RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-03783-RS
ADDRESS: 2030 ELM AVENUE

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 M K Tucker by CDH
M. TUCKER
DOE PROJECT ENGINEER

DATE 6/26/85

REA03783:REA-508

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-03783-RS, is a single-family residence located at 2030 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, 37 cu. yd.; interior, 0 cu. yd.

Estimated cost to perform remedial action, including dislocation when applicable, is $4,074. Remedial action on this property will take approximately 7 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 2030 Elm Avenue, Grand Junction, Colorado

Zoning: Residential (RSF-8)

Lot Size: Approximately 7,920 sf (0.18 acre)

Legal Description: Lot 13, Block 2, Del Mar Park Refile, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 2 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:	Overhead

Bordering Properties:

North:	Single-family residence
South:	Elm Avenue
East:	North 21st Street
West:	Single-family Residence

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence
Size:	Approximately 900 sf
Construction Date:	1951
Construction:	Wood-frame structure with wood siding and stone veneer wainscot
Foundation:	Concrete stemwall on spread footing
Footing Depth:	Approximately 24" to bottom of footing from grade
Basement:	No
Crawl Space:	Yes - under entire living area
Condition:	Good

Other Structures:

Type:	Garage
Size:	Approximately 576 sf
Construction:	Wood-frame
Foundation:	Monolithic poured concrete slab-on-grade
Condition:	New
Type:	Storage building
Size:	Approximately 120 sf
Construction:	Wood-frame
Foundation:	Concrete slab-on-slab
Condition:	Fair
Type:	Shed
Size:	Approximately 87 sf
Construction:	Prefabricated metal
Foundation:	None
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. CJ-03783-RS on May 2, 1985. Data collection methods were performed in accordance with procedures fully described in the Radiologic Support Operations Procedures Manual GJ-07(84) (Bendix Field Engineering Corporation, 1984). These data were evaluated to determine the areal and vertical extent of uranium mill tailings contamination at this property as well as any other contaminated material that may have originated from the millsite.

A review of historical information from the files of the Colorado Department of Health (CDH) and the inclusion data from Oak Ridge National Laboratory (ORNL) was conducted. These records indicate elevated gamma levels were found associated with the sidewalk along the entire eastern and southern property boundaries.

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: 15 to 16 uR/h
Highest Outside Gamma Reading (HOG): 44 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: 14 to 15 uR/h
Highest Inside Gamma Reading (HIG): 15 uR/h

Interior gamma exposure-rate measurements are summarized in Appendix Table 3.2. 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 Figure 3.4. Data from these investigations are included in Appendix Table 3.1.

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 soil under the metal shed is contaminated to an estimated depth of 6 inches, measured from the ground surface. This is based on data gathered from Area B. The shed has a wood floor (approximately 36 sf).

(AREA B) West of the metal shed, the depth of contamination is 6 inches (approximately 36 sf).

(AREA C) Adjacent to the city sidewalk, south and east of the primary structure, the lawn is contaminated to a depth of 12 inches (approximately 327 sf).

(AREA D) A small deposit, adjacent to Area C, has an estimated depth of contamination of 15 inches, based on visual inspection of the tailings layer (approximately 20 sf).

(AREA E) North of Area C, contamination extends to a depth of 6 inches (approximately 120 sf).

(AREA F) Beneath the contaminated 4-inch-thick city sidewalk along the eastern and southern property boundaries, contamination extends to a total depth of 12 inches (approximately 561 sf).

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-03783-RS, 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 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 $4,074.

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	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	Exterior Gamma Scan
Figure 3.3	Interior Gamma Exposure Rates
Figure 3.4	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)

RADRPT V85.1<850501.0951> Table 3.1

Radium Concentrations at Exterior Locations

DOE ID #GJ-03783-RS 2030 Elm Avenue

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
1	131285	00	DS	4.4		*	West of shed
		06	DS	1.1		*	
2	135165	00	DS	4.8		*	South sidewalk
		06	DS	3.4		*	
		12	DS	1.5		*	
3	139215	00-06	SS			1.7	Background
		00	DS	<1.0		*	West foundation
		03	TC	3.0		*	
		06	TC	3.3		*	DC = 0 inches
		09	TC	3.4		*	
		12	TC	3.5		*	
		15	TC	3.6		*	
		18	TC	3.6		*	
		21	TC	3.6		*	
		24	TC	3.6		*	
		27	TC	3.5		*	
		30	TC	3.4		*	
		33	TC	3.3		*	
		36	TC	3.2		*	
		39	TC	3.1		*	
		42	TC	3.0		*	
		45	TC	3.0		*	
		48	TC	3.1		*	
		51	TC	3.1		*	
		54	TC	3.2		*	
		57	TC	3.2		*	
		60	TC	3.2		*	
		63	TC	3.2		*	
4	152231	03	TC	3.1		*	Sewer line
		06	TC	3.4		*	
		09	TC	3.4		*	DC = 0 inches
		12	TC	3.3		*	
		15	TC	3.3		*	
		18	TC	3.3		*	
		21	TC	3.3		*	
		24	TC	3.3		*	
		27	TC	3.3		*	
		30	TC	3.2		*	
		33	TC	3.2		*	
		36	TC	3.2		*	
		39	TC	3.1		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
4	152231	42	TC	3.1		*	
		45	TC	3.0		*	
		48	TC	3.0		*	
		51	TC	3.1		*	
		54	TC	3.3		*	
		57	TC	3.4		*	
		60	TC	3.5		*	
		63	TC	3.5		*	
5	162163	00-04	SS			4.7	Concrete core
		04-10	SS			83.3	Sandy soil
		03	TC	40.4		*	
		06	TC	51.7		*	
		09	TC	34.2		*	
		12	TC	20.2		*	DC = 12 inches
		15	TC	11.9		*	Based on the
		18	TC	8.3		*	deconvolution graph
		21	TC	6.2		*	
		24	TC	5.2		*	
		27	TC	4.7		*	
		30	TC	4.4		*	
		33	TC	4.2		*	
		36	TC	4.2		*	
		39	TC	4.1		*	
6	165205	03	TC	3.0		*	Water line
		06	TC	3.2		*	
		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	3.5		*	
		27	TC	3.5		*	
		30	TC	3.4		*	
		33	TC	3.4		*	
		36	TC	3.3		*	
		39	TC	3.2		*	
		42	TC	3.2		*	
		45	TC	3.2		*	
		48	TC	3.1		*	
		51	TC	3.1		*	
		54	TC	3.2		*	
		57	TC	3.4		*	

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
6	165205	60	TC	3.4		*	
		63	TC	3.4		*	
		66	TC	3.5		*	
		69	TC	3.6		*	
7	175165	00	DS	14.9		*	South sidewalk
		06	DS	5.8		*	
		12	DS	4.5		*	
8	176206	35	DS	<1.0		*	On gas line
9	192168	00	DS	7.1		*	Along sidewalk
		06	DS	3.4		*	Corner
		12	DS	2.0		*	
10	195240	00	DS	6.4		*	Along sidewalk
		06	DS	1.3		*	
11	195280	00	DS	9.0		*	Along sidewalk
		06	DS	2.2		*	
		12	DS	2.3		*	
12	196203	00	DS	33.7		*	Along sidewalk
		06	DS	12.3		*	
		12	DS	1.8		*	
13	199188	00-04	SS			70.8	Concrete core
		04-10	SS			5.2	Sandy with roots
		03	TC	37.1		*	
		06	TC	43.0		*	
		09	TC	26.7		*	
		12	TC	15.6		*	DC = 12 inches
		15	TC	9.1		*	Based on the
		18	TC	6.7		*	deconvolution graph
		21	TC	5.5		*	
		24	TC	4.9		*	
		27	TC	4.4		*	
		30	TC	4.3		*	

