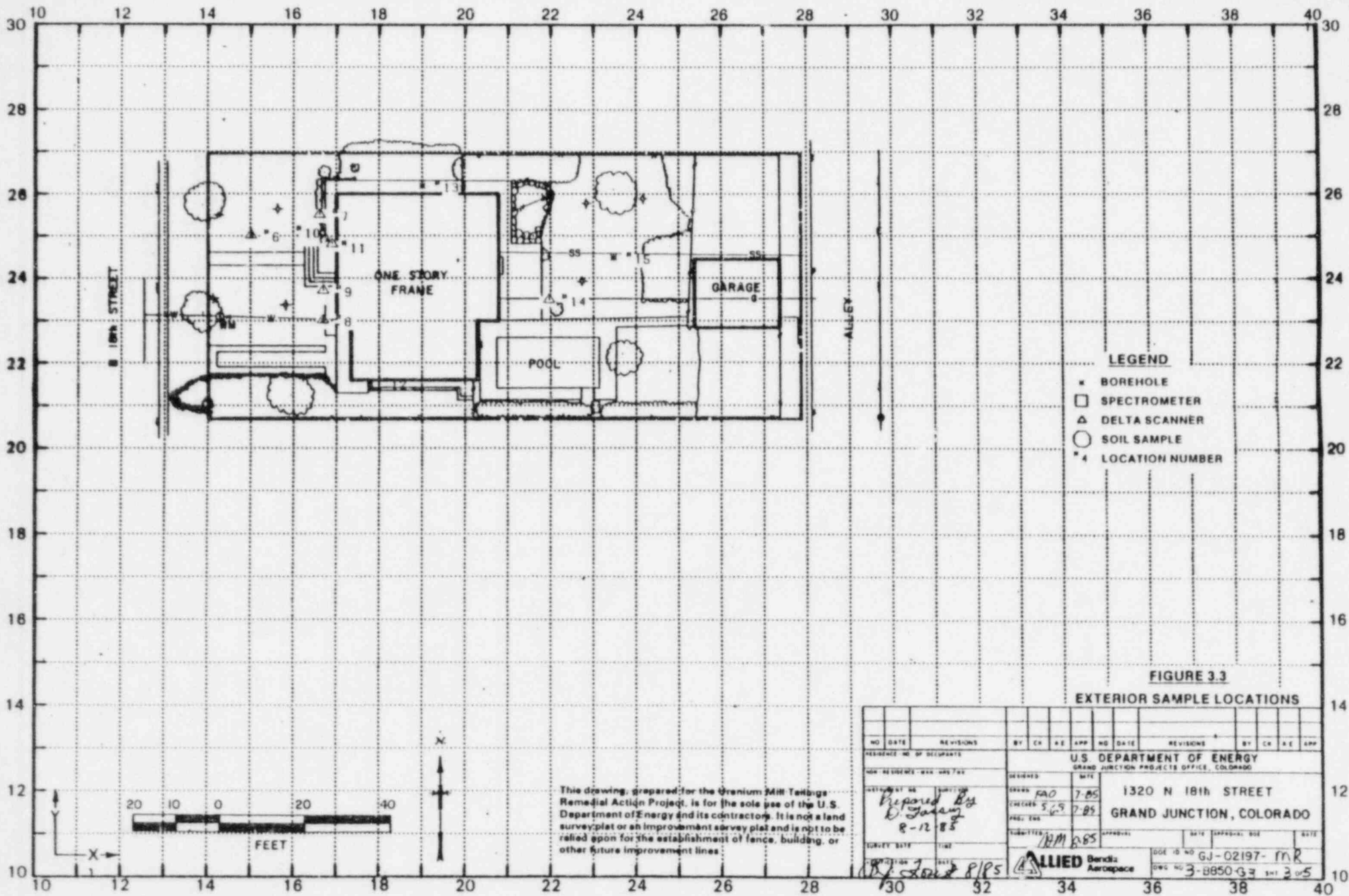
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION PROJECT OFFICE, COLORADO	DOE ID NO. GJ02197-MR
ADDRESS 1320 N 18th STREET GRAND JUNCTION, COLO	ALBEDO
SURV GPE 7-26-85 (SHEET 13/29-85)	ALBEDO
DRAWING NO. 3-C-850-F-1	SHEET 1 OF 1

