Radiological and Engineering Assessment

CDH #20217

Vicinity Property No. DUR 013

Remedial Actions
Contractor
for the
Uranium Mill Tailings
Remedial Actions
Project

MRC FILE CENTER COPY



9707100300 850510 PDR WASTE WM-48 PDR

Vicinity Property No. DUR 013

FINAL

THE RADIOLOGICAL AND ENGINEERING ASSESSMENT

AND FINAL DESIGN

FOR

DURANGO PROPERTY

DU-013

CDH #20217

May 10, 1985

PREPARED FOR

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT OFFICE
UNITED STATES DEPARTMENT OF ENERGY

PREPARED BY

MORRISON-KNUDSEN COMPANY, INC.

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

Property DU-013 is a commercial property located at 1363 Main Avenue, Durango, CO.

1.2 Evaluation and Recommendation

- 1.2.1 Residual Radioactive Material Involvement

 Contamination was found along the side and back of the building and in the east side of the basement.
- 1.2.2 Recommended Remedial Action Option

 The recommended option is to remove the contaminated material.
- 1.2.3 Estimated Costs

The estimated cost for removal of the contaminated material and restoration of the property is \$8,050.00.

1.2.4 Schedule

The estimated duration of the remedial action effort is 5 to 10 days.

2.0 ENGINEERING FIELD SURVEY

2.1 Property Description

2.1.1 Property Use and Occupancy

Property DU-013 is a commercial property located at 1363 Main Avenue, Durango, Colorado and owned by Howard R. Davis. Mr. Davis uses the building as a carpentry shop. The map in Figure 2.1 illustrates the property's vicinity location.

2.1.2 Legal Description

The legal description as recorded with the La Plata County Recorder's Office in Deed Book No. 260, Page 362 follows:

All that portion of Lot 8, Block 100, Fassbinder's Addition, Durango, La Plata County, Colorado, lying easterly of a line parallel with and 20 feet southeasterly at right angles from the center line of the main track of the Silverton Branch of The Denver and Rio Grande Western Railroad Company as now constructed and operated over and across said lot—containing 2500 square feet, more or less.

2.1.3 Bordering Properties

The lot is zoned C-1, commercial. It is located less than 1-1/4 miles northeast of the old Vanadium Corporation of America mill tailings site. The property is bounded on the north by a commercial property; on the east by Main Avenue; on the south by a commercial property; and on the west by the Denver and Rio Grande Western Railroad track.

2.2 Existing Facilities and Structures

2.2.1 Structures

The building is a two story wood frame structure on a wood post and plank walkout basement. The basement has a dirt floor. There is a wood deck over the basement entry on the west side of the building. A wide concrete sidewalk runs along Main Avenue outside the east lot line. A concrete block wall is located on the west property boundary. On the west side of the property there is a small weeded yard. Between the building and the commercial building to the north there is a narrow weeded strip of ground with a wood fence between the buildings on the east end. The rear of the property slopes downward from north to south.

The building was built prior to 1900 and was the first structure on the block. However all planned remedial actions for this property are on the Exempt List of the Programmatic Memorandum of Agreement between the DOE, the Colorado Historic Preservation Officer and the Advisory Council on Historic Preservation.

2.2.2 Utilities

Utilities are serviced to the property as follows:

Electric power - Overhead to the west side of the building.

Telephone - None.

Water - None.

Gas - None.

Sewer - None.

2.2.3 Site Plan and Survey Data

See Figure 2.2 for a site plan of the property. Property survey data and photos are presented in Table 2.1 and Figures 2.3, 2.4 and 2.5.

TABLE 2.1

COMMERCIAL/INSTITUTIONAL

PROPERTY SURVEY DATA

GENERAL:	
Facility N	lame: N/A
Address: _	1363 Main Avenue
Owner:	Howard R. Davis
Occupancy:	Employees/Occupants (Full Time): Employees/Occupants (Part Time):
Remarks: _	The building is used by Mr. Davis for his carpentry shop.
PROPERTY D	DESCRIPTION:
	(Identify)Carpentry Shop
	SQ FT 820 Levels Two Story
	Construction Type Old Wood Frame Board and Batting
	Foundation Wood Posts, Board and Bracing for Basement; Basement
	has Dirt Floor; Hot Spot in Northeast Corner Basement
Remarks: <u>T</u>	This building was built before 1900. A wood deck has been built on
	the west side of the building over the basement; a 10' concrete block
	and brick well borders the west property line.
Structure:	(Identify)
	SQ FT Levels
	Construction Type
	Foundation
Remarks: _	

