

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

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WM-39

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S
DU-144A
Vicinity Property No.

Vicinity Property No. DU-144A S

VICINITY PROPERTY COMPLETION REPORT

AT

DU-144A S
TRUCK BY-PASS (CAMINO DEL RIO)
DURANGO, COLORADO

May 16, 1991

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 ENVIRONMENTAL SERVICES, 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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Vicinity Property No. DU-144A S

1.0 SUMMARY

PROPERTY NUMBER:	DU-144A
PROPERTY ADDRESS:	TRUCK BY-PASS (CAMINO DEL RIO) DURANGO, COLORADO
PROPERTY OWNER:	COLORADO DEPARTMENT OF HIGHWAYS 214 WEST 6th STREET DURANGO, COLORADO 81301
PROPERTY CATEGORY:	OPEN LAND
REMEDIAL ACTION CONTRACTOR:	MK-FERGUSON COMPANY
CONSTRUCTION SUBCONTRACTOR:	*
RADIOLOGICAL CONTRACTOR:	CHEM-NUCLEAR ENVIRONMENTAL SERVICES, INC.
REA APPROVED:	FEBRUARY 1, 1990
REMEDIAL ACTION STARTED:	*
REMEDIAL ACTION COMPLETED: (APPENDIX C SIGNED)	*
VOLUME OF MATERIAL REMOVED:	*

* Remedial action on this property was performed in conjunction with the Durango Site remediation and completed by the site subcontractor.

1.0 SUMMARY

Remedial action was completed on Vicinity Property DU-144A. All work on the property was performed as part of the Durango Site remediation.

Radiological surveys conducted following removal of contaminated material, but before property restoration, demonstrate that the property has been cleaned up to the EPA standards with the application of Supplemental Standards. This completion report recommends that the property be awarded with final certification.

2.0 OPERATIONS SUMMARY

2.1 Remedial Action Plan

The basic remedial action on this property was performed according to the Remedial Action Plan. The Remedial Action Plan called for remediation of the property by the Durango Site subcontractor.

2.2 Previously Unidentified Contamination

No new areas of contamination were identified during remedial action.

2.3 Unanticipated Items During Remedial Action

No unanticipated items occurred during remedial action on this property.

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-144A-015.

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 198 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 to 114 pCi/g, as described in Table 3.1.

Drawings DU-144A-020, DU-144A-021 and DU-144A-022 show the actual areas of excavation.

These results confirm that exterior contamination has been reduced to levels below the EPA standards for radium in soil in most areas (see section 3.1.3). Background for the Durango site is 1.5 pCi/g Ra-226.

Interior:

There are no structures on this 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 Ra-226 exist

Brief Condition Description and Justification:

Five areas are proposed for application of supplemental standards.

Areas A, B and C have been excavated down to the water table and Ra-226 concentration in these Areas range from 40 pCi/g to 114 pCi/g. Further excavation in Areas A and C would require Z-pile along the rivers edge, pumping operations and water treatment. Continued excavation of Area B would require excavation of a 30 vertical cliff of radiological clean slag. As agreed upon by the RAC, TSC, CDH, DOE and NRC further excavation in these areas was not warranted due to the high cost relative to the long term benefits. These areas are covered with a minimum of two feet of backfill and riprap per the Durango Site Restoration Plan. With this cover in place general area exposure rates are near background levels. Background for the Durango Site is 14 micro R/hr. The estimated volume of contaminated material that remains in these areas is 125 cy.

Area D is presently covered with 3 feet of riprap. Contamination is sporadically distributed throughout the 2.5 foot layer of soil beneath the riprap. Ra-226 concentrations in soil in this area range from <1.5 to 35 pCi/g. General area exposure rates are near background. The estimated volume of contaminated material that remains in this area is 120 cy.

Area F is presently covered with 3 feet of riprap. Contamination is sporadically distributed throughout the 2 foot layer of soil beneath the riprap. Ra-226 concentrations in soil in this area range from <1.5 to 166.0 pCi/g. General area gamma exposure rates range from 16 to 25 micro R/hr. The estimated volume of contaminated material that remains in this area is a 600 cy.

Contamination in Area G does not exceed EPA standards for Ra-226; however, a lens of uranium was exposed at the high water mark on the bank of the Animas River. This lens varies from 1 to 6 inches in thickness. The extent to which the lens extends on to the property is undetermined due to an over burden of radiologically clean material that varies in thickness from 2 to 25 feet. This overburden consists mostly of slag generated by a lead smelter that operated from the 1880's to 1930. Ra-226 concentration in soil in the Uranium Lens Area range from <1.5 to 12.1 pCi/g. The exposed portions of the uranium lens was covered with 2 feet backfill and riprap per the Durango Site Restoration Plan. With 2 feet of backfill and riprap over the exposed portion of the lens, exposure rates are near background levels.

All the Supplemental Standards areas are covered with a minimum of 2 feet of backfill and riprap.

Vicinity Property No. DU-144A S

General area gamma exposure rates on the property range from 14 to 25 micro R/hr. If a man spent 8 hours a day, 5 days a week, 50 weeks a year in a 25 micro R/hr. radiation field, he would receive about 50 millirem of gamma exposure in one year. This is one tenth the amount allowed the general public (10 CFR 20.105). The amount of contamination material that will remain in place is approximately 845 cubic yards.

The cost of removing the contaminated material would have been excessive, due to the need to remove the existing riprap and slag overburden from these areas and the need for additional engineering measures to achieve the work, compared to the actual health benefits realized.

Additional cost without application of Supplemental Standards = \$237,500.00.

This is a 304 percent increase over the estimated remedial action cost for the preferred option.

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

in R&A

Estimated volume of contaminated material to remain = 845 (cy).

Contaminated area to remain = 1150 (sy).

Exposure rate in contaminated area = 14 to 25 (micro R/hr) [at 3 feet above surface].

Vicinity Property No. DU-144A S

The Ra-226 concentration in soil in contaminated area = <1.5 to 166.0 (pCi/g).

3.2 Recommendation for Certification

3.2.1 Exterior:

One area of contamination was identified and removed. Soil samples after excavation and prior to backfilling indicate that the limits of 5 pCi/g in the surface 15 cm. and 15 pCi/g in any 15 cm. layer below the surface are not exceeded in most areas. Based on this information, we recommend that the exterior of this vicinity property be certified to be in compliance with EPA standards, with the application for Supplemental Standards, for the UMTRA Project.

