RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-13028-RS
ADDRESS: 829 WEST MAIN STREET

JULY 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 CRH
M. TUCKER
DOE PROJECT ENGINEER

DATE July 25, 1985

REA13028:REA-511

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-13028-RS, is a single-family residence located at 829 West Main 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

It is recommended that no remedial action be performed on this property (as discussed in Section 4.0) and that a Property Completion Report be prepared for use in the DOE certification process. The identified residual radioactive material found within the legal property boundary is tailings; the estimated volume is: exterior, 1 cu. yd.; interior, 0 cu. yd.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 829 West Main Street, Grand Junction, Colorado

Zoning: Residential (RSF-8)

Lot Size: Approximately 14,850 sf (0.34 acres)

Legal Description: Beginning At The Northeast Corner Of Lot 14 Block 1 Grand River Subdivision; Thence West 90.0 Feet, Thence South 165.0 Feet, Thence East 90.0 Feet, Thence North 165.0 Feet to the Point of Beginning, 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:	Overhead
Gas:	Underground
Telephone:	Overhead
Sewer:	Underground
Water:	Underground
Cable TV:	None

Bordering Properties:

North:	West Main Street
South:	Single-family residence
East:	Alley
West:	Single-family residence

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-family residence
Size:	Approximately 1,300 sf
Construction Date:	1898
Construction:	Single-story wood-frame over a partial basement and crawl space
Foundation:	Concrete foundation wall and footing
Footing Depth:	Approximately 108" to bottom of footing from grade
Basement:	Partial
Crawl Space:	Yes
Condition:	Fair

Other Structures:

Type:	Shed/garage
Size:	Approximately 500 sf
Construction:	Wood-frame
Foundation:	Concrete floor with thickened edge
Condition:	Fair

Type:	Shed
Size:	Approximately 300 sf
Construction:	Wood-frame
Foundation:	None
Condition:	Fair

General Remarks:

Structures, utilities, landscaping, and other special features of this property are included in Appendix Figure 2.2.

Historical Data:

This structure is over 50 years old. Therefore, it does meet the eligibility criteria for consideration of inclusion on the National Register of Historic Places.

Alterations to Structure: Additions to the original vernacular wood frame on all 4 sides.

Architectural Significance: None Known

Historical Significance: None Known

3.0 RADIOLOGIC SURVEY

3.1 Introduction

Radiologic data were collected by Bendix at DOE ID No. GJ-13028-RS on May 9, 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 around the sidewalk and in the parking area.

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: 14 to 16 uR/h
Highest Outside Gamma Reading (HOG): 77 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 15 uR/h
Highest Inside Gamma Reading (HIG): 16 uR/h

Interior gamma exposure-rate measurements are summarized in Appendix Table 3.2.

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 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 Figure 3.3 shows identified areas and estimated depths of contamination on this property, based on assessments of all measurements taken. As noted in this figure, areas that contain identified residual radioactive materials are:

(AREA A) North of the primary structure in the street right-of-way, the soil beneath the uncontaminated 5-inch-thick concrete sidewalk is contaminated to a total estimated depth of 78 inches. This assessment is based on information gathered during the radiologic survey of DOE ID No. GJ-01207. A storm drain appears to have been layed in tailings fill material (approximately 468 sf; this area is excluded).

(AREA B) North of Area A in the street right-of-way, the soil is contaminated to an estimated depth of 78 inches based on information gathered during the radiologic survey of DOE ID No. GJ-01207 (approximately 495 sf; this area is excluded).

(AREA C) Along the south side of Area A in the street right-of-way and partially extending over the legal property boundary, the soil next to the sidewalk is contaminated to a depth of 6 inches (approximately 155 sf within the street right-of-way; approximately 49 sf within the legal property boundary; these areas are excluded).

(AREA D) A small deposit north of Area B in the street right-of-way is contaminated to a depth of 6 inches (approximately 21 sf; this areas is excluded).

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

We do not recommend decontamination and restoration of this property. It is recommended that no remedial action be performed and that a brief Property Completion Report be prepared for use in the DOE certification process.

4.2 Evaluation of Recommended Remedial Action

The recommendation that no remedial action be performed within the legal property boundaries is made because the levels of radioactivity on this property fall below the EPA Standards (40 CFR 192) when averaged over 100 m^2.

The EPA Standards are:

(1) 5 pCi/g above background, averaged over the first 15 cm of soil below the surface; and
(2) 15 pCi/g above background, averaged over 15-cm-thick layers of soil more than 15 cm below the surface.

Appendix Table 4.1 presents the area and volume calculations of contamination present on the property. The average radium concentration for this property is 3.7 pCi/g which falls below the allowable EPA Standard including background of 7 pCi/g for this area. Appendix Table 4.2 presents the calculations for concentrations of Radium-226 in soil for this location.

Areas A, B, D, and a major portion of Area C are located beyond the legal property boundary in the street right-of-way. These areas are associated with a 48-inch diameter concrete storm sewer and a gas line that are bedded in tailings.

If the DOE determines that the storm sewer and gas line deposits should be removed, it is recommended that Areas A, B, D, and all of Area C (including the contiguous 49 sf within the legal property boundary) be removed as part of a DOE ID No. 97003-0T remedial action project. This project would be performed in cooperation with the City of Grand Junction if storm sewer utility improvements or gas line improvements are made in this area. This DOE ID No. 97003-0T remedial action project would be the most efficient and cost-effective method of tailings removal. It would allow for identification of tailings involvement of other adjacent properties along the utilities and their removal under a single subcontract utilizing a utility subcontractor.

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	Calculations for Concentration of Radium-226 in Soil

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
Memo of Understanding
Team Leader Notes
Deconvolution Graphs (Apparent Radium-226 Concentration)
Exterior Gamma Scan Map

Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g) Tot. Ct	Spectr.	Chem Ra-226 (pCi/g)	Comments
1	129229	00	DS	2.7		*	
		06	DS	2.0		*	
2	129260	00	DS	<1.0		*	North of primary
		06	DS	<1.0		*	structure
3	129273	00	DS	<1.0		*	North of primary
		06	DS	<1.0		*	structure
		12	DS	<1.0		*	
4	129281	00	DS	<1.0		*	North of primary
		06	DS	<1.0		*	structure
		12	DS	<1.0		*	
5	134221	00	DS	23.2		*	
		06	DS	17.3		*	
		12	DS	2.4		*	
6	135203	00	DS	6.7		*	
		06	DS	12.7		*	
		12	DS	6.9		*	
7	135209	00	DS	16.0		*	
		06	DS	25.0		*	
		12	DS	5.1		*	
8	135241	03	TC	21.7		*	Auger refusal
		06	TC	24.9		*	DC > 39 inches
		09	TC	26.4		*	
		12	TC	25.9		*	
		15	TC	24.2		*	
		18	TC	22.8		*	
		21	TC	22.3		*	
		24	TC	22.6		*	
		27	TC	24.4		*	
		30	TC	26.6		*	
		33	TC	27.9		*	
		36	TC	26.9		*	
		39	TC	26.2		*	
9	138254	00-05	SS			2.4	Concrete core
		05-11	SS			10.1	Moist and sandy
		03	TC	6.1		*	
		06	TC	10.9		*	