TABLE 2.1

COMMERCIAL/INSTITUTIONAL

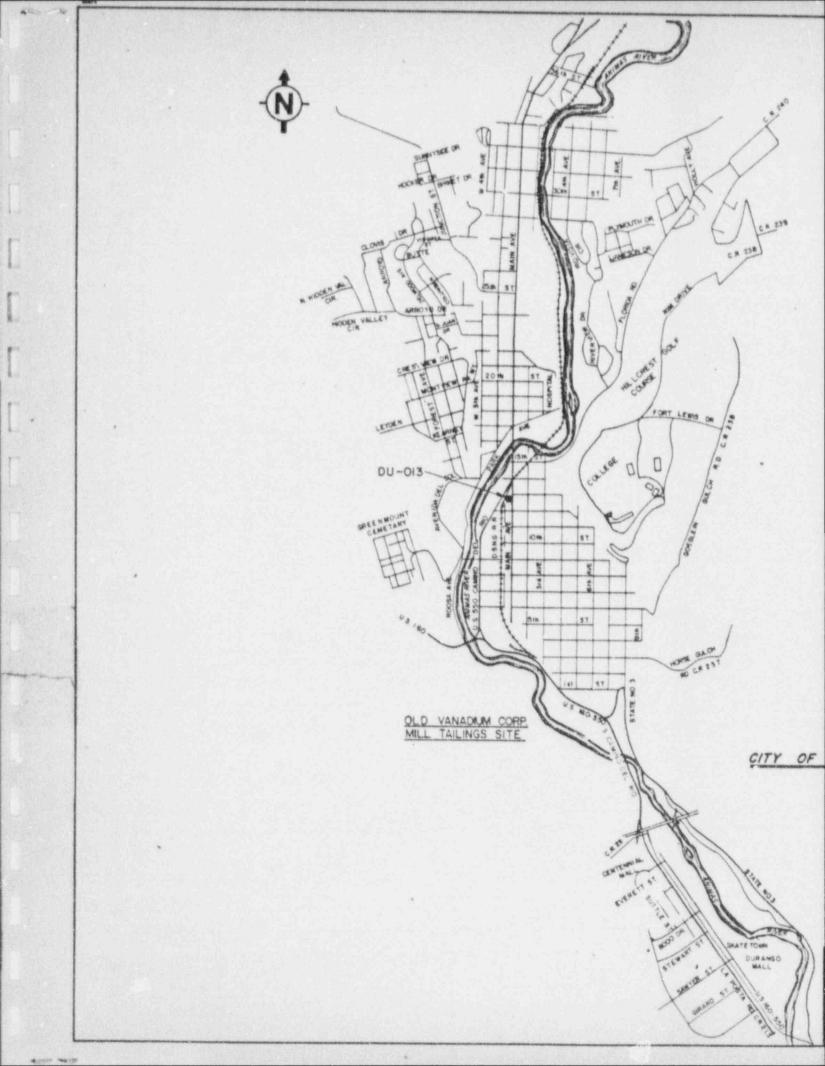
PROPERTY SURVEY DATE

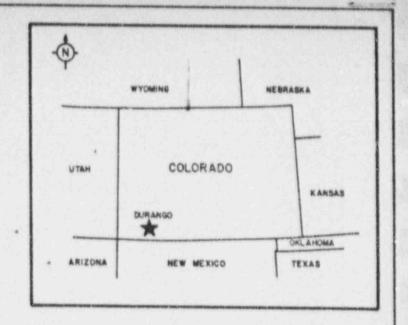
	State and the state of the stat
Facility	Name: N/A
PROPERTY	DESCRIPTION:
Driveway	Access: Concrete: Asphalt: Gravel:
Remarks:	None
Sidewalks	s: Concrete: X Asphalt:
Remarks:	City Sidewalk on East Side of Building
Fences:	Chain link Mesh WoodX
Remarks:	7' High Wood Fence Between Bldg and Sheet Metal Business to North
Grounds:	Lawn None - Weeded Area on West Side
	Trees None
	Trees None
	Shrubs None
	Shrubs None
	Grading Slight Slope Down from North to South in Back
	Soil Type
	Remarks
Existing	Survey Plot: Yes