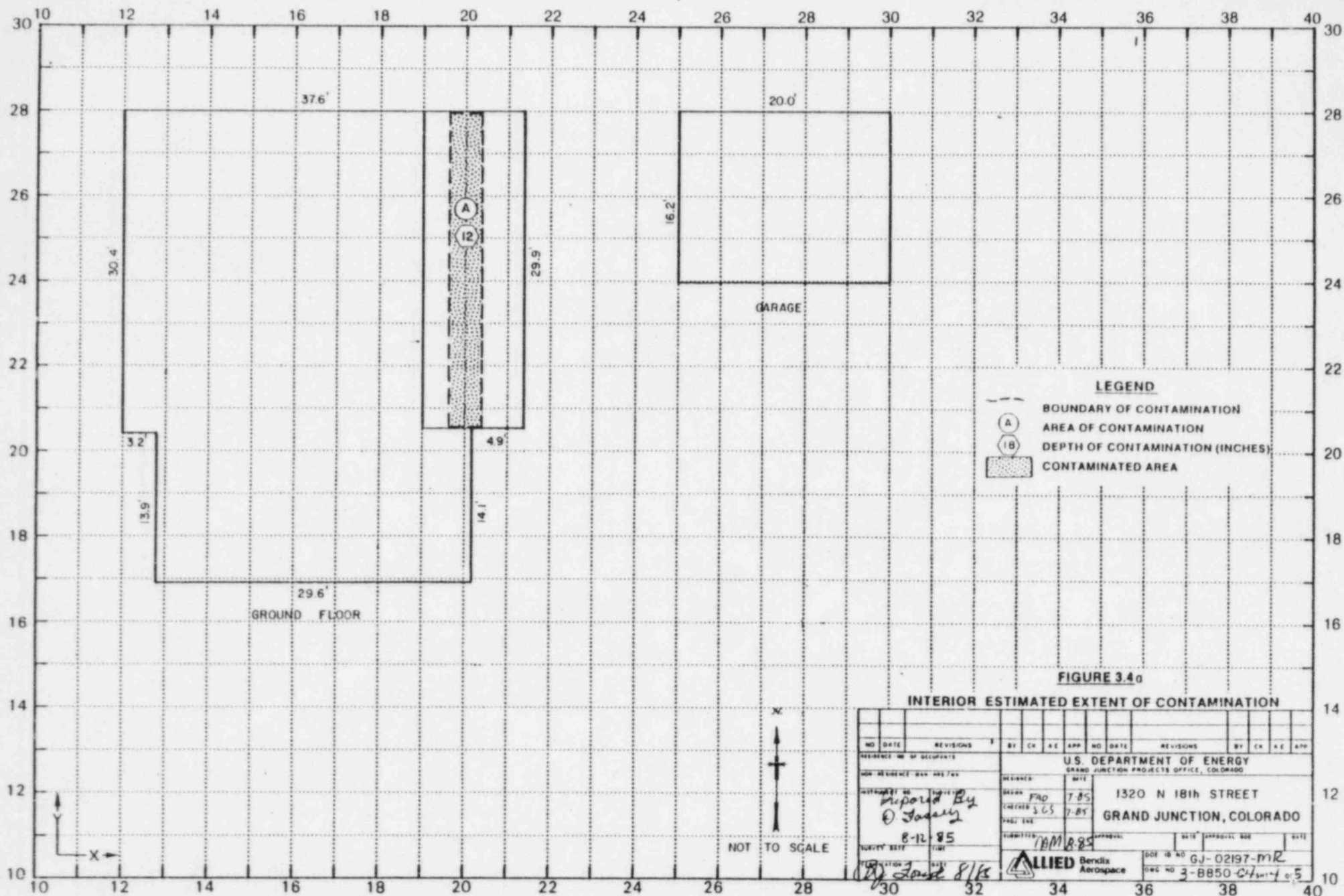


This drawing, prepared for the Uranium Mill Tailings Remedial Action Project, is for the sole use of the U.S. Department of Energy and its contractors. It is not to be used for any other purpose without the written consent of the U.S. Department of Energy. The drawing is not to be relied upon for the establishment of fence, building, or other future improvement lines.