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
9	138254	09	TC	12.4		*	
		12	TC	9.6		*	DC > 21 inches
		15	TC	7.9		*	
		18	TC	6.8		*	
		21	TC	6.3		*	
10	140274	00	DS	12.4		*	By sidewalk
		06	DS	<1.0		*	
		12	DS	<1.0		*	
11	141235	00	DS	36.8		*	
		06	DS	5.7		*	
		12	DS	1.4		*	
12	142216	00	DS	4.6		*	
		06	DS	1.4		*	
13	143248	00	DS	2.0		*	
14	152223	00	DS	1.3		*	NW corner of primary structure
15	154246	00	DS	<1.0		*	East of primary
		06	DS	<1.0		*	structure
16	174246	00	DS	<1.0		*	Gas line
		11	DS	<1.0		*	
17	183242	03	TC	3.1		*	Water line
		06	TC	3.4		*	DC = 0 inches
		09	TC	3.6		*	
		12	TC	3.6		*	
		15	TC	3.7		*	
		18	TC	3.8		*	
		21	TC	3.8		*	
		24	TC	3.7		*	
		27	TC	3.7		*	
		30	TC	3.7		*	
		33	TC	3.6		*	
		36	TC	3.6		*	
		39	TC	3.6		*	
		42	TC	3.5		*	
		45	TC	3.5		*	
		48	TC	3.5		*	

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
18	188220	03	TC	2.8		*	Sewer line
		06	TC	3.2		*	DC = 0 inches
		09	TC	3.4		*	
		12	TC	3.6		*	
		15	TC	3.7		*	
		18	TC	3.8		*	
		21	TC	3.8		*	
		24	TC	3.8		*	
		27	TC	3.7		*	
		30	TC	3.7		*	
		33	TC	3.7		*	
		36	TC	3.6		*	
		39	TC	3.5		*	
		42	TC	3.5		*	
		45	TC	3.6		*	
		48	TC	3.5		*	
		51	TC	3.6		*	
		54	TC	3.6		*	
		57	TC	3.6		*	
19	206220	03	TC	3.4		*	Against primary
		06	TC	3.5		*	structure
		09	TC	3.6		*	DC = 0 inches
		12	TC	3.7		*	
		15	TC	3.7		*	
		18	TC	3.7		*	
		21	TC	3.7		*	
		24	TC	3.7		*	
		27	TC	3.7		*	
		30	TC	3.6		*	
		33	TC	3.7		*	
		36	TC	3.5		*	
20	240240	00	DS	<1.0		*	Background
		00-06	SS			1.4	DC = 0 inches
		03	TC	3.0		*	
		06	BH	3.4	<1.0	*	
		09	TC	3.6		*	
		12	TC	3.7		*	
		15	TC	3.7		*	
		18	BH	3.7	<1.0	*	
		21	TC	3.6		*	
		24	TC	3.7		*	
		27	TC	3.5		*	

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
20	240240	30	BH	3.6	1.3	*	
		33	TC	3.6		*	
		36	TC	3.7		*	

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 = 05-09-85
Team Leader = TDH

Table 3.2
Summary of Interior Gamma Exposure Rates
DOE ID #GJ-13028-RS 829 West Main Street

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	10	16-18	17	10	17-18	17
GROUND FLOOR	*	*	*	*	13-16	*
SHED 1	*	*	*	*	13-14	*
SHED 2	*	*	*	*	13-14	*

* The historical data indicate the absence of interior contamination at this property. This information was investigated by performing a walking gamma scan on the ground floor of the primary structure, and in Shed 1 and Shed 2.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-13028-RS

AREA	CALCULATIONS(ft)		SF		DEPTH(ft)		CF		CUBIC YARDS		
EXTERIOR											
C	3 x 10	=	30								
	1 x 4	=	4								
	5 x 3	=	15								
			49	x	0.5	=	25				
	TOTAL VOLUME - EXTERIOR					=	25	=	25/27	=	1

Total square feet of Exterior Area C = 49 square feet
49 square feet = 4.5 square meters

Note: Calculations are based on deposits located within the legal property boundary.

See Appendix Figure 3.3 For Areas

Table 4.2
Calculations for Concentration of Radium-226 in Soil
DOE ID No. GJ-13028-RS

$$C_{avg} = \frac{C_c \times A_c + C_b\ (100m^2 - A_c)}{100m^2}$$

Where

C_{avg} = Concentration average (pCi/g)

C_c = Concentration of Contamination (pCi/g)

A_c = Area of Concentration (m^2)

C_b = Background Concentration (pCi/g)

