

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-11579-RS
ADDRESS: 2508 ELM AVENUE

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

M. Tucker EOP

M. TUCKER
DOE PROJECT ENGINEER

DATE

August 7, 1985

REA11579:REA-705

8508300283 850807
PDR WASTE PDR
WM-54

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-11579-RS, is a single-family residence located at 2508 Elm Avenue, 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, 15 cu. yd.; interior, 0 cu. yd.

Areas A and B are not included in this remedial action, as discussed in Section 4.0 of this REA.

Estimated cost to perform remedial action, is \$2,809. Remedial action on this property will take approximately 8 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 2508 Elm Avenue, Grand Junction, Colorado

Zoning: Residential (RSF-8)

Lot Size: Approximately 16,125 sf (0.37 acres)

Legal Description: Lots 17 and 18, Block 2, East Elm Avenue Heights Subdivision, Section 12, 1S, 1W, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 2 mile(s) 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:	Overhead

Bordering Properties:

North:	Alley (gravel)
South:	Elm Avenue
East:	Single-family residence
West:	North 25th Street

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence
Size:	Approximately 1,104 sf
Construction Date:	1941
Construction:	Wood-frame
Foundation:	Concrete stemwall on spread footing
Footing Depth:	Approximately 8' to bottom of footing from grade
Basement:	Yes - full
Crawl Space:	No
Condition:	Good

Other Structures:

Type:	Garage
Size:	Approximately 480 sf
Construction:	Wood-frame
Foundation:	Concrete slab-on-grade
Condition:	Good

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-11579-RS on June 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 contamination located by the northwest corner of the garage, near the step on the north side of the primary structure, around a water faucet on the east side of the primary structure, on and around the south step, around the water meter, and the city sidewalk west of the property. These data also indicate that several point sources were found, and some were removed from the property. Point sources under the west side of the garage and in the cellar stairwell were left in place.

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, 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 17 uR/h
Highest Outside Gamma Reading (HOG): 87 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: 13 to 17 uR/h
Highest Inside Gamma Reading (HIG): 34 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 3.2 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 3.2 and 3.3. Data from these investigations are included in Appendix Tables 3.1 and 3.2.

3.4 Radon/Radon Daughter Concentration (RDC)

Determined by CDH: 0.016 gross working level (WL). No additional RDC measurements were taken by Bendix.

3.5 Extent of Contamination

Appendix Figures 3.4a and 3.4b shows identified areas and estimated depths of contamination on this property, based on assessments of all measurements taken. As noted in these figures, areas that contain identified residual radioactive materials are:

- (Area A) Surface Material: Concrete
 Direction From Primary Structure: Interior
 Other Directions: Cellar stairwell
 Total Depth of Contamination: Surface
 Comments: Point source in concrete
 Approximate Square Footage: 1 - this area has been excluded from remedial action.
- (Area B) Surface Material: Concrete
 Direction From Primary Structure: Northeast
 Other Directions: Northwest corner of garage
 Total Depth of Contamination: Surface
 Other (height or thickness): Concrete is 4 inches thick
 Comments: Point source in concrete
 Approximate Square Footage: 1 - this area has been excluded from remedial action.
- (Area C) Surface Material: Soil
 Direction From Primary Structure: Northeast
 Other Directions: North of garage
 Total Depth of Contamination: 12 inches
 Approximate Square Footage: 25
- (Area D) Surface Material: Soil
 Direction From Primary Structure: North
 Other Directions: West of garage
 Total Depth of Contamination: 12 inches
 Comments: The sewer line is buried beneath this area.
 Approximate Square Footage: 66
- (Area E) Surface Material: Soil
 Direction From Primary Structure: Northeast
 Other Directions: Northwest corner of garage
 Total Depth of Contamination: 6 inches
 Approximate Square Footage: 24

- (Area F) Surface Material: Concrete
Direction From Primary Structure: South
Other Directions: South stoop
Total Depth of Contamination: Surface
Other (height or thickness): 12-inch-thick concrete
Comments: Point sources in concrete
Approximate Square Footage: 36
- (Area G) Surface Material: Soil
Direction From Primary Structure: Southeast
Other Directions: North of sidewalk
Total Depth of Contamination: 6 inches
Approximate Square Footage: 12
- (Area H) Surface Material: Soil
Direction From Primary Structure: South
Other Directions: North of Elm Avenue
Total Depth of Contamination: 18 inches
Comments: This area surrounds the water meter.
Approximate Square Footage: 112
- (Area I) Surface Material: Concrete
Direction From Primary Structure: West
Other Directions: Along west property line
Total Depth of Contamination: 4 inches
Other (height or thickness): Concrete is 4 inches thick
Comments: City sidewalk
Approximate Square Footage: 296

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-11579-RS, includes removal of all areas identified as containing radioactive material (as discussed in Section 3.5 and shown in Appendix Figure 3.4b) and transport of removed material to the disposal site.

Remedial action shall not be performed on Areas A and B of this property because the levels of radioactivity in these areas 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, as determined by CDH, is 0.016.)
- (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 13 and 17 uR/h, with the highest mean surface gamma reading at 22 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 \$2,809.

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 Grid-Point Exposure Rates
Figure 3.2	Interior Gamma Exposure Rates and Sample Locations - Ground Floor
Figure 3.3	Exterior Sample Locations
Figure 3.4a	Interior Estimated Extent of Contamination- Ground Floor
Figure 3.4b	Exterior Estimated Extent of Contamination

Official Survey Report

Memo of Understanding

Team Leader Notes

Deconvolution Graphs (Apparent Radium-226 Concentration)

Exterior Gamma Scan Map

Radium Concentrations at Exterior Locations

DOE ID #GJ-11579-RS

2508 Elm Avenue

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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.		
3	128278	03	TC	50.9		*	North alley
		06	TC	55.1		*	
		09	TC	35.0		*	
		12	TC	17.9		*	DC = 12 inches Based on the deconvolution graph
		15	TC	9.8		*	
		18	TC	6.3		*	
		21	TC	4.6		*	
		24	TC	3.8		*	
		27	TC	3.5		*	
		30	TC	3.3		*	
4	130176	00	DS	6.6		*	On sidewalk
5	134266	00	DS	5.6		*	North fence line
		06	DS	6.0		*	West of garage
		12	DS	1.7		*	
6	134277	00	DS	4.2		*	Northwest corner of garage
		06	DS	1.2		*	
		03	TC	4.4		*	
		06	TC	4.1		*	DC = 6 inches Based on all available data
		09	TC	3.6		*	
		12	TC	3.3		*	
		15	TC	3.1		*	
		18	TC	3.0		*	
		21	TC	3.0		*	
		24	TC	3.0		*	
		27	TC	3.0		*	
		30	TC	3.0		*	
		33	TC	3.0		*	
		36	TC	3.0		*	
7	157280	03	TC	3.0		*	South of garage DC = 0 inches
		06	TC	3.2		*	
		09	TC	3.3		*	
		12	TC	3.2		*	
		15	TC	3.0		*	
		18	TC	2.9		*	
		21	TC	2.9		*	
		24	TC	3.0		*	
		27	TC	2.9		*	
		30	TC	2.9		*	
		33	TC	2.8		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-11579-RS