3.2.2 Interior:

There are no structures on this property.

Vicinity Property No. DU-144A S

Table 3.1
VERIFICATION SOIL SAMPLE SURVEY
Property DU-144A S

LOCATION (GRID NO.)	DEPTH (cm.)	CONCENTRATION (pCi/g)
A-29-16	15	2
A-29-17	15	1
A-29-21	46	6
A-29-22	34	3
A-39-02	40	2
A-39-08	15	6
A-39-09	15	1
A-39-13	21	3
A-39-14	15	2
A-39-19	15	3
A-39-20	18	2
A-39-25	21	3
A-40-21	15	5
A-50-01	18	3
A-50-13	18	1
A-50-24	18	2
B-07-05	15	2
C-01-21	15	2
C-09-01	91	6
C-09-02	91	3
C-09-03	15	1
C-09-07	21	1
C-09-08	168	2
C-09-09	116	2
C-09-10	61	1
C-09-14	174	5
C-09-15	113	14
C-10-06	18	13
C-10-07	15	4
C-10-08	15	3
C-10-09	15	5
*C-10-11	162	20
C-10-12	82	8
C-10-13	162	13
C-10-14	85	10
C-10-15	49	3
C-10-18	149	11
C-10-19	131	3
C-10-20	137	6
C-11-11	61	12
C-11-12	61	2

* Areas where Supplemental Standards apply.

Vicinity Property No. DU-144A S

Table 3.1 Cont.
VERIFICATION SOIL SAMPLE SURVEY
Property DU-144A S

LOCATION (GRID NO.)	DEPTH (cm.)	CONCENTRATION (pCi/g)
C-11-16	91	2
C-11-17	76	2
C-11-18	37	2
C-11-19	61	10
C-11-20	61	9
* C-11-23	110	43
C-11-24	91	10
C-11-25	88	8
C-12-16	15	1
C-12-21	61	2
C-12-22	61	9
* C-19-04	91	20
C-19-05	101	1
C-20-01	110	9
C-20-02	73	5
C-20-03	40	4
C-20-04	37	6
C-20-06	59	2
C-20-07	177	5
C-20-08	189	3
C-20-09	110	6
C-20-10	37	9
C-20-13	210	8
C-20-14	213	12
C-20-15	37	8
C-20-19	107	8
C-20-20	82	13
C-20-24	85	7
C-20-25	64	9
C-20-11	37	11
C-21-16	113	4
C-21-17	49	9
C-21-21	79	15
C-21-22	134	6
C-21-23	15	4
C-28-05	46	12
C-29-01	43	12
C-29-02	207	12
C-29-03	98	15
C-29-04	43	1
C-29-06	186	7
C-29-07	341	8

* Areas where Supplemental Standards apply.

Vicinity Property No. DU-144A S

Table 3.1 Cont.
VERIFICATION SOIL SAMPLE SURVEY
Property DU-144A S

LOCATION (GRID NO.)	DEPTH (cm.)	CONCENTRATION (pCi/g)
C-29-08	238	3
C-29-09	162	7
C-29-10	88	2
* C-29-12	250	23
C-29-13	290	12
C-29-14	399	3
C-29-15	155	5
C-29-17	158	4
* C-29-18	198	43
C-29-19	219	3
C-29-20	85	7
C-29-23	37	9
C-29-24	79	6
C-29-25	107	5
C-30-11	60	2
C-30-16	73	9
C-30-17	15	16
C-30-21	43	2
C-30-22	73	5
C-30-23	18	1
C-37-04	49	3
C-37-05	64	1
C-37-09	73	7
C-37-10	21	9
C-37-15	31	3
C-38-01	40	2
C-38-02	61	2
C-38-03	61	3
C-38-06	37	3
C-38-07	46	1
C-38-08	64	3
C-38-09	15	2
C-38-11	40	2
C-38-12	58	8
C-38-13	67	8
C-38-14	37	3
C-38-16	40	2
C-38-17	70	8
C-38-18	37	1
C-38-19	42	2
C-38-22	55	1

* Areas where Supplemental Standards apply.

Vicinity Property No. DU-144A S

Table 3.1 Cont.
VERIFICATION SOIL SAMPLE SURVEY
Property DU-144A S

LOCATION (GRID NO.)	DEPTH (cm.)	CONCENTRATION (pCi/g)
C-38-23	24	1
C-38-24	37	4
C-38-25	15	2
C-46-02	122	12
C-46-03	34	2
C-46-04	31	1
C-46-05	15	2
C-46-07	189	2
C-46-08	61	3
C-46-09	70	6
C-46-10	24	4
C-46-12	55	3
C-46-13	43	3
C-46-14	110	5
C-46-15	34	3
C-46-17	58	3
C-46-18	79	3
C-46-19	116	8
C-46-20	27	4
C-46-21	79	15
C-46-22	58	2
C-46-23	91	2
C-46-24	122	10
C-46-25	55	4
E-06-01	76	4
E-06-02	58	4
E-06-03	37	5
E-06-04	113	9
E-06-05	61	5
E-06-06	98	4
E-06-07	67	3
E-06-08	137	10
E-06-09	122	12
E-06-10	73	4
E-06-11	119	4
* E-06-12	94	22
E-06-13	131	3
E-06-14	128	5
E-06-15	49	6
E-06-16	168	4
* E-06-17	122	17

* Areas where Supplemental Standards apply.

Vicinity Property No. DU-144A S

Table 3.1 Cont.
VERIFICATION SOIL SAMPLE SURVEY
Property DU-144A S

LOCATION (GRID NO.)	DEPTH (cm.)	CONCENTRATION (pCi/g)
E-06-18	125	8
E-06-19	101	7
E-06-20	55	14
E-06-21	226	2
E-06-22	174	3
E-06-23	58	1
E-06-24	73	2
E-06-25	70	2
E-07-11	15	3
E-13-05	314	3
E-13-10	436	3
E-13-15	146	3
E-13-20	235	2
E-13-25	323	3
E-14-01	280	16
E-14-02	226	3
E-14-03	186	10
* E-14-04	58	22
E-14-05	15	3
E-14-06	192	7
E-14-07	238	3
E-14-08	107	2
E-14-09	40	4
E-14-10	15	2
* E-14-11	104	17
E-14-12	247	4
E-14-13	85	9
E-14-14	61	9
E-14-16	143	3
* E-14-17	88	29 ✓
* E-14-18	61	114
* E-14-21	183	40
E-14-22	55	6

* Areas where Supplemental Standards apply.

