

NOTE:
SUPPLEMENTAL
STANDARDS

WM-39

DEPARTMENT OF ENERGY
ALBUQUERQUE OPERATIONS OFFICE
CONTRACT NO. DE-AC04-83AL18796

Vicinity Property Completion Report

Remedial Actions
Contractor
for the
Uranium Mill Tailings
Remedial Actions
Project



MK-FERGUSON COMPANY
A MORRISON KNUDSEN COMPANY

URFO-6

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91-0245

Vicinity Property No. DU-616S

VICINITY PROPERTY COMPLETION REPORT

AT

DU-616S

U.S. Highway 160 at Roosa Road

DURANGO, COLORADO

NOVEMBER 20, 1990

FOR

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT OFFICE
ALBUQUERQUE OPERATIONS OFFICE
U.S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NM

BY

MK-FERGUSON COMPANY
AND
CHEM-NUCLEAR SYSTEMS, INC.

MK-Ferguson Company has been granted authorization to perform remedial action under the Uranium Mill Tailings Radiation Control Act of 1978, Public Law 95-604. Remedial action was done in accordance to the EPA Standards for Cleanup of Lands and Buildings Contaminated with Residual Radioactive Material from Inactive Uranium Processing Sites, 40 CFR 192.12, 192.20-23.

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1.0 Summary

PROPERTY NUMBER:	DU-616S
PROPERTY ADDRESS:	U.S. Highway 160 at Roosa Road Durango, Colorado
PROPERTY OWNER:	Colorado Department of Highways Colorado Department
PROPERTY CATEGORY:	Commercial
REMEDIAL ACTION CONTRACTOR:	MK-Ferguson Company
CONSTRUCTION SUBCONTRACTOR:	Bonds Construction
RADIOLOGICAL CONTRACTOR:	Chem-Nuclear Systems, Inc.
REA APPROVED:	July 19, 1989
REMEDIAL ACTION STARTED:	July 28, 1989
REMEDIAL ACTION COMPLETED (Appendix C Signed):	April 17, 1990
VOLUME OF MATERIAL REMOVED:	Outdoor: 2756 cy Indoor: N/A

1.0 SUMMARY

Remedial action was completed on Vicinity Property DU-616S. A total of 2756 cubic yards of soil was removed from the property.

The approved REA for this property recommended the partial removal of contamination and the application of Supplemental Standards to areas where uranium mill tailings were left in place. This completion report recommends that DOE review the radiological data provided for the property, with land records to be annotated to indicate the Application of Supplemental Standards to the rest of the property.

2.0 OPERATIONS SUMMARY

2.1 Remedial Action Plan

The basic remedial action on this property was performed according to the Remedial Action Plan. A total of 2756 cubic yards of soil was removed from the property, compared with an estimated excavation of 2335 cubic yard of soil.

2.2 Previously Unidentified Contamination

No new areas of contamination were identified during remedial action.

2.3 Unanticipated Items During Remedial Action

REA identified Areas B and C plus a new area D lie within the property boundaries of the processing site and were remediated and verified as part of the site remediation. Excavation and verification data for these areas may be seen in the site completion report.

3.0 VERIFICATION SUMMARY

3.1 Radiological Survey Data

All survey data were acquired according to approved procedures.

3.1.1 Pre-Remedial Action Survey

The results of the survey defining the contaminated area requiring remedial action are presented on Drawing DU-616S-015 and DU-616S-016.

3.1.2 Pre-Restoration Survey

Exterior:

After removal of contamination, and prior to backfilling, a soil sample survey was conducted in the excavated areas. Soil samples were aliquoted from the 49 verification grids and analyzed by gamma spectroscopy with the opposed crystal system in accordance with Health Physics Procedure 015. The radium concentration in these soil samples ranged from 1.09 to 35.9 pCi/g, as described in Table 3.1. Background for the Durango site is 1.4 pCi/g Ra-226.

Drawing DU-616S-020 shows the actual areas of excavation.

Interior:

There were no structures on the property.

3.1.3 JUSTIFICATION CHECKLIST FOR APPLICATION OF SUPPLEMENTAL STANDARDS

Application of Supplemental Standards (SS) is in accordance with 40 CFR 192.22 Subpart (x) (check appropriate Subpart)

- ☐ a) Risk injury to worker/public
- ☐ b) Environmental harm
- ☒ c) High cost relative to long-term benefits
- ☐ d) High cost of cleaning up building relative to benefits
- ☐ e) No known remedial action
- ☐ f) Radionuclides other than Ra226 exist

Brief Condition Description and Justification:

A portion of the property, Area A, is the steep slopes of the highway right-of-way between U.S. Hwy. 160 and Lighner Creek. Contamination on the north boundary of Area A extends to a depth of 20' and runs north under

U.S. Hwy. 160. As local topography slopes off to the south in Area A, the average depth of contamination at the south boundary is 8'. Land usage in this area is not expected to change. With the top 18" of contaminated material removed and 18" of backfill on this area relative health risks are minimized.

When remedial action is complete, surface exposure rates will range from 14 to 30 micro R/hr. Background for the Durango area is 14 micro R/hr. If a person spent 8 hours a day, 5 days a week, for 50 weeks in a 30 micro R/hr radiation field, he would receive about 60 millirem of gamma exposure in one year. This is about one-tenth the amount allowed the general public (10 CFR 20.105).

Additional cost without application of Supplemental Standards = \$910,850.00

This is a 943 percent increase over the estimated remedial action cost for the preferred option.

Yes	No	If Supplemental Standards are Applied:
X		1. Open Land?
	X	2. Occupied Building? (Occupational only)
	N/A	3. If yes to No. 2, is contaminated area beneath or within 10 ft. of building?
	X	4. Anticipated change of land use within next 5 years?
	N/A	5. If yes to No. 4, then will land use produce health risk?
	X	6. Is contamination in habitable area?
X		7. Have owners comments been solicited? See Appendix B.

Estimated volume of contaminated material to remain = 16,250 (cy) in Area A.

Contaminated area to remain = 3,900 (sy) in Area A.

Range for contaminated areas = background in Area A.

Range Ra-226 concentration in soil in contaminated area= 1.3 to 234.7
(pCi/g/) in Area A.

If tailings are below or within 10 feet of the structure, radon daughter
concentration = N/A (WL)

3.2 Recommendation for Certification

3.2.1 Exterior:

One area of contamination was identified and partially removed. Soil samples after excavation and prior to backfilling indicate that the limit of 15 pCi/g in any 15 cm. layer below the surface has been exceeded. Based on this information, we recommend that the land records of this vicinity property be annotated to indicate Supplemental standards have been applied to this property.

3.2.2 Interior:

There are no structures on this property.

Table 3.1
VERIFICATION SOIL SAMPLE SURVEY
Property DU-616S

GRID ID	SAMPLE	DEPTH (cm.)	CONCENTRATION(pCi/g)
1	DU-SV-15862	45	13.4
2	DU-SV-25864	45	3.54
3	DU-SV-25865	45	28.8
4	DU-SV-15861	45	1.77
5	DU-SV-15866	45	2.23
6	DU-SV-15867	45	35.9*
7	DU-SV-15868	45	2.67
8	DU-SV-15869	45	16.6**
9	DU-SV-15870	45	13.8
10	DU-SV-15871	45	2.86
11	DU-SV-15872	45	2.29
12	DU-SV-15873	45	1.94
13	DU-SV-15874	45	2.93
14	DU-SV-15875	45	1.92
15	DU-SV-15876	45	9.37
16	DU-SV-15877	45	1.31
17	DU-SV-15863	45	9.74
18	DU-SV-15878	45	2.73
19	DU-SV-15879	45	3.01
20	DU-SV-15880	45	5.23
21	DU-SV-15881	45	2.16

Table 3.1 Cont'd.
VERIFICATION SOIL SAMPLE SURVEY
Property DU-616S

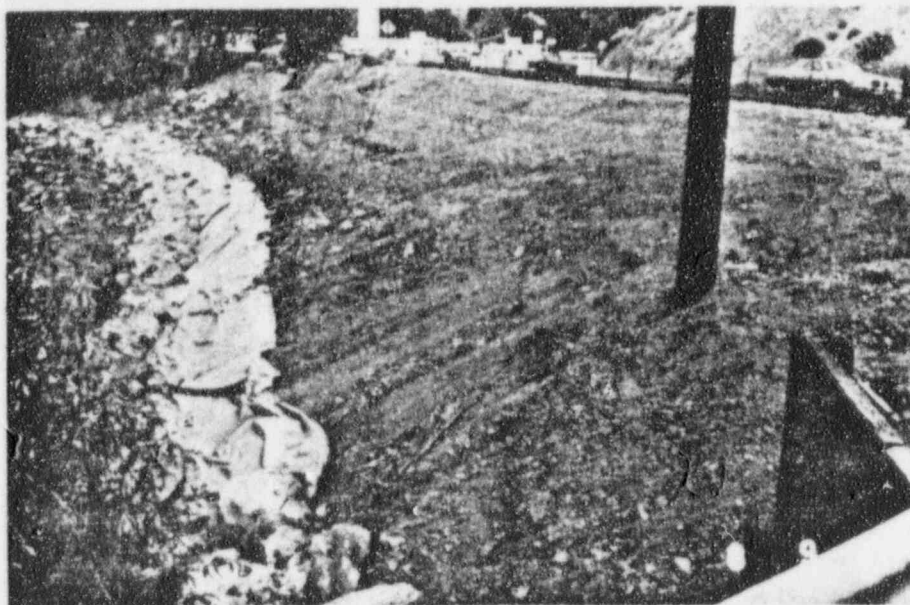
GRID ID	SAMPLE	DEPTH (cm.)	CONCENTRATION(pCi/g)
22	DU-SV-15882	45	3.56
23	DU-SV-15883	45	2.27
24	DU-SV-15584	45	1.85
25	DU-SV-15885	45	2.08
26	DU-SV-15886	45	2.25
27	DU-SV-15888	45	2.42
28	DU-SV-15889	45	1.84
29	DU-SV-15890	45	3.12
30	DU-SV-15891	45	5.04
31	DU-SV-15892	45	2.20
32	DU-SV-15893	45	3.60
33	DU-SV-15984	45	2.94
34	DU-SV-15985	45	2.05
35	DU-SV-15896	45	2.51
36	DU-SV-15897	45	2.87
37	DU-SV-15898	45	1.80
38	DU-SV-15899	45	3.53
39	DU-SV-15900	45	2.78
40	DU-SV-15901	45	1.09
41	DU-SV-15902	45	1.90
42	DU-SV-15903	45	2.12