2508 Elm Avenue

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
7	157280	36	TC	2.8		*	
		39	TC	2.8		*	
8	169251	00	DS	1.7		*	Next to stoop North side of primary structure DC = 0 inches
		03	TC	3.6		*	
		06	TC	3.5		*	
		09	TC	3.4		*	
		12	TC	3.2		*	
		15	TC	3.1		*	
		18	TC	3.1		*	
		21	TC	3.0		*	
		24	TC	2.9		*	
		27	TC	2.9		*	
		30	TC	2.9		*	
		33	TC	3.0		*	
		36	TC	3.0		*	
		39	TC	2.9		*	
		42	TC	3.1		*	
9	177261	00	DS	2.4		*	East of primary structure
		06	DS	<1.0		*	
10	189178	00	DS	5.8		*	On sidewalk
11	190178	03	TC	4.2		*	West sidewalk DC = 4 inches Based on all available data
		06	TC	3.9		*	
		09	TC	3.6		*	
		12	TC	3.4		*	
		15	TC	3.4		*	
		18	TC	3.4		*	
		21	TC	3.3		*	
		24	TC	3.3		*	
		27	TC	3.3		*	
		30	TC	3.3		*	
		33	TC	3.2		*	
12	200280	00	DS	1.2		*	Background DC = 0 inches
		03	TC	2.8		*	
		06	TC	2.9		*	
		09	TC	3.0		*	
		12	TC	3.0		*	
		15	TC	3.0		*	
		18	TC	3.0		*	
		21	TC	3.1		*	
		24	TC	3.1		*	

Radium Concentrations at Exterior Locations

DOE ID #GJ-11579-RS

2508 Elm Avenue

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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.		
12	200280	27	TC	3.1		*	
		30	TC	3.1		*	
		33	TC	3.0		*	
13	202235	00	DS	1.6		*	Gas line
		12	DS	<1.0		*	
14	217252	00	DS	61.2		*	South stoop
15	218247	00	DS	1.8		*	West of south stoop
		06	DS	1.9		*	
16	219254	00	DS	3.7		*	On south stoop
17	220251	00	DS	2.8		*	South stoop
18	223249	00	DS	<1.0		*	South stoop
		00	DS	<1.0		*	Horizontal
19	250180	00	DS	2.0		*	Beside west sidewalk
		06	DS	2.6		*	Horizontal under sidewalk
20	264255	00	DS	2.3		*	
		06	DS	<1.0		*	
21	264265	03	TC	23.7		*	
		06	TC	24.6		*	
		09	TC	21.3		*	
		12	TC	16.8		*	
		15	TC	12.2		*	
		18	TC	9.2		*	
		21	TC	7.2		*	
		24	TC	5.8		*	
		27	TC	5.0		*	
		30	TC	4.5		*	
		33	TC	4.2		*	
		36	TC	3.9		*	
		39	TC	3.7		*	
		42	TC	3.6		*	
		45	TC	3.6		*	
		48	TC	3.6		*	

DC = 18 inches
Based on the
deconvolution graph

Radium Concentrations at Exterior Locations

DOE ID #GJ-11579-RS

2508 Elm Avenue

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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.		
22	267294	00	DS	5.4		*	Southeast corner of property
		06	DS	2.2		*	

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 = 06-24-85
 Team Leader = DM

Radium Concentrations at Interior Locations

DOE ID #GJ-11579-RS

2508 Elm Avenue

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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	13.1		*	Northwest corner of garage
2		00	DS	12.3		*	On step leading to cellar

Measurement Types:	GB = GAD-6 Borehole	Notes:	DC = Depth of Contamination
	GS = GAD-6 Surface		* = No Soil Sample Taken
	DS = Delta Scintillometer		[n] = Reading Taken n-Inches
	TC = Total Count Borehole		Above Floor or Ground
	SS = Soil Sample		Date of Survey = 06-24-85
	BH = Combined GAD-6 and		Team Leader = DM
	Total Count Borehole		

Table 3.3

Summary of Interior Gamma Exposure Rates

DOE ID No. GJ-11579-RS

2508 Elm Avenue

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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)
Room A	03	14-17	15	03	15-34	22
Room B	05	14-15	14	05	14-15	14
Room C	02	13-13	13	02	12-13	13
Room D	03	14-14	14	03	14-14	14
Room E	06	14-17	16	06	15-18	16
Room F	06	14-15	14	06	14-15	14
Room G	05	14-14	14	05	14-14	14
Room H	02	14-14	14	02	14-14	14
Room I	04	14-14	14	03	14-15	15
Garage	9	14-17	14	9	14-20	15

*Exposure rates and room locations are shown in Appendix Figure 3.2.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-11579-RS

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<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
EXTERIOR					
Concrete					
F	6 x 6 =	36	x 1.0 =	36	
I	2 x 148 =	296	x 0.3 =	89	
Volume of Concrete				= 125	= 125/27 = 5
Contaminated Fill					
C	5 x 5 =	25	x 1.0 =	25	
D	6 x 11 =	66	x 1.0 =	66	
E	6 x 4 =	24	x 0.5 =	12	
G	4 x 3 =	12	x 0.5 =	6	
H	14 x 8 =	112	x 1.5 =	168	
Volume of Fill				= 277	= 277/27 = 10
TOTAL VOLUME - EXTERIOR					= 15

See Appendix Figure 3.4b For Areas

Table 4.2
Estimated Cost of Decontamination and Restoration
DOE ID No. GJ-11579-RS

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EXTERIOR

Remove identified residual radioactive material 10 cy @ \$14.50/cy (machine-open)	\$ 145
Remove/replace concrete walk 296 sf @ \$3/sf	888
Remove/replace concrete stoop/steps 1 cy @ \$275/cy	275
Shore stoop roof Lump sum	50
Undermine concrete curb/fence 30 lf @ \$3/cf	90
Replace areas with topsoil 1 cy @ \$9.50/cy	10
Replace areas with roadbase 9 cy @ \$11.50/cy	104
Replace indoor/outdoor carpet 3 sy @ \$4/sy	12
	<hr/>
TOTAL EXTERIOR	\$ 1,574
TOTAL INTERIOR	0
ACCESS CONTROL	250
	<hr/>
SUBTOTAL	\$ 1,824
CONTINGENCY @ 10%	182
	<hr/>
SUBTOTAL	\$ 2,006
CONTRACTOR OVERHEAD & PROFIT @ 40%	803
	<hr/>
GRAND TOTAL	\$ 2,809

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JF080585
REAL1579/REA-705/AP