4.0 REFERENCES

- 4.1 The Radiological and Engineering Assessment for Durango, Property DU-144A; MK-Ferguson Company/Chem-Nuclear Environmental Services, Inc.; Albuquerque, New Mexico; February 1, 1990.
- 4.2 Health Physics Procedures; Chem-Nuclear Environmental Services, Inc., for MK-Ferguson Company, Remedial Action Contractor; Albuquerque, New Mexico; June 1986.
- 4.3 Vicinity Properties Management and Implementation Manual; UMTRAP, U.S. Department of Energy; Albuquerque, New Mexico; August 1986.
- 4.4 Title 40, Code of Federal Regulations, Part 192.12-23; U.S. Environmental Protection Agency; Washington, D.C.; July 1983.



E 52,500

N 49,000

N 48,500

N 48,000

E 52,000

U.S. HIGHWAY 550-160

ANIMAS RIVER

DU-143A

PUMP HOUSE

AREA "G"

AREA "A"

AREA "C"

URANIUM DEPOSITS LIMIT (TYPICAL)

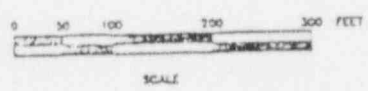
AREA "F"

ASSUMED PROPERTY LINE (TYPICAL)

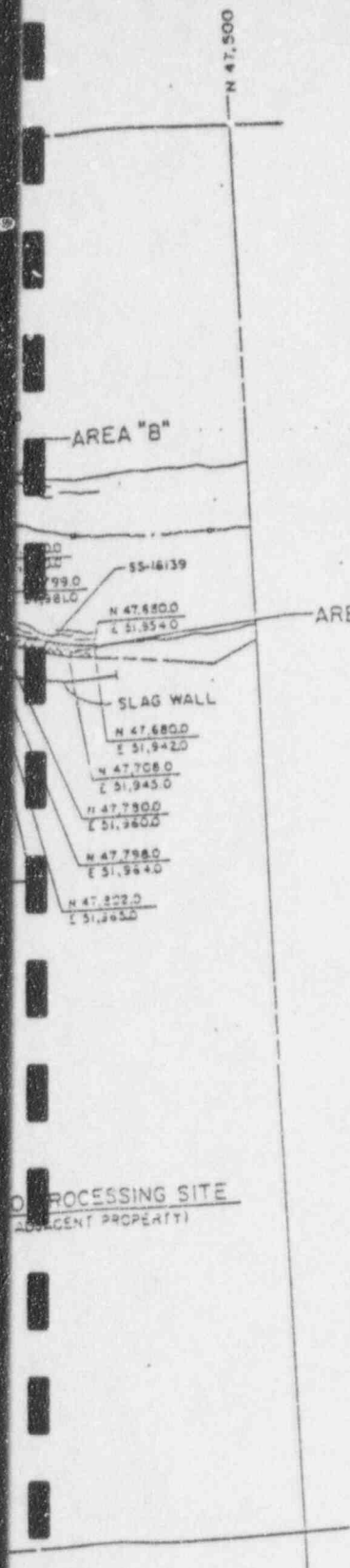
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E 51,500

E 51,000



SCALE



LEGEND

SS-15312

SOIL SAMPLE DESIGNATION



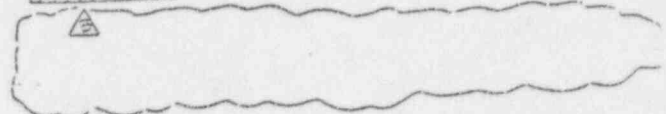
T.P.7

TEST PIT DESIGNATION

ESTIMATED DEPTH OF CONTAMINATION



2 FEET DEPTH OF SPORADIC CONTAMINATION-
(COVERED WITH 3 FEET OF CLEAN RIP-RAP)



2 FEET - 85 C.Y.



3 FEET - 40 C.Y.



2 FEET AND 6 INCHES - 120 C.Y.
(COVERED WITH CLEAN RIP RAP)

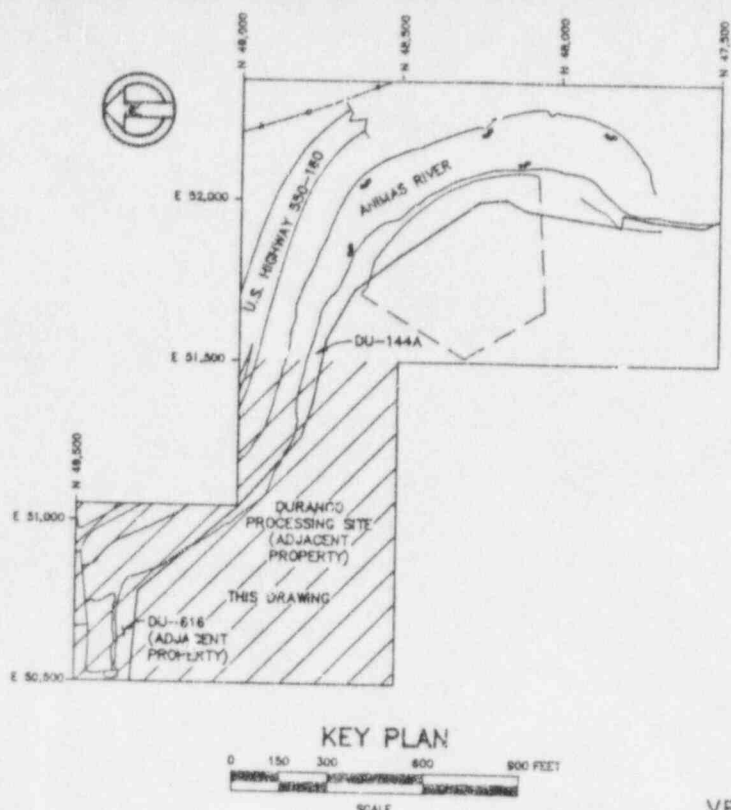
NOTES

- SUPPLEMENTAL STANDARDS IN ACCORDANCE WITH 40 CFR SECTION 191.22 (C) SHALL APPLY TO LOW LEVEL RADIOACTIVELY CONTAMINATED MATERIAL. APPROXIMATELY 850 CUBIC YARDS REMAIN IN PLACE.
- AREAS "A", "B", "C" AND "G" SHALL BE COVER WITH 2 FEET OF COMPACTED COMMON FILL AS DETERMINED BY THE DURANGO SITE RESTORATION PLAN.