TABLE 2.1

COMMERCIAL/INSTITUTIONAL

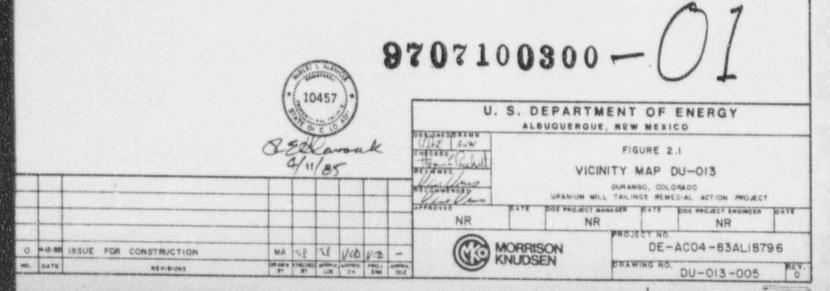
Pagility Warr		PERTY SURVEY DATA						
	Hot Water	Electric	Oil					
	Air Conditioning: E	lec. Heating Pump	Gas					
	Electric Line Locat West Side of Build	ion: _Overhead from N	orthwest Utility Pole to					
	Water Line Location: None							
	Sewer Line Location: None							
	Telephone Line Loca	tion: None						
	S AND ZONING: : UBC X BOC	Α						
Zoning Jurisd	iction:City of Doity Zoning:C-1 Bu	urango						



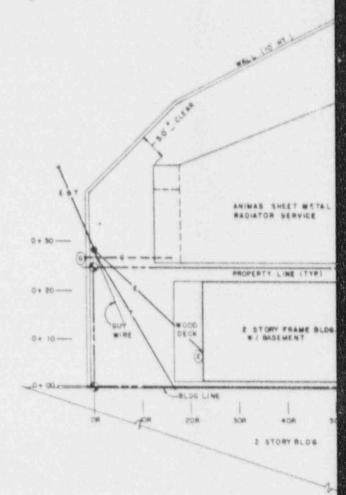


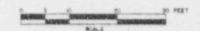


DURANGO, COLORADO





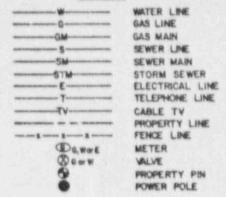




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LEGEND



NOTE: OVERNEAD SERVICE DENOTED BY SOLD LINE. UNDERGROUND SERVICE DENOTED BY DASHED LINE.

ANSTEC APERTURE CARD

Also Available on Aperture Card

9707100300-02

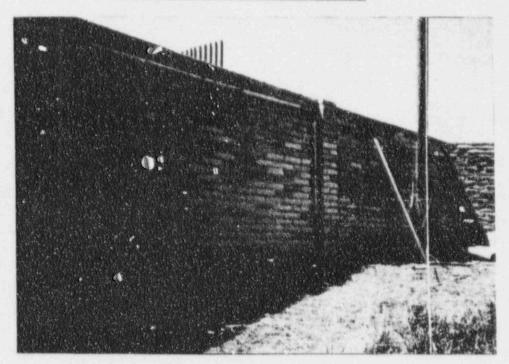
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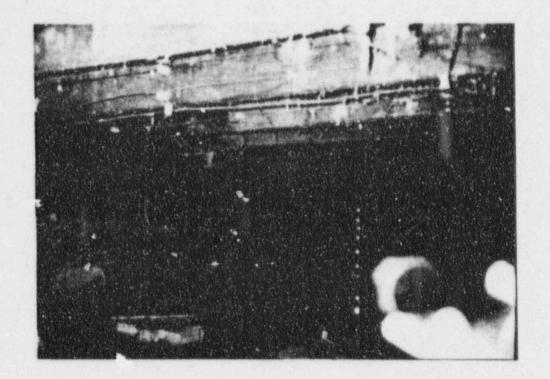
BLDG LINE -



Front of Property Looking West



Rear of Property Looking Northwest Figure 2.3 Property Photos



Basement Interior Looking Northeast

Figure 2.4 Property Photos



North Side of Building Looking East Figure 2.5 Property Photos

3.0 RADIOLOGICAL SURVEY AND ASSESSMENT

3.1 Gamma Exposure Rate Survey

3.1.1 Survey Method

The outdoor contaminated a eas identified in the inclusion survey (results of the Radiological Survey at Property DU-013, ORNL, February 1984) were surveyed in accordance with the RAC UMTRA Procedure 019. The survey was made on a 10' x 10' grid. A surface scan was made of the entire property with a gamma scintillometer to identify the boundary of the contamination.

An indoor gamma survey was conducted inside the building in areas identified in the inclusion survey. This indoor survey was not conducted on a grid. Measurements were made as described in Table 3.2.