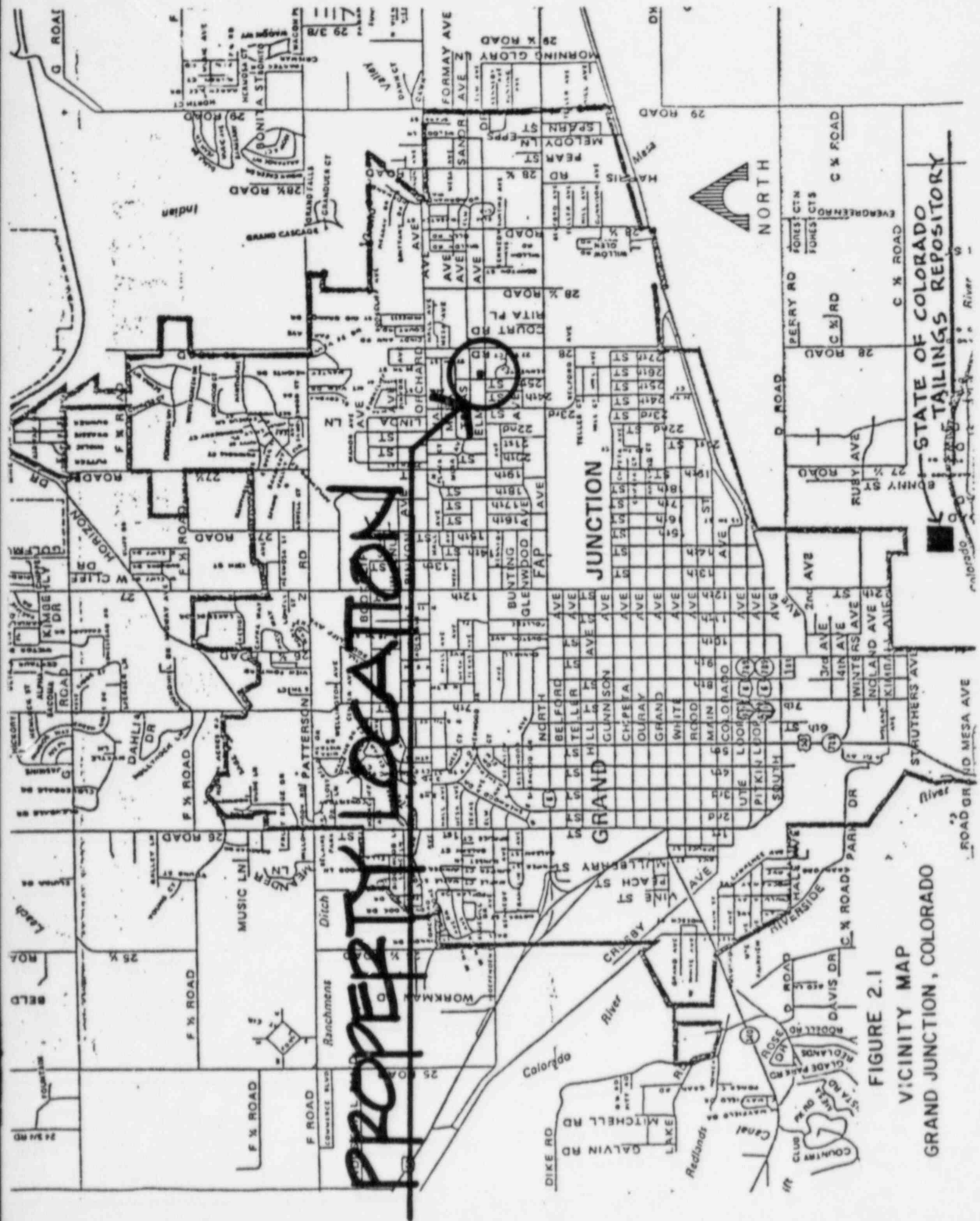


FIGURE 2.1

VICINITY MAP
GRAND JUNCTION, COLORADO

STATE OF COLORADO
TAILINGS REPOSITORY

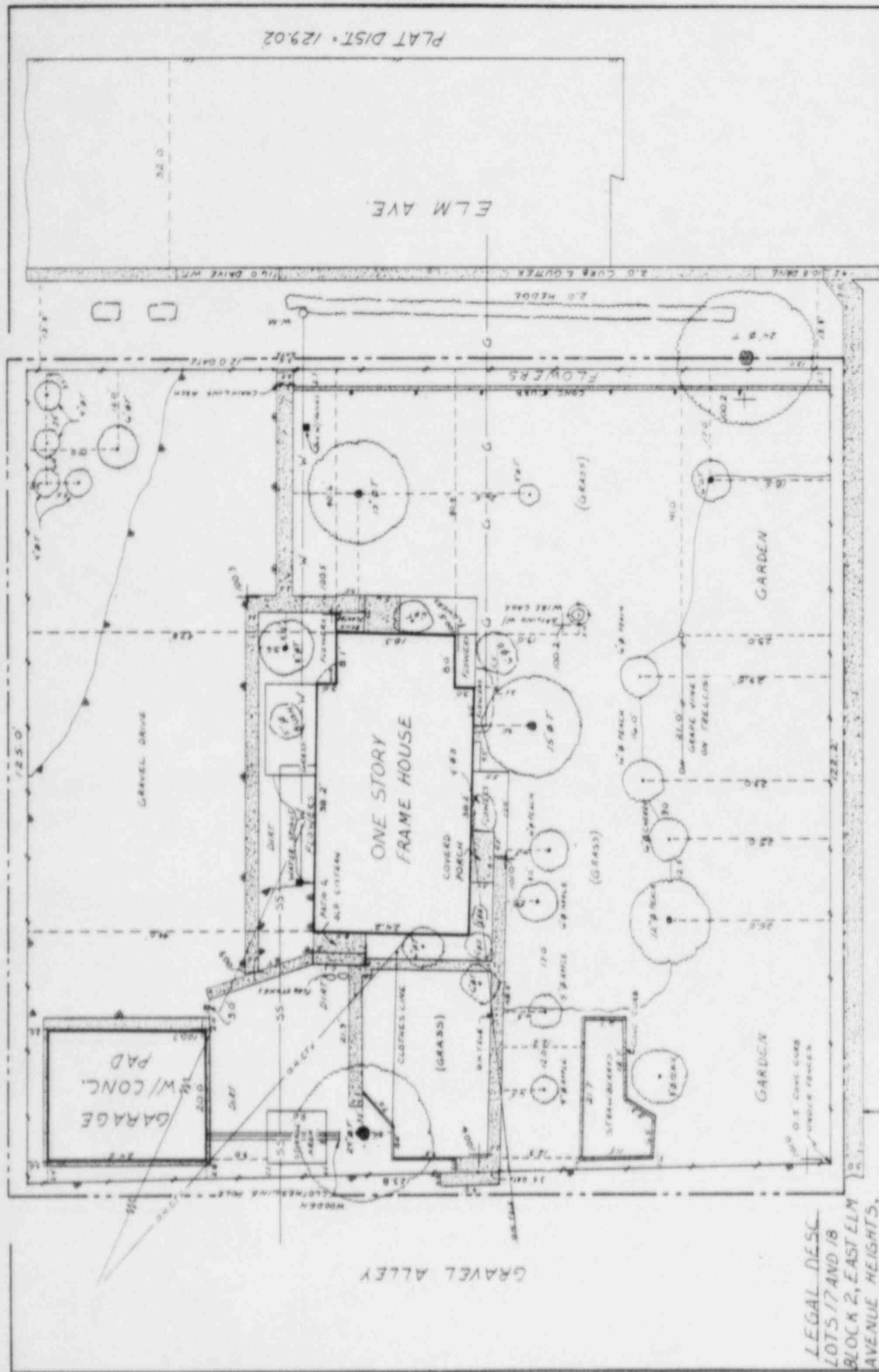


FIGURE 2.2 SITE PLAN



PLAT DIST. 128.5

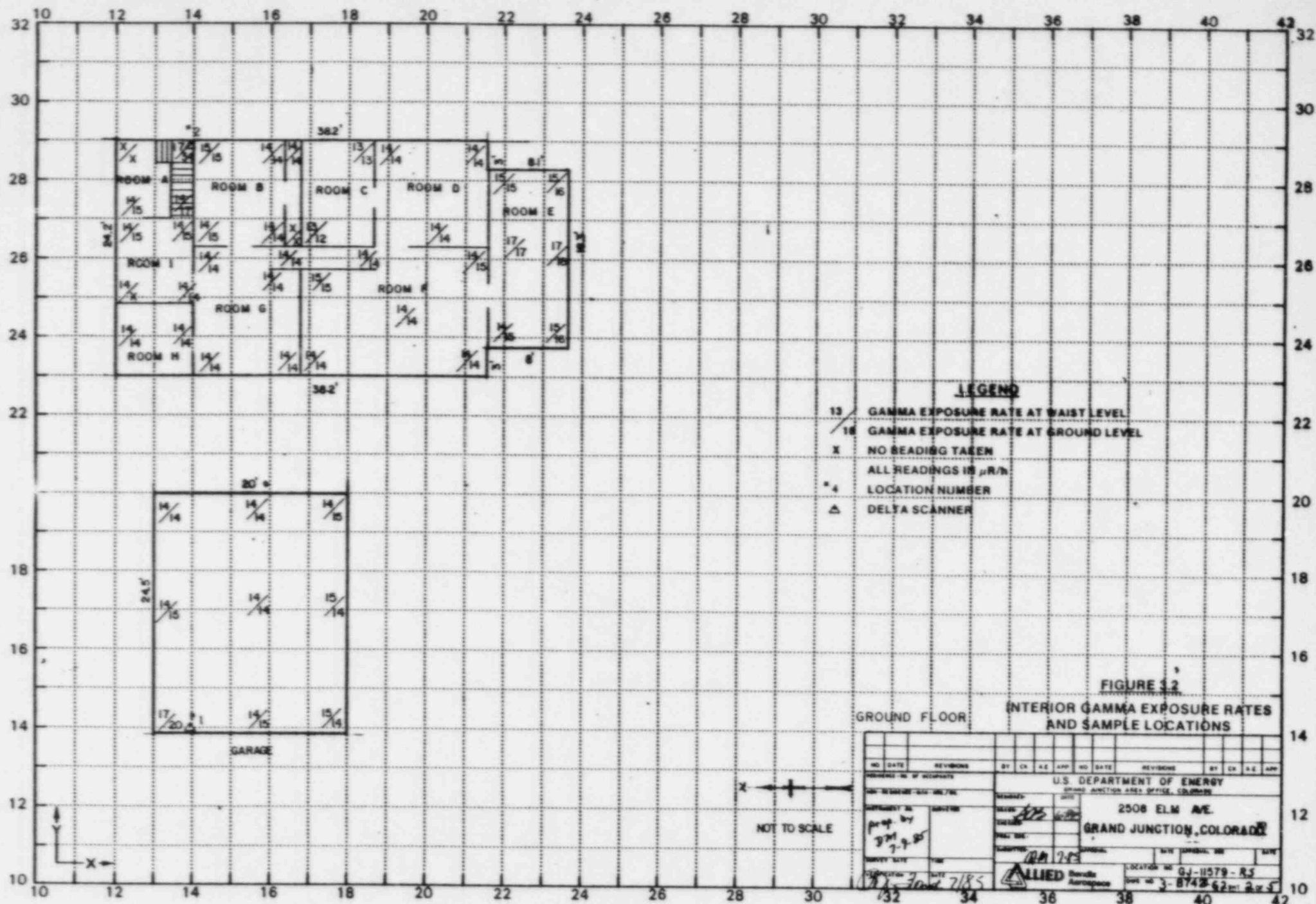


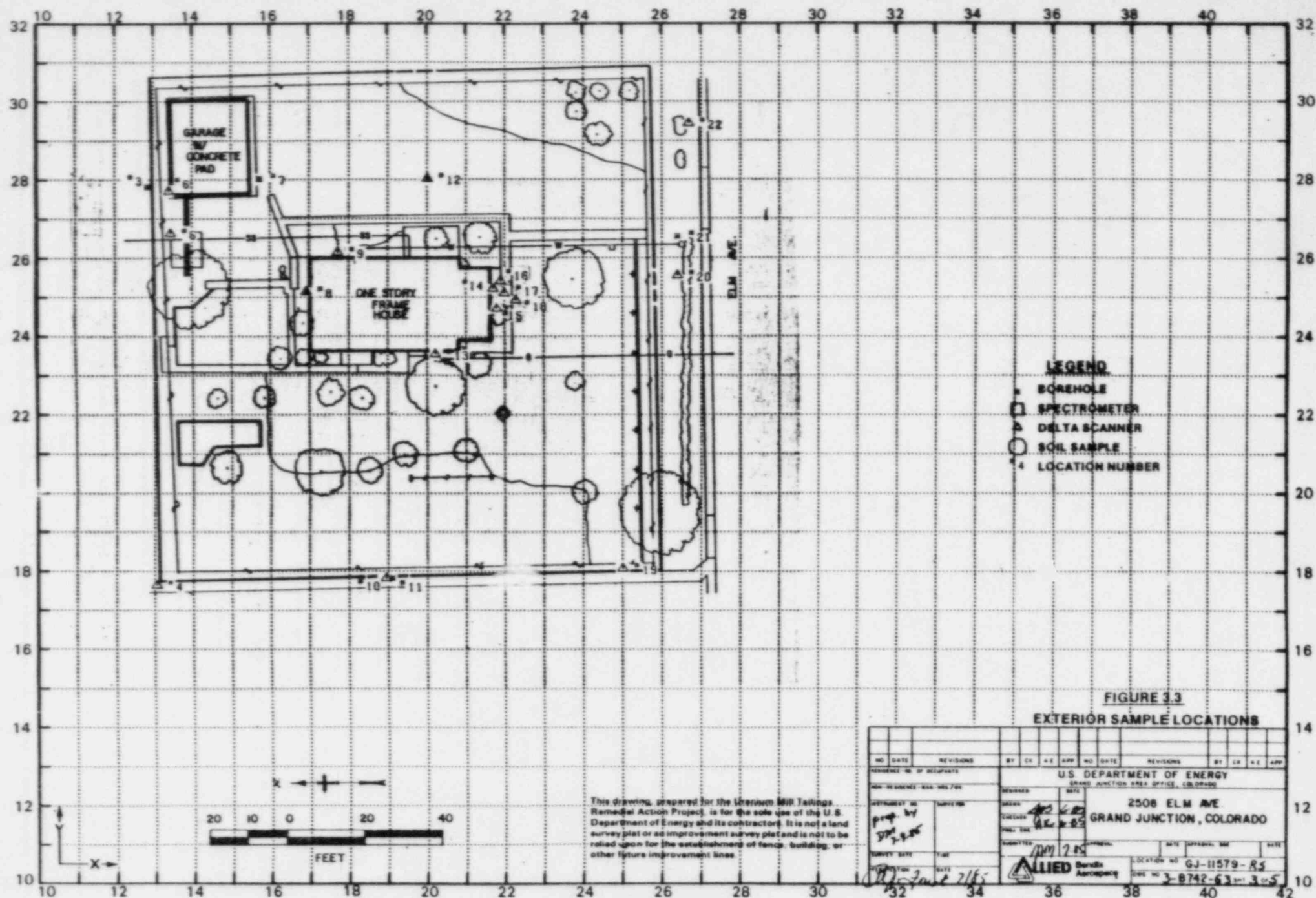
FEET

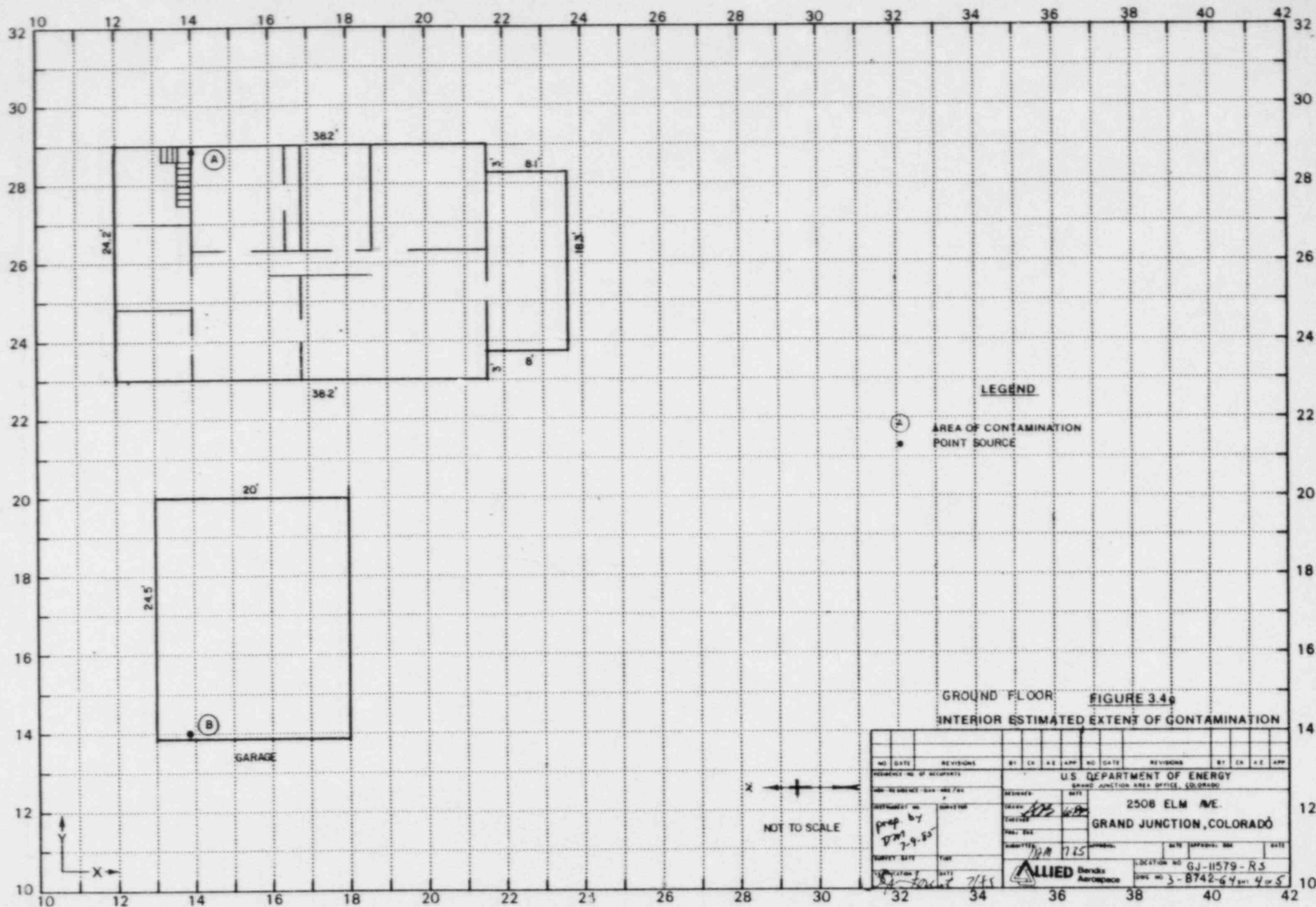