Table 3.1 Cont'd.
VERIFICATION SOIL SAMPLE SURVEY
Property DU-616S

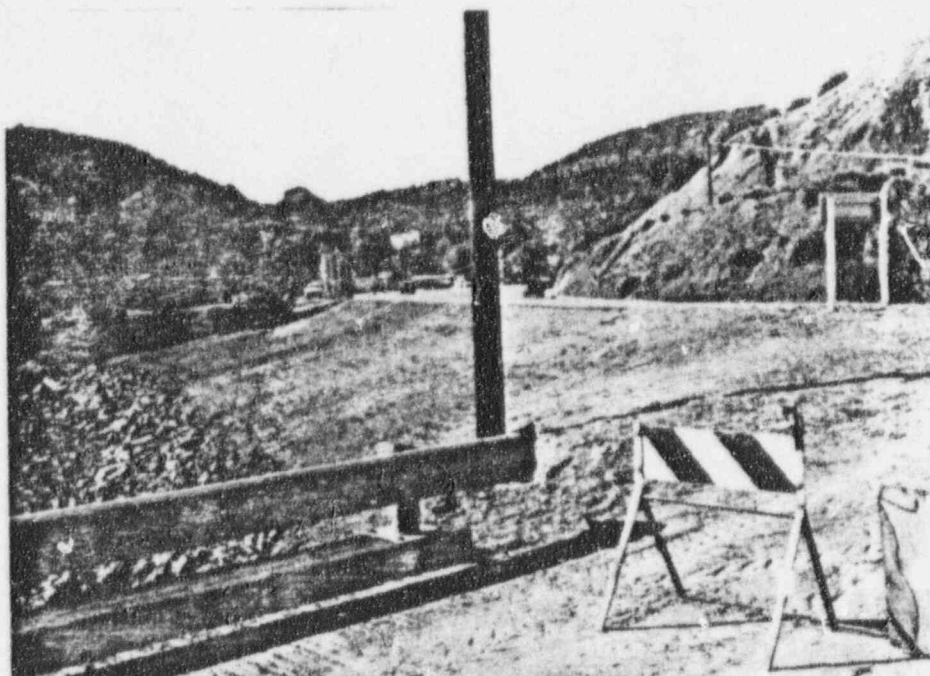
GRID ID	SAMPLE	DEPTH (cm.)	CONCENTRATION(pCi/g)
43	DU-SV-15904	45	1.70
44	DU-SV-15905	45	2.81
45	DU-SV-15906	45	1.83
46	DU-SV-15907	45	1.21
47	DU-SV-15908	45	1.44
48	DU-SV-15909	45	1.70
49	DU-SV-19864	45	1.40

4.0 REFERENCES

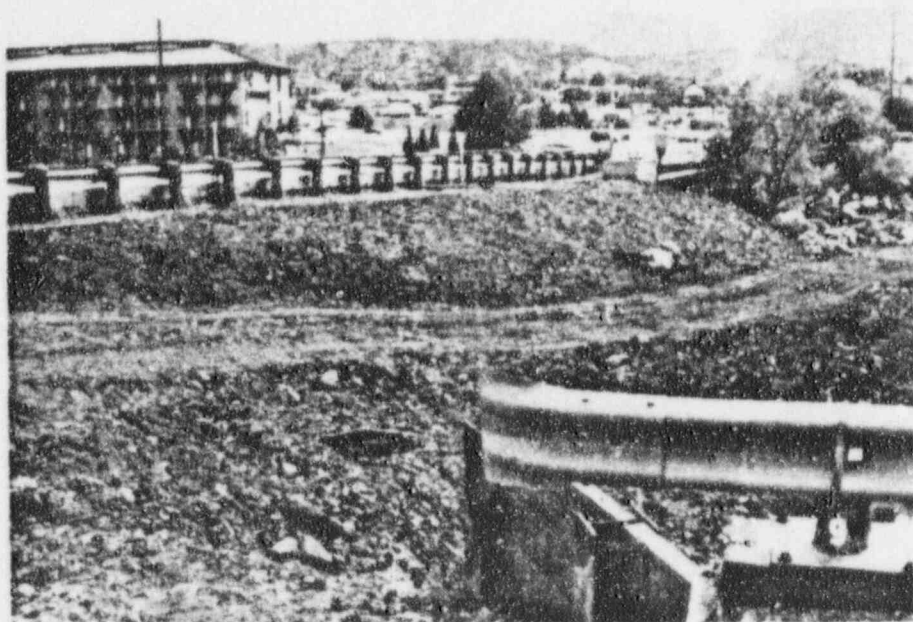
- 4.1 Results of the Inclusion/Exclusion Survey of Property DU-616S; MK-Ferguson Company/Chem Nuclear Systems, Inc.; Albuquerque, New Mexico; March 13, 1989.
- 4.2 The Radiological and Engineering Assessment for Durango, Property DU-616S; MK-Ferguson Company/Chem-Nuclear Systems, Inc.; Albuquerque, New Mexico; July 19, 1989.
- 4.3 Health Physics Procedures; Chem-Nuclear Systems, Inc., for MK-Ferguson Company, Remedial Action Contractor; Albuquerque, New Mexico; June 1986.
- 4.4 Vicinity Properties Management and Implementation Manual; UMTRAP, U.S. Department of Energy; Albuquerque, New Mexico; August 1986.
- 4.5 Title 40, Code of Federal Regulations, Part 192.12-23; U.S. Environmental Protection Agency; Washington, D.C.; July 1983.



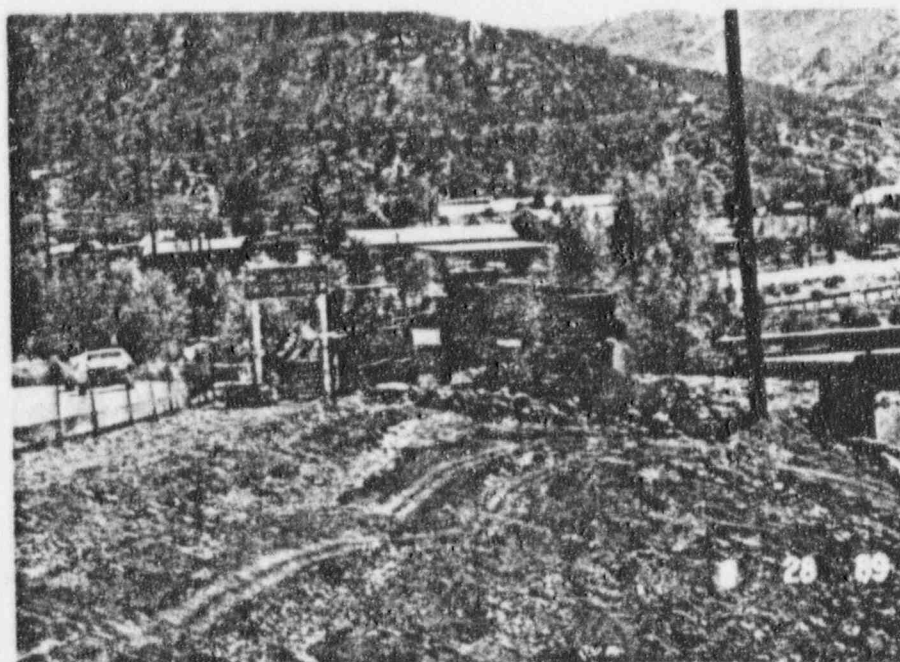
Standing on Bridge Crossing Lightner Creek, Looking Northwest
at Area "A" During Initial Installation of Filter Fabric



Standing on Bridge Crossing Lightner Creek, Looking Northwest
With Remedial Action Complete



Standing on Bridge Crossing Lightner Creek, Looking Northeast
at Area "A" with Excavation Complete



Standing West of Bridge Crossing Lightner Creek, Looking East
at Area "A" During Placement of Common Fill



Standing Near Large Rocks, Looking Northwest
With Remedial Action Complete

LEGEND

24

③

BOREHOLE DESIGNATION

33-12857

SOIL SAMPLE DESIGNATION

TP-8

TEST PIT DESIGNATION

22/35-12965

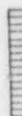
BOREHOLE AND SOIL SAMPLE DESIGNATION

TP-3/35-13226

TEST PIT AND SOIL SAMPLE DESIGNATION

ESTIMATED DEPTH OF CONTAMINATION

6"



VARIABLES FROM 1'-0"



TO 2'-0"

20'-0"



NOTES

- SEE DRAWING 90-616-014 FOR CONTINUATION OF RADIOLOGICAL DATA.
- USGS MANUAL STANDARDS IN ACCORDANCE WITH 40 CFR 192.22 (a) AND (c) SHALL APPLY TO U-2 LEVEL RADIOACTIVELY CONTAMINATED AREAS. IN AREAS WHERE THE RADIOLOGICAL DATA INDICATES A GRADIENT OF CONTAMINATION, THE AREA SHALL BE DESIGNATED AS SUCH. FROM A GIVEN EXISTING GRADIENT, APPROXIMATE VOLUME OF 12.327 CUBIC YARDS SHALL REMAIN IN PLACE.