$$C_{avg} = \frac{36.8 \times 5 + 2\ (100 - 5)}{100}$$

$C_{avg} = 3.7 < 7$

Therefore, concentration does not meet EPA Standards of 7 pCi/g

NOTE: Background Radium concentration for this area is 2 pCi/g

CK072585
REA13028/REA-511/LMR

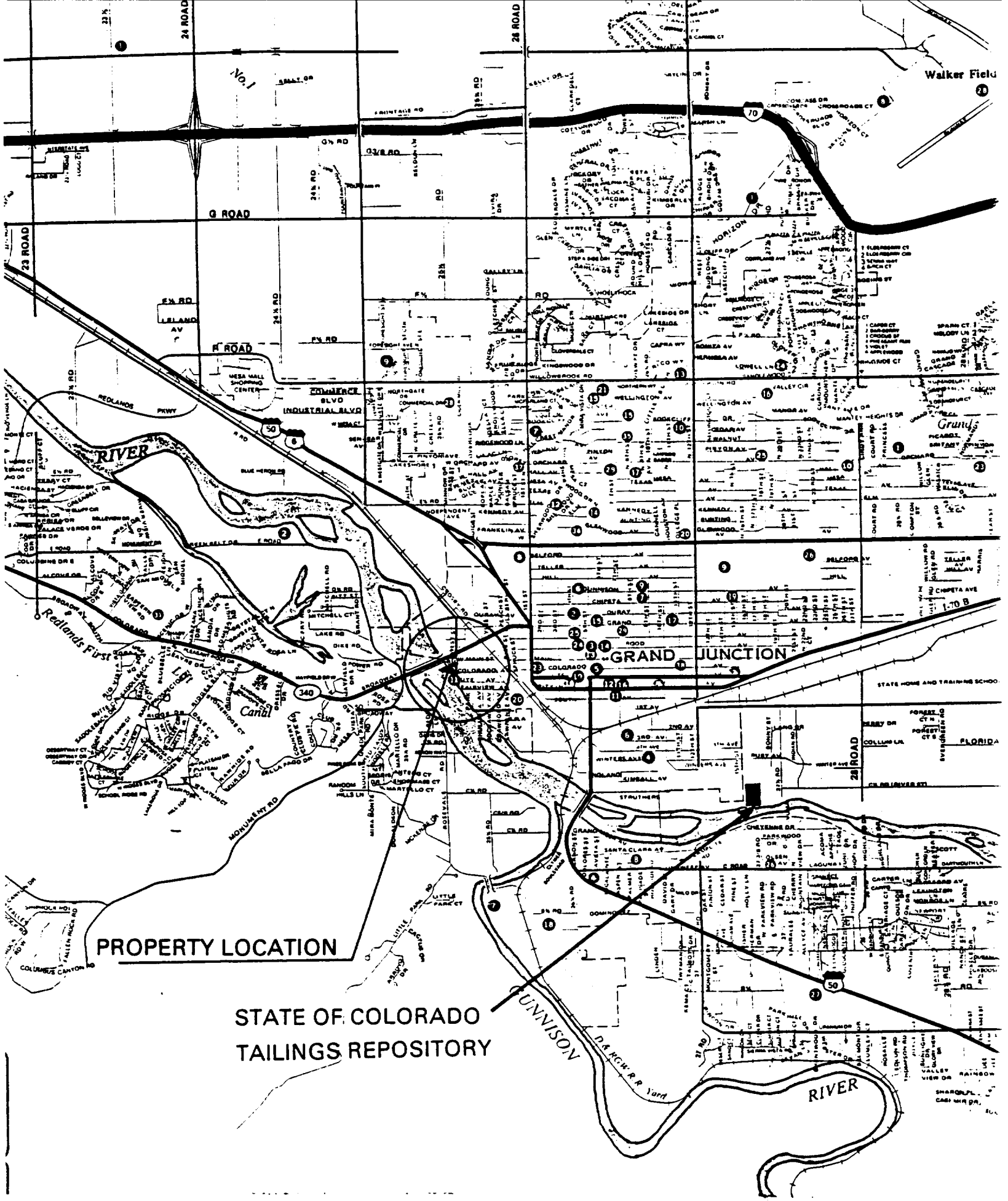
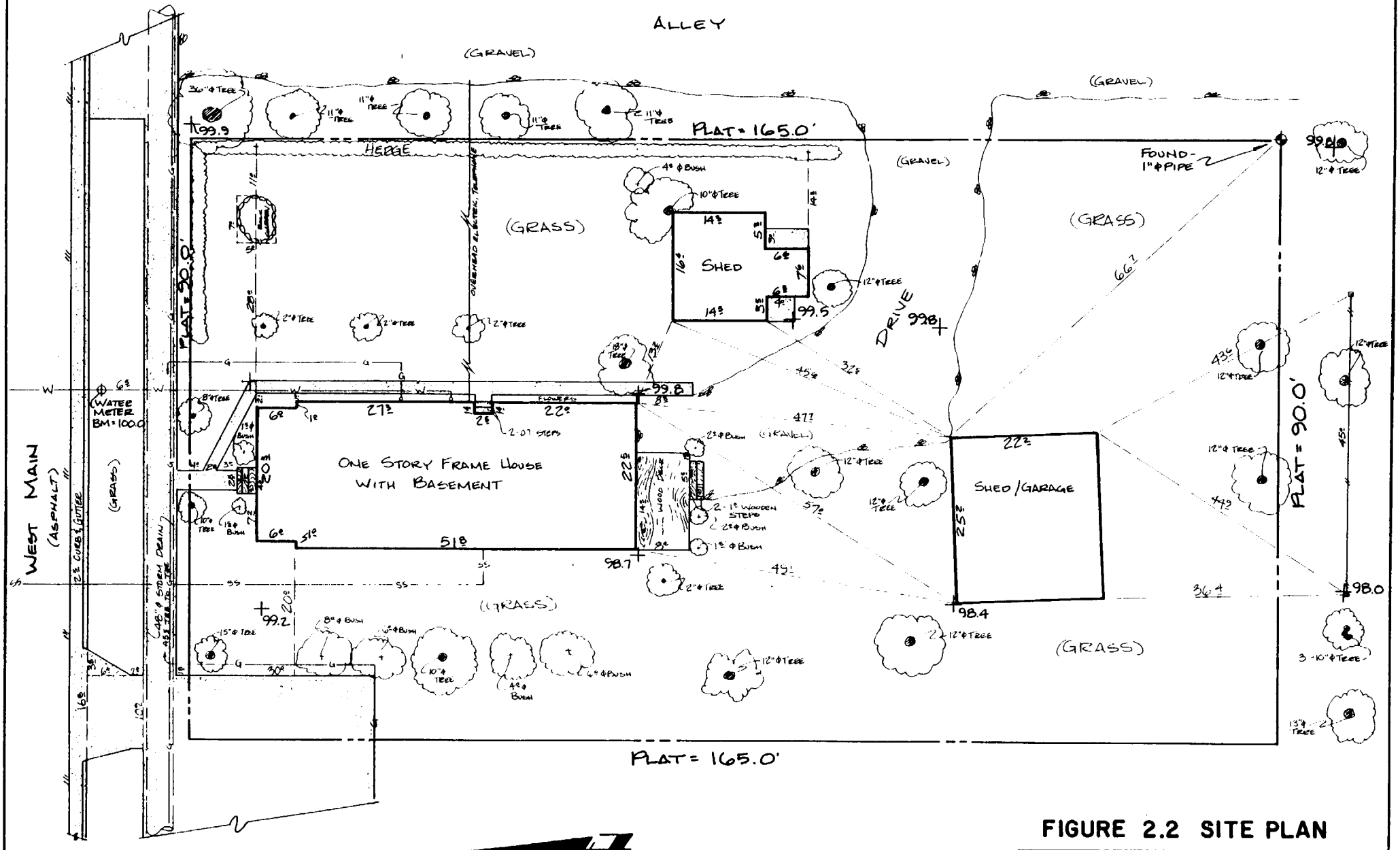
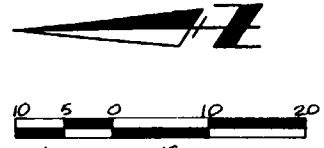


FIGURE 2.1
VICINITY MAP

BEGINNING AT THE NORTHEAST CORNER OF LOT 14 BLOCK 1 GRAND RIVER SUBDIVISION; THENCE WEST 90.0 FEET, THENCE SOUTH 165.0 FEET, THENCE EAST 90.0 FEET, THENCE NORTH 165.0 FEET TO THE POINT OF BEGINNING.





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

FIGURE 2.2 SITE PLAN

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION PROJECT OFFICE, COLORADO	DOE ID NO GJ13028RS
ADDRESS 829 WEST MAIN GRAND JUNCTION, COLORADO	ALLIED Bendix Aerospace Bendix Field Engineering Corporation Grand Junction Operations
SURV WHL 4-26-85 DRAFT RSK 5-1-85	CK
DRAWING NO 3-C643-F1	SHEET 1 OF 1