LEGAL DESC.
LOTS 17 AND 18
BLOCK 2, EAST ELM
AVENUE HEIGHTS,
SECTION 12 T.1S.
R.1W.

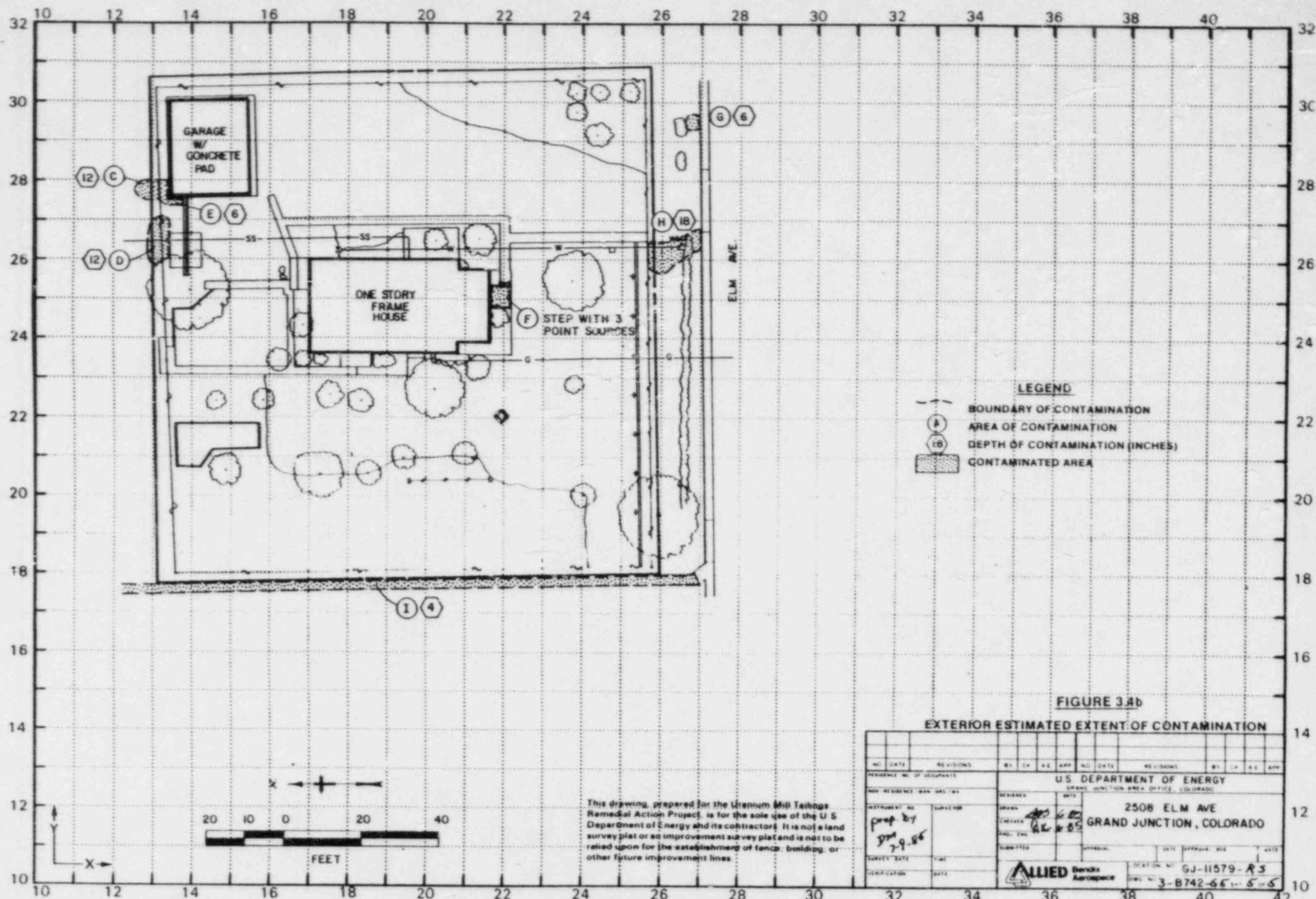
U.S. DEPARTMENT OF ENERGY	FORM NO. 10
GRAND JUNCTION PROJECT OFFICE, CO. GRAND	7/15/79RS
ADDRESS 2508 ELM AVE.	ALLIED
GRAND JUNCTION, CO.	Grand Junction Engineering Company
SURV. GDE/6-17-85	DATE 6-17-85
DRAWING NO. 36-742-EL	SHEET 1 OF 1

This drawing, prepared for the Grand Junction Project, is the sole use of the U.S. Department of Energy and is not to be used for any other purpose. It is not a land survey plot for an improvement survey and as such is not to be used for the establishment of lines, buildings or other future improvement lines.