U.S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

RADIOLOGICAL SURVEY DATA

DU-616

DURANGO, COLORADO

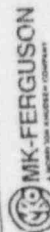
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT

DATE: 05-14-1990

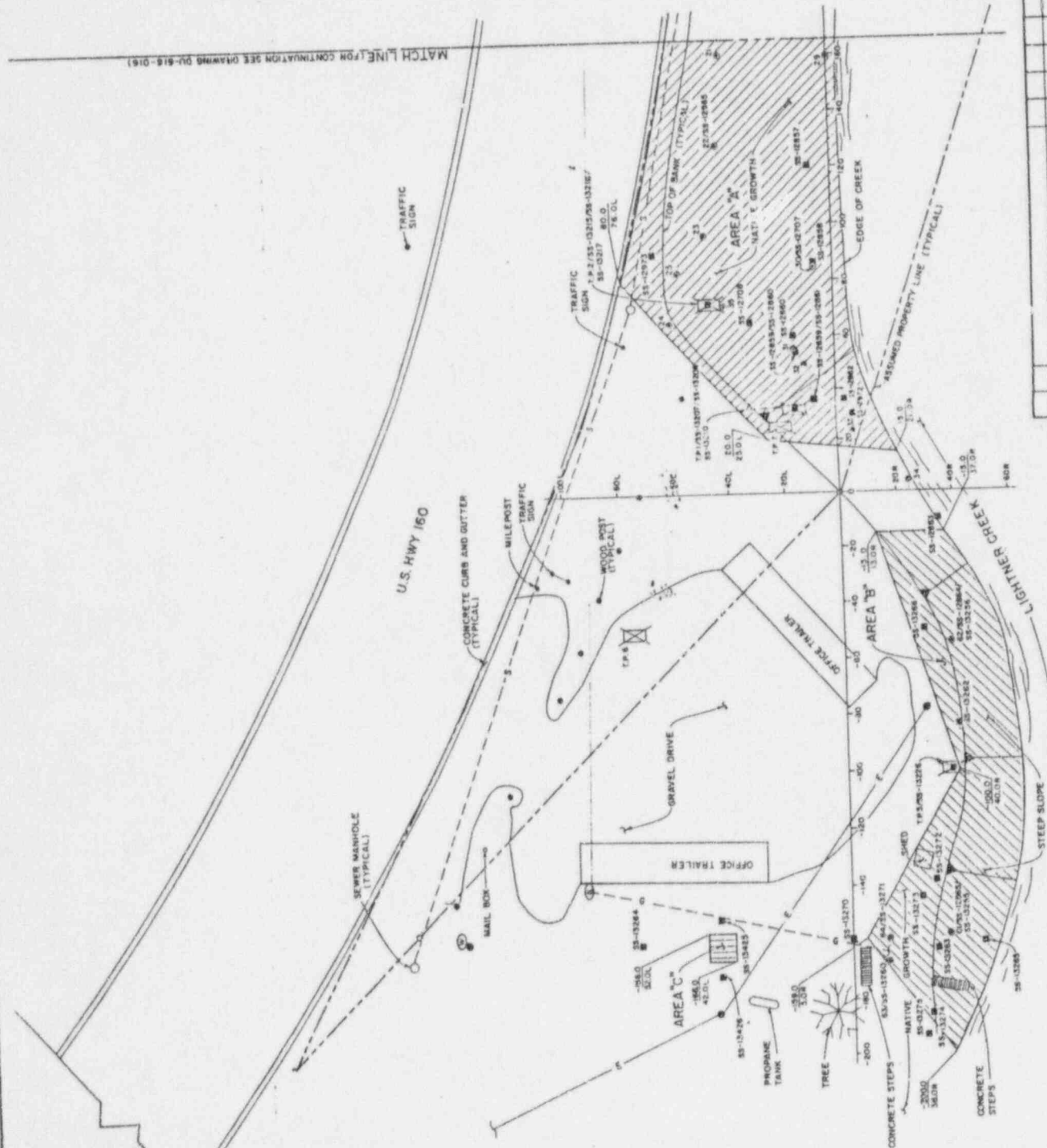
PROJECT NO. NR

DE - ACO4-83ALIN

DRAWING NO. DU-616-015



A MEMBER OF THE ANDERSON COMPANY





LEGEND

- BOREHOLE DESIGNATION
- SOIL SAMPLE DESIGNATION
- TEST PIT DESIGNATION
- BOREHOLE AND SOIL SAMPLE
- TEST PIT AND SOIL SAMPLE

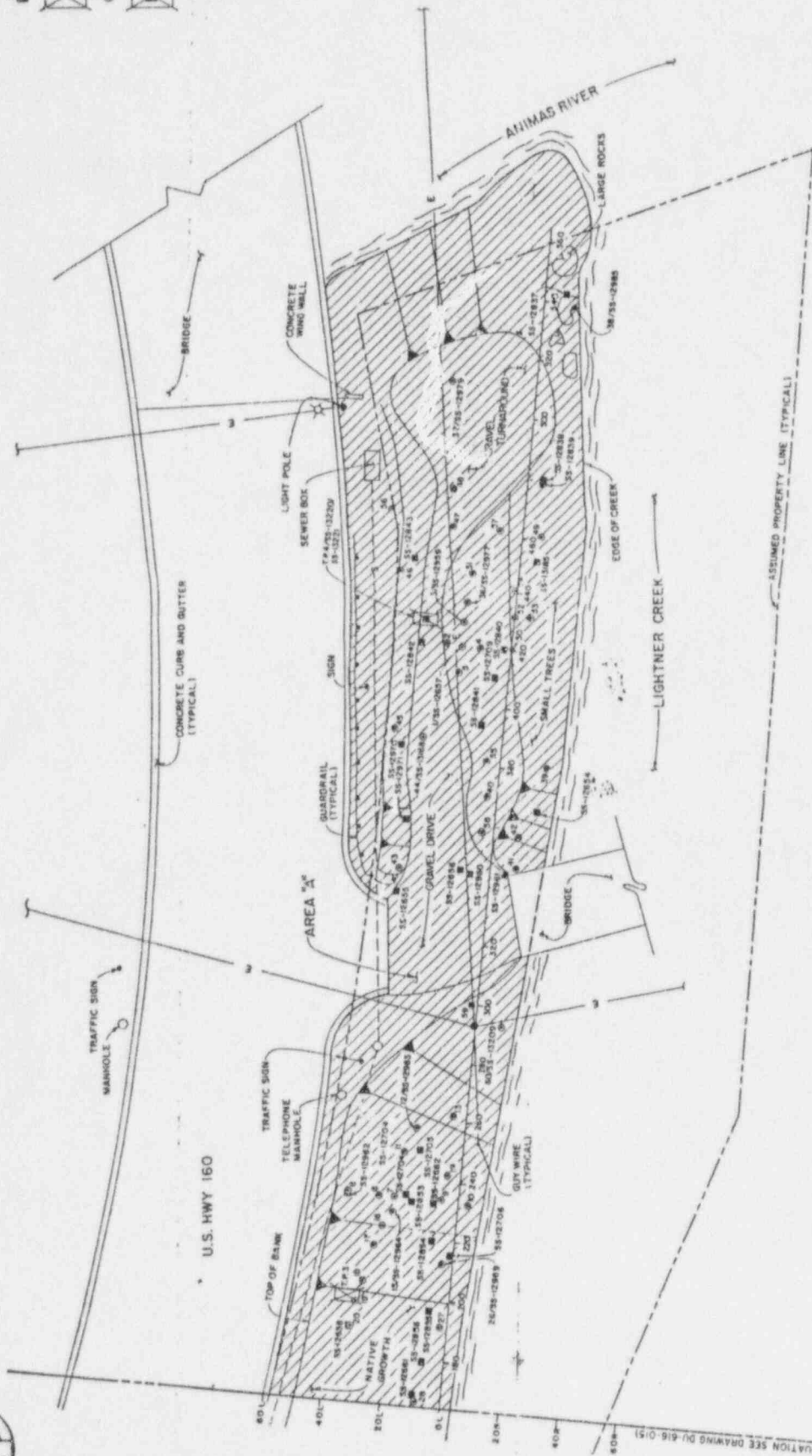
ESTIMATED DEPTH OF CONTAMINATION



20'-0"

NOTES

- SEE DRAWING DU-616-015 FOR GENERAL INFORMATION OF RADIOLOGICAL DATA.



U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

RADIOLOGICAL SURVEY DATA

DJ-616

DURANGO, COLORADO

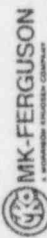
URANIUM MILL TAILINGS REMEDIAL ACTION

STATE OF NEW MEXICO

PROJECT NO.