3.1.2 Survey Results

Surface gamma readings on the property range from 14 to 25 micro R/hr (Table 3.1). This may be compared with the background for the Durango site of 14 micro R/hr.

Indoor surface gamma readings range from 16 to 195 micro R/hr.

3.2 Borehole Survey

3.2.1 Survey Method

A gasoline-powered hand auger was used to drill 4-inch diameter holes in and around the regions identified as contaminated during the gamma survey. The holes were surveyed in compliance with the RAC UMTRA Procedure 018.

3.2.2 Survey Results

Contamination was found in 7 of the 12 outdoor holes augered. The location and depth of the contamination is described in Table 3.3 and is shown in Figure 3.1. Boreholes were augered on three sides of the building, as shown in Figure 3.1. It was physically impossible to get the auger into the narrow passageway south of the building. However, gamma readings here were 14-17 micro R/hr, and it is not likely that contamination is in this area. Large rocks prevented drilling through the vertical extent of contamination. The maximum depth attainable was 17 inches, and the gamma reading was still increasing. It is likely that contamination extends to a depth of 30 inches or more.

3.3 Radon/Radon Daughter Survey

No radon/radon daughter surveys were performed inside the building at the property.

3.4 Estimated Extent of Contamination

Two contiguous areas of contamination were identified in the survey.

Area A, Figure 3.1, is located in the eastern portion of the building basement. This area consists of tailings from the outside to the east where fill was placed under the street and sidewalk. The tailings have come in through the deteriorating foundation of the building. Contamination is visible in piles 6-12 inches in depth. While it is likely that none of the contamination is below the original floor level, the engineering estimate should allow for approximately 6 inches of excavation.

Area B is the outdoor contaminated area. The depth of contamination east of the building is at least 18 inches and could be 30 inches or more. Along the side of the building and in back the estimated depth of contamination is 18 inches. (For quantity estimates, a depth of approximately 30 inches should be used in Area B).

Table 3.1 OUTDOOR SURFACE GAMMA SURVEY Property DU-013

POINT	MICRO R/hr	
0+00,00R	17	
0+10,00R	17	
0+20,00R	17	
0+24,00R	17	
0+00,10R	17	
0+10,10R	17	
0+20,10R	18	
0+24,10R	18	
0+15,10R	19	
0+18,10R	18	
0+19,10R	19	
0+00,20R	16	
0+10,20R	17	
0+20,20R	18	
0+24,20R	19	
0+24,30R	20	
0+24,40R	18	
0+24,50R	19	
0+02,65R	17	
0+10,70R	22	

Table 3.1 - Cont'd. OUTDOOR SURFACE GAMMA SURVEY Property DU-013

POINT	MICRO R/hr
0+20,70R	23
0+22,70R	25
0+02,75R	14
0+10,75R	14
0+20,75R	14

Table 3.2 INDOOR SURFACE CAMMA SURVEY Property DU-013

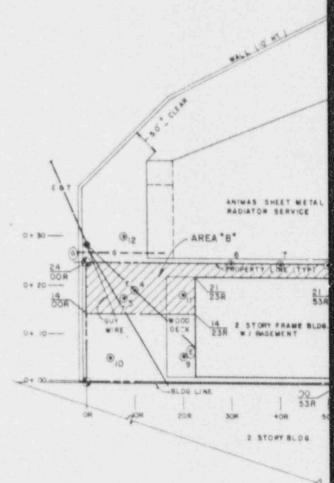
POINT	MICRO R/hr	
NW corner	16	
SW corner	16	
NE corner	195	
SE corner	27	
Center of Basement	16	
East side	36	
South side	.7	
West side	16	
North side	16	
4 feet from NE corner	26	
8 feet from NE corner	19	
12 feet from NE corner	18	

Table 3.3 BOREHOLE SURVEY Property DU-013

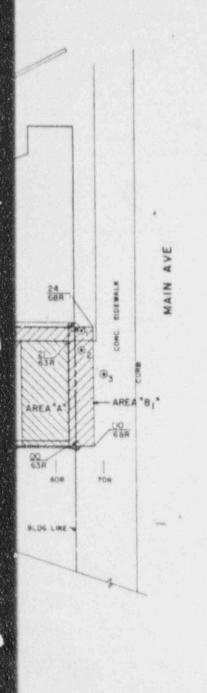
HOLE	LOCATION	CONTAMINATION DEPTH
1	0+24,65R	0-10"+
2	0+20,65R	0-17"+
3	0+15,70R	None
4	0+19,10R	Surface
5	0+17,08R	0-15"
6	0+24,30R	0-15"
7	0+24,40R	Surface
8	0+24,50R	0-13"+
9	0+05,20R	None
10	0+05,05R	None
11	0+18,20R	None
12	0+30,08R	None

⁺ Extent of contamination not reached.