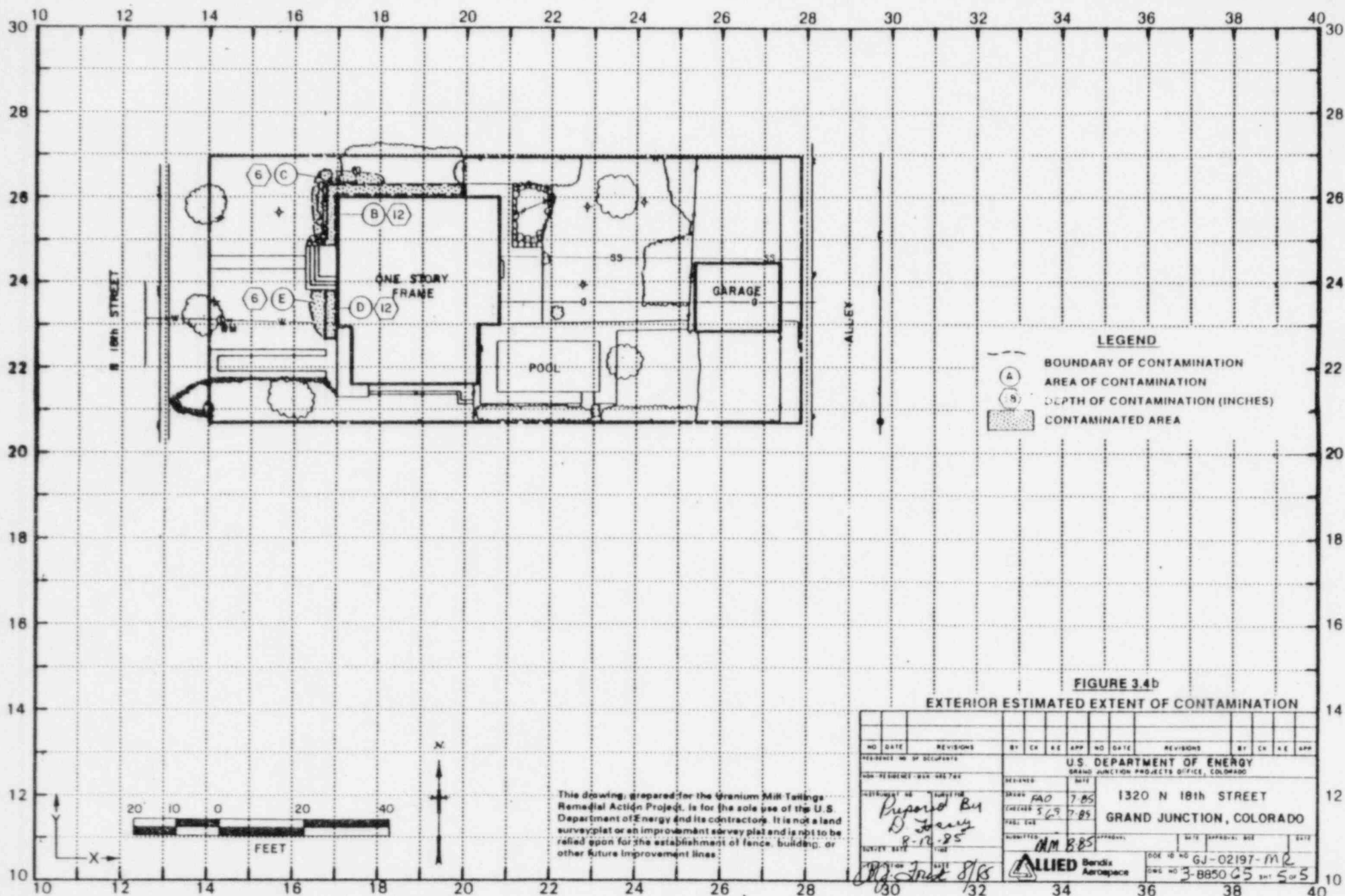


FIGURE 3.4b

EXTERIOR ESTIMATED EXTENT OF CONTAMINATION

DATE OF ESTIMATE, EXTENT OF CONTAMINATION													
NO	DATE	REVISIONS	BY	CR	R/E	APP	NO	DATE	REVISIONS	BY	CR	R/E	APP
RESIDENT NO. OF OCCUPANTS						U.S. DEPARTMENT OF ENERGY							
FORM RESIDENT NO. 045700						GRAND JUNCTION PROJECTS OFFICE, COLORADO							
ADDRESS NO.		SECTION		REMOVED		DATE		1320 N 18TH STREET GRAND JUNCTION, COLORADO					
Bureau By				DRUGS		FAD 7-85							
D. J. J. J.				CHEMICALS		S-2 7-85							
8-12-85				PAC. ENG.				GRAND JUNCTION, COLORADO					
				NUMBERS		MM 885							
				APPROVAL									
SUNNY BAY		TIME		DATE		APPROVAL		DATE		DATE			
8-12-85													
30		32		34		36		38					

3/85

DOE ID NO. GJ-02197-MR

Date August 12, 1985

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

Official Survey Report

Property Address 1320 North 18th Street, Grand Junction, Co. 81501

Property Owner Curtis W. and Kathleen I. Jones

Address of Owner (if different from above) _____

Report Prepared By Daniel P. Fossey

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

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

☒ 1 Residual radioactive materials found at the following locations:

☐ 1 In open areas.

☒ 1 Under or around exterior improvements.

☐ 1 Under or around a typically nonoccupied structure.

☒ 1 Under or around a typically occupied structure.

II. RESULTS OF RADIOLOGIC ASSESSMENT

☐ 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 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.

BIG = 27 uR/h
HOG = 33 uR/h

MEMORANDUM

ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado

Date: August 5, 1985

To: Files

From: Daniel Fossey

Subject: Team Leader Notes - GJ-02197-MR

Address: 1320 North 18th Street

Owner: Curtis W. and Kathleen I. Jones

Telephone: (303) 245-8290 - Home
(303) 245-6770 - Work (Curtis)

Arrival Time: 7:45 AM

Team Members

D. Fossey (Team Leader)	S. Larsen
M. Duran	N. Wallace
T. Flores	

Instruments

See Equipment Operational Summary sheet

Oak Ridge National Laboratory (ORNL) and Colorado Department of Health (CDH) data indicates elevated gamma readings in the family room of the primary structure and in the sidewalk north and west of the primary structure.