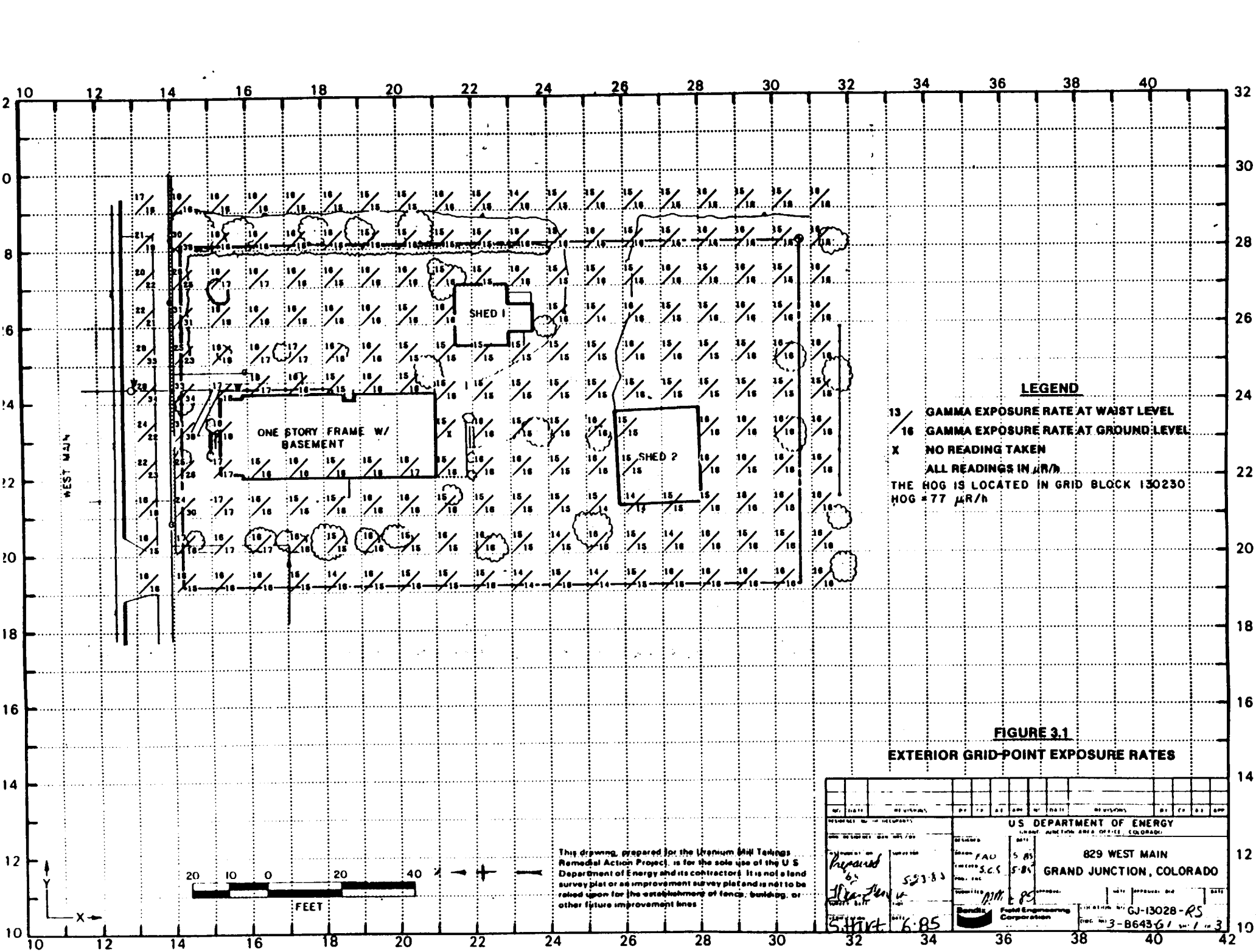


FIGURE 3.1

EXTERIOR GRID-POINT EXPOSURE RATES

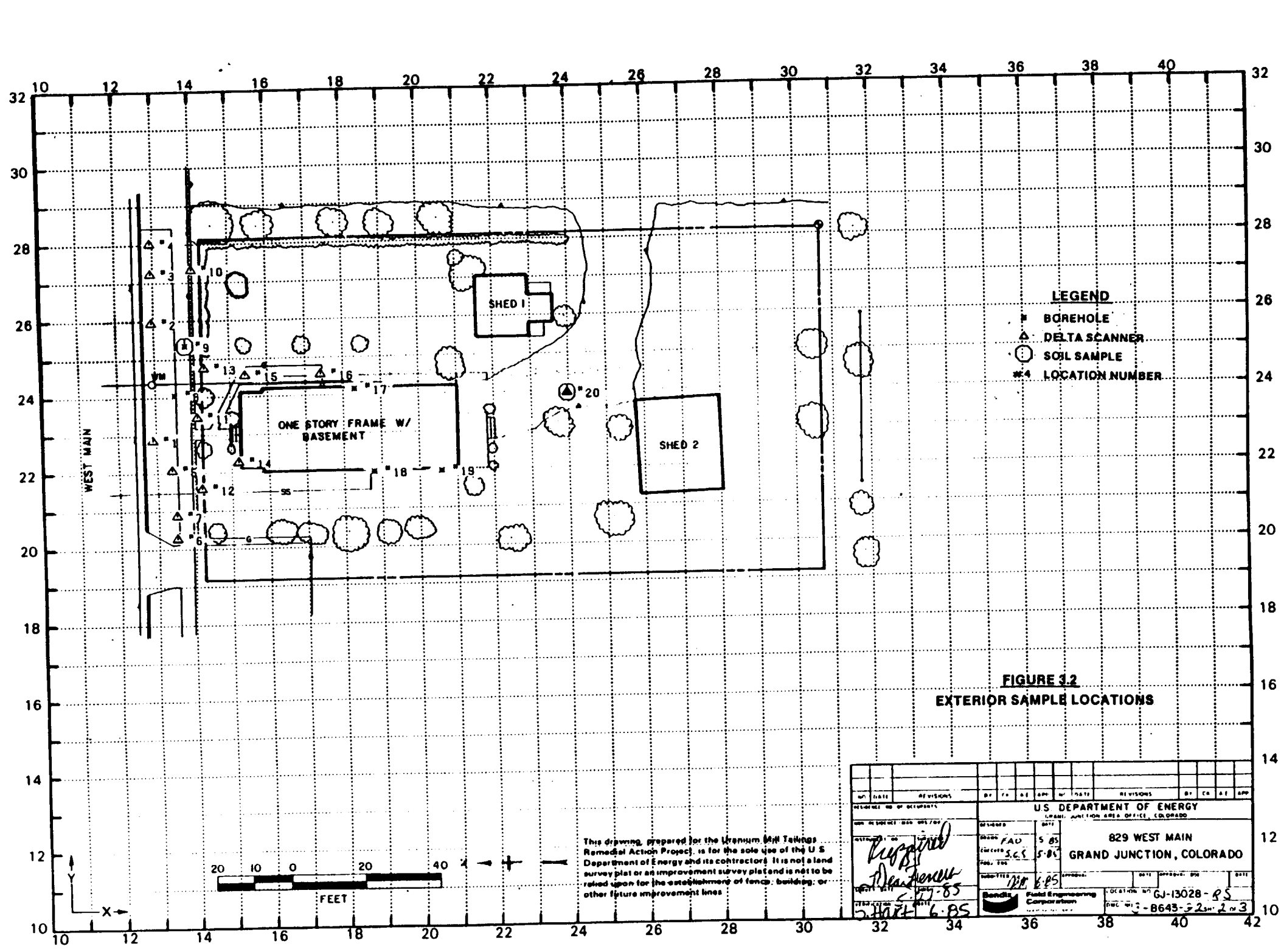
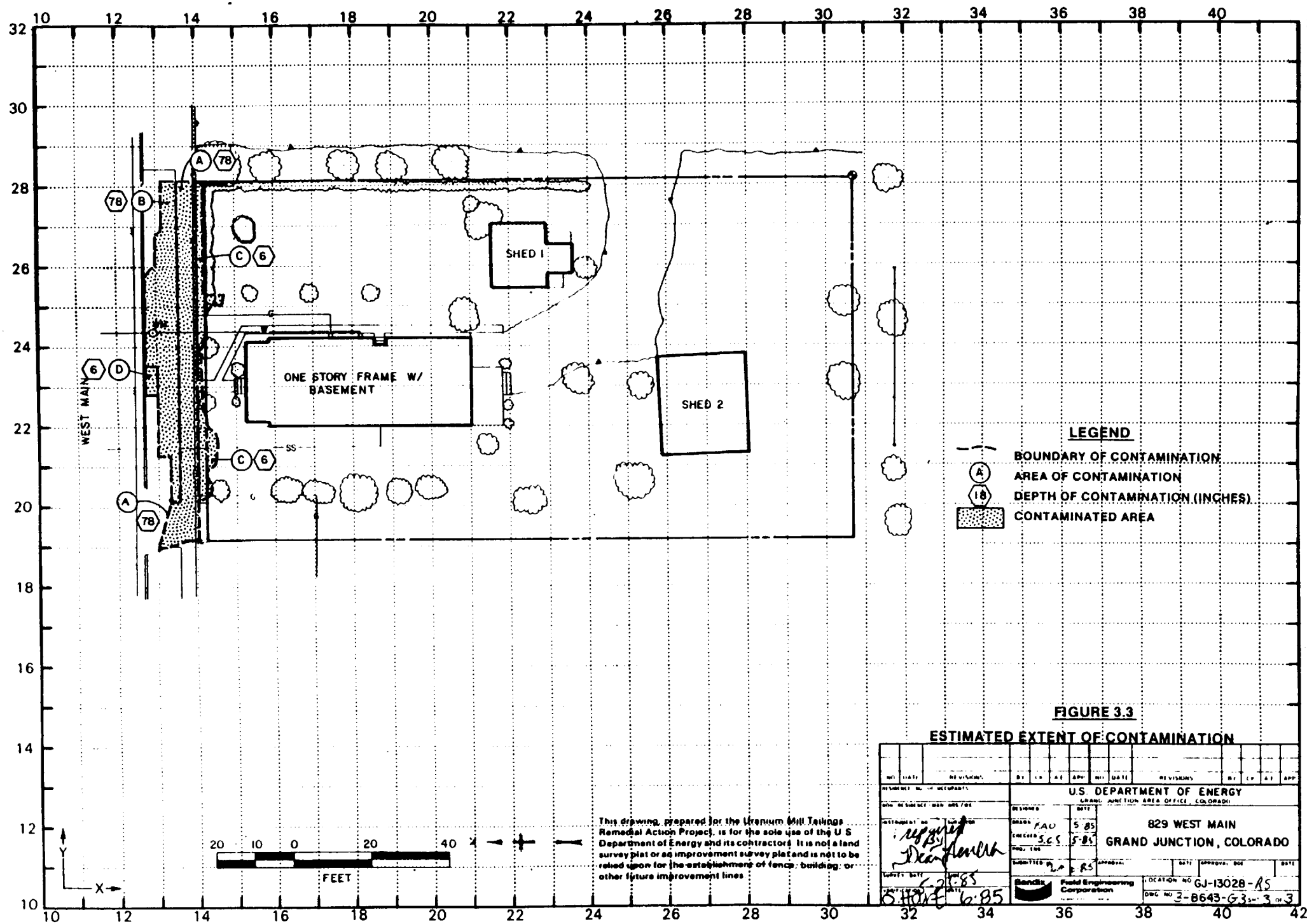