3/85

DOE ID NO. GJ-11579

Date 7-5-85

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

Official Survey Report

Property Address 2508 Elm Ave.

Property Owner T. D. Topping

Address of Owner (if different from above) Same

Report Prepared By Dave Martz

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

☐ No evidence of residual radioactive material on surveyed property.

☒ Residual radioactive materials found at the following locations:

☒ In open areas.

☒ Under or around exterior improvements.

☒ Under or around a typically nonoccupied structure.

☒ Under or around a typically occupied structure.

II. RESULTS OF RADIOLOGIC ASSESSMENT

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

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

cc:

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

HIG = 34 uR/h
HOG = 87 uR/h



Bendix
Aerospace

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

July 17, 1985

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

ATTN: Elaine Brummett

Dear Elaine:

The following is in response to your questions and comments concerning Department of Energy (DOE) Identification (ID) number GJ-11579-RS (2508 Elm Avenue).

1. The areas around Grid Points 169251 and 177262 appear to be free of contamination based on all data taken.
2. The Sample Location map that indicates a borehole at Location 197261 is correct. The hole was checked with a downhole scintillometer and found to be clean. In the future I will send a copy of the Downhole Gamma Survey Field Data sheet.
3. The delta reading at Location 19 indicate to me that the concrete is contaminated because there were no visible signs of tailings and the total count at Location 11 showed no contamination.

Thank you for your time and cooperation. If you should have additional questions or comments you may contact me at 242-8621, extension 473.

Sincerely,

DM
7-18-85

Dave Martz
RSD Survey Team Leader

DM:pr

MEMORANDUM

ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado

Date: June 24, 1985

To: Files

From: Dave Martz

Subject: Team Leader Notes - GJ-11579-RS

Address: 2508 Elm Avenue

Owner: Thomas D. Topping

Weather: Cloudy and warm.

Team Members

D. Martz (Team Leader)
D. Krabacher
M. Duran
V. Young

G. Larsen
H. Mattison
R. Wilkins
L. Kula

Instruments

See Operational Summary sheet.

A review of Colorado Department of Health (CDH) and Oak Ridge National Laboratory (ORNL) data indicates contamination located by the northwest corner of the garage, near the step on the north side of the primary structure, around a water faucet on the east side of the primary structure, on and around the south step, around the water meter, and the city sidewalk west of the property. This data also indicates that several point sources were found and some were removed from the property. Point sources under the west side of the garage and in the cellar stairwell were left in place.

Mr. Topping stated that the concrete for the cellar stairs was purchased from a sand and gravel company in the 1960's.

Team Leader Notes
Dave Martz
GJ-11579-RS
June 24, 1985
Page 2

He also indicated that he poured the concrete floor in the garage with cement given to him by a neighbor who cleared out railroad cars. Several different pours were made.

The cellar is a converted cistern approximately 7 feet by 7 feet wide and 5 feet by 6 inches deep.

The water, gas, and sewer lines were investigated. Contamination was found around the water meter pit and around a faucet on the east side of the primary structure.

Elevated readings in the garage and cellar stairwell are point sources that are mentioned in the CDH data.

All personnel were scanned and found to be free of contamination.

DM
6-24-85

Team Leader Notes
Dave Martz
GJ-11579-RS
June 28, 1985
Page 3

Date: June 28, 1985

I returned to take several more delta readings on the front porch, sidewalk, and northwest corner of the garage. Elevated readings on the front porch seem to be point sources.

DM
6-28-85

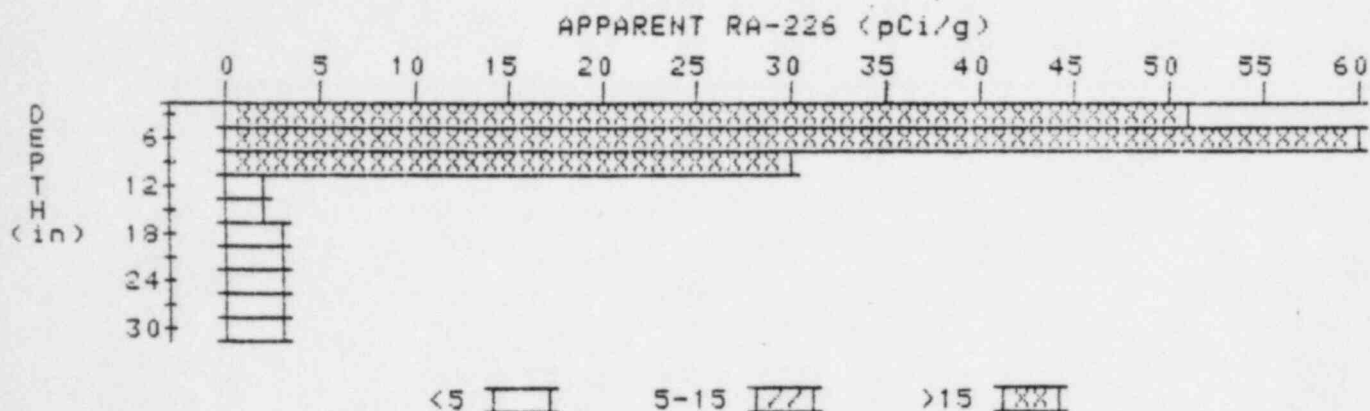
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

3

PROPERTY NUMBER: GJ-11579-RS

HOLE NUMBER: 3

LOCATION: 128278



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	50.9	50.9
6	55.1	98.3
9	35.0	29.7
12	17.9	1.9
15	9.8	1.6
18	6.3	3.1
21	4.6	3.0
24	3.8	2.9
27	3.5	3.3
30	3.3	3.3