T. Flores arrived on the site at approximately 9:30 AM to assist in the survey.

Team Leader Notes
Daniel Fossey
GJ-02197-MR
August 5, 1985
Page 2

Elevated gamma readings were recorded on the sidewalk, which extends along the west and north foundation of the primary structure. The portion of the sidewalk that extends south from the west stoop is covered by a wooden deck. This deck is approximately 3 inches above the sidewalk.

Slightly elevated gamma readings were noted in the family room of the primary structure. Delta readings were taken at various locations in this room to investigate these readings. No gamma readings were taken in the crawl space beneath this room, due to the fact that there was no access to this area. The contamination in this room is believed to be associated with a sidewalk that may be located in the crawl space beneath the room. Accurate footing/foundation information was impossible to obtain for this portion of the primary structure, due to no access to the crawl space and the adjacent concrete patio.

The water and sewer lines were located by team members and these locations were noted on the Exterior Sample Location Field maps.

A sprinkler system line was damaged slightly when a team member sat the auger down on the line. Ira Caley was contacted and asked to bring the necessary parts to repair the line. The sprinkler line was repaired by team members.

The survey was completed at 12:30 PM.

All team members were alpha scanned before returning to the compound.

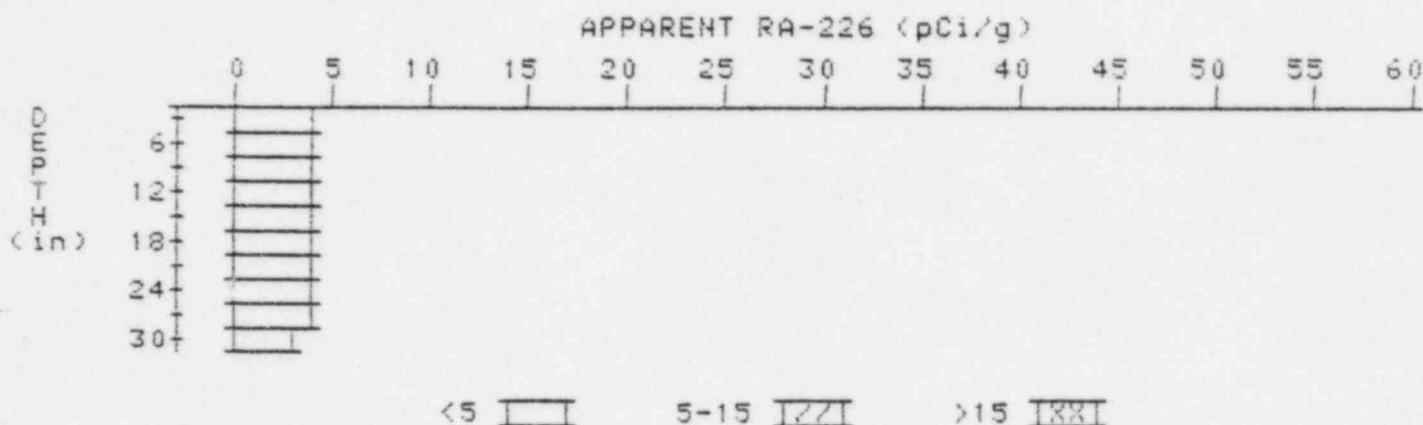
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

6

PROPERTY NUMBER: GJ-02197-MR

HOLE NUMBER: 6

LOCATION: 150250



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

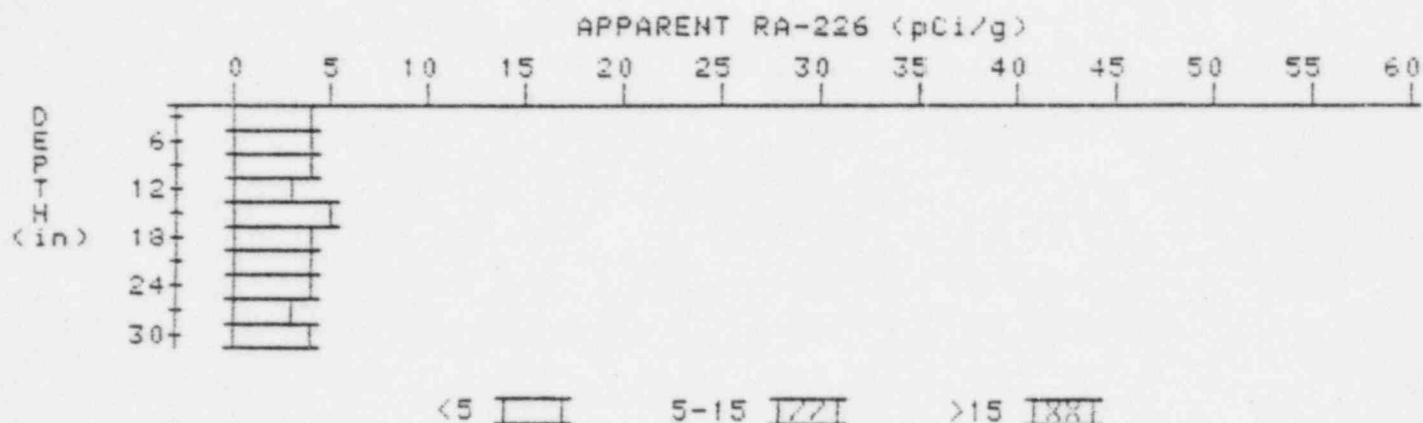
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