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
13	199188	33	TC	4.2		*	
		36	TC	4.3		*	

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

Notes:
DC = Depth of Contamination
* = No Soil Sample Taken
[n] = Reading Taken n-Inches Above Floor or Ground
Date of Survey = 05-02-85
Team Leaders = BJF and TLC

Table 3.2
Summary of Interior Gamma Exposure Rates

DOE ID #GJ-03783-RS 2030 Elm Avenue

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)
GROUND FLOOR	*	*	*	*	14-15	*
GARAGE	*	*	*	*	14-15	*
STORAGE	*	*	*	*	15-15	*
METAL SHED	09	14-16	15	09	15-20	17

* The CDH and ORNL data indicates the absence of interior contamination at this property. This information was investigated by performing a walking gamma scan. These areas and the ranges of gamma measurements are shown in Appendix Figure 3.3. Exposure rates taken in the shed are also shown in Figure 3.3.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-03783-RS

AREA	CALCULATIONS(ft)	SF	DEPTH(ft)	CF	CUBIC YARDS
EXTERIOR					
	Concrete				
F	3 x 120 =	360			
	3 x 67 =	201			
		561	x 0.3 =	168	
	Volume of Concrete		=	168 = 168/27 =	6
	Contaminated Fill				
*A	9 x 4 =	36	x 0.5 =	18	
B	9 x 4 =	36	x 0.5 =	18	
C	3 x 25 =	75			
	4 x 12 =	48			
	3 x 60 =	180			
	3 x 8 =	24			
		327	x 1.0 =	327	
D	2 x 10 =	20	x 1.3 =	26	
E	3 x 40 =	120	x 0.5 =	60	
F	3 x 120 =	360			
	3 x 67 =	201			
		561	x 0.7 =	393	
	Volume of Fill		=	842 = 842/27 =	31
	TOTAL VOLUME - EXTERIOR			=	37

See Appendix Figures 3.5a and 3.5b For Areas

NOTE: The metal shed in Area A is portable and shall be considered as exterior involvement.

Table 4.2
Estimated Cost of Decontamination and Restoration
DOE ID No. GJ-03783-RS

EXTERIOR	
Remove/replace concrete sidewalk 561 sf @ $3/sf	$ 1,683
Remove identified residual radioactive material 31 cy @ $14.50/cy (machine-open)	450
Move, store, and replace prefab storage shed and contents Lump sum	150
Replace areas with topsoil 15 cy @ $9.50/cy	143
Replace areas with compacted roadbase 16 cy @ $11.50/cy	184
Replace areas with sod 347 sf @ $.40/sf	139
TOTAL EXTERIOR	$ 2,749
TOTAL INTERIOR	0
ACCESS CONTROL	100
SUBTOTAL	$ 2,849
CONTINGENCY @ 10%	285
SUBTOTAL	$ 3,134
CONTRACTOR OVERHEAD & PROFIT @ 30%	940
GRAND TOTAL	$ 4,074

NOTE: The metal shed in Area A is portable and shall be considered exterior involvement.

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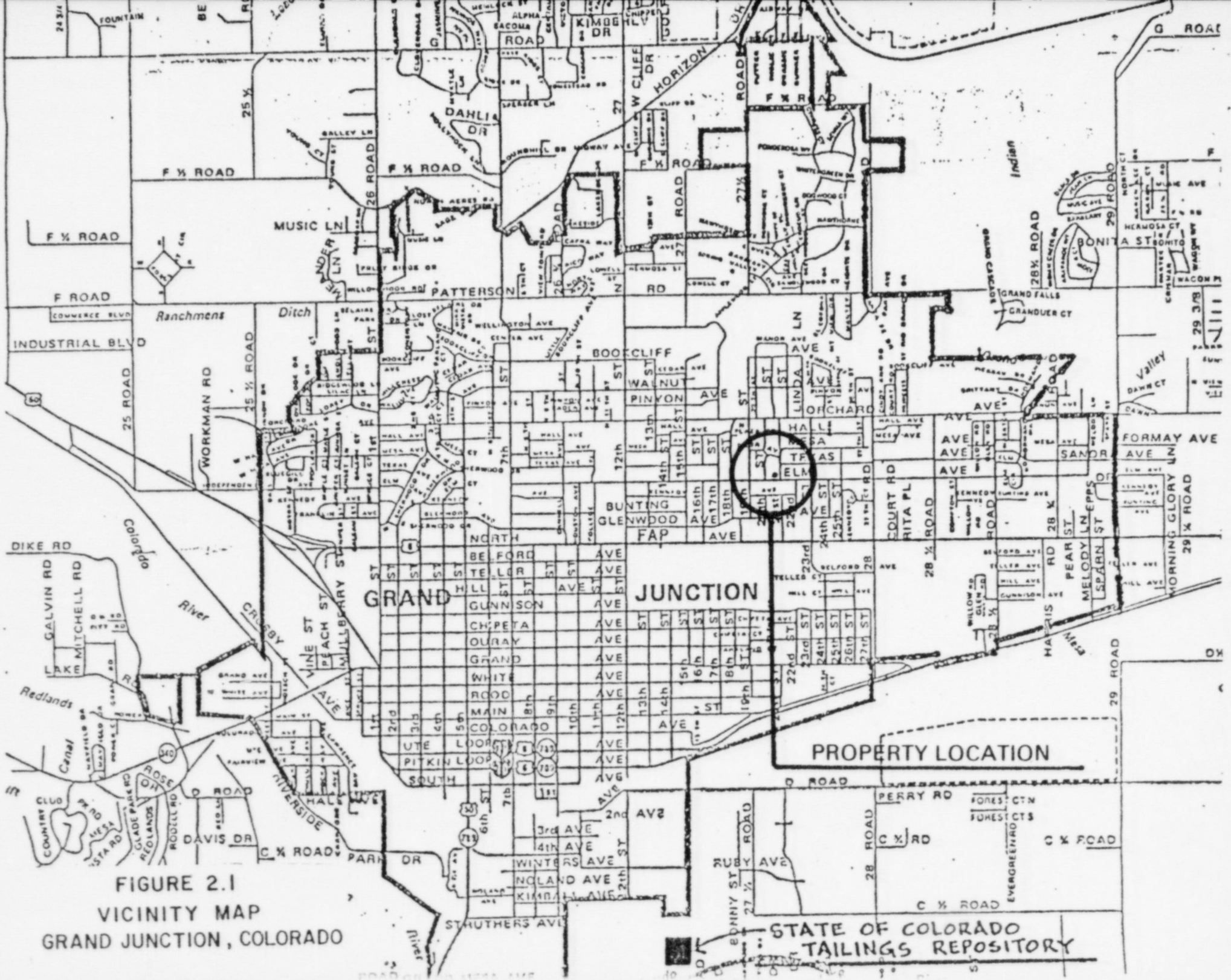
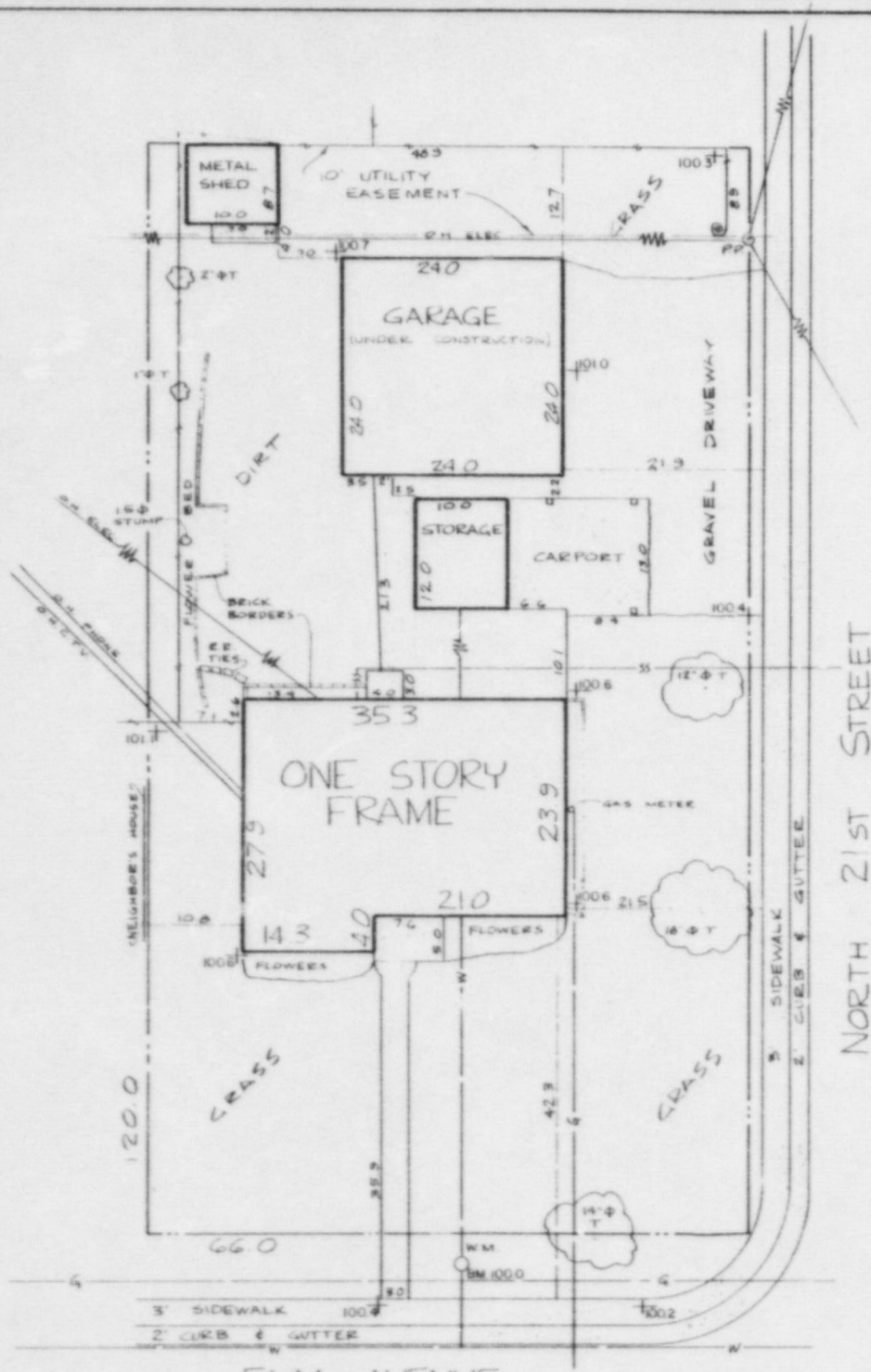