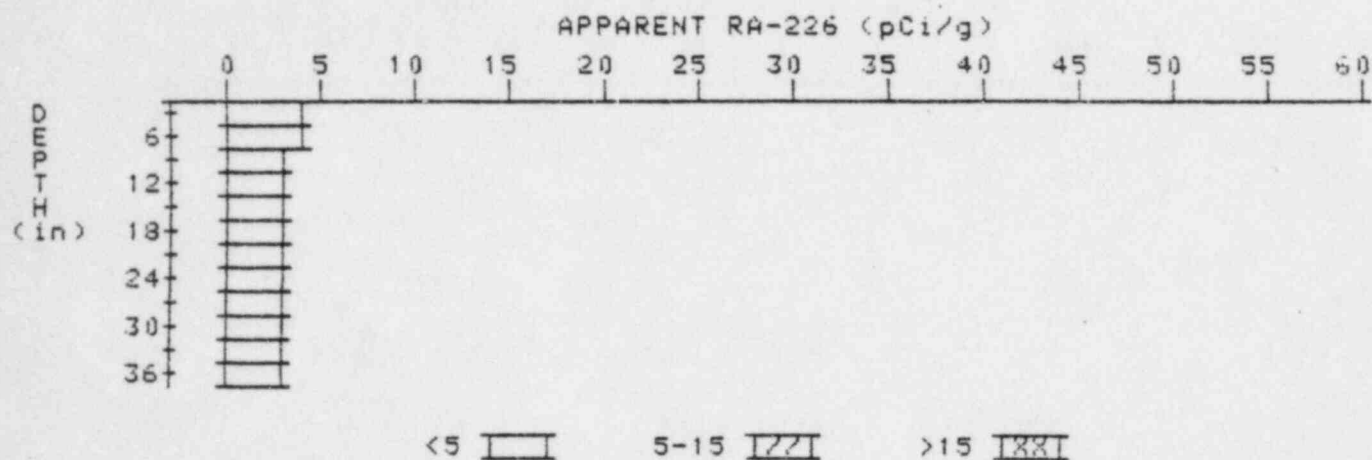
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

6

PROPERTY NUMBER: GJ-11579-RS

HOLE NUMBER: 6

LOCATION: 134277



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.4	4.4
6	4.1	4.5
9	3.6	3.2
12	3.3	3.1
15	3.1	2.9
18	3.0	2.8
21	3.0	3.0
24	3.0	3.0
27	3.0	3.0
30	3.0	3.0
33	3.0	3.0
36	3.0	3.0

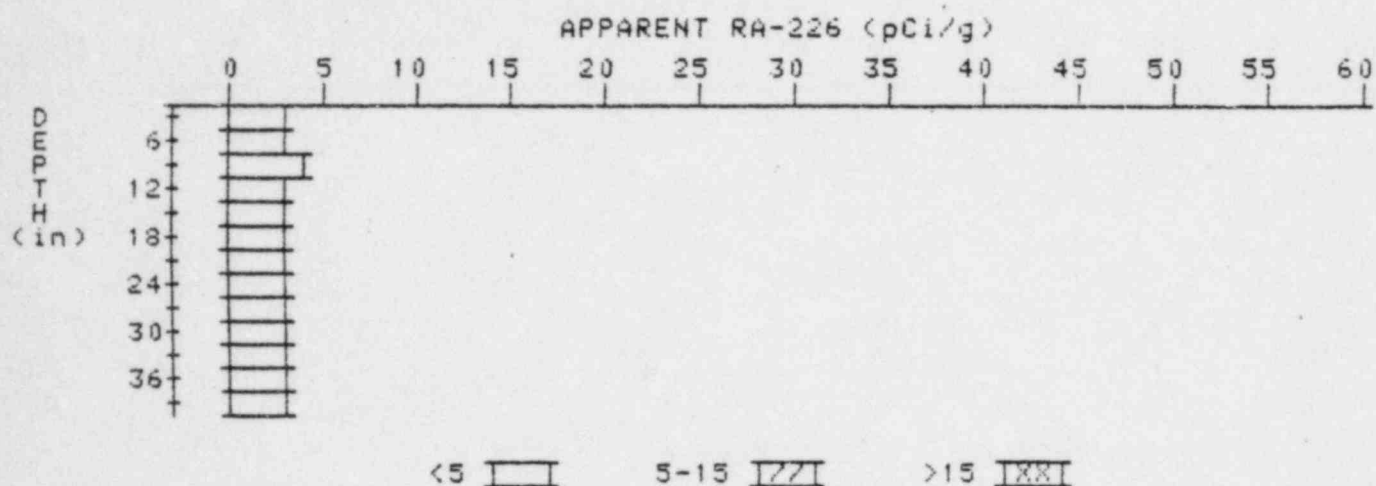
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

7

PROPERTY NUMBER: GJ-11579-RS

HOLE NUMBER: 7

LOCATION: 157280



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.0	3.0
6	3.2	3.4
9	3.3	3.7
12	3.2	3.4
15	3.0	2.8
18	2.9	2.7
21	2.9	2.7
24	3.0	3.4
27	2.9	2.7
30	2.9	3.1
33	2.8	2.6
36	2.8	2.8
39	2.8	2.6

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

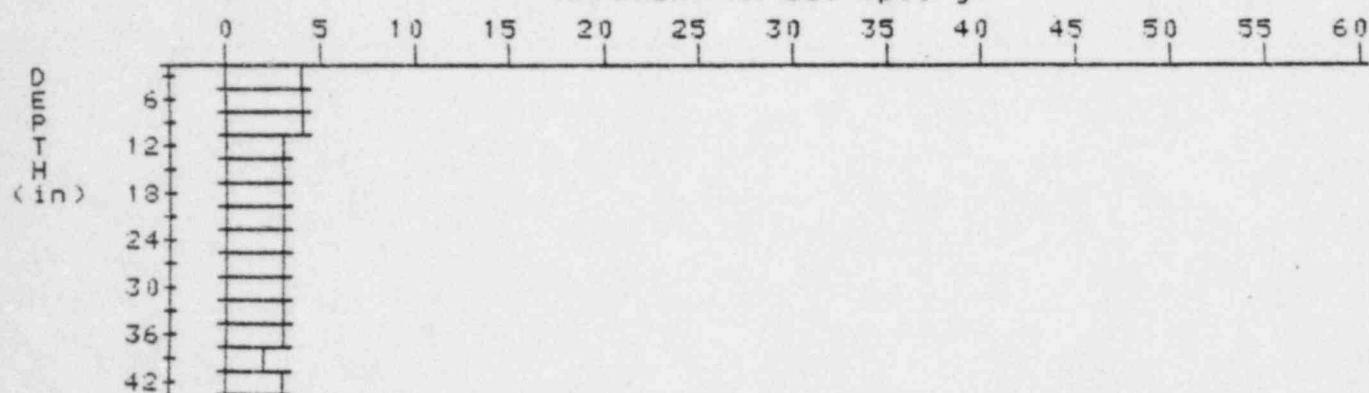
8

PROPERTY NUMBER: GJ-11579-RS

HOLE NUMBER: 8

LOCATION: 169251

APPARENT RA-226 (pCi/g)