8

PROPERTY NUMBER: GJ-02197-MR

HOLE NUMBER: 8

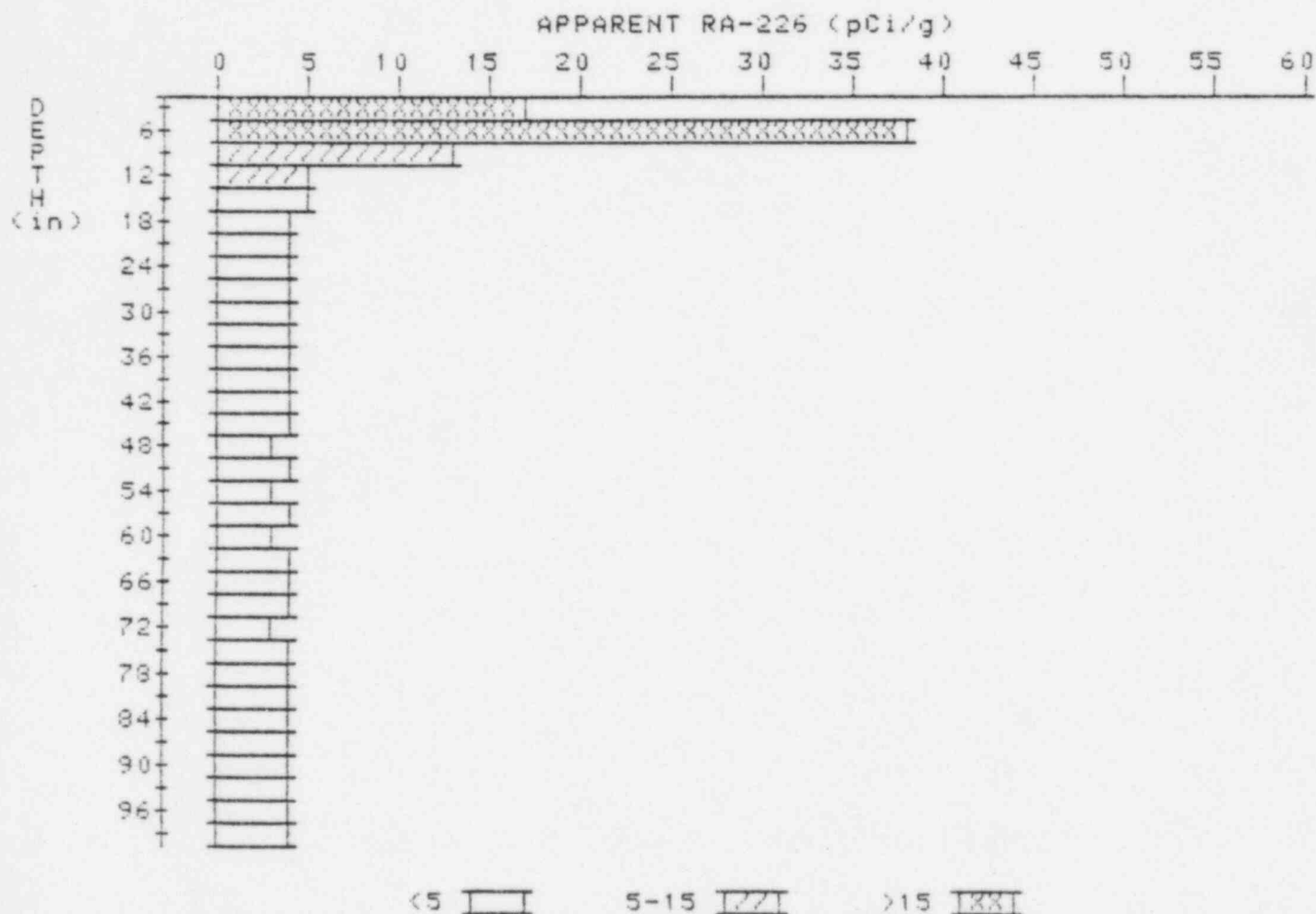
LOCATION: 167230



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.5	3.5
6	3.7	4.1
9	3.7	4.1
12	3.5	2.6
15	3.6	4.5
18	3.7	3.5
21	3.7	3.7
24	3.7	3.9
27	3.6	3.2
30	3.7	3.7