LEGEND

THE AUGER HOLE DESIGNATION

ESTIMATED DEPTH OF CONTAMINATION



77777

ANSTEC APERTURE CARD

Also Available on Aperture Card

9707100300-03

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4.0 ENGINEERING ASSESSMENT

Engineering options were formulated and evaluated based on the radiological and engineering assessment for this property. Factors forming the basis of the evaluation were: the extent and location of the contamination, construction costs, and required demolition and constructibility for the various options. Results of the evaluation are detailed below.

4.1 Evaluation of Options

4.1.1 Options

Two options were evaluated for property DU-013:

- 1. No action should be taken.
- Complete decontamination of the property including retrieval of the contaminated material and restoration of the property.

Option 2 would include the following:

- O Hand excavate Areas "A" and "B" to the depths and limits shown on Figure 4.1 and backfill with common fill.
- Demolish and remove concrete walk in Area "B1," and hand excavate to a depth of 18 inches and resurvey. If contaminated material exists excavate as required by the contractor's representative.
- Backfill Area "B₁" with common fill and construct new concrete sidewalk to same size and elevation of that removed.

4.1.2 Costs

Estimated costs for the activities associated with Option 2 are detailed in Table 4.1. Costs include labor, insurance, material, equipment, supplies, overhead, profit, and contingency. All costs are listed in 1985 dollars. It is anticipated that the time required for the subcontractor to complete the work will be 5 to 10 days.

4.2 Recommendation

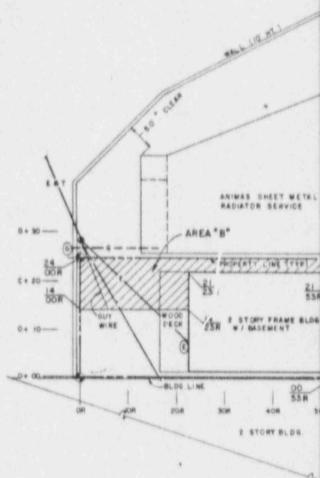
The limited cost and amount of remedial action work precluded evaluating any more than these two options. The results of the radiological assessment concluded that contamination levels on the property exceeded EPA guidelines. Therefore, based on these guidelines, it is recommended that Option 2, decontamination of the property, be pursued. The total estimated cost for Option 2 is \$8,050.00.

Table 4.1 OPTION 2 COSTS

Activity	Unit Price	Quantity	Estimated Cost
Excavation (Hand)	59.05	59 cy	3,483.95
Demolish Concrete Sidewalk	3.00	120 sf	360.00
Common Backfill (Hand)	22.40	59 cy	1,321.60
Concrete Sidewalk	3.50	120 sf	420.00

Subtotal	\$5,585.55
5% Subcontractor's Contingency	279.28
20% Overhead and Profit	1,117.11
Subtotal	\$6,981.94
15% Engineer's Contingency	1,047.29
Total (Rounded)	\$8,050.00