<5

5-15

>15

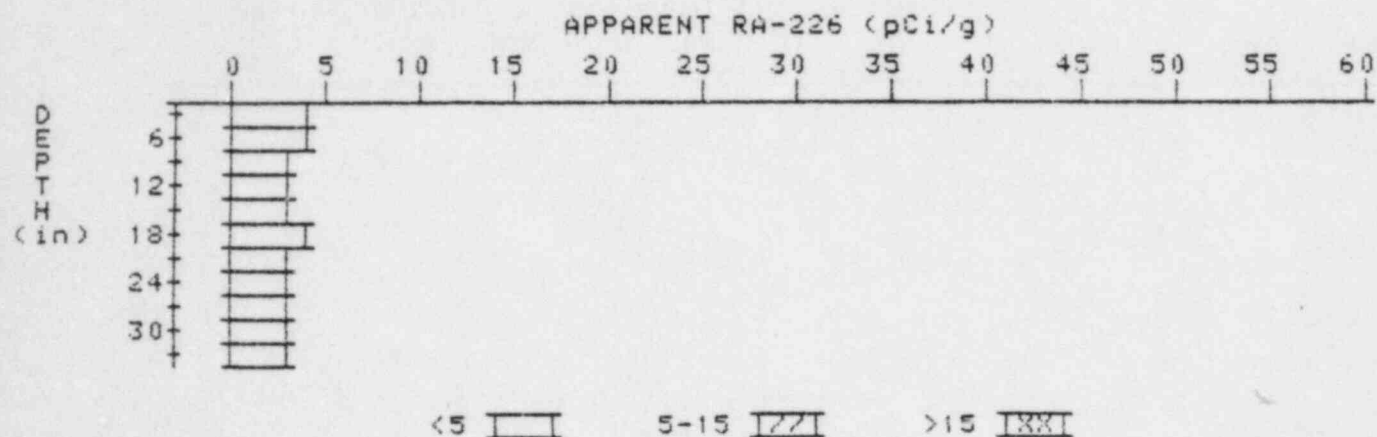
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.6	3.6
6	3.5	3.5
9	3.4	3.6
12	3.2	3.0
15	3.1	2.9
18	3.1	3.3
21	3.0	3.0
24	2.9	2.7
27	2.9	2.9
30	2.9	2.7
33	3.0	3.2
36	3.0	3.2
39	2.9	2.4
42	3.1	3.1

APPARENT RADIUM-226 CONCENTRATION 11 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-11579-RS

HOLE NUMBER: 11

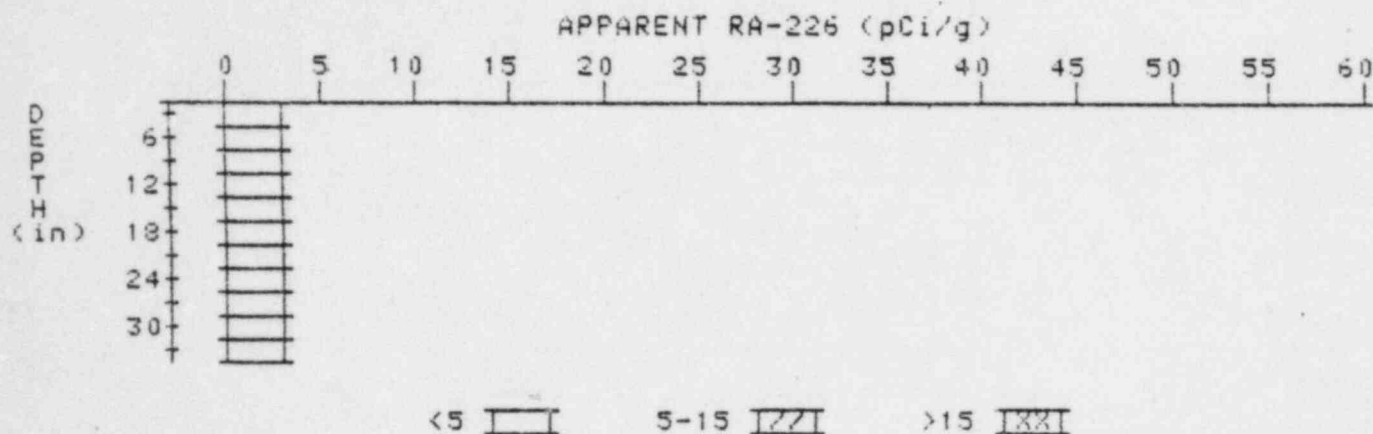
LOCATION: 190178



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.2	4.2
6	3.9	3.9
9	3.6	3.4
12	3.4	3.0
15	3.4	3.4
18	3.4	3.6
21	3.3	3.1
24	3.3	3.3
27	3.3	3.3
30	3.3	3.5
33	3.2	3.2

APPARENT RADIUM-226 CONCENTRATION 12 DECONVOLUTION GRAPH

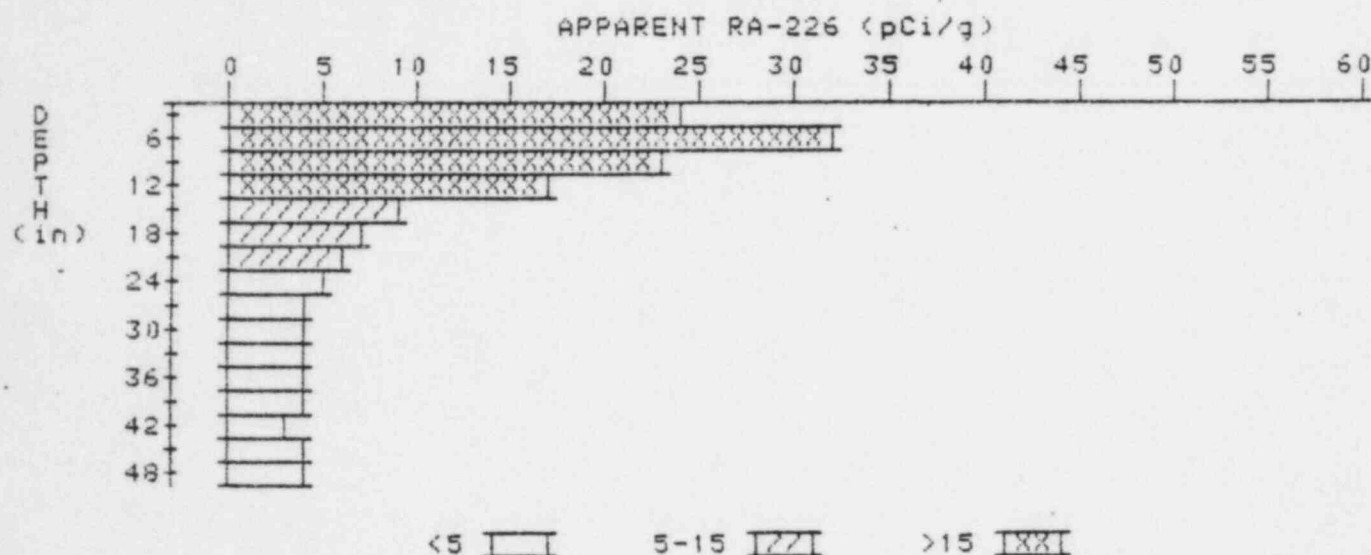
PROPERTY NUMBER: GJ-11579-RS
HOLE NUMBER: 12
LOCATION: 200280



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	2.8	2.8
6	2.9	2.9
9	3.0	3.2
12	3.0	3.0
15	3.0	3.0
18	3.0	2.8
21	3.1	3.3
24	3.1	3.1
27	3.1	3.1
30	3.1	3.3
33	3.0	3.0

APPARENT RADIUM-226 CONCENTRATION 21 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-11579-RS
HOLE NUMBER: 21
LOCATION: 264265



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	23.7	23.7
6	24.6	32.1
9	21.3	23.4
12	16.8	17.0
15	12.2	9.4
18	9.2	7.4
21	7.2	6.1
24	5.8	4.7
27	5.0	4.5
30	4.5	4.1
33	4.2	4.2
36	3.9	3.7
39	3.7	3.5
42	3.6	3.4
45	3.6	3.6
48	3.6	3.6