FIGURE 3.2

EXTERIOR SAMPLE LOCATIONS



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 as improvement survey plat and is not to be relied upon for the establishment of fence, building, or other future improvement lines.

FIGURE 3.3

ESTIMATED EXTENT OF CONTAMINATION

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

829 WEST MAIN
GRAND JUNCTION, COLORADO

Bendix Field Engineering Corporation

LOCATION NO GJ-13028-AS
DWG NO 3-B643-G3 SH 3 OF 3

Location No. GJ-13028-RS Date 05-13-85

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

Official Survey Report

Property Address 829 WEST MAIN STREET

Property Owner RUSSELL and NORMA SCHUCKMAN

Address of Owner (if different from above) same as above

Report Prepared By T. DEAN HERRERA

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 = 16 uR/hr

HOG = 77 uR/hr

Bendix
Aerospace

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

May 5, 1985

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

ATTN: Chuck Thornberg

Dear Chuck:

The following is in response to your questions and comments during the Technical Review concerning Department of Energy (DOE) Identification (ID) number GJ-13028-RS.

1. The footing/foundation data has been ommited. Bendix procedures do not require a footing/foundation form unless there is interior contamination. This property does not have any interior contamination.

2. Borehole Location 19 defines the depth of the basement. The team members were unable to auger more than 36 inches due to the nature of the soil. Historical data indicates no interior contamination.

Thank you for your time and cooperation. If you should have additional questions or comments you may contact me at 242-8621, extension 280.

Sincerely,

T. Dean Herrera
RSD Survey Team Leader

TDH:pr

CDH.LETTER:13028.HERRERA

ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado

Date: May 21, 1985

To: Files

From: T. Dean Herrera

Subject: Team Leader Notes - GJ-13028-RS

Address: 829 West Main

Owner: Russell and Norma Schuckman

Occupancy: Two

Weather: Slightly overcast, approximately 75 degrees.

Team Members

D. Herrera (Team Leader)	T. Flores
P. Egidi	S. Southern
P. Tuhey	A. Quintana
N. Wallace	S. Larsen
V. Young	M. Duran
R. Herman	M. Gilfillan

Instruments

See Equipment Summary Sheet

Date: May 9, 1985

Team members arrived at the property at 0845.

Team members located the elevated gamma readings in similar locations as indicated by Oak Ridge National Laboratory (ORNL), on the north side of the primary structure on the sidewalk. Team members attempted to auger in this area and encountered pit run rock, this made augering very difficult due to oversize rocks.

The drawing does not show any record, but there is a 48-inch storm drain buried in this area. It appears that it could be in tailings.

Tom Flores made a visit to the City of Grand Junction to see if he could obtain information about the storm drain, in order to check the possiblity of the City placing it in tailings.

The personnel Tom Flores talked with did not know whether the storm drain had been buried in tailings.

All personnel were frisked before taking a 30-minute lunch break.

A core sample was taken through the sidewalk.

While Phili Egidi was obtaining a soil sample, he encountered the gas line. It appears that the gas line is in tailings underneath the sidewalk, but there are no tailings on the gas line of the primary structure.

An investigation of all utilities were checked and no apparent tailings were noted against the primary structure.

A complete check has been done to investigate the elevated gamma area, it seems very conclusive that the storm drain is in tailings.

Date: May 10, 1985

Dan Fossey and myself returned to do an interior on the shed and garage.