DE - AC04 - 83

DRAWING NO. DU-616



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MATCHLINE (FOR CONTINUATION SEE DRAWING DU-616-015)



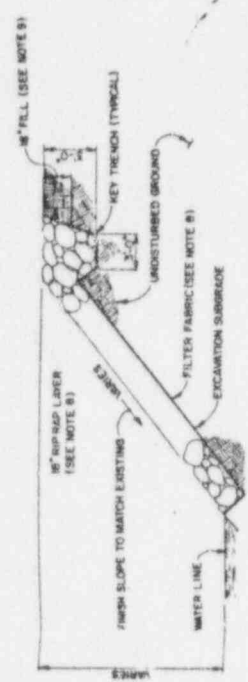
LEGEND

- W WATER LINE
- G GAS LINE
- GA GAS MAIN
- S SEWER LINE
- SM SEWER MAIN
- STN STORM SEWER
- E ELECTRICAL LINE
- TEL TELEPHONE LINE
- TV CABLE TV
- PL PROPERTY LINE
- F FENCE LINE
- Q=+/- METER
- Q=+/- VALVE
- Q=+/- PROPERTY PM
- Q=+/- POWER POLE

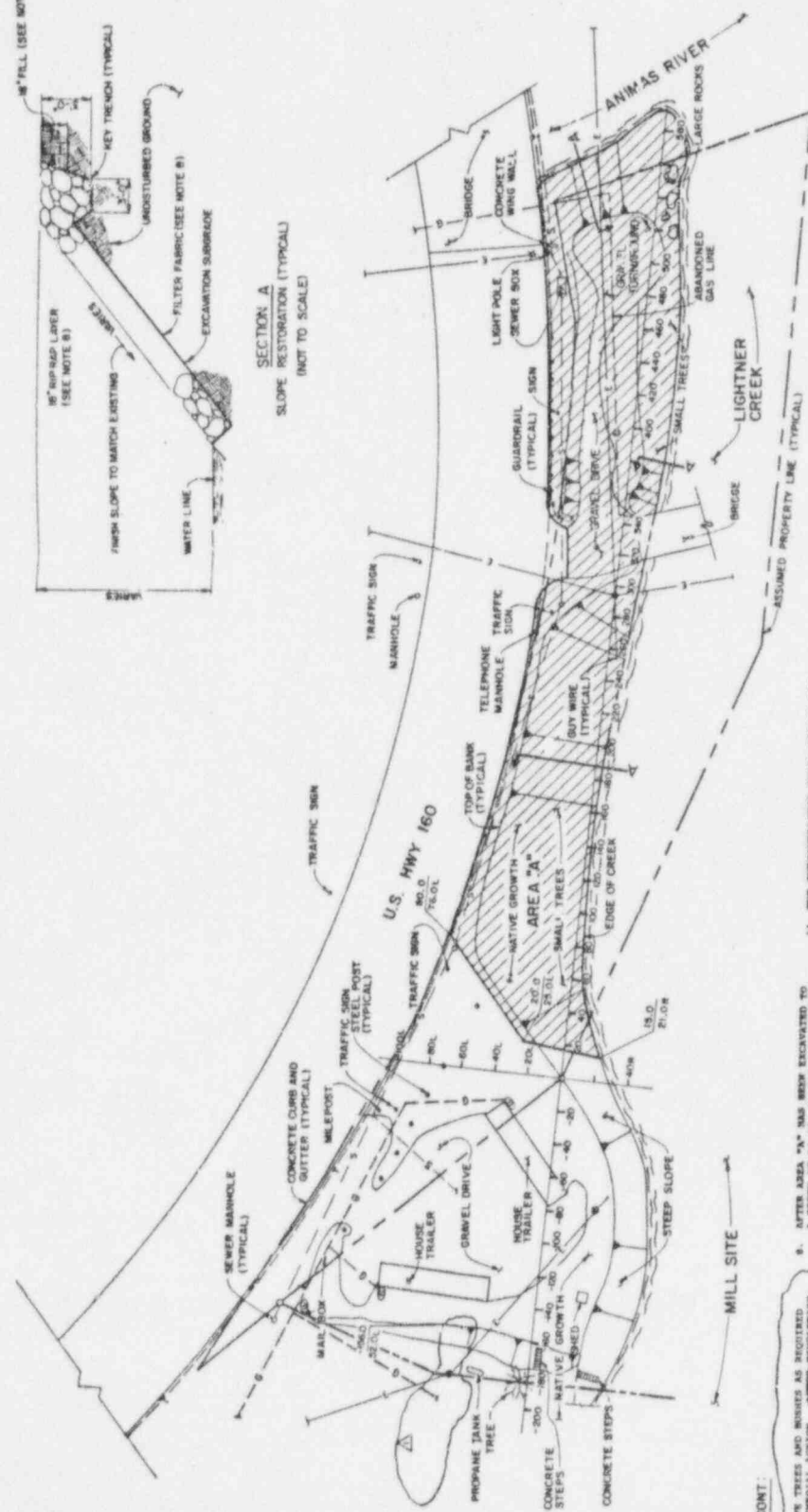
OVERHEAD SERVICE DENOTED BY SOLID LINE
UNDERGROUND SERVICE DENOTED BY DASHED LINE

NOTES:

- THE LATEST REVISION OF THE FOLLOWING TECHNICAL SPECIFICATIONS APPLY TO THE REMEDIAL ACTION WORK REQUIRED FOR PROJECT NO. 80-111.
SECTION 03000
CONCRETE
SECTION 03110
CLEANING AND GRUBBING
SECTION 03130
CONTAMINATED MATERIAL REMOVAL
SECTION 03200
EXCAVATION AND BACKFILL
SECTION 03480
LANDSCAPING
SECTION 03500
PAVING AND FINISHING
SECTION 03150
CAST-IN-PLACE CONCRETE
- UTILITY LOCATIONS ARE FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTUAL LOCATION OF UTILITIES PRIOR TO START OF CONSTRUCTION.
- THE EXCAVATION LIMITS AND DEPTHS ARE BASED ON A LIMITED NUMBER OF BORINGS AND SURVEYS. ADDITIONAL BORINGS AND SURVEYS MAY BE REQUIRED DURING THE COURSE OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTUAL LOCATION OF UTILITIES PRIOR TO START OF CONSTRUCTION.
- EXCAVATE THE FOLLOWING AREAS TO THE LIMITS INDICATED ON THIS DRAWING:
AREA "A" TO A DEPTH OF 1'-4"



SECTION A
SLOPE RESTORATION (TYPICAL)
(NOT TO SCALE)



NOTES CONT:

- REMOVE TREES AND BUSHES AS REQUIRED BY REMEDIAL ACTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTUAL LOCATION OF UTILITIES PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTUAL LOCATION OF UTILITIES PRIOR TO START OF CONSTRUCTION.
- AFTER AREA "A" HAS BEEN EXCAVATED TO A DEPTH OF 1'-4", FILTER FABRIC SHALL BE INSTALLED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTUAL LOCATION OF UTILITIES PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTUAL LOCATION OF UTILITIES PRIOR TO START OF CONSTRUCTION.
- ALL GUARDRAILS ALONG U.S. HWY 160 MUST BE PROTECTED FROM DAMAGE BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTUAL LOCATION OF UTILITIES PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTUAL LOCATION OF UTILITIES PRIOR TO START OF CONSTRUCTION.
- THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO THE PAVEMENT CAUSED BY THE REMEDIAL ACTION AS DICTATED BY THE CONTRACTOR'S REPRESENTATIVE.