LEGEND WATER LINE GAS LINE g. GAS MAIN - 65 SEWER LINE SEWER MAIN STM STORM SEWER E-ELECTRICAL LINE TELEPHONE LINE TV-CABLE TV PROPERTY LINE FENCE LINE DS,WOFE METER O Garw VALVE PROPERTY PIN POWER POLE OVERHEAD SERVICE DENOTED BY SOLID LINE. LINEARPOUND SERVICE DENOTED BY DASHED LINE. MILLER SCOPE OF WORK THE LATEST BEVISION OF THE FOLLOWING TECHNICAL SPECIFICAL LONG APPLY TO THE REMICULAL ACTION MORE REQUIRED FOR PROPERTY MO. DU-013. HAND EXCAVATE AREA "R" TO A DEFTH OF & INCHES PROTECT BUILDING SUPPORTS AND FOUNDATION DURING EXCAVATION SECTION 02110 CLEARING AND GRUSSING BACKFILL EXCAVATED AREA MITH & INCHES OF COMMON FILL SECTION 02190 CONTAMINATED MATERIAL REMOVAL SECTION 02150 UNDERPINATING MAND EXCAVATE AREA "8" TO A DEPTH OF 18 INCHES. PROTECT DECK SUPPORTS AND FOUNDATION DURING EXCAVATION. 24 660 SECTION 02200 EXCAUATION AND BACKFILL BACKFILL EXCAVATED AREA WITH 14 INCHES SECTION 03100 CAST-IM-PLACE CONCRETE UTILITY LOCATIONS ARE FOR REFERENCE ONLY ACTUAL LOCATIONS SHALL BE DETERMINED BY THE SUBCONTRACTOR PRIOR TO STRET OF CONSTRUCTION. DEMOLISH AND REMOVE CONCRETE SIDEWALK MITHIN THE LIMITS OF CONTAMINATION. EXCAUATE AREA "B;" TO A DEPTH OF 18 INCHES AND RESURVEY IF FURTHER CONTAMINATION EXISTS EXCAUATE TO A DEFTH AS OTRECTED BY THE CONTRACTOR'S REPRESENTATIVE THE EXCAVATION LIMITS AND DEPTHS ARE BASED ON A LIMITED NUMBER OF BORINGS THEN DURING THE NADIOLOGICAL LIMEEYS OF THIS PROPERTY ADDITIONAL BADIOLOGICAL LIMEEYS REPROSENDED DURING NEMEDIAL ACTION MAY REQUIRE MORE OF LESS EXCAVATION TO BE TAREN FROM THE DESIGNATED AREAS. ALL CHANGES TO THE LIMITS AND DEPTHS OF EXCAVATION AS SHOWN ON THE DESIGN DRAWINGS SHALL BE AS DIRECTED BY THE CONTRACTOR'S PEPRESENTATIVE AREA "B." AREA A BACEFILL ENCAVATED ANER WITH COMMON CONSIDECT NEW 4 INCH THICK CONCRETE SIDEMALE TO SAME BIZE AND ELEVATION OF THAT REMOVED. 00 63R 70R 60R ANSTEC APERTURE BLDG LINE W CARD Also Available on Aperture Card 9707100300 10457 U. S. DEPARTMENT OF ENERGY ALBUQUERQUE, NEW MEXICO DESIGNS OF BURE WH CHECKES / FIGURE 4.1 MINIMEN NAMED EXCAVATION & RESTORATION PLAN DU-013 Wetownshop DURANGO, COLORAGO URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT APPROVED PARK BAYE" BOR PROMIT MANAGER BATE POE PROJECT ENGINEER NR PROJECT NO MORRISON DE-ACO4-83AL18796 78 VAD ENAWING NO. DU- 013-020 D MEEL ISSUE FOR CONSTRUCTION KNUDSEN THE ST LOS SHE SHEET AND THE SALES NO. DATE 0

5.0 TECHNICAL SPECIFICATIONS

Technical specifications applicable to this property are indexed in Table 5.1. Specifications previously approved by the Department of Energy (DOE) are noted in the table. Also listed are specifications not previously submitted to the DOE which require approval. The text for these additional specifications follow the table.

Table 5.1 INDEX OF TECHNICAL SPECIFICATIONS

Description		Specifications Previously Approved	Specification Requiring DOE Approval			
Division 2 -	Site Work					
SECTION 02050 SECTION 02110 SECTION 02130 SECTION 02150 SECTION 02200	DEMOLITION CLEARING AND GRUBBING CONTAMINATED MATERIAL REMOVAL UNDERPINNING EXCAVATION AND BACKFILL	x x x x				
Division 3 -	Concrete					
SECTION 03300	CAST-IN-PLACE CONCRETE	х				

6.0 CONSTRUCTION DRAWINGS

Listed below is an index of the construction drawings required for remedial action on this property.

Drawing Number Drawing Title

DU-013-020

Excavation & Restoration Plan DU-013

9

APPENDIX A
SURVEY DATA LOGS



OUTDOOR GAMMA SCREENING SURVEY DATA SHEET

EDWARD SCHULTZ J. ITAKES INSTRUMENT ID NO.: LUDIUM 2220 #31972 BACKGROUND CALCULATION: W/4410 # 16527 #1				PROPERTY ID: DU-013					
AREA:	AREA:		AREA: _		AREA:				
POINT READING COUNTS/.1MIN	POINT	READING COUNTS/,1MIN	POINT	READING COUNTS/.1MIN	POINT	READING COUNTS/.1MIN			
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etiotook 22320 24370				reservation					
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0+20+10R 23880 23990									
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D115+108 28000									
1118 1100						1			
D+19+10K 2600			-						
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0110+20K 21610 21210									
2+24+20x 27870 22760			-						
0120120R 23550 22330	-		CARROL SOLISION						
0124130 29.160 27720	-								
0174140R 23810 21910	The State of								
0174 1508 78150 24950						-			
012165R 20710 17920			-	+		+			
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CENTER	17400	18790	-	10110		-		
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BOREHOLE LOG

LOGGING CREW: LEVON BENALLY, JR.	SHEET 3 OF 3 PAGE 3
T. INNU	PROPERTY ID: DU-013
INSTRUMENT ID NO. LUDIUM 2770 # 31982 W/4410 # 14528	AREA: DURANGO. COLORADO

NOTES: 1. ALL HOLES ARE 4"DIA. UNLESS OTHERWISE NOTED.