APPARENT RADIUM-226 CONCENTRATION 10 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-02197-MR
HOLE NUMBER: 10
LOCATION: 168249



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	16.6	16.6
6	20.5	37.9
9	14.6	13.2
12	9.5	5.1
15	6.9	4.8
18	5.3	4.4
21	4.7	4.0
24	4.3	3.9

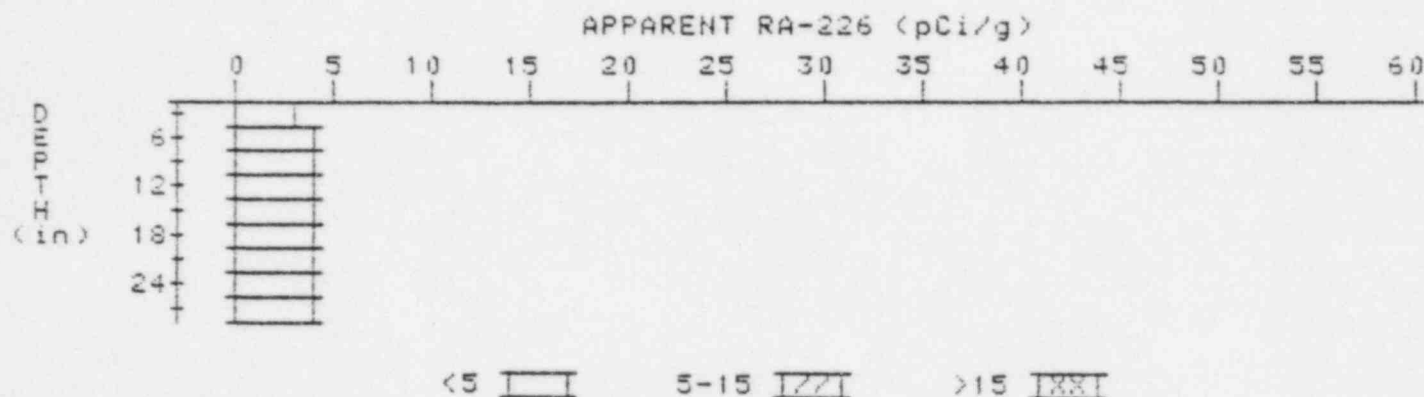
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APPARENT RADIUM-226 CONCENTRATION 12 DECONVOLUTION GRAPH

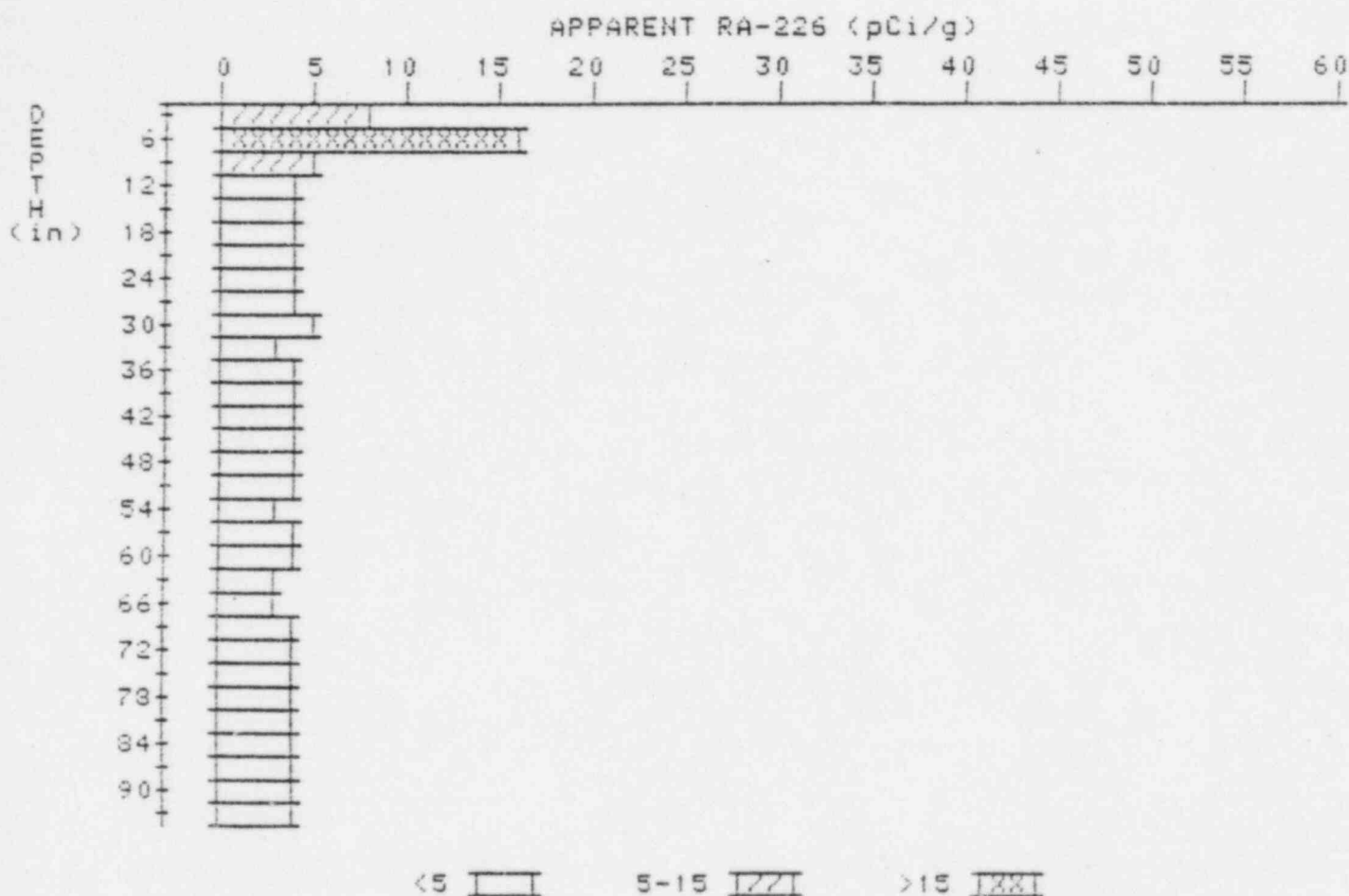
PROPERTY NUMBER: GJ-02197-MR
HOLE NUMBER: 12
LOCATION: 178215