AS-BUILT DRAWING

U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

EXCAVATION AND RESTORATION PLAN

DU-616

DURANGO, COLORADO

URANUM MILL TAILINGS REMEDIAL ACTION PROJECT

STATE OF NEW MEXICO

PROJECT NO. NR

NR

DE - AC04-83AL187

DRAWING NO. DU-616-020

NO.	DATE	BY	CHKD.	APP.	REVISION
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0	12/1/87	ISSUE FOR CONSTRUCTION			

VERIFICATION SOIL SAMPLES

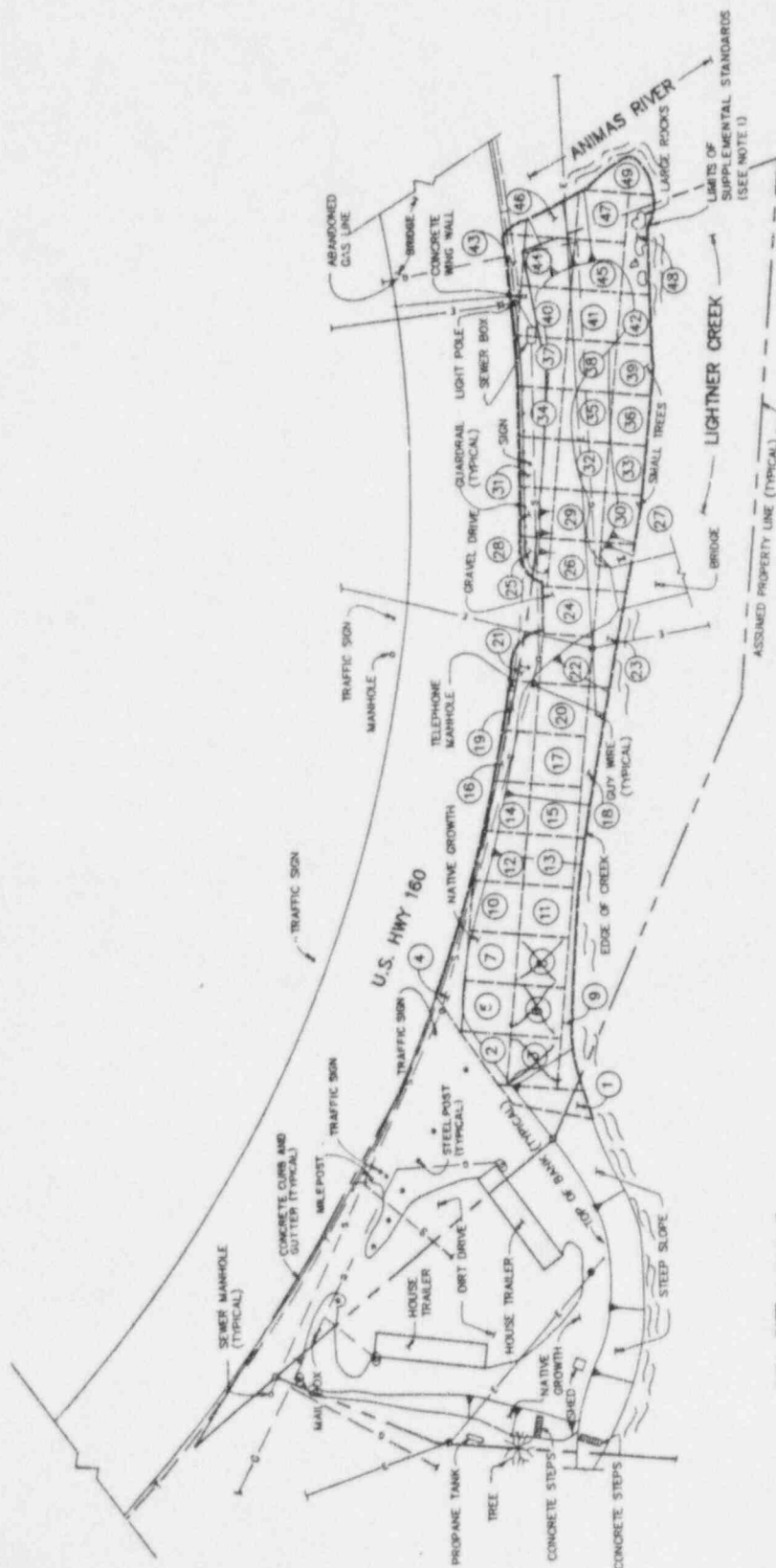
LOCATION

SR SAMPLE NUMBER

- 1 DU-SV-13842
- 2 DU-SV-13843
- 3 DU-SV-13844
- 4 DU-SV-13845
- 5 DU-SV-13846
- 6 DU-SV-13847
- 7 DU-SV-13848
- 8 DU-SV-13849
- 9 DU-SV-13850
- 10 DU-SV-13851
- 11 DU-SV-13852
- 12 DU-SV-13853
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- 40 DU-SV-13881
- 41 DU-SV-13882
- 42 DU-SV-13883
- 43 DU-SV-13884
- 44 DU-SV-13885
- 45 DU-SV-13886
- 46 DU-SV-13887
- 47 DU-SV-13888
- 48 DU-SV-13889
- 49 DU-SV-13890

NOTE

1. LIMITS INDICATED ON THIS CHARTING AND IN ACCORDANCE WITH 40 C.F.R. 192.22 (a) AND (c) SHALL APPLY TO ALL SOIL SAMPLES TAKEN IN THE CONTAMINATED AREA. THE CHARTING IN PLACE STARTING 1'-6" BELOW THE SURFACE TO REMAIN IN 18 IN. 250 CIRCULARS. ESTIMATED AREA TO REMAIN IS 3000 SQ. FT.



U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

CERTIFICATION RADIOLOGICAL PLAN
DU-616

DRIBBLES, COLORADO

STATE NR PROJECT NO. NR

PROJECT NO. NR

STARTING NO. DU-616-01

MK-FERGUSON

A RADIOLOGICAL CONSULTING COMPANY

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A. MAPS ISSUE FOR CERTIFICATION

PGC

APPENDIX A
RADIOLOGICAL SURVEY DATA

DU-616 (Area A)

SOIL VERIFICATION DATA

GRID ID	COORDINATES	SAMPLE #	APPROX. DEPTH	Ra-226 (pCi/g) CONCENTRATION		COMMENTS
				INITIAL	FINAL	
1	$\frac{20}{25L}, \frac{30}{34L}, \frac{30}{16R}, \frac{15}{21R}$	DU-SV-15862	18"	7.08	13.4	
2	$\frac{30}{34L}, \frac{60}{60L}, \frac{60}{30L}, \frac{30}{30L}$	DU-SV-15864	18"	2.15	3.54	
3	$\frac{30}{00R}$	DU-SV-15865	18"	14.5	28.8**	
4	$\frac{60}{60L}, \frac{80}{76L}, \frac{150}{60L}$	DU-SV-15861	18"	1.74	1.77	
5	$\frac{60}{30L} *$	DU-SV-15866	18"	1.74	2.23	
6	$\frac{60}{00R} *$	DU-SV-15867	18"	18.5	35.9**	
7	$\frac{90}{30L} *$	DU-SV-15868	18"	1.52	2.67	
8	$\frac{90}{00R} *$	DU-SV-15869	18"	9.92	16.6**	
9	$\frac{30}{00R}, \frac{180}{00R}, \frac{180}{4R}, \frac{150}{3R}, \frac{120}{3R}, \frac{90}{5R},$ $\frac{60}{7R}, \frac{30}{16R}$	DU-SV-15870	18"	8.13	13.8	
10	$\frac{120}{30L} *$	DU-SV-15871	18"	1.81	2.86	
11	$\frac{120}{00R} *$	DU-SV-15872	18"	1.47	2.29	
12	$\frac{150}{60L}, \frac{180}{56L}, \frac{180}{30L}, \frac{150}{30L}$	DU-SV-15873	18"	1.28	1.94	
13	$\frac{150}{00R} *$	DU-SV-15874	18"	2.21	2.93	
14	$\frac{180}{56L}, \frac{210}{50L}, \frac{210}{30L}, \frac{180}{30L}$	DU-SV-15875	18"	1.23	1.92	
15	$\frac{180}{00R} *$	DU-SV-15876	18"	5.91	9.37	

* Southwest corner of 30' X 30' grid

** Note: Supplemental Standards applied to all material below an 18" depth

DU- 616

SOIL VERIFICATION DATA

GRID ID	COORDINATES	SAMPLE #	APPROX. DEPTH	Ra-226 (pCi/g) CONCENTRATION INITIAL - FINAL		COMMENTS
16	<u>210 240 240 210</u> <u>50L' 48L' 30L' 30L</u>	DU-SV-15877	18"	1.55	1.31	
17	<u>210 *</u> <u>00R</u>	DU-SV-15863	18"	5.42	9.74	
18	<u>180 270 270 240 210 180</u> <u>00R' 00R' 12R' 10R' 6R' 4R</u>	DU-SV-15878	18"	1.94	2.73	
19	<u>240 270 270 240</u> <u>48L' 46L' 30L' 30L</u>	DU-SV-15879	18"	1.71	3.01	
20	<u>240 *</u> <u>00R</u>	DU-SV-15880	18"	3.06	5.23	QC Ra226 Th230 4.7+ 7.6+ 0.8 1.1
21	<u>270 294 301 270</u> <u>46L' 42L' 30L' 30L</u>	DU-SV-15881	18"	1.60	2.16	
22	<u>270 *</u> <u>00R</u>	DU-SV-15882	18"	1.98	3.56	
23	<u>270 330 330 300 270</u> <u>00R' 00R' 17R' 13R' 12R</u>	DU-SV-15883	18"	1.52	2.27	
24	<u>300 301 302 330 330 300</u> <u>30L' 30L' 29L' 30L' 00R' 00R</u>	DU-SV-15884	18"	0.97	1.85	
25	<u>330 340 360 360</u> <u>30L' 42L' 47L' 30L</u>	DU-SV-15885	18"	1.59	2.08	
25D	<u>330 340 360 360</u> <u>30L' 42L' 47L' 30L</u>	DU-SV-15886	18"	1.57	2.25	Duplicate
26	<u>330 *</u> <u>00R</u>	DU-SV-15887	18"	1.26	2.42	
27	<u>330 360 360 330</u> <u>00R' 00R' 20R' 17R</u>	DU-SV-15888	18"	1.45	1.84	
28	<u>360 390 390 360</u> <u>47L' 49L' 30L' 30L</u>	DU-SV-15889	18"	1.71	2.34	
29	<u>360 *</u> <u>00R</u>	DU-SV-15890	18"	2.02	3.12	

* Southwest corner of 30' X 30' grid

** Note: Supplemental Standards applied to all material below an 18" depth

DU- 616

SOIL VERIFICATION DATA

GRID ID	COORDINATES	SAMPLE #	APPROX. DEPTH	Ra-226 (pCi/g) CONCENTRATION		COMMENTS
				INITIAL	FINAL	
30	$\frac{360}{00R}, \frac{390}{00R}, \frac{390}{22R}, \frac{360}{20R}$	DU-SV-15891	18"	2.45	5.04	
31	$\frac{390}{49L}, \frac{420}{53L}, \frac{420}{30L}, \frac{390}{30L}$	DU-SV-15892	18"	1.27	2.20	
32	$\frac{390}{00L} *$	DU-SV-15893	18"	2.24	3.60	
33	$\frac{390}{00R}, \frac{420}{00R}, \frac{420}{22R}, \frac{390}{22R}$	DU-SV-15984	18"	1.83	2.94	
34	$\frac{420}{53L}, \frac{450}{56L}, \frac{450}{30L}, \frac{420}{30L}$	DU-SV-15985	18"	1.52	2.05	
35	$\frac{420}{00R} *$	DU-SV-15896	18"	1.53	2.51	
36	$\frac{420}{00R}, \frac{450}{00R}, \frac{450}{22R}, \frac{420}{22R}$	DU-SV-15897	18"	1.95	2.87	
37	$\frac{450}{56L}, \frac{480}{60L}, \frac{480}{30L}, \frac{450}{30L}$	DU-SV-15898	18"	1.62	1.80	
38	$\frac{450}{00R} *$	DU-SV-15899	18"	2.47	3.53	
39	$\frac{450}{00R}, \frac{480}{00R}, \frac{480}{21R}, \frac{450}{22R}$	DU-SV-15900	18"	1.81	2.78	
40	$\frac{480}{30L} *$	DU-SV-15901	18"	1.20	1.09	QC Ra226 Th230 1.9+ 1.4+ 0.7 0.5
41	$\frac{480}{00R} *$	DU-SV-15902	18"	1.09	1.90	
42	$\frac{480}{00R}, \frac{510}{00R}, \frac{510}{18R}, \frac{480}{21R}$	DU-SV-15903	18"	1.65	2.12	
43	$\frac{480}{60L}, \frac{540}{70L}, \frac{550}{60L}$	DU-SV-15904	18"	0.69	1.70	
44	$\frac{510}{30L} *$	DU-SV-15905	18"	1.31	2.81	
45	$\frac{510}{00R} *$	DU-SV-15906	18"	1.04	1.83	

* Southwest corner of 30' X 30' grid
 ** Note: Supplemental Standards applied to all material below an 18" depth

SOIL VERIFICATION DATA

GRID ID	COORDINATES	SAMPLE #	APPROX. DEPTH	Ra-226 (pCi/g) CONCENTRATION		COMMENTS
				INITIAL	FINAL	
46	540 * 30L	DU-SV-15907	18"	1.05	1.21	
47	540 540 568 570 570 00R' 30L' 30L' 29L' 00R	DU-SV-15908	18"	1.03	1.44	
47D	540 540 568 570 570 00R' 30L' 30L' 29L' 00R	DU-SV-15909	18"	0.47	1.70	Duplicate
48	510 570 570 540 540 00R' 00R' 15R' 12R' 18P	DU-SV-15910	18"	0.80	1.80	
49	570 590 570 29L' 00R' 15R	DU-SV-19864	18"	0.74	1.40	
<p>Note: Dave Charleton has the Verification info on Grid 49</p> <p>KS</p>						

* Southwest corner of 30' X 30' grid

** Note: Supplemental Standards applied to all material below an 18" depth

DU-616

VERIFICATION DATA

DO NOT SHOW
ON DU-616 DRAWINGS
Wae

Please Note: Verification for Areas B, C, and D are
recorded in Area A of the site verification data.