2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

TIME DRILL TIME LOG SOIL TYPE	GED:	TIME DRILL TIME LOG SOIL TYPE	LED: A	TIME DRIL TIME LOGI SOIL TYPE	GED: (94)	TIME DRIL	GED:
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18.100		18" 17"	420090	18"	18960	18*	
24*		24"		24"	19360	24*	
30 *		30*		39" 28"	20 500	30*	
36 *		36*	December 2	36*	,	36*	
42*	Voos word D	42"		42*	1	42"	
48*	Lot wor	48		48"	crean	48*	
54"	1 0	54*	Representation	54"		54*	
60*	W. J.	60"		60*	6	60*	
66 "	Sty Soon	66*		66*		66*	
72"	NY GEN	72*		72"		72*	
78"	A	78*		78"		78"	
84 "	1	84*		84"		84*	
90 "	PULLED 1	90*		90"		90*	
96*	P01001.	96"	-	96"		96*	

THE HOLES WERE DRILLED HATIL WE ENCOUNTERED LARGE ROCKS

AND DEBRIS. BACKGROUND LOG MEASUREMENT @ 23,000 CPM.

THESE HOLES WERE CORED THROUGH CONCRETE SIDEWALKS.



BOREHOLE LOG

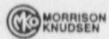
LOGGING CREW: Ernert Cauch	Supplemental Information SHEET _ OF 3 PAGE /
Julius Bitsilly	PROPERTY ID: DU-013
INSTRUMENT ID NOLLED 2220 # 3/987 4/410 \$16528	

NOTES: 1. ALL HOLES ARE 4"DIA. UNLESS OTHERWISE NOTED.

2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DE: 7H, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

TIME DRILL	INE DRILLED: IME LOGGED: OIL TYPE:		TIME DRILLED.		HOLE ID: O	GED:	HOLE ID: OF 2474CR TIME DRILLED: TIME LOGGED: SOIL TYPE:		
DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN		
SURFACE	57870	SURFACE	29670	SURFACE	AND STREET, STATE OF THE PARTY	SURFACE			
0"	3/860	0*	3/530	0.	36110	0*	30680		
6"	35720	6"	45340	6"	50020	6"	37510		
12"	28220	12*	41460	12"	46270	12*	34140		
18*	Rock	18/5	37040	.18/5	40960	18"	-		
24"		24*		24"		24"			
30"		30*		30"		30*			
36 "		36"		36"		36"			
42"		42"		42"		42*			
48"		48"		48"		48*			
54*		54"		54"		54*			
60*		60"		60"		60*			
66*		66*		66"		66*	+		
72*		72"		72"		72*			
78*		78"		78"		78*			
84"		84"		84"		84"			
90"		90"		90"		90"			
96"		96"		96"		96"			

REMARKS: Shauel holes, shallow hales is



NSTRUMEI	A LL HOLES A 2. RECORD UNI DEPTH, CASI	M Bit M Bit M*3/1/2 ARE 4"DIA. I USUAL CON NG TYPE A	True to 28 True +165-28 UNLESS OTHERWIDITIONS, SUCH	PRODUCT ARE	SENCE OF WATE	0F 3 14 30,11 DU-01	PAGE 2 1984 3 Hotado
TIME DRII	DAZYASOR LLED: IGED: E:	HOLE IDO TIME DRIL TIME LOG SOIL TYPE	GED:	HOLE ID: TIME DRIL TIME LOG SOIL TYPE	GED:	HOLE ID: (TIME DRIL TIME LOG(SOIL TYPE	3ED:
DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN
SURFACE		SURFACE		SURFACE	TANTAGUAL AND	SURFACE	19880
0"	23650	0*	19150	0"	18410	0*	19750
6"	31150	6"	21350	6"	19100	6*	22180
12"	43160	12-9	19380	12"	17880	25 11	21130.
.18/3	46650	18"	Rock.	18"		18"	and the section of the section of
24"		24"		24"		24"	
30*	The second	30"		30"		30"	
36*		36*		36"		36*	
42*		42"		42"		42"	
48 "		48"		48"		48*	
54"		54"		54"		54"	
60"		60"		60"		60*	
66 "		66*		66*		66*	THE RESERVE THE PERSON NAMED IN
72"		72"		72"		72"	
78*		78"		78"		78"	
84*		84"		84"		84*	
90 *		90"		90"		90"	
96"		96"		96"		96"	
REMARKS	Trocky	ul ho	de , s	balle	w hole	5 23	due ood gan