FIGURE 2.1
VICINITY MAP
GRAND JUNCTION, COLORADO



LOT 13 BLOCK 2
DEL MAR PARK
REFILE GRAND
JUNCTION, MESA
COUNTY COLO

10 5 0 10 20
FEET

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FIGURE 2.2 SITE PLAN

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION PROJECT OFFICE COLORADO	DOE ID NO GJ-03783-RS
ADDRESS 2030 ELM AVENUE GRAND JUNCTION, COLO	ALLIED Remedial Technologies Rocky Flats Engineering Corporation Grand Junction Operations
SURV RLB / 4 23 84	DRAFT TJ / 4 15 85
DRAWING NO 2C 632 F1	CK WCF / 4-85
	SHEET 1 OF 1

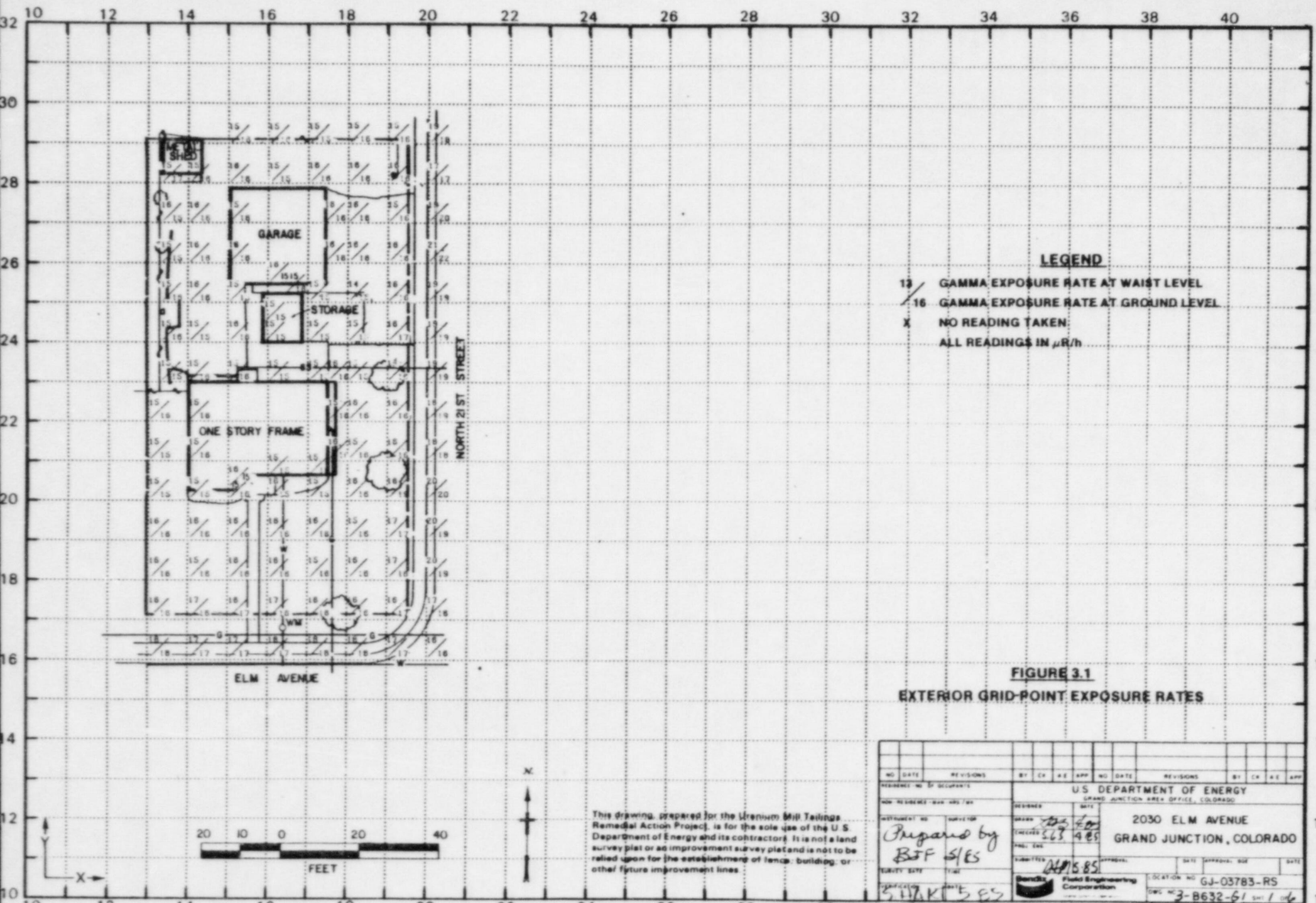

FIGURE 3.1

EXTERIOR GRID-POINT EXPOSURE RATES

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

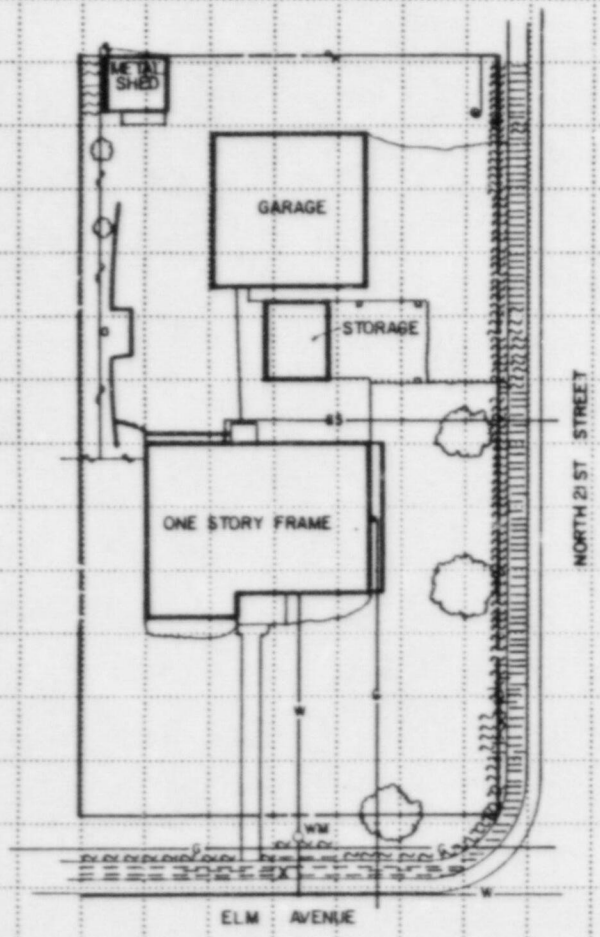