R.D.C. MEASUREMENTS

No permanent structures are located on the property.

C.D.H. COMMENTS

- No Comments -

COLORADO DEPARTMENT OF HEALTH
UMTRAP FIELD INSPECTION

Based on the gamma radiation survey performed on 8-9-89
(date)

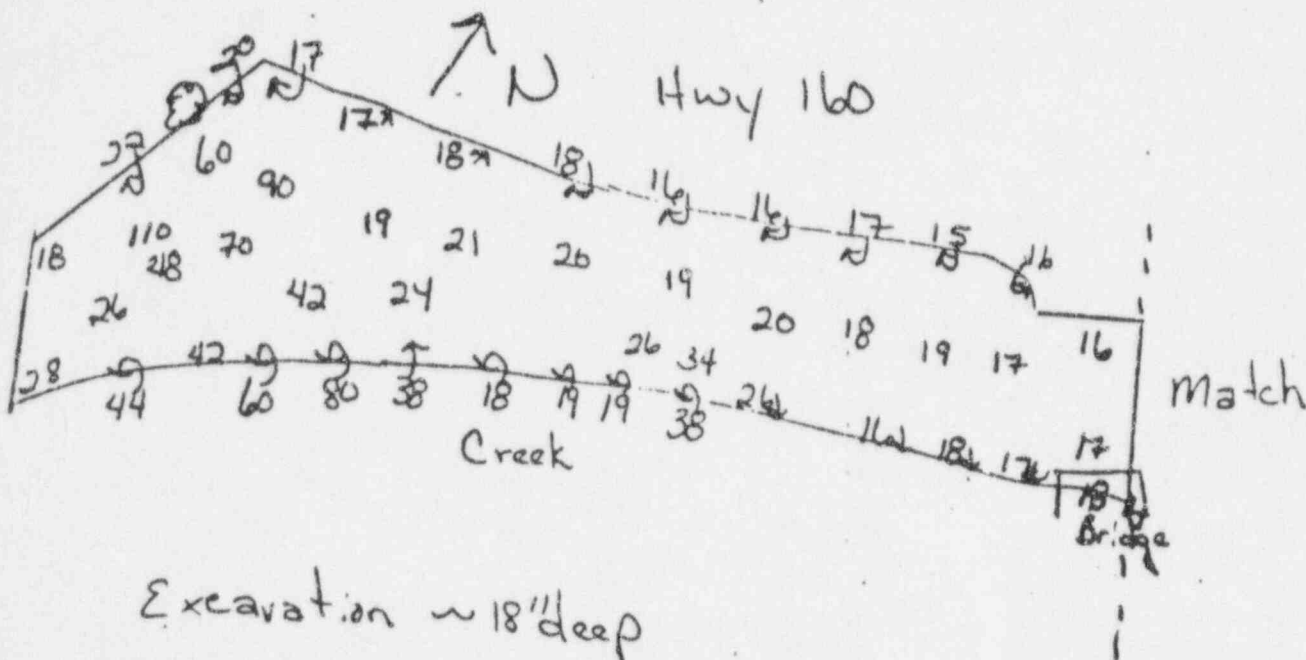
at S of Hwy 160 - 1/8 mile W of Hwy 160/550 - Durango
(address)

Durango I.D. Number DU-616

Location Number _____

This property has had:

- ☐ 1. all detectable contamination removed.
- ☒ 2. most of the detectable contamination removed, with the exception of:
(see sketch)
- ☐ 3. all contamination defined in the REA removed.
- ☐ 4. most of the contamination defined in the REA removed, with the following exceptions:



Copy received by _____

Signed _____

All readings are CDH meter readings unless otherwise noted. Inst. # 15259

UMTRAP FIELD INSPECTION

Based on the gamma radiation survey performed on 8-9-89
(date)

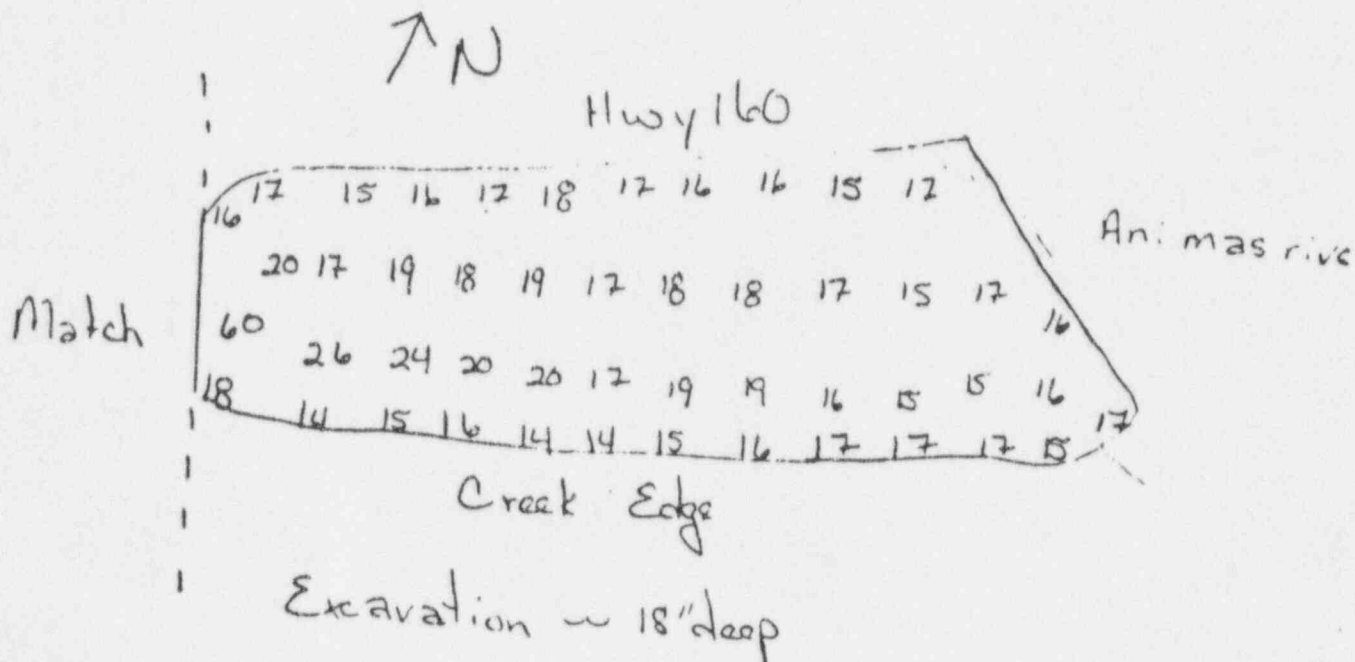
at S of Hwy 160 - 1/8 mile W of Hwy 110/550 - Durango
(address)

Durango I.D. Number DW-616

Location Number _____

This property has had:

- ☐ 1. all detectable contamination removed.
- ☒ 2. most of the detectable contamination removed, with the exception of:
(see sketch)
- ☐ 3. all contamination defined in the REA removed.
- ☐ 4. most of the contamination defined in the REA removed, with the following exceptions:



Copy received by _____

Signed Danna Foster

All readings are CDH meter readings unless otherwise noted. Inst. # 15259

C.D.H. Field Inspection

Areas B, C, and D are included in the field inspections
for the Durango processing site Area A.

APPENDIX B
SUPPLEMENTAL STANDARDS DOCUMENTATION

ENGINEERS
AND
CONSTRUCTORS



MK-FERGUSON COMPANY
A MORRISON KNUDSEN COMPANY

HEADQUARTERS OFFICE
ONE ERIEVIEW PLAZA
CLEVELAND, OHIO U.S.A. 44114
PHONE: (216) 523-5600/TELEX: 985542

REPLY TO MK-FERGUSON COMPANY
REMEDIAL ACTIONS
CONTRACTOR-UMTRA PROJECT
P.O. BOX 9136
ALBUQUERQUE, NEW MEXICO U.S.A. 87119

June 7, 1989

Edward L. Bischoff
UMTRAP Program Manager
Colorado Department of Health
4210 East 11th Avenue
Denver, CO 80220

SUBJECT: Use of Supplemental Standards - DU-616

Dear Mr. Bischoff:

In accordance with the Uranium Mill Tailings Radiation Control Act (UMTRA) of 1978, Public Law 95-604, the Department of Energy (DOE) included property (DU-616), a portion of which you own, for remedial action. Further evaluation of the contamination on your property has been performed and a recommendation has been proposed to excavate the contaminated material on the east half of the property, between Lightner Creek and U.S. Highway 160 to a depth of 18" and backfill over the remaining contaminated material. On the west half of the property a recommendation has been proposed to leave the contaminated material on the steep banks of Lightner Creek in place. These recommendations are proposed per the Code of Federal Regulations 40 CFR 192, Supplemental Standards. We are basing the recommendation on the criteria presented below. A Radiological and Engineering Assessment (REA) for DU-616 has been included for your use in solicitation of CDH comments/concurrence.