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			BOREHO	LE LOG	, ,	1 1) /.
	En				upplements		
LOGGING	OREW: Ern Edux Julii	217	auen of	SHE	Octobe	F 3	PAGE 3
	Edin	na g	church	_ DATE	: cotoge	4 20,	1989
	Juli	M 1500	ally was	PRO	PERTY ID:	00-01	3
NSTRUME	NT 10 NO. 1402	260 17 718	274410 7/05	ES ARE	A: Novian	30, C	Mosado
NOTES	DEPTH, CASI	USUAL CON ING TYPE A	DITIONS SUCH	AS THE PRE	SENCE OF WA'	ER IN BORE AND THICK	HOLES AND KNESS,
TIME DRI	0+301.8/2 LLED: GGED: E:	TIME LOG		HOLE ID: TIME DRIL TIME LOGI SOIL TYPE	GED:	HOLE ID: TIME DRILL TIME LOGG SOIL TYPE	3ED:
DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN		COUNTS/.1MIN
SURFACE	17190	SURFACE		SURFACE	THE RESERVE OF THE PARTY OF THE	SURFACE	The second second second second second
0"	20090	0*		0"		0*	
6*	22700	6"		6*		6"	
12"	23/60	12"		12"		12"	
18"	+	18"		18"		18"	
24*		24"		24"		24"	
30*		30"		30*	***************************************	30*	
36*		36"		36"	The second secon	36"	
42"		42"		42"		42*	
48*		48"		48"		48*	
54"		54"		54"		54*	
60*		60"		60"		60*	
66"		66*		66"		66*	
72"		72"		72"		72*	
78"		78*		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90*	
96"		96"		96"		96*	-
REMARKS - Co	Though rocky	l h	in CP	hallo back	n ho	le is	due_ 23,000,



MORRISON-KNUDSEN COMPANY, 'NC.

UMTRA PROJECT OFFICE P.O. BOX 9136 ALBUQUERQUE, NEW MEXICO 87119



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MORRISON-KNUDSEN Co., Inc. P.O. BOX 9136 ALBUQUERQUE, NEW MEXICO 87119

PROJECT: UMTRA

CLIENT: U.S. DEPARTMENT OF ENERGY

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Distribution:	D. SALETH
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0800 684	GHUGHOLE
Return to WM, 623-SS	DUR-0052
ans No MK-3050-I	OUR-0052

Contract No. ______80
Date ____May 10, 1985

TO:	U.S. Department of Energy	APPROVED FOR CONSTRUCTION/FABRICATION	A
Para marianta	5301 Central, NE, Suite 1700	INFORMATION ONLY	В
	Albuquerque, NM 87108	APPROVAL ACTION REQUESTED	C
	Mr. John D'Antonio	DISAPPROVAL-RESUBMIT	D
ATT:	THE COME D'AIRCOILE	APPROVAL WITH COMMENTS	E

REMARKS The Final REA's with Final Design for DU-013, DU-018, and DU-020 are transmitted herewith and are distributed as noted below.

DRAWING SPECIFICATION OR ITEM NUMBER	REV. NUMBER	NUMBER OF COPIE			TITLE OR	DESCRIPTIO	N		ACTION
DU-013, DU-018,		1 e	a.	Final	REA's v	with Fins	1 Desig	n	С
DU-020		1 e	a.	Final	REA wit	th Final	Design		
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co: w/ attachments:									
F. Davis (J. In	nis)	-							-
V. DeVries									
D. Reese							85	3	
G. Franz			-		-	-	-	- 68	
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J. Themelis	WM-48		- 1	T. Section .					

MORRISON-KNUDSEN

BT: .

Vicinity Properties Manager

THE ABOVE LISTED DOCUMENTS HAVE BEEN RECEIVED BY:

COMPANY NAME _

NAME & TITLE __

DATE REO'D. 7/15/85

Port Male 5/13/85-Ry Mais