2030 ELM AVENUE
GRAND JUNCTION, COLORADO

Prepared by BJF 5/ES

Bendix Field Engineering Corporation

LOCATION NO. GJ-03783-RS

DWG. NO. 3-B632-61



LEGEND

GAMMA READINGS OF 150 TO 199 cps

GAMMA READINGS OF 200 TO 500 cps

GAMMA READINGS OF >500 cps

HOG IS LOCATED IN GRID BLOCK 160160

HOG = 44μR/h

FIGURE 3.2

EXTERIOR GAMMA SCAN

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.

NO	DATE	REVISIONS	BY	CK	A E	APP

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

2030 ELM AVENUE
GRAND JUNCTION, COLORADO

Prepared by BJF 5/85

Sandia Field Engineering Corporation

LOCATION NO GJ-03783-RS

DWG NO 3-B632-G2-2-6

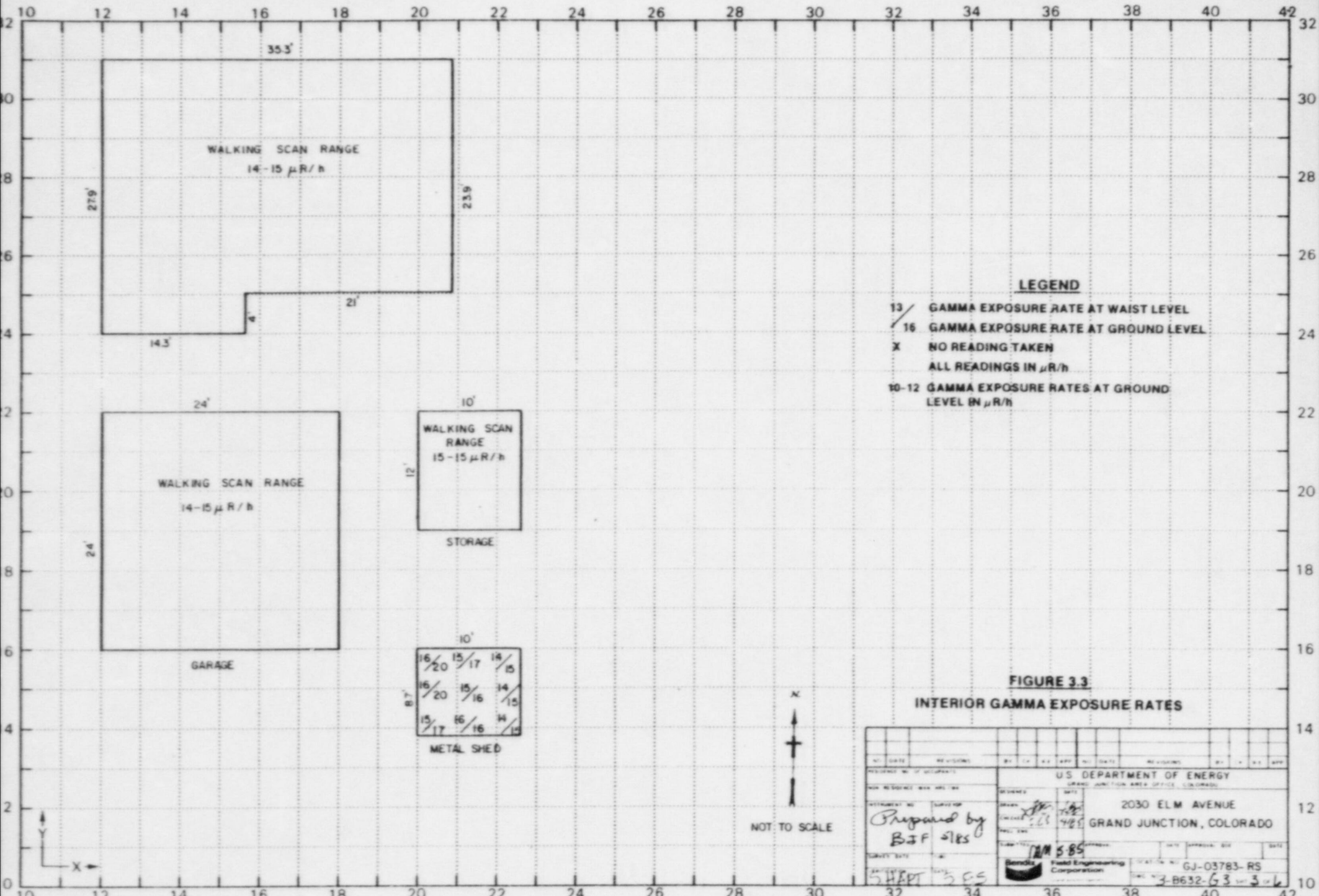
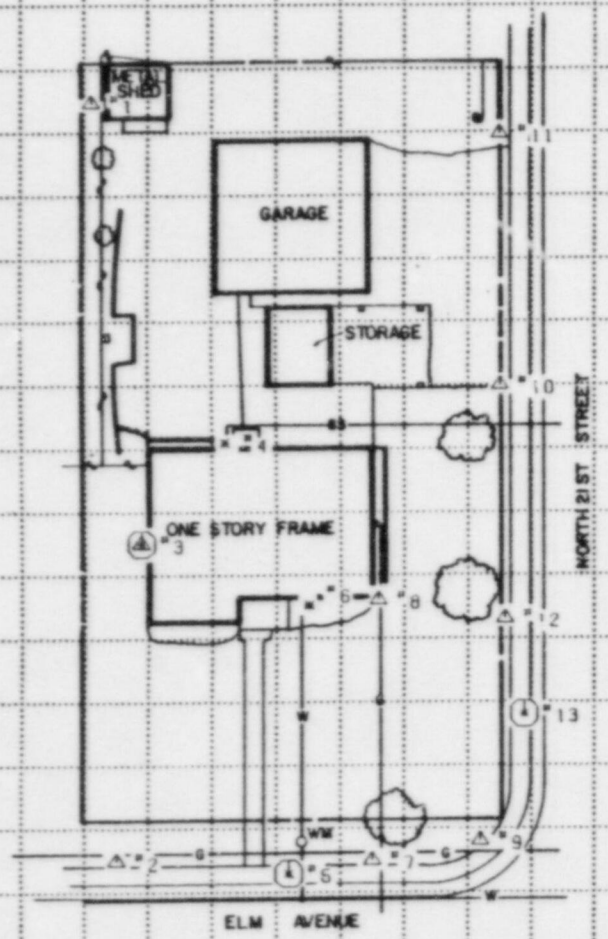