The Radiological and Engineering Assessment (REA) performed on the property (DU-616) has revealed that radioactive contaminated materials are present over the entire areal extent of the east half of the property. Contamination in this area is present in most areas to a depth of 20'. The contamination on the bank of Lightner Creek, on the west half of the property varies in depth from 6 to 24".

Edward L. Bischoff
June 7, 1989
Page 2

Because of the cost involved in cleaning up the material, coupled with the low health hazard, we are recommending that the contaminated material in these areas be left in place. This action is permitted under Title 40, Code of Federal Regulations, Section 192.21 and 22. The sections of the EPA Standards, which are established for the cleanup of Uranium mill tailings, allow residual radioactive materials to remain in place when certain conditions are met. The criteria defining when remedial action need not take place (Supplemental Standards) are as follows:

- (1) The estimated cost of remedial action is unreasonably high relative to the long-term benefits, and the residual radioactive materials do not pose a clear present or future hazard.

The application of Supplemental Standards requires that the remedial action remove as much of the contaminated material as is reasonably possible. To meet this goal, contaminated materials on the east half of the property will be excavated to a depth of 18" and backfilled. Also a small area on the west property line will be excavated and backfilled.

After the proposed remedial action occurs and the eastern area has been covered with 18" of backfill general area radiation levels will range from 14 to 30 micro R/hr. Background for the Durango area is 14 micro R/hr. If a person spent 8 hours a day, 5 days a week, for 50 weeks in a 30 micro R/hr radiation field, he would receive about 60 millirem of gamma exposure in one year. This is about one-tenth the amount allowed the general public (10 CFR 20.105). The actual amount of contaminated material that will remain in place after remedial action is approximately 16,500 cubic yards.

In compliance with the EPA regulations found in the Code of Federal Regulations 40 192.21, we solicit your comments concerning this action. We are attaching a copy of the applicable sections of the Code of Federal Regulations for your convenience in responding to this proposed action. To comply with EPA regulations, we must receive a written response with your concurrence/comments. We have included a self-addressed, postage-paid envelope for your convenience. We request your response by June 23, 1989.

Edward L. Bischoff
June 7, 1989
Page 3

If you have any questions or need additional information concerning this matter, please call either Rob Pommerening of my staff at 1-800-443-4379, or Ms. Jolene Garcia of the U.S. Department of Energy at (505) 846-1238.

Sincerely,

MK-Ferguson Company

B. F. Stearns
For J.G. Oldham
Project Director

JGO/RAP/RDJ/ss

Enclosures

cc: w/o enclosures:

G.A. Franz, CDH

J. Garcia, DOE/UMTRA

C. Moore, TAC/UMTRA

Document Control

bcc: w/o enclosures:

M. Thomson - DUR

R. Stearns

R. Cooney

R. Pommerening

*R. Jacobs

File - EDT

ENGINEERS
AND
CONSTRUCTORS



MK-FERGUSON COMPANY
A MORRISON KNUDSEN COMPANY

HEADQUARTERS OFFICE
ONE ERIEVIEW PLAZA
CLEVELAND, OHIO U.S.A. 44114
PHONE (216) 523-5600/TELEX 985542

REPLY TO: MK-FERGUSON COMPANY
REMEDIAL ACTIONS
CONTRACTOR-UMTRA PROJECT
PO BOX 9136
ALBUQUERQUE, NEW MEXICO U.S.A. 87119

June 7, 1989

Alfred A. Shablo
District Engineer
Colorado Department of Highways
214 West 6th Street
Durango, CO 81301

SUBJECT: Use of Supplemental Standards - DU-616

Dear Mr. Shablo:

In accordance with the Uranium Mill Tailings Radiation Control Act (UMTRA) of 1978, Public Law 95-604, the Department of Energy (DOE) included property (DU-616), a portion of which you own, for remedial action. Further evaluation of the contamination on your property has been performed and a recommendation has been proposed to excavate the contaminated material on the east half of the property, between Lightner Creek and U.S. Highway 160 to a depth of 18" and backfill over the remaining contaminated material. On the west half of the property a recommendation has been proposed to leave the contaminated material on the steep banks of Lightner Creek in place. These recommendations are proposed per the Code of Federal Regulations 40 CFR 192, Supplemental Standards. We are basing the recommendation on the criteria presented below. Your comments/concurrence are requested.

The Radiological and Engineering Assessment (REA) performed on the property (DU-616) has revealed that radioactive contaminated materials are present over the entire areal extent of the east half of the property. Contamination in this area is present in most areas to a depth of 20'. The contamination on the bank of Lightner Creek, on the west half of the property varies in depth from 6 to 24".

Alfred A. Shablo
June 7, 1989
Page 2

Because of the cost involved in cleaning up the material, coupled with the low health hazard, we are recommending that the contaminated material in these areas be left in place. This action is permitted under Title 40, Code of Federal Regulations, Section 192.21 and 22. The sections of the EPA Standards, which are established for the cleanup of Uranium mill tailings, allow residual radioactive materials to remain in place when certain conditions are met. The criteria defining when remedial action need not take place (Supplemental Standards) are as follows:

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The application of Supplemental Standards requires that the remedial action remove as much of the contaminated material as is reasonably possible. To meet this goal, contaminated materials on the east half of the property will be excavated to a depth of 18" and backfilled. Also a small area on the west property line will be excavated and backfilled.

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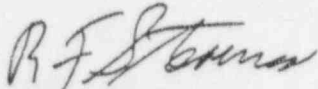
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Alfred A. Shablo
June 7, 1989
Page 3

If you have any questions or need additional information concerning this matter, please call either Rob Pommerening of my staff at 1-800-443-4379, or Ms. Jolene Garcia of the U.S. Department of Energy at (505) 846-1238.

Sincerely,

MK-Ferguson Company



for J.G. Oldham
Project Director

JGO/RAP/RDJ/ss
Enclosures

cc: w/o enclosures:
J. Garcia, DOE/UMTRA
C. Moore, TAC/UMTRA
Document Control

* bcc: w/o enclosures:
M. Thomson - DUR
R. Stearns
R. Cooney
R. Pommerening
R. Jacobs
File - EDT

3050-89-667
STATE OF COLORADO

COLORADO DEPARTMENT OF HEALTH

4210 East 11th Avenue
Denver, Colorado 80220
Phone (303) 320-8333

FILE



MK-FERGUSON CO.
ALBUQUERQUE

Roy Romer
Governor

Thomas M. Vernon, M.D.
Executive Director

June 22, 1989

JUN 28 1989

RECEIVED

Mark L. Matthews
Acting Project Manager
Department of Energy
Uranium Mill Tailings Project Office
P.O. Box 5400
Albuquerque, NM 87115

Re: Vicinity Property Action Items; Supplemental Standards Schedule
and Technical Liaison; GEN-IX.A

Dear Mark:

We participated in a vicinity property (VP) implementation meeting on June 12-13, 1989 in Grand Junction. This was an outgrowth of the VP Audit Team commissioned by DOE to evaluate the VP program. A list of action items was developed during the meeting and this provides our input on two of those items.

Technical Liaison

Bud Franz will serve as our VP technical liaison. I understand this means he will be responsible for working with other representatives on a committee assigned to evaluate a range of technical issues including information sharing and dissemination, composite sampling procedures and general policy/procedures review.

Supplemental Standards

In order to eliminate the backlog of supplemental standard applications we have accumulated, I will provide a written response for at least two applications per week according to the following schedule:

DOE ID No.	PROPERTY DESCRIPTION	CDH RESPONSE DATE
GJ 18426	2315 N. 1 st St.	7/3
GJ 97001	North Ave.	7/3
GJ 90001	Lincoln Park	7/10
GJ 97006	29 Road	7/10
GJ 97010	West Main	7/17
GJ 97009	North Ave.	7/17
GJ 97007	Orchard Ave.	7/24
GJ 97012	Horizon Dr.	7/31
DU 544/545	Smelter Mtn.	7/31
DU 616	Lightner Ck.	8/7

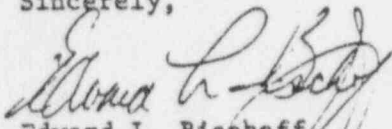
Mark L. Matthews
June 22, 1989
Page 2

If we fail to respond to an application according to this schedule, you may consider Colorado to have concurred.

I am pleased with the results of the implementation meeting. All participants have areas in which they can improve to make the program more effective. Continued aggressive follow-up on the issues and action items should result in resolution of several long-standing areas of concern with the VP program. I look forward to the time these issues are resolved and when we can say that the DOE and Colorado are in full agreement on the implementation of the VP program.

Finally, I would like to congratulate your staff, especially Jolene Garcia, for conducting the implementation meeting in a constructive and objective manner. Let us continue to use this model as a means for completing the VP program.