NO.	DATE	REVISIONS
B	11-28-84	REVISED AREA "G"
A	11-28-84	FINAL REA SUBMITTAL

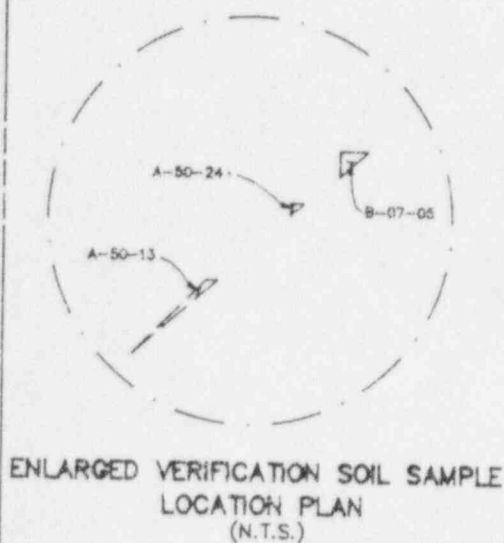
U. S. DEPARTMENT OF ENERGY ALBUQUERQUE, NEW MEXICO			
DESIGNED EJM	RADIOLOGICAL SURVEY DATA DU-144A DURANGO, COLORADO URANIUM MILL TAILINGS REMEDIAL ACTION P		
CHECKED	DATE	DOE PROJECT MANAGER	DATE
REVIEWED		NR	NR
RECOMMENDED			
APPROVED			
PROJECT NO. DE-AC04-83AL		DRAWING NO. DU-144A-	
MK-FERGUSON A MORRISON KNUDSEN COMPANY			

DU-144A-017



VERIFICATION SOIL SAMPLES

A-29-16	C-09-03
A-29-17	C-09-07
A-29-21	C-09-06
A-29-22	C-09-09
A-39-02	C-09-10
A-39-08	C-09-14
A-39-09	C-09-15
A-39-13	C-10-06
A-39-14	C-10-07
A-39-19	C-10-08
A-39-20	C-10-09
A-39-25	C-10-11
A-40-21	C-10-12
A-50-01	C-10-13
A-50-13	C-10-14
A-50-24	C-10-15
B-07-05	C-10-16
C-01-21	C-10-19
C-09-01	C-10-20
C-09-02	



NOTES:

- SEE DRAWINGS DU-144A-017 AND DU-144A-018 FOR VERIFICATION SOIL SAMPLES (PERTAINING TO OTHER PORTIONS OF THIS PROPERTY) NOT SHOWN THIS DRAWING.
- SUPPLEMENTAL STANDARDS IN ACCORDANCE WITH 40 CFR SECTION 192.22 (C) SHALL APPLY TO LOW LEVEL RADIOACTIVELY CONTAMINATED MATERIAL. APPROXIMATELY 517 CUBIC YARDS REMAIN IN PLACE.
- ALL VERIFICATION SOIL SAMPLES CONTAIN THE PREFIX DUR-SV.

U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

CERTIFICATION RADIOLOGICAL PLAN

DU-144A

SHEET 1 OF 3

DURANGO, COLORADO

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT

DESIGNED/DRAWN

PGC

CHECKED

REVIEWED

RECOMMENDED

APPROVED

NR

DATE

DOE PROJECT MANAGER

NR

DATE

DOE PROJECT ENGINEER

NR

DATE

PROJECT NO.

DE-AC04-83AL18796

DRAWING NO.