FIGURE 3.3

INTERIOR GAMMA EXPOSURE RATES



LEGEND

- ▪ BOREHOLE
- □ SPECTROMETER
- △ DELTA SCANNER
- ○ SOIL SAMPLE
- #4 LOCATION NUMBER

20 10 0 20 40
FEET

Y
X

N

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 3.4
SAMPLE LOCATIONS

NO	DATE	REVISIONS	BY	CK	AE	APP

RESIDENCE NO. OF OCCUPANTS

NON-RESIDENCE - BUS. HRS / WK

INSTRUMENT NO. SURVEYOR

Prepared by BJF 5/85

SURVEY DATE TIME

VERIFICATION DATE 5-HBRT 5-85

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

DESIGNED DATE

DRAWN DK 5/85

CHECKED SG 5/85

PROJ. ENG.

SUBMITTED AM 5/85

APPROVAL DATE

APPROVAL BDE DATE

Bendix Field Engineering Corporation

2030 ELM AVENUE
GRAND JUNCTION, COLORADO

LOCATION NO. GJ-03783-RS

DWG. NO. 3-B632-64 SHT. 4 OF 6

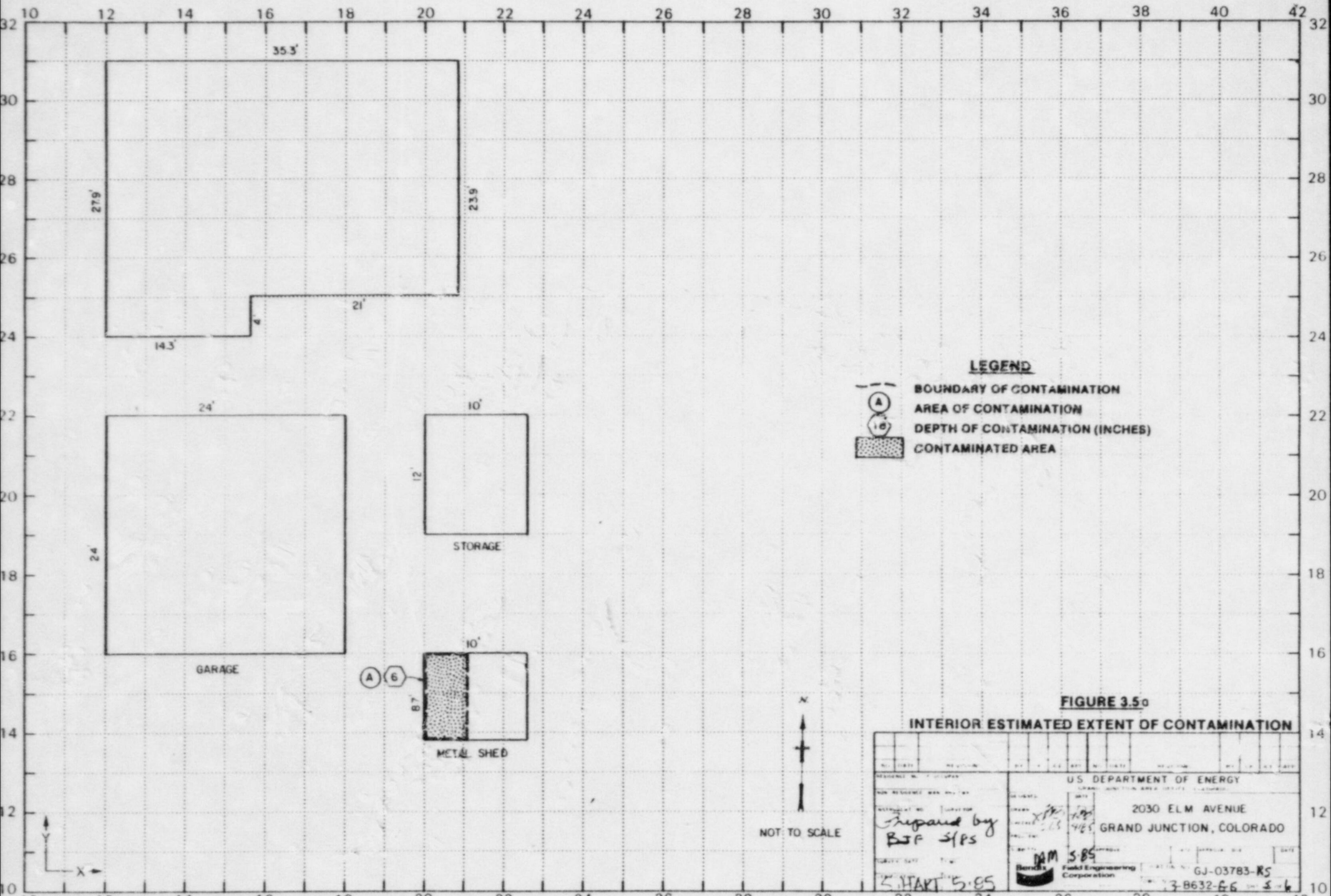


FIGURE 3.5a

INTERIOR ESTIMATED EXTENT OF CONTAMINATION

Prepared by BJF 5/85

START 5-85

U.S. DEPARTMENT OF ENERGY

2030 ELM AVENUE

GRAND JUNCTION, COLORADO

Bendix Field Engineering Corporation

GJ-03783-RS

3-8632-66 S-6

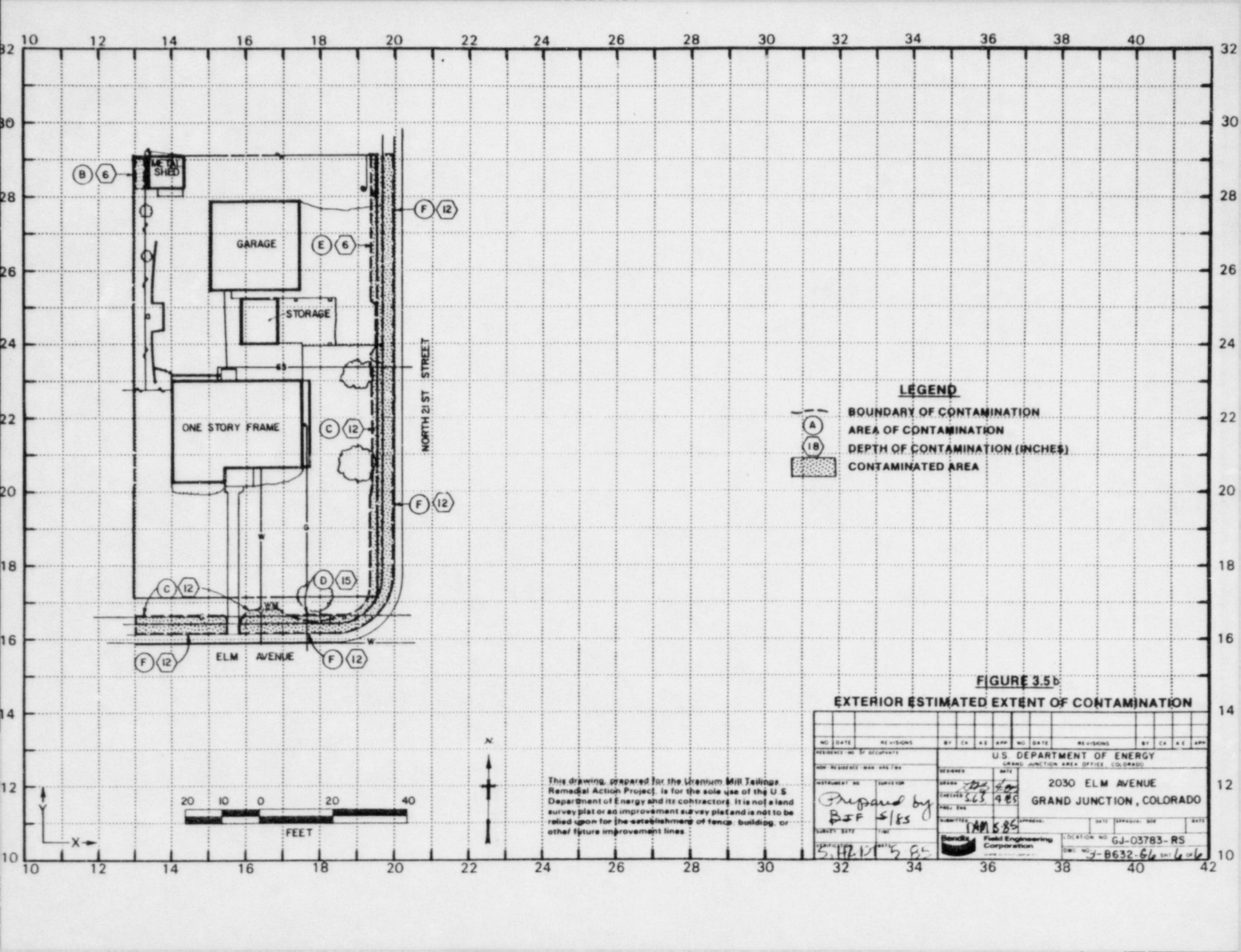


FIGURE 3.5b

EXTERIOR ESTIMATED EXTENT OF CONTAMINATION

3/85

DOE ID NO. GJ-03783-RS Date May 20, 1985

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

Official Survey Report

Property Address 2030 Elm Avenue

Property Owner Steve and Brenda Burke

Address of Owner (if different from above) _____

Report Prepared By Billie J. Foust

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

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

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

[XX] In open areas.