Sincerely,



Edward L. Bischoff
UMTRA Program Manager
Hazardous Materials and
Waste Management Division

ELB:lh

cc: Bud Franz
Jody Garcia/DOE
Mike Tucker/DOE

REP	INFO	DIST	REP	INFO	DIST
	✓ JGO				PDC
	✓ EFS				MWH
	✓ REC			✓ RAP	
	ISHIGU				HRM
	CDW				JSL/MKE
	ISH				GC/ID
	JJD				ISJ
	MDT				TSS
	JGP				DEW
	CPB				JWS
	SIS/DC				WAZ
					RSW
ORIG. FILE			10-1		
WORK FILE					

STATE OF COLORADO File

DEPARTMENT OF HIGHWAYS

District V

214 West 6th Street
Durango, Colorado 81301
(303) 259-1241



A.A. SHABLO
DISTRICT ENGINEER

June 22, 1989

J.G. Oldham, Project Director
M.K. Ferguson Company
Remedial Actions
Contractor-UMTRA Project
P.O. Box 9136
Albuquerque, NM 87119

MK-FERGUSON CO.
ALBUQUERQUE

JUN 26 1989

RECEIVED

Dear Mr. Oldham:

In reply to your letter of June 7, 1989, we have reviewed the scope of the work that you propose within the Colorado Department of Highways right-of-way along U.S. Highway 160 with Mr. Phil Teaque of your company, and we have no objections to the work, as described by Mr. Teaque.

Any work requiring lane closures or other traffic handling must be done in conformance with the Manual on Uniform Traffic Control Devices.

Should the guardrail located between the approach to the project site and the bridge over the Animas River need to be replaced following your work, it will need be done in accordance with the attached M Standard.

Please let me know if you need any additional information.

Sincerely,

Jon T. Vickers

Jon T. Vickers
Maintenance Superintendent

JTV:CJW:jd

Shablo/Watson/File

REP	INFO	DIST	REP	INFO	DIST
	✓	JGO			PDC
	✓	RFS			MWH
	✓	REC			RAP
		JBH/CRJ			HRM
		CDW	✓		JSL/MIKE
		JBH			GG/PO
		JJD			JEJ
	✓	MDT			TBS
		JGP			DEW
		DPB			JVS
		SJ/DC			WAZ
					RSW

FILE: EW-616
4.9

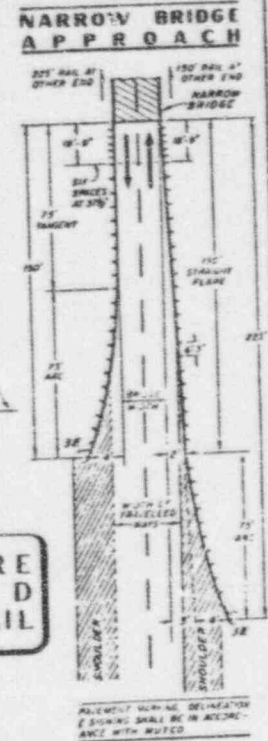
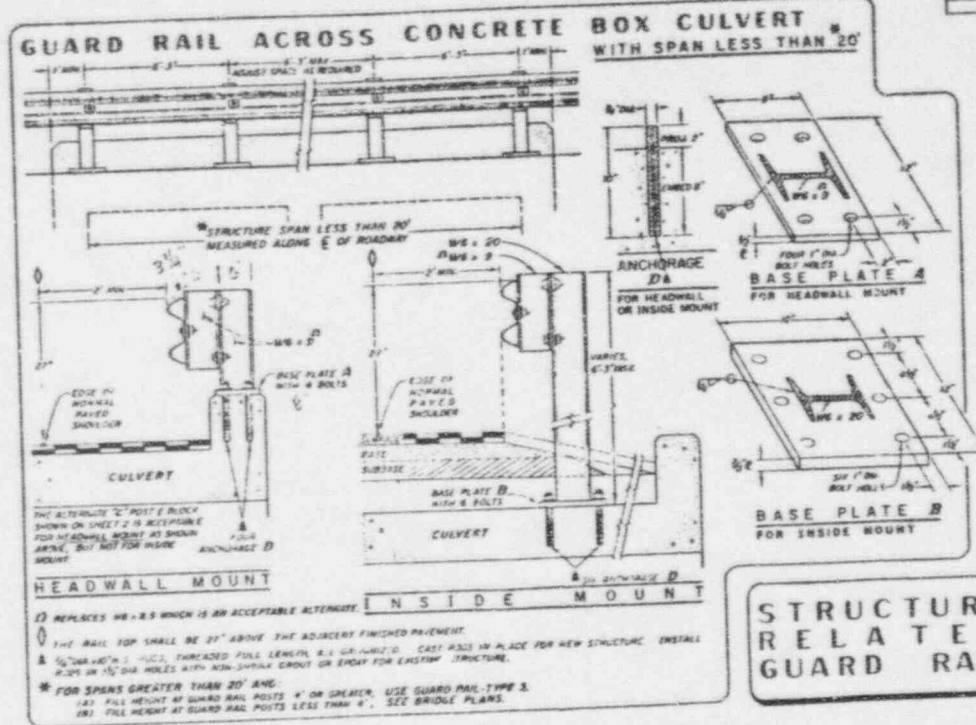
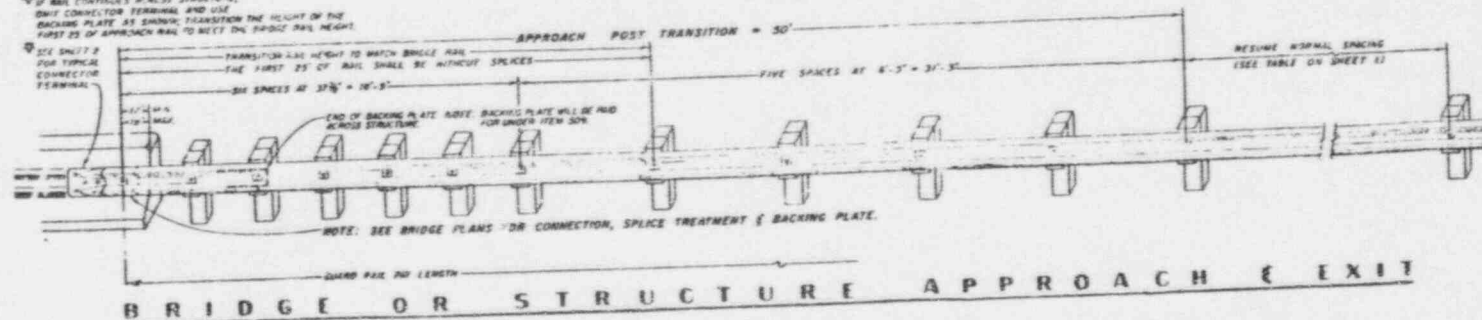
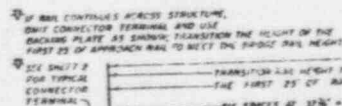
ORIG. FILE
WORK FILE

ST of CO
DUR



(SHEET 8)
(JANUARY, 1962)

NARROW BRIDGE
APPROACH



DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS
GUARD RAIL-TYPE 3
W BEAM

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FILE

STATE OF COLORADO

COLORADO DEPARTMENT OF HEALTH

222 So. 6th St., Room 232
Grand Junction, Colorado 81501



Roy Romer
Governor

Thomas M. Vernon, M.D.
Executive Director

July 26, 1989

Mr. Robert Pommerening
Vicinity Properties Manager
Morrison-Knudsen Company, Inc.
P.O. Box 9136
Albuquerque NM 87119

MK-FERGUSON CO.
ALBUQUERQUE

JUL 31 1989

RECEIVED

RE: Location Number 20857 DU616
South of Hwy 160 Durango CO 81301

Dear Mr. Pommerening:

A review of the Vicinity Property Remedial Action Agreement and Appendices A and B of the RAA for the above noted location has been completed. Based on the information provided, the basic design for remedial action is acceptable.

We concur with the partial remedial action called for in the REA.

Should you or Morrison-Knudsen require additional information regarding our review, please contact Chuck Thornberg in our Grand Junction office.

Sincerely,

G. A. Franz, III
Hazardous Materials and
Waste Management Division

GAF:bts

cc: J. Garcia, DOE, Albuquerque
J. G. Oldham, Morrison-Knudsen Company, Inc.
Location File



NRC/UMT/0490-0022

UNITED STATES

3050-90-590

NUCLEAR REGULATORY COMMISSION

REGION IV

URANIUM RECOVERY FIELD OFFICE
BOX 25325
DENVER, COLORADO 80225

APR 10 1990

URFO:PWM
Docket No. 40-WM039
040WM039380EMK-FERGUSON CO.
ALBUQUERQUE

APR 18 1990

RECEIVED

Mark L. Matthews, Acting Project Manager
Uranium Mill Tailings Project Office
U. S. Department of Energy
P. O. Box 5400
Albuquerque, New Mexico 87115

Dear Mr. Matthews:

The NRC has completed a review of the Radiological and Engineering Assessment (REA) for vicinity property number DU-616(S) located in Durango, Colorado.

Based upon our review, we conclude that the criteria of 40 CFR 192.21 (c) for applying supplemental standards have been met. The proposed remedial actions are reasonable under the circumstances and also satisfy the requirements of 40 CFR 192.22(a). We therefore concur with the proposed remedial actions and the REA for vicinity property number DU-616(S).

Should you have any questions, please contact Paul Michaud of my staff at FTS 776-2805.

Sincerely,

Ramon E. Hall
Director

Case Closed: 040WM039380E

REP	INFO	DIST	REP	INFO	DIST
	✓	JGO			PDC
	✓	JSH			MWH
	✓	WAZ			PA
	✓	RDC			MFP
		CDW			FJF/MKE
		JSH			GG/PD
		JJD			IEJ
		MTT			TDS
		RGP			DEW
		CPB			JWS
		SJS/DC			TGS
					RSW
ORIG. FILE			10-1		
WORK FILE			DUB16		

APPENDIX C
LEGAL DESCRIPTION

3639F

C-1

LEGAL DESCRIPTION

The property which is the subject of this Completion Report, the address of which is South of Highway 160 1/8 Mile West of Highway 160/550 Durango, Colorado, is more particularly described as follows:

Highway 160 right of way South of Highway 160 to the North bank of Lightner Creek and from the West bank of the Animas River to East property line of Colorado Department of Health/Colorado Department of Highways site boundary.