DU-144A-018

REV

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MK-FERGUSON

A MORRISON KNUDSEN COMPANY

ISSUE FOR CERTIFICATION

PGC

REVISIONS

DRAWN BY

CHECKED BY

APPROVED FOR

APPROVED FOR

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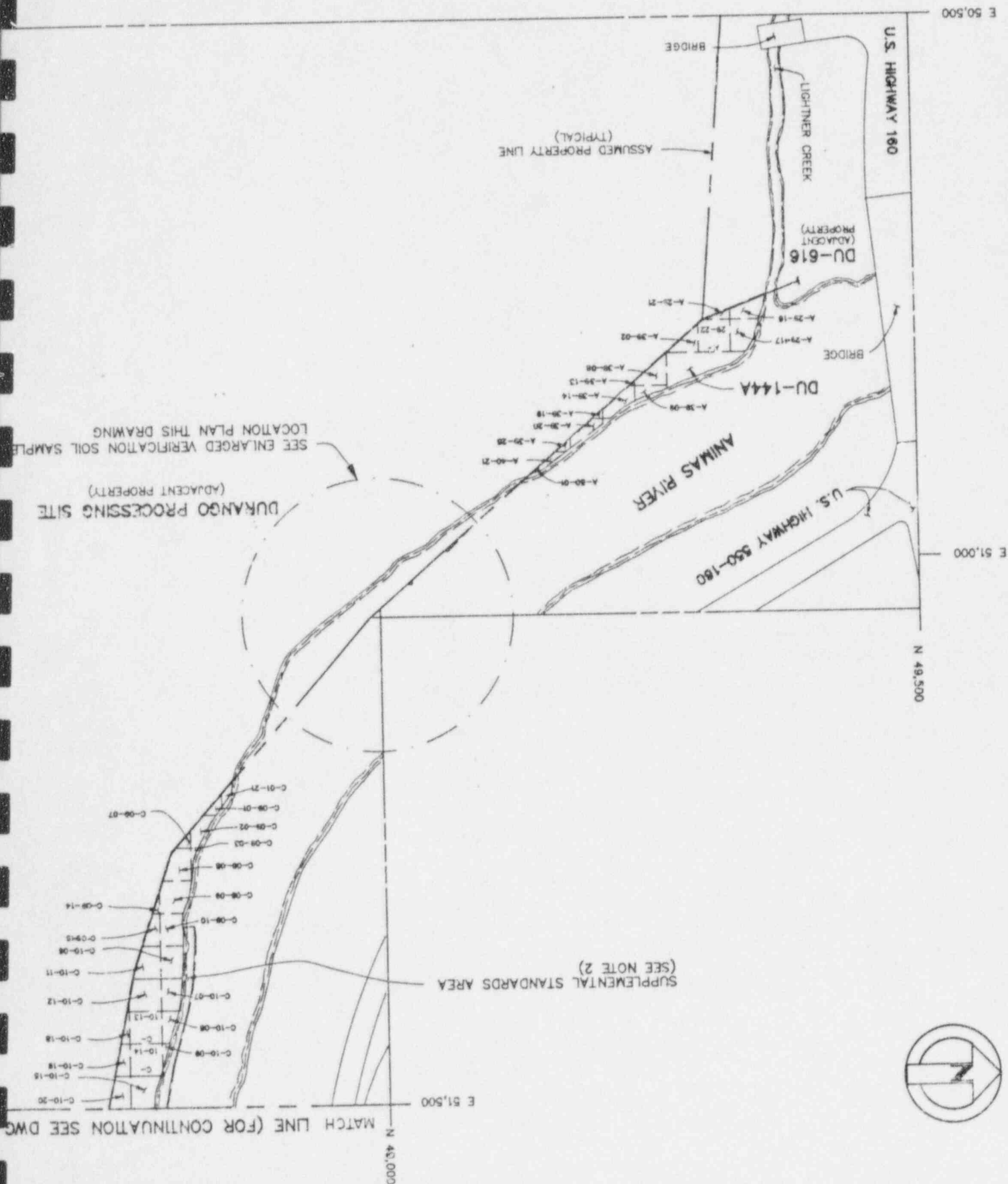
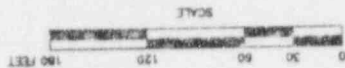
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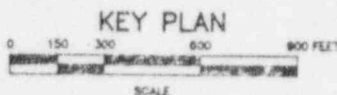
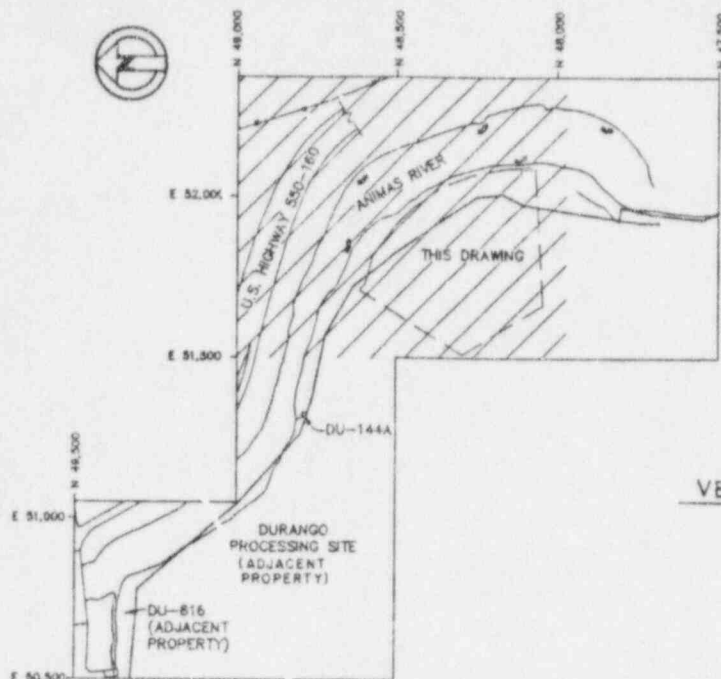
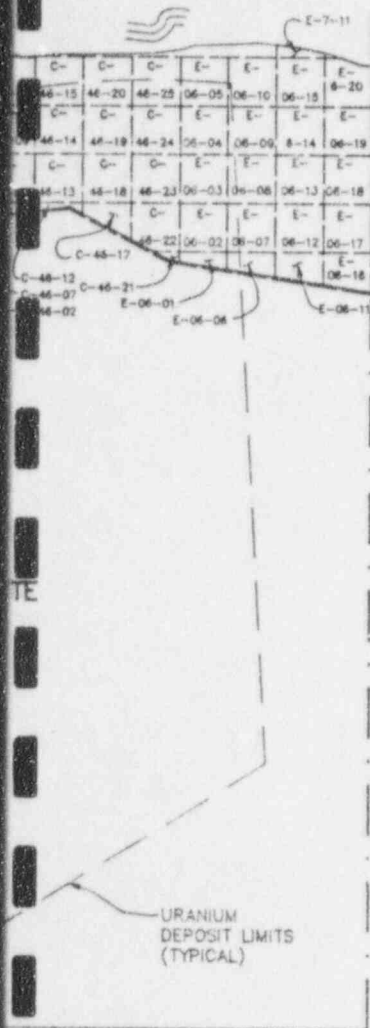
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APPROVED FOR

APPROVED FOR



MATCH LINE N 47,980 (FOR CONTINUATION SEE DWG. DU-144A-018)



VERIFICATION SOIL SAMPLES

C-11-11	C-37-09
C-11-12	C-37-10
C-11-16	C-37-15
C-11-17	C-38-01
C-11-18	C-38-02
C-11-19	C-38-03
C-11-20	C-38-06
C-11-23	C-38-07
C-11-24	C-38-08
C-11-25	C-38-09
C-19-04	C-38-11
C-19-05	C-38-12
C-20-01	C-38-13
C-20-02	C-38-14
C-20-03	C-38-16
C-20-04	C-38-17
C-20-06	C-38-18
C-20-07	C-38-19
C-20-08	C-38-22
C-20-09	C-38-23
C-20-10	C-38-24
C-20-13	C-38-25
C-20-14	C-46-02
C-20-15	C-46-03
C-20-19	C-46-04
C-20-20	C-46-05
C-20-24	C-46-07
C-20-25	C-46-08
C-21-11	C-46-09
C-21-16	C-46-10
C-21-17	C-46-12
C-21-21	C-46-13
C-21-22	C-46-14
C-21-23	C-46-15
C-28-05	C-46-17
C-29-01	C-46-18
C-29-02	C-46-19
C-29-03	C-46-20
C-29-04	C-46-21
C-29-06	C-46-22
C-29-07	C-46-23
C-29-08	C-46-24
C-29-09	C-46-25
C-29-10	E-06-01
C-29-12	E-06-02
C-29-13	E-06-03
C-29-14	E-06-04
C-29-15	E-06-05
C-29-17	E-06-06
C-29-18	E-06-07
C-29-19	E-06-08
C-29-20	E-06-09
C-29-23	E-06-10
C-29-24	E-06-11
C-29-25	E-06-12
C-30-11	E-06-13
C-30-16	E-06-14
C-30-17	E-06-15
C-30-21	E-06-16
C-30-22	E-06-17
C-30-23	E-06-18
C-37-04	E-06-19
C-37-05	E-06-20
	E-07-11