[XX] Under or around exterior improvements.

[XX] 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.

[XX] 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 = 15 uR/h
HOG = 44 uR/h

ALLIED Bendix Aerospace

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

May 16, 1985

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

ATTN: Colleen Campbell

Dear Colleen:

The following comment is in order regarding the technical review for GJ-03783-RS (2030 Elm Avenue).

1. The west one-third of the shed has been included in the Estimated Extent of Contamination. The soil beneath it is contaminated to an estimated depth of 6 inches, based on information gathered west of the shed.

Thank you for your time and comments. If you have further questions, please call me at 242-8621, ext. 560.

Very truly yours,

Teri L. Ciocco

Teri Ciocco
RAD Technician

Memorandum

ALLIED Bendix Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado

Date: May 2, 1985

To: Files

From: Teri Ciocco

Subject: Team Leader Notes - GJ-03783-RS (2030 Elm Avenue)

Owners: Steve and Brenda Burke

Occupancy: 2

Weather: Sunny and warm

Field Crew

B. Foust	T. Ciocco	M. Dexter	V. Young
S. Southern	S. Larsen	N. Wallace	L. Kula

Instruments

Scintillometers: C-1182, C-1196, C-1239, C-1127
PRS-1 Total Counts: C-3957, C-3573
Delta: C-3957

The homeowner said there was no access to the crawl space.

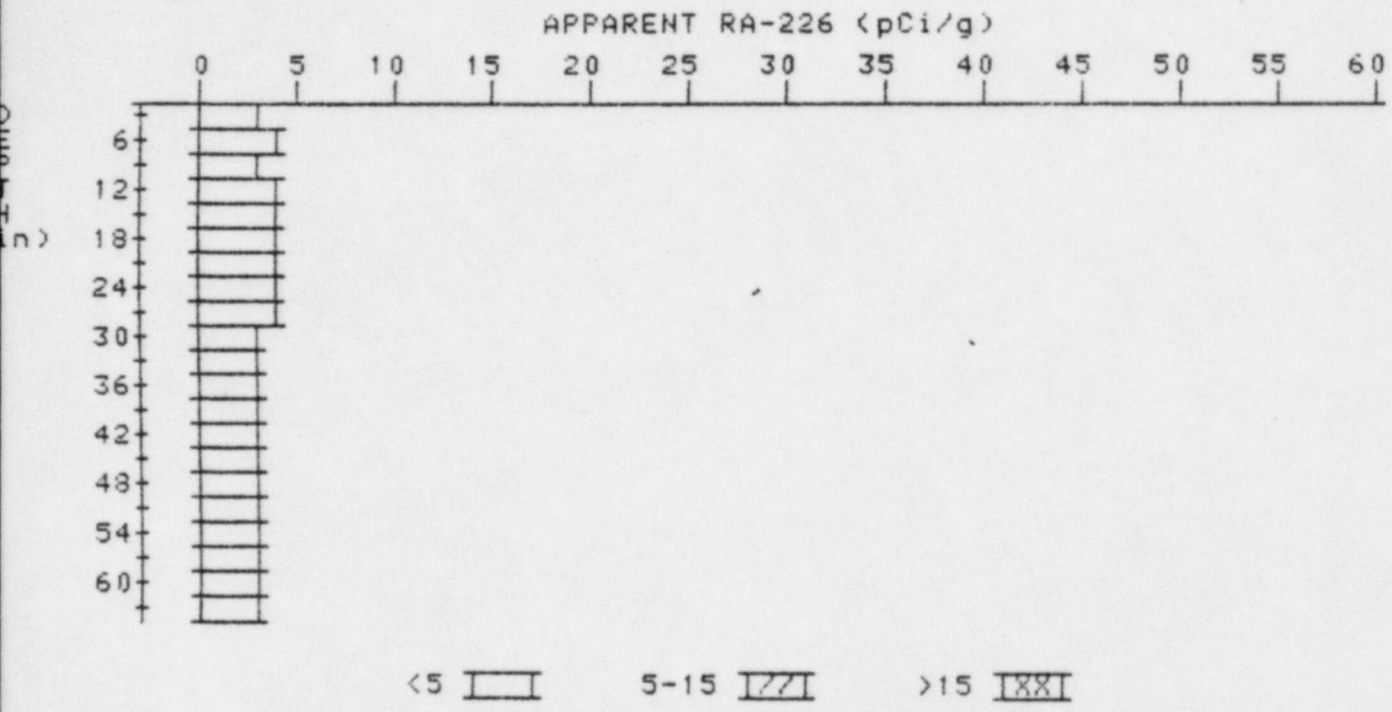
Light colored sand was located under the city sidewalk. Two cores were taken in the sidewalk and contamination was found beneath. The area due west of the metal shed was also contaminated.