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

APPARENT RADIUM-226 CONCENTRATION 13 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-02197-MR
HOLE NUMBER: 13
LOCATION: 190262



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	8.2	8.2
6	9.5	16.3
9	7.0	5.2
12	5.5	4.3
15	4.7	3.8
18	4.4	4.4
21	4.1	3.7
24	4.0	4.0
27	3.9	3.5

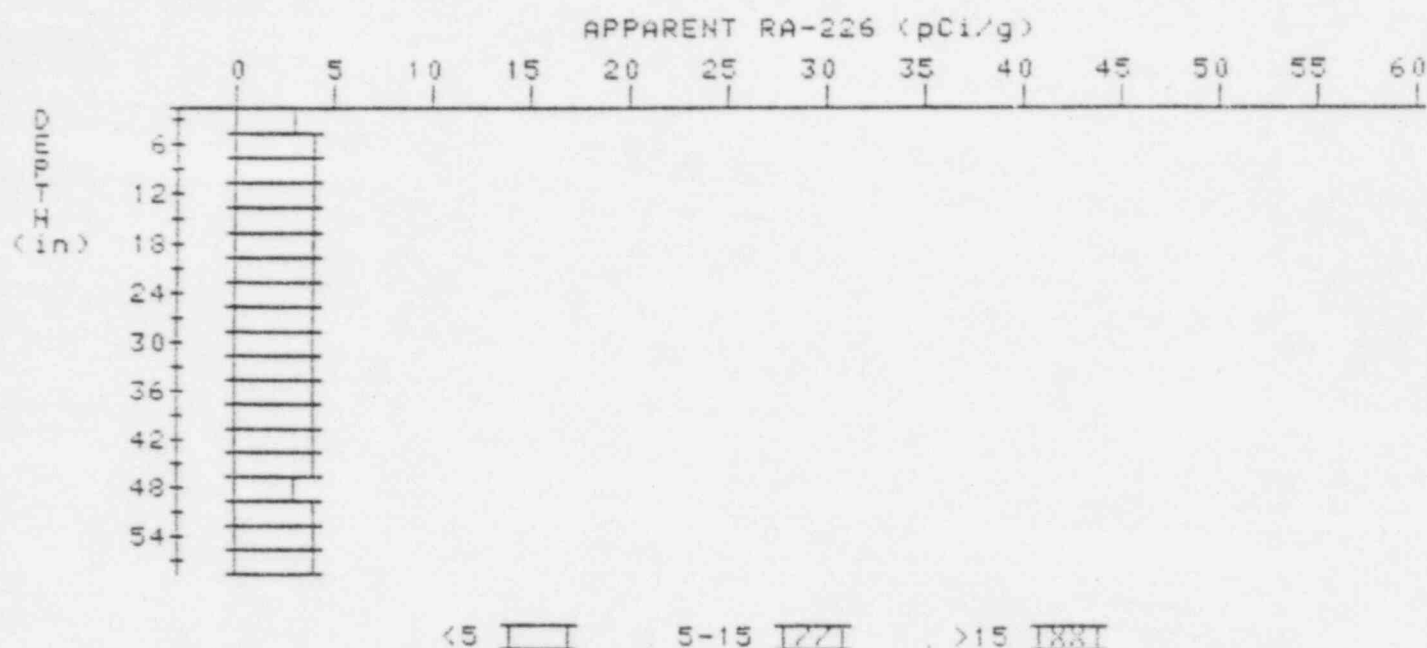
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3.7
3.6
3.7
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4.0
4.0
4.0
4.1