NOTES

- SEE DRAWINGS DU-144A-016 AND DU-144A-018 FOR VERIFICATION SOIL SAMPLES (PERTAINING TO OTHER PORTIONS OF THIS PROPERTY) NOT SHOWN THIS DRAWING.
- SUPPLEMENTAL STANDARDS IN ACCORDANCE WITH 40 CFR SECTION 192.22 (C) SHALL APPLY TO LOW LEVEL RADIOACTIVELY CONTAMINATED MATERIAL. APPROXIMATELY 577 CUBIC YARDS REMAIN IN PLACE.
- ALL VERIFICATION SOIL SAMPLES HAVE THE PREFIX DUH-SV.

U. S. DEPARTMENT OF ENERGY ALBUQUERQUE, NEW MEXICO

DESIGNED
CHECKED
REVIEWED
RECOMMENDED

CERTIFICATION RADIOLOGICAL PLAN

DU-144A

SHEET 2 OF 3

DURANGO, COLORADO

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT

APPROVED

NR

DATE

DOE PROJECT MANAGER

NR

DATE

DOE PROJECT ENGINEER

NR

DATE

ISSUE FOR CERTIFICATION

PGC



MK-FERGUSON

A MORRISON KNUDSEN COMPANY

PROJECT NO.

DE-ACO4-83AL18796

DRAWING'S

DU-144A-017

REV.

A



U.S. HIGHWAY 550-160



ANIMAS RIVER

DU-144A

DURANGO PROCESSING SI
(ADJACENT PROPERTY)

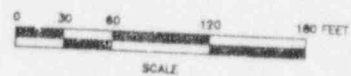
SUPPLEMENTAL STANDARDS AREA
(SEE NOTE 2)

PUMP H

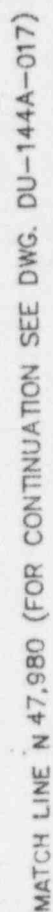
ASSUMED PROPERTY LINE (TYPICAL)

E 51,500

MATCH LINE (FOR CONTINUATION SEE DWG. DU-144A-016)



A	25000
MO.	DAY



ANIMAS RIVER

SUPPLEMENTAL STANDARDS AREAS
(SEE NOTE 2)

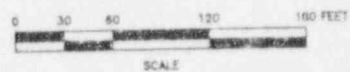
DU-144A

SLAG WALL

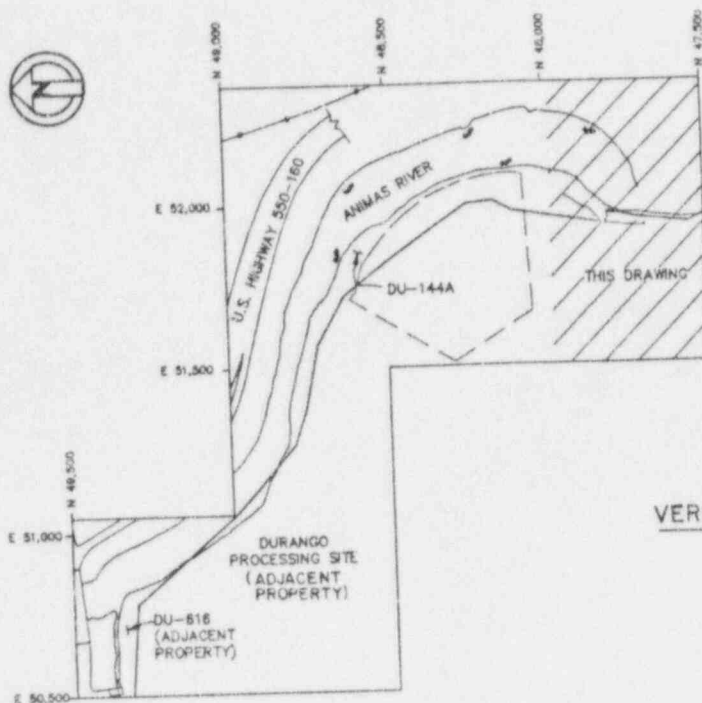
- ASSUMED PROPERTY
LINE

DURANGO PROCESSING SITE
(ADJACENT PROPERTY)

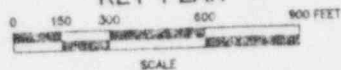
E 51,500



f.	24
MO	U



KEY PLAN



VERIFICATION SOIL SAMPLES

E-06-21
E-06-22
E-06-23
E-06-24
E-06-25
E-13-05
E-13-10
E-13-15
E-13-20
E-13-25
E-14-01
E-14-02
E-14-03
E-14-04
E-14-05
E-14-06
E-14-07
E-14-08
E-14-09
E-14-10
E-14-11
E-14-12
E-14-13
E-14-14
E-14-16
E-14-17
E-14-21
E-14-22

1. SEE DRAWINGS DU-144A-016 AND DU-144A-017 FOR VERIFICATION SOIL SAMPLES (PERTAINING TO OTHER PORTIONS OF THIS PROPERTY) NOT SHOWN THIS DRAWING.
2. SUPPLEMENTAL STANDARDS IN ACCORDANCE WITH 40 CFR SECTION 192.22 (C) SHALL APPLY TO LOW LEVEL RADIOACTIVELY CONTAMINATED MATERIAL. APPROXIMATELY 517 CUBIC YARDS REMAIN IN PLACE.
3. ALL VERIFICATION SOIL SAMPLES CONTAIN THE PREFIX DUR-SV.