No other areas were above background.

All utilities were augered and a borehole was drilled on the west side of the house for background data.

All personnel were alpha scanned.

PROPERTY NUMBER: GJ-03783-RS
HOLE NUMBER: 3'
LOCATION: 139215'



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.0	3.0
6	3.3	3.7
9	3.4	3.4
12	3.5	3.5
15	3.6	3.8
18	3.6	3.6
21	3.6	3.6
24	3.6	3.8
27	3.5	3.5
30	3.4	3.4
33	3.3	3.3
36	3.2	3.2
39	3.1	3.1
42	3.0	2.8
45	3.0	2.8
48	3.1	3.3
51	3.1	2.9

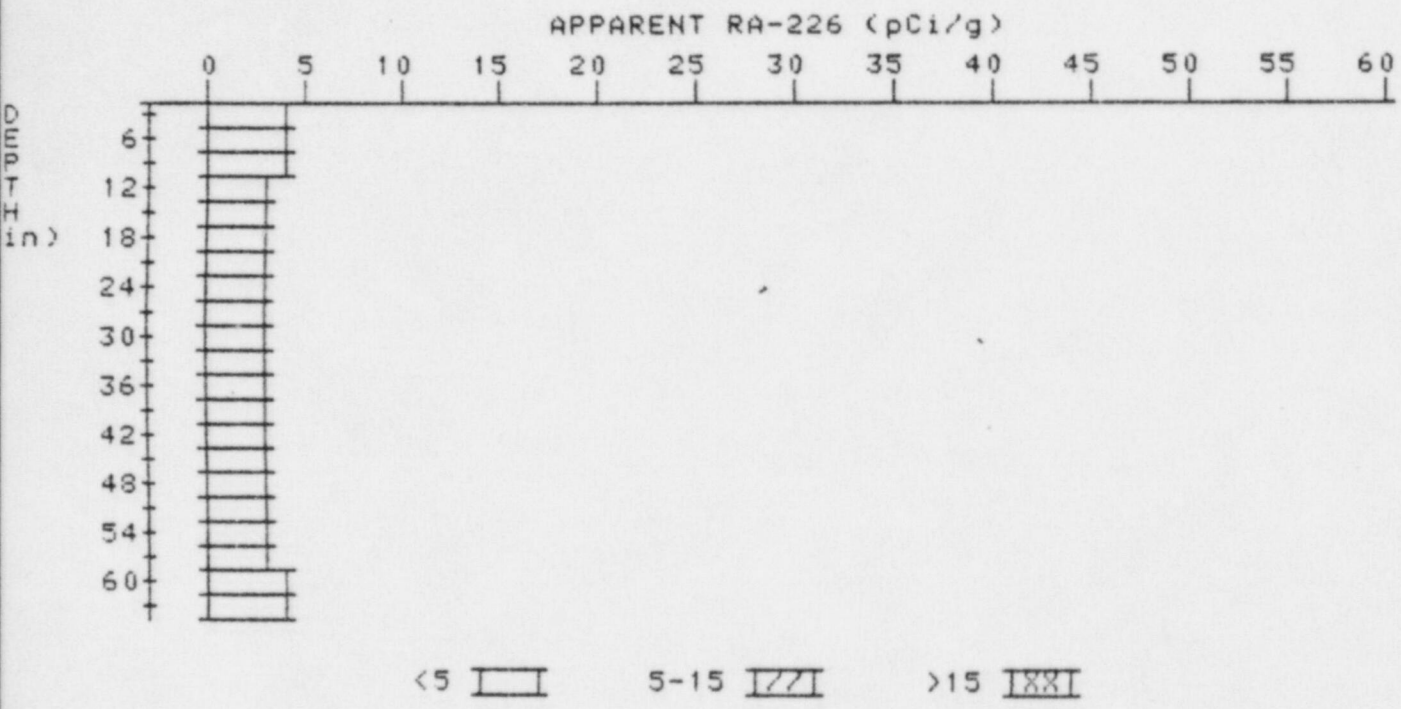
54	3.2	3.4
57	3.2	3.2
60	3.2	3.2
63	3.2	3.2

DECON V85.1<850215.1335>

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

4

ROPERTY NUMBER: GJ-03783-RS
HOLE NUMBER: 4
LOCATION: 152231'



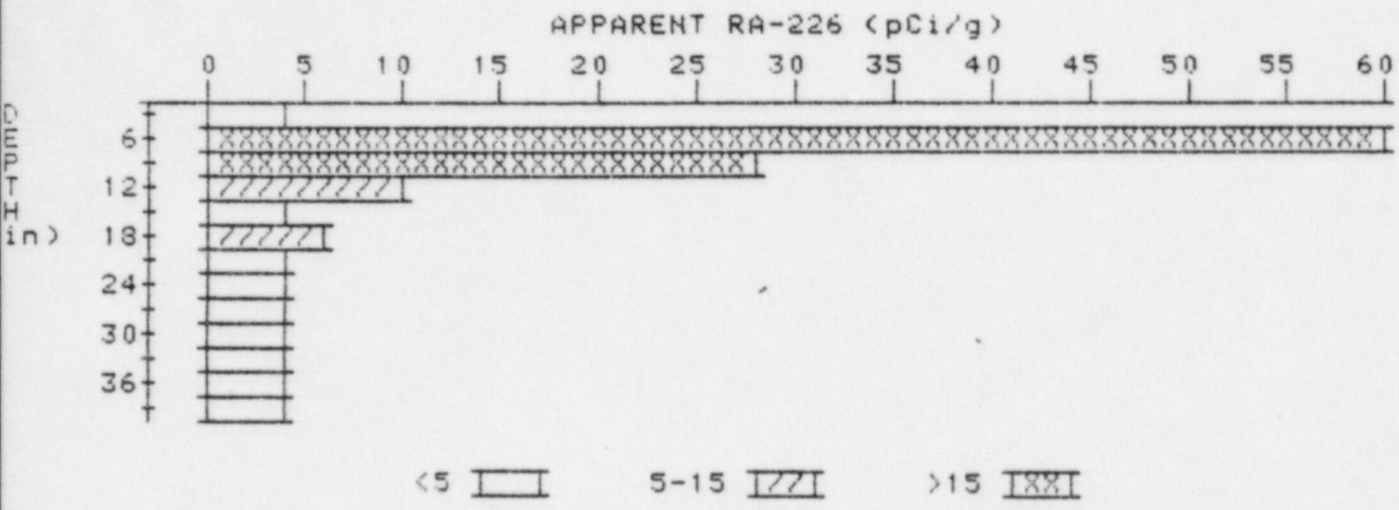
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.1	3.1
6	3.4	3.9
9	3.4	3.6
12	3.3	3.1
15	3.3	3.3
18	3.3	3.3
21	3.3	3.3
24	3.3	3.3
27	3.3	3.5
30	3.2	3.0
33	3.2	3.2
36	3.2	3.4
39	3.1	2.9
42	3.1	3.3
45	3.0	2.8
48	3.0	2.8
51	3.1	2.9