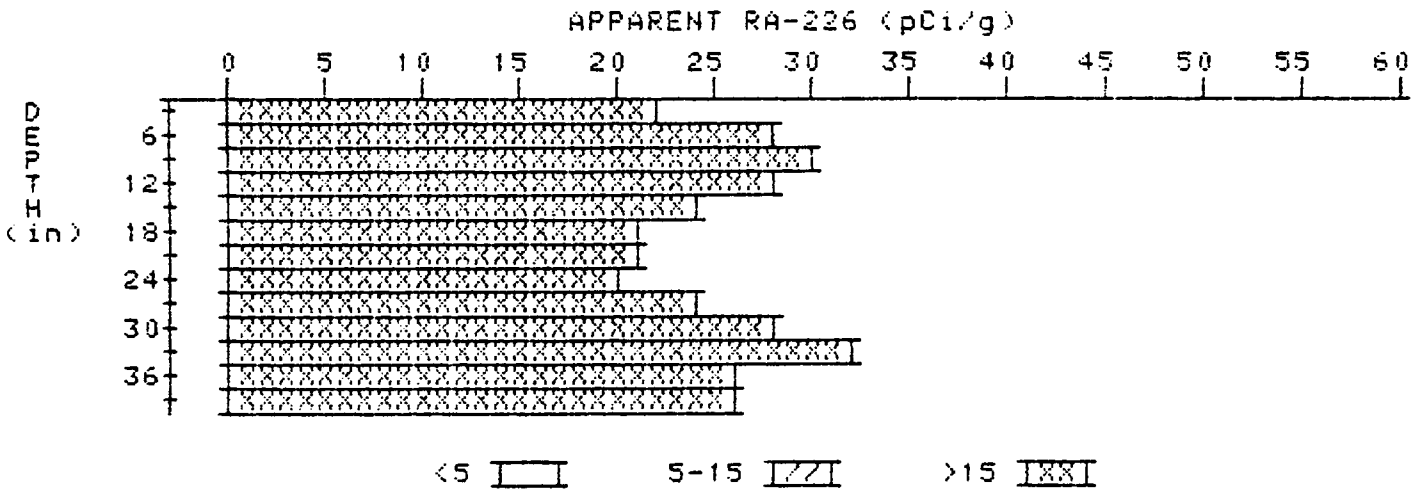
Date: May 21, 1985

Dan Fossey and myself once again had to return to the property to auger a background hole.

On 24 May 1985, R. Vialpando and myself discussed the probability that the storm drain is buried in tailings. Since I had difficulty augering the storm drain, and based on the assessment of DOE ID GJ-01207, the depth of 78 inches is going to be referenced for the depth at DOE ID GJ-13028 property.

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-13028-RS
HOLE NUMBER: 8
LOCATION: 135241

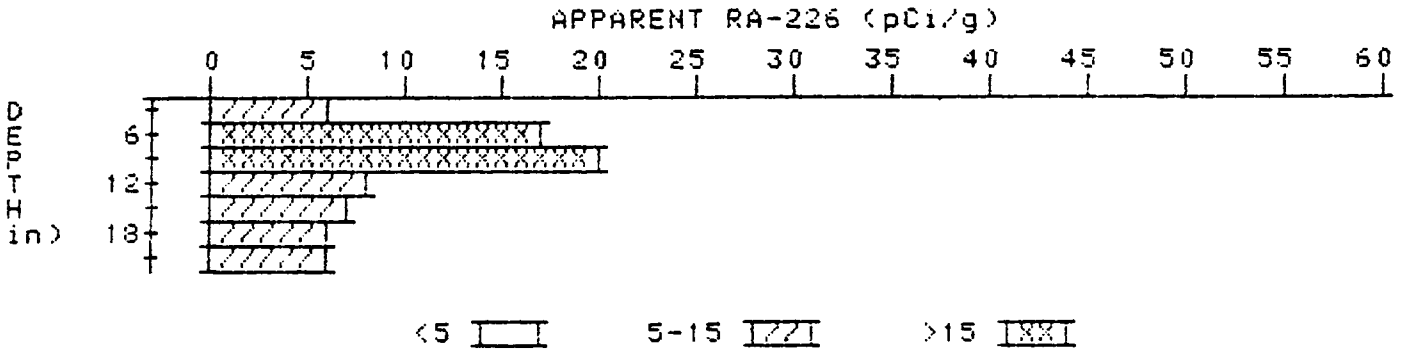


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	21.7	21.7
6	24.9	27.9
9	26.4	30.0
12	25.9	28.0
15	24.2	23.7
18	22.8	21.2
21	22.3	20.9
24	22.6	19.9
27	24.4	23.7
30	26.6	28.2
33	27.9	32.0
36	26.9	26.4
39	26.2	26.2

DECON V85.1<850524.0823>

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 9

PROPERTY NUMBER: GJ-13028-RS
HOLE NUMBER: 9
LOCATION: 138254

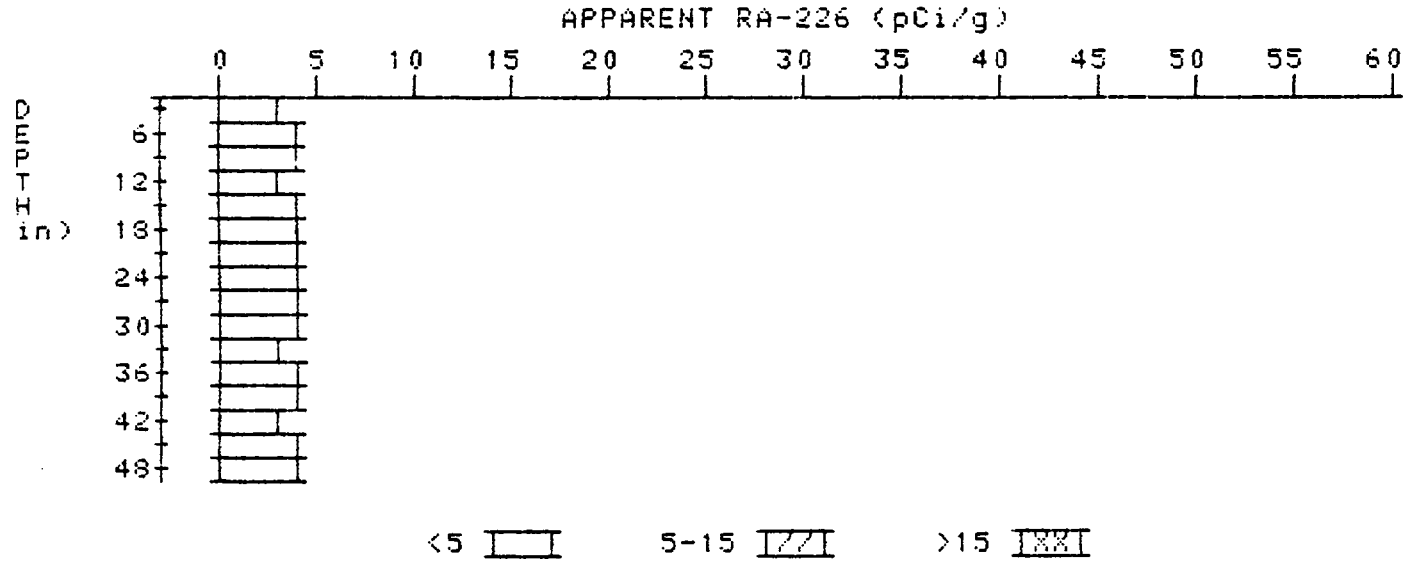


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	6.1	6.1
6	10.9	16.8
9	12.4	20.0
12	9.6	7.6
15	7.9	6.8
18	6.8	5.7
21	6.3	6.3