U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

DESIGNED/DRAWN
PGC
CHECKED
REVIEWED
RECOMMENDED

CERTIFICATION RADIOLOGICAL PLAN
DU-144A
SHEET 3 OF 3
DURANGO, COLORADO

URANIUM MILL TAILINGS: REMEDIAL ACTION PROJECT

APPROVED DATE DOE PROJECT MANAGER DATE DOE PROJECT ENGINEER DATE
NR NR NR

MK-FERGUSON
A MORRISON KNUDSEN COMPANY

PROJECT NO.
DE-AC04-83AL18796
DRAWING NO.
DU-144A-01B
REV. A

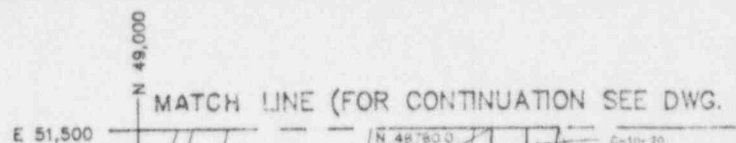
ISSUE FOR CERTIFICATION

PGC

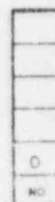
DRAWN BY CHECKED BY APPR. LDE APPR. ON PRO. ENG. APPR. BOX

REVISIONS

NO. DATE



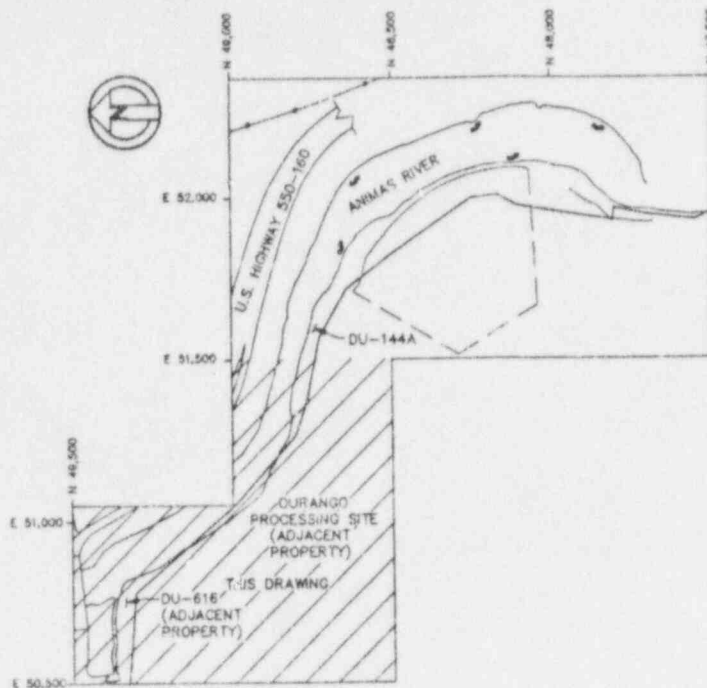
- | LOCATION | EXCAVATION
DEPTH | BACKFILL
ELEVATION |
|----------|---------------------|-----------------------|
| C-09-01 | 0.1' | 3.0' |
| C-09-02 | 0.1' | 3.0' |



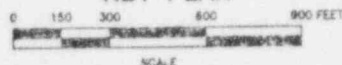
DU-144A-021)

738.0
506.3

N 48,500



KEY PLAN



2. EXCAVATED THE FOLLOWING LOCATIONS TO THE LIMITS INDICATED TO THE FOLLOWING AVERAGE DEPTHS. BACKFILLED WITH COMPACTED COMMON FILL FOLLOWED BY A MINIMUM OF 6 INCHES OF TOPSOIL AS DIRECTED BY THE CONTRACTOR'S REPRESENTATIVE:

LOCATION	EXCAVATION DEPTH	BACKFILL ELEVATION
A-29-16	0.0'	0.5'
A-29-21	0.4'	1.5'
A-29-22	0.8'	1.1'
A-39-02	1.2'	1.3'
A-39-08	1.5'	0.5'
A-39-09	0.2'	0.5'
A-39-13	0.9'	0.7'
A-39-14	0.3'	0.5'
A-39-19	0.1'	0.5'
A-39-20	0.3'	0.6'
A-39-25	1.1'	0.7'
A-40-21	0.3'	0.5'
A-50-01	0.0'	0.6'
C-09-07	6.7'	0.7'
C-09-08	20.0'	5.5'
C-09-09	11.5'	3.8'
C-09-10	3.9'	2.0'
C-09-14	11.0'	5.7'
C-09-15	1.9'	3.7'
C-10-06	0.0'	0.6'
C-10-11	3.7'	5.3'
C-10-12	0.9'	2.7'
C-10-13	0.8'	5.3'
C-10-14	0.6'	2.8'
C-10-15	0.4'	1.6'
C-10-18	5.6'	4.9'
C-10-19	3.7'	4.3'
C-10-20	1.7'	4.5'

3. TOPPED DISTURBED NON-RIPRAP LOCATIONS (SEE NOTE 4.) WITH NATIVE SEED, MULCH AND FERTILIZER.

GENERAL NOTES:

1. THE LATEST REVISION OF THE FOLLOWING TECHNICAL SPECIFICATIONS APPLY TO THE REMEDIAL ACTION WORK REQUIRED FOR PROPERTY NO. DU-144A:

SECTION 02110
CLEARING AND GRUBBING

SECTION 02130
CONTAMINATED MATERIAL
REMOVAL

SECTION 02200
EXCAVATION AND BACKFILL

SECTION 02480
LANDSCAPING

NOTES:

1. SEE DRAWINGS DU-144A-021 AND DU-144A-022 FOR EXCAVATION AND RESTORATION PLANS (PERTAINING TO OTHER PORTIONS OF THIS PROPERTY) NOT SHOWN THIS DRAWING.

AS-BUILT DRAWING

U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

EXCAVATION AND RESTORATION PLAN

DU-144A
SHEET 1 OF 3
DURANGO, COLORADO

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT

DESIGNED BY PGC

CHECKED BY PGC

REVIEWED BY PGC

RECOMMENDED BY PGC

APPROVED BY PGC

NR

NR

NR

MK-FERGUSON
A MORRISON KNUDSEN COMPANY

PROJECT NO.

DE-ACO4-83AL18796

DRAWING NO.