54	3.3	3.5
57	3.4	3.4
60	3.5	3.7
63	3.5	3.5

DECON V85.1<850215.1335>

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 5

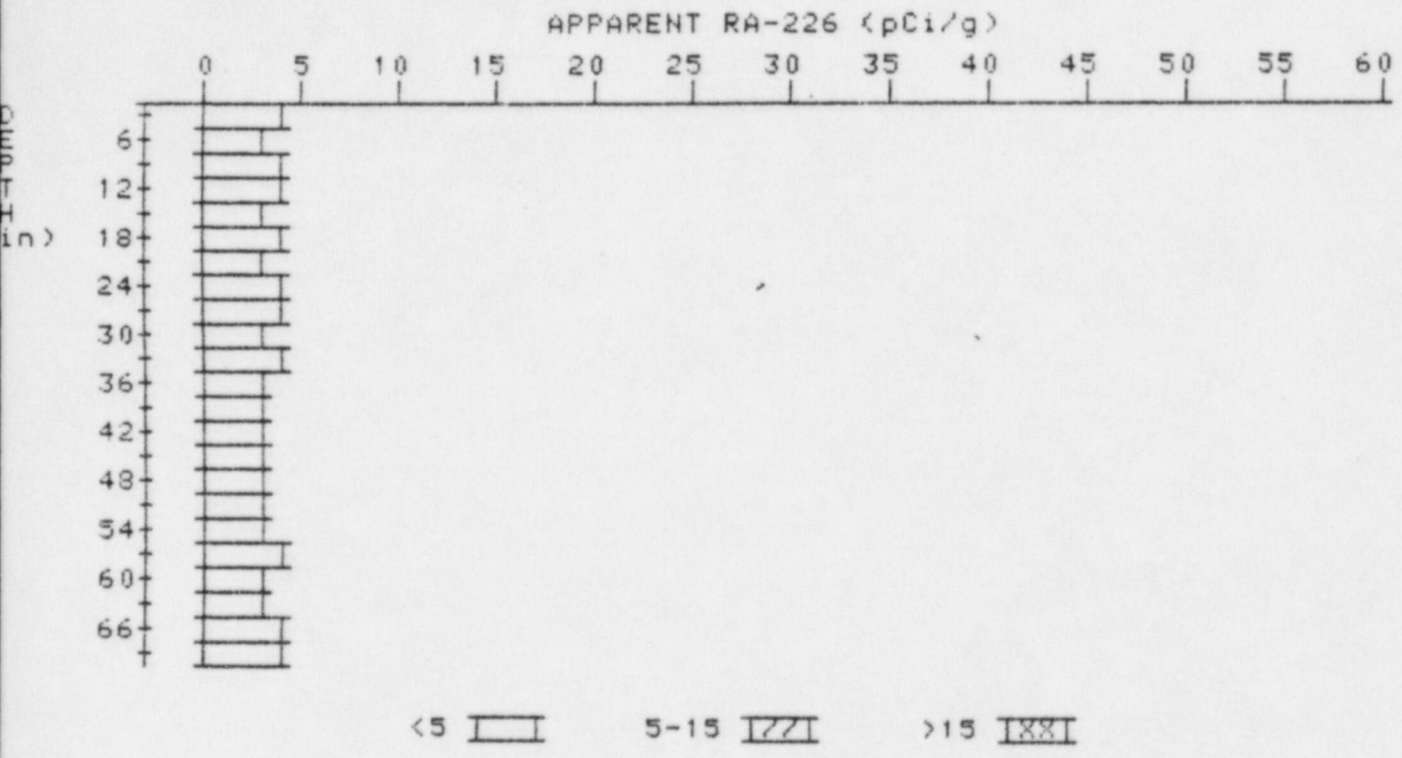
PROPERTY NUMBER: GJ-03783-RS
HOLE NUMBER: 5
LOCATION: 162163



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	40.4	40.4
6	51.7	102.9
9	34.2	28.0
12	20.2	10.1
15	11.9	3.5
18	8.3	5.6
21	6.2	4.2
24	5.2	4.3
27	4.7	4.3
30	4.4	4.2
33	4.2	3.8
36	4.2	4.4
39	4.1	4.1

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-03783-RS
HOLE NUMBER: 6
LOCATION: 165205



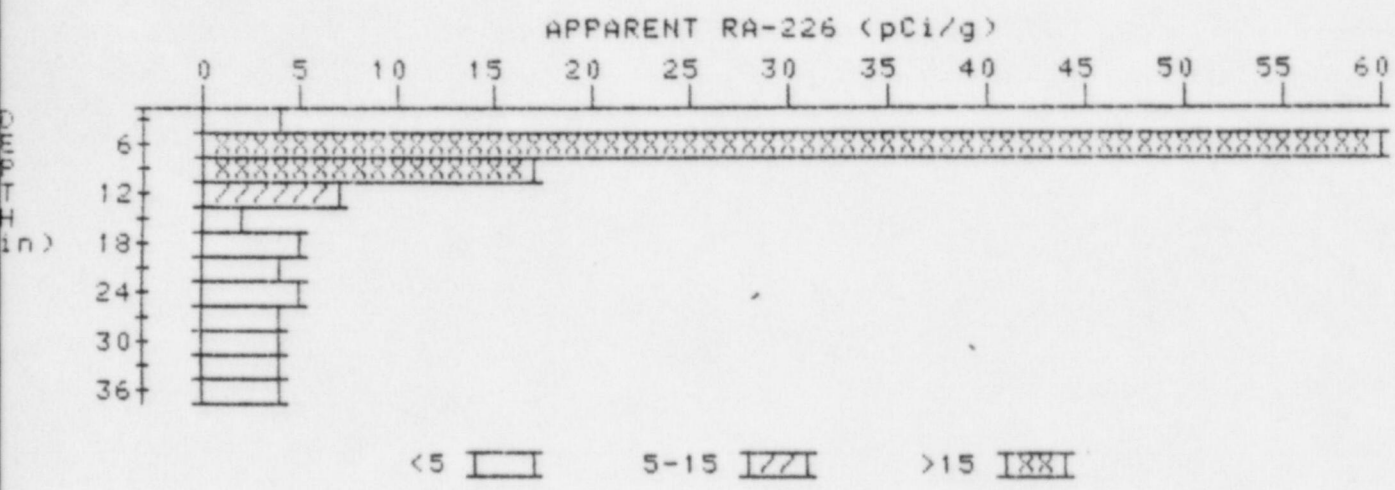
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.0	3.0
6	3.2	3.0
9	3.5	4.0
12	3.5	3.5
15	3.5	3.3
18	3.6	4.0
21	3.5	3.3
24	3.5	3.5
27	3.5	3.7
30	3.4	3.2
33	3.4	3.6
36	3.3	3.3
39	3.2	3.0
42	3.2	3.2
45	3.2	3.4

48	3.1	2.9
51	3.1	2.9
54	3.2	3.0
57	3.4	3.8
60	3.4	3.4
63	3.4	3.2
66	3.5	3.5
69	3.6	3.6

DECON V85.1<850215.1335>

APPARENT RADIUM-226 CONCENTRATION 13
DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-03783-RS
HOLE NUMBER: 13-
LOCATION: 199188'



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	37.1	37.1
6	43.0	82.5
9	26.7	17.5
12	15.6	7.4
15	9.1	1.8
18	6.7	4.6
21	5.5	4.4
24	4.9	4.7
27	4.4	3.7
30	4.3	4.3
33	4.2	3.8
36	4.3	4.3