DECON V85.1<850524.0823>

APPARENT RADIUM-226 CONCENTRATION 17
DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-13028-RS
HOLE NUMBER: 17
LOCATION: 183242

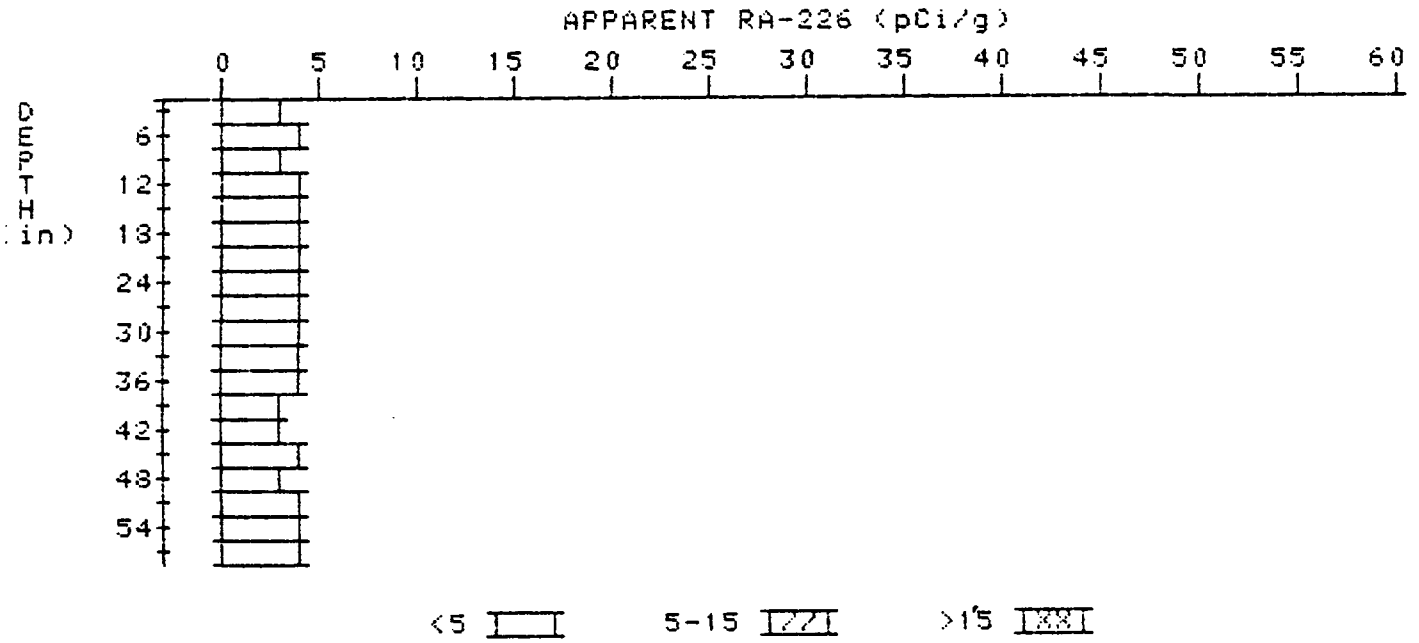


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.1	3.1
6	3.4	3.6
9	3.6	4.0
12	3.6	3.4
15	3.7	3.7
18	3.8	4.0
21	3.8	4.0
24	3.7	3.5
27	3.7	3.7
30	3.7	3.9
33	3.6	3.4
36	3.6	3.6
39	3.6	3.8
42	3.5	3.3
45	3.5	3.5
48	3.5	3.5

DECON V85.1<850524.0823>

APPARENT RADIUM-226 CONCENTRATION 18
DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-13028-RS
HOLE NUMBER: 18
LOCATION: 188220



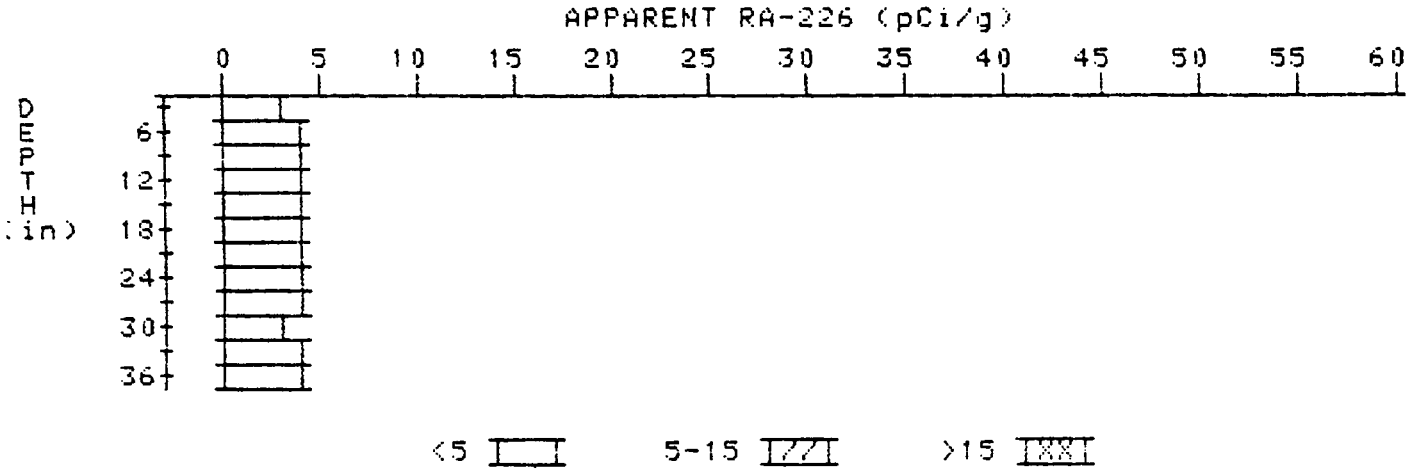
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	2.8	2.8
6	3.2	3.6
9	3.4	3.4
12	3.6	3.8
15	3.7	3.7
18	3.8	4.0
21	3.8	3.8
24	3.8	4.0
27	3.7	3.5
30	3.7	3.7
33	3.7	3.9
36	3.6	3.6
39	3.5	3.3
42	3.5	3.3
45	3.6	4.0
48	3.5	3.1
51	3.6	3.8
54	3.6	3.6