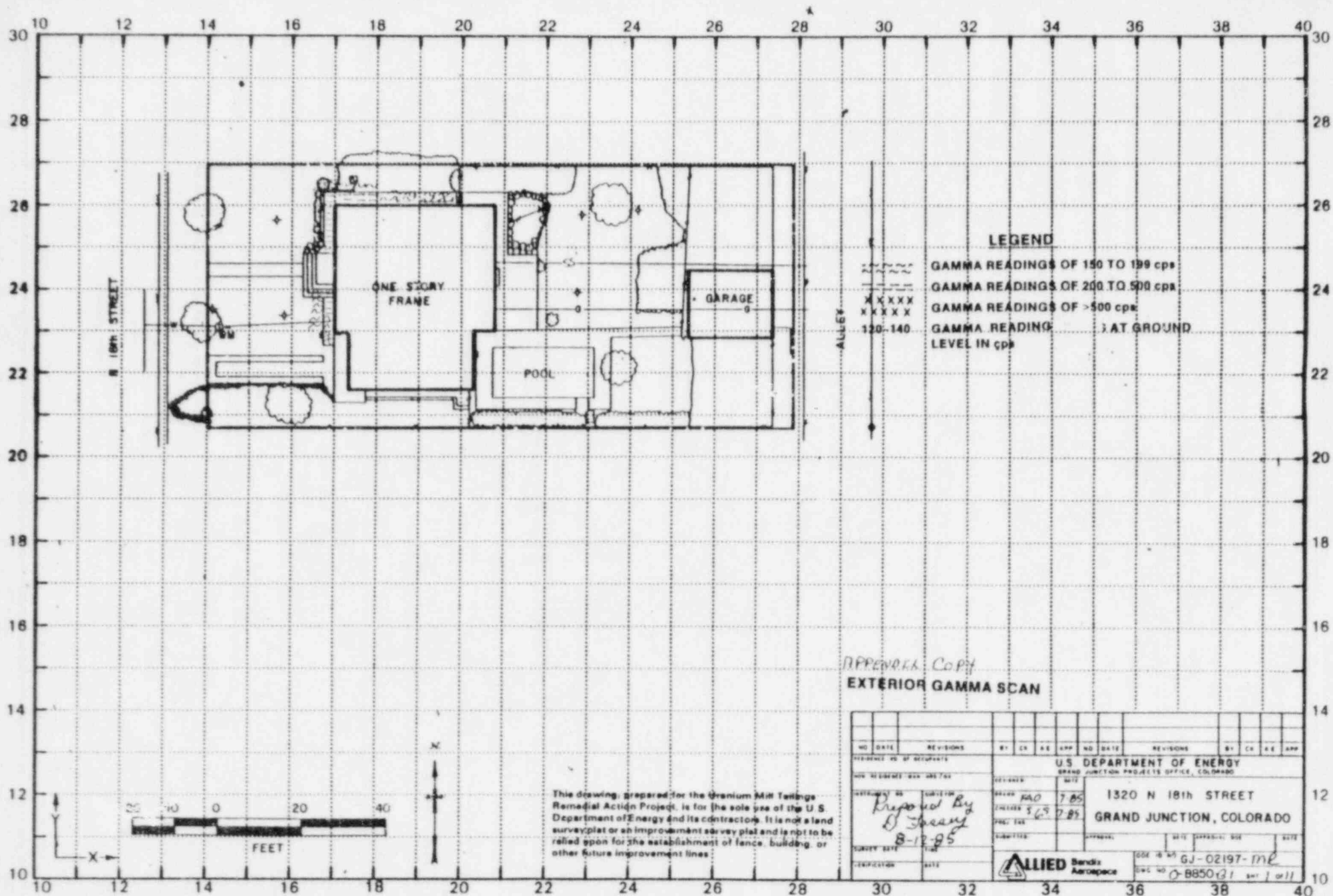
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3.4
3.4
3.6
4.3
3.9
3.7
4.2
4.0
4.0
3.8
4.1

· APPARENT RADIUM-226 CONCENTRATION 15 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-02197-MR
HOLE NUMBER: 15
LOCATION: 235245



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.4	3.4
6	3.7	4.1
9	3.8	4.0
12	3.8	3.6
15	3.9	4.1
18	3.9	3.9
21	3.9	3.9
24	3.9	3.9
27	3.9	3.9
30	3.9	3.9
33	3.9	3.9
36	3.9	3.9
39	3.9	3.9
42	3.9	3.9
45	3.9	4.1
48	3.9	3.4
51	3.9	4.3
54	3.9	3.6



APPENDIX COPY
EXTERIOR GAMMA SCAN

[illegible]