57	3.6	3.6

DECON V85.1<850524.0823>

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH 19

PROPERTY NUMBER: GJ-13028-RS
HOLE NUMBER: 19
LOCATION: 206220

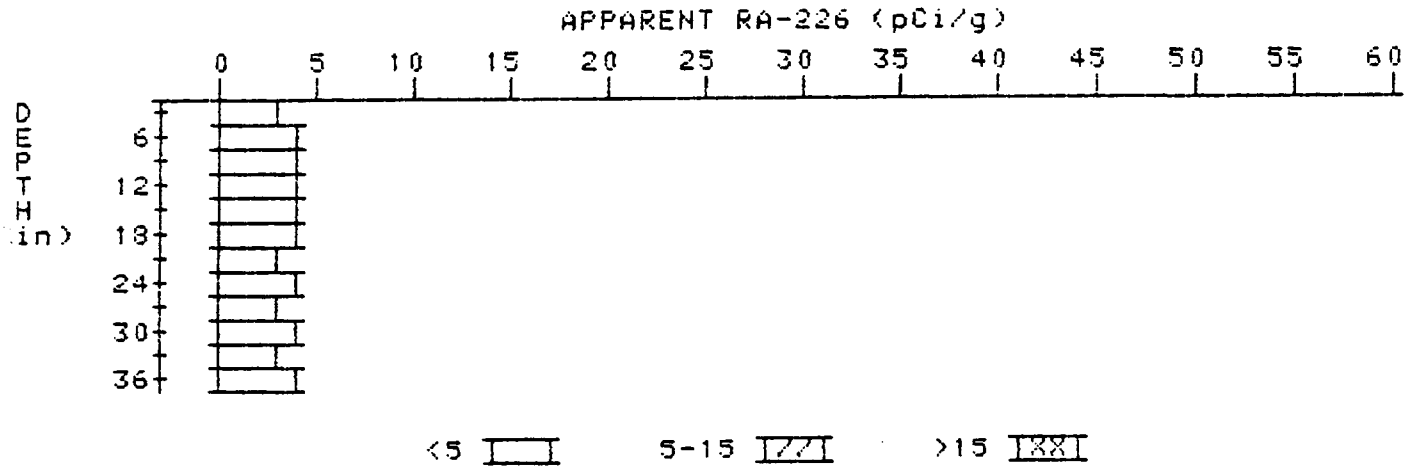


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.4	3.4
6	3.5	3.5
9	3.6	3.6
12	3.7	3.9
15	3.7	3.7
18	3.7	3.7
21	3.7	3.7
24	3.7	3.7
27	3.7	3.9
30	3.6	3.2
33	3.7	4.2
36	3.5	3.5

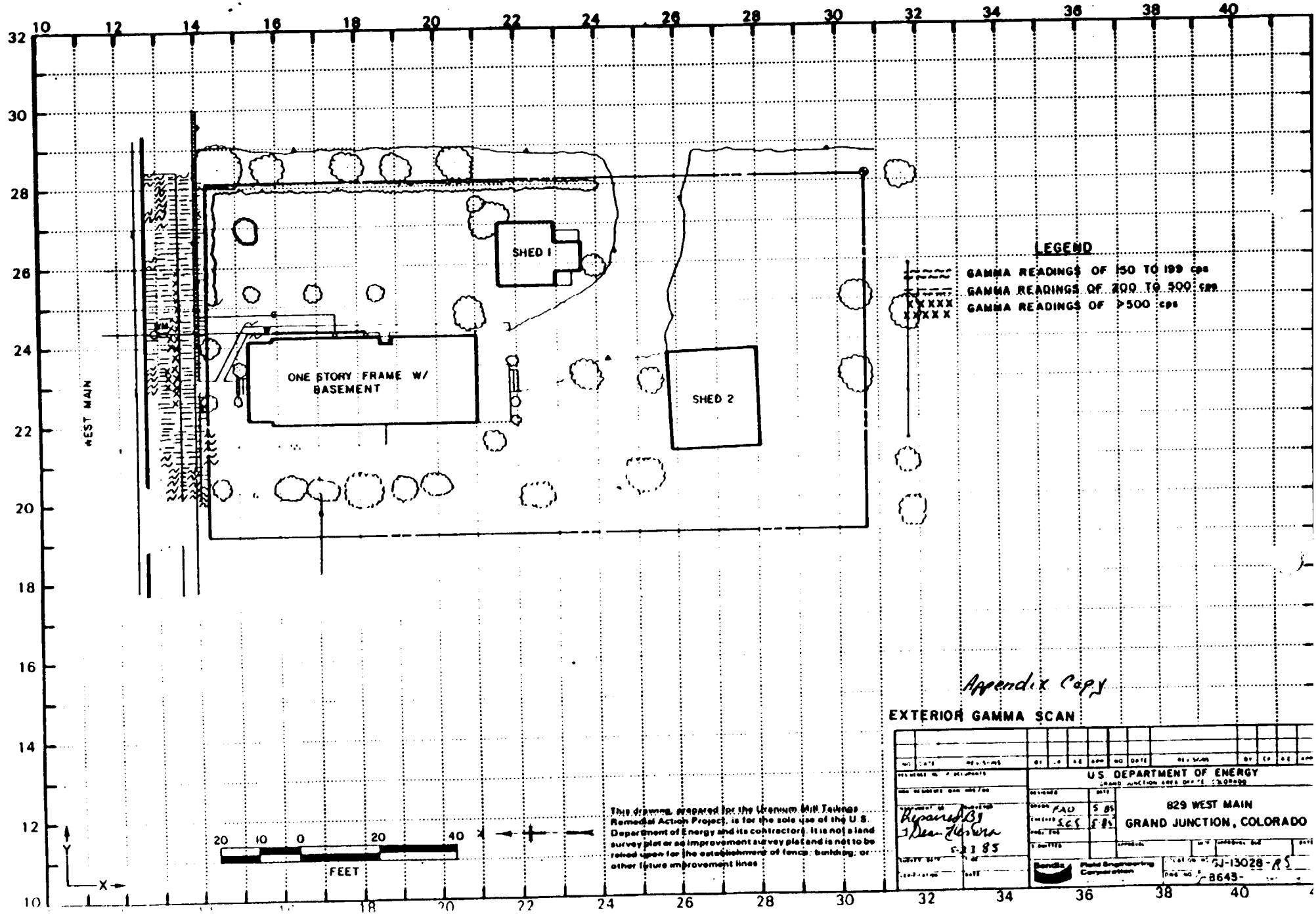
DECON V83.1<850524.0823>

APPARENT RADIUM-226 CONCENTRATION 20 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-13028-RS
HOLE NUMBER: 20
LOCATION: 240240



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	3.9
15	3.7	3.7
18	3.7	3.9
21	3.6	3.2
24	3.7	4.2
27	3.5	3.0
30	3.6	3.8
33	3.6	3.4
36	3.7	3.7


SHED 1
ONE STORY FRAME W/ BASEMENT
SHED 2
WEST MAIN
LEGEND
GAMMA READINGS OF 150 TO 199 cps
GAMMA READINGS OF 200 TO 500 cps
GAMMA READINGS OF >500 cps
20 10 0 20 40
FEET
Y
X
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 as improvement survey plat and is not to be relied upon for the establishment of fence, building, or other future improvement lines.
Appendix Copy
EXTERIOR GAMMA SCAN
U.S. DEPARTMENT OF ENERGY
829 WEST MAIN
GRAND JUNCTION, COLORADO
GJ-13028-RS
8643-