DU-144A-020

REV

REVISIONS

DATE

PGC

PH

P/S

JES

JES

-

DRAWN BY

CHECKED BY

APPROVED BY

DATE

ENG

DOE




NOTES:

1. SEE DRAWING DG-144A-020 FOR GENERAL NOTES AND DRAWINGS DG-144A-020 AND DG-144A-021 FOR EXCAVATION AND RESTORATION PLANS (PERTAINING TO OTHER PORTIONS OF THIS PROPERTY) NOT SHOWN THIS DRAWING.
2. EXCAVATED THE FOLLOWING LOCATIONS TO THE LIMITS INDICATED TO THE FOLLOWING AVERAGE DEPTHS.
BACKFILLED WITH COMPACTED COMMON FILL FOLLOWED BY A MINIMUM OF 6 INCHES OF TOPSOIL AS DIRECTED BY THE CONTRACTOR'S REPRESENTATIVE:

LOCATION	EXCAVATION DEPTH	BACKFILL ELEVATION
E-06-21	1.9'	7.4'
E-06-22	2.0'	5.7'
E-06-23	2.6'	1.6'
E-06-24	2.5'	2.4'
E-06-25	1.0'	2.3'
E-13-05	1.1'	10.0'
E-13-10	1.3'	14.3'
E-13-15	0.6'	4.8'
E-13-20	5.4'	7.7'
E-13-25	16.1'	10.6'
E-14-01	1.6'	9.3'
E-14-02	4.6'	7.4'
E-14-03	6.9'	6.3'
E-14-04	0.8'	1.3'
E-14-05	0.2'	0.5'
E-14-06	2.2'	6.2'
E-14-07	5.3'	2.8'
E-14-08	0.9'	3.5'
E-14-09	0.3'	1.3'
E-14-11	4.7'	3.4'
E-14-12	8.1'	8.1'
E-14-13	0.5'	2.8'
E-14-16	2.3'	4.7'
E-14-17	4.8'	2.8'
E-14-22	0.2'	1.8'

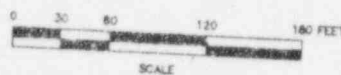
3. TOPPED DISTURBED LOCATIONS WITH
NATIVE SEED, MULCH AND FERTILIZER

AS-BUILT DRAWING

<div style="border: 1px solid black; padding: 5px; display: inline-block;">AS-BUILT DRAWING</div>														
U. S. DEPARTMENT OF ENERGY ALBUQUERQUE, NEW MEXICO														
DESIGNED/DRAWN PGC PGC CHECKED <i>[Signature]</i> REVIEWED <i>[Signature]</i> RECOMMENDED <i>[Signature]</i> APPROVED					EXCAVATION AND RESTORATION PLAN DU-144A SHEET 3 OF 3 DURANGO, COLORADO URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT									
NR					DATE		DOE PROJECT MANAGER		DATE		DOE PROJECT ENGINEER		DATE	
NR					NR		NR		NR		NR		NR	
 MK-FERGUSON A MORRISON KNUDSEN COMPANY										PROJECT NO. DE-ACO4-83AL18796				
AS-BUILT										DRAWING NO. DU-144A-022				
REVISIONS										REV.				



MATCH LINE (FOR CONTINUATION SEE DWG. DU-144A-020)



○	7/25/2011	1
NO.	DATE	

Vicinity Property No. DU-144A S

APPENDIX A
RADIOLOGICAL SURVEY DATA

4/23/91

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SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-A-29-16	2	>15
DUR-SV-A-29-17	1	>15
DUR-SV-A-29-21	6	>15
DUR-SV-A-29-22	3	>15

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SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-A-39-01	5	>15
DUR-SV-A-39-02	2	>15
DUR-SV-A-39-03	6	>15
DUR-SV-A-39-04	3	>15
DUR-SV-A-39-05	6	>15
DUR-SV-A-39-06	1	>15
DUR-SV-A-39-07	6	>15
DUR-SV-A-39-08	5	>15
DUR-SV-A-39-09	3	>15
DUR-SV-A-39-10	2	>15
DUR-SV-A-39-11	6	>15
DUR-SV-A-39-12	3	>15
DUR-SV-A-39-13	2	>15
DUR-SV-A-39-14	6	>15
DUR-SV-A-39-15	4	>15
DUR-SV-A-39-16	6	>15
DUR-SV-A-39-17	3	>15
DUR-SV-A-39-18	2	>15
DUR-SV-A-39-19	6	>15
DUR-SV-A-39-20	3	>15
DUR-SV-A-39-21	2	>15
DUR-SV-A-39-22	6	>15
DUR-SV-A-39-23	3	>15
DUR-SV-A-39-24	2	>15
DUR-SV-A-39-25	3	>15

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Standard Report

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SAMPLE #	20 DAY RA-E26	DEPTH
DUR-SV-A-40-21	5	15

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SAMPLE #	20 DAY RA-E26	DEPTH
DUR-EV-A-50-01	3	>15
DUR-EV-A-50-02	2	>15
DUR-EV-A-50-07	1	>15
DUR-EV-A-50-11	4	>15
DUR-EV-A-50-12	2	>15
DUR-EV-A-50-13	1	>15
DUR-EV-A-50-14	14	>15
DUR-EV-A-50-17	7	>15
DUR-EV-A-50-18	9	>15
DUR-EV-A-50-21	6	>15
DUR-EV-A-50-22	3	>15
DUR-EV-A-50-23	5	>15
DUR-EV-A-50-24	2	>15

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SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-B-07-01	4	15
DUR-SV-B-07-02	2	15
DUR-SV-B-07-03	5	15
DUR-SV-B-07-04	2	15
DUR-SV-B-07-05	2	15
DUR-SV-B-07-06	5	15
DUR-SV-B-07-07	2	15
DUR-SV-B-07-08	2	15
DUR-SV-B-07-09	5	15
DUR-SV-B-07-10	1	15
DUR-SV-B-07-11	2	15
DUR-SV-B-07-12	12	15
DUR-SV-B-07-13	5	15
DUR-SV-B-07-14	2	15
DUR-SV-B-07-15	2	15
DUR-SV-B-07-16	5	15
DUR-SV-B-07-17	2	15
DUR-SV-B-07-18	5	15
DUR-SV-B-07-19	1	15
DUR-SV-B-07-20	5	15
DUR-SV-B-07-21	12	15
DUR-SV-B-07-22	9	15
DUR-SV-B-07-23	4	15
DUR-SV-B-07-24	5	15
DUR-SV-B-07-25	5	15

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SAMPLE #	20 DAY RA-236	DEPTH
DUF-SV-C-01-21	2	>15

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SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-C-09-01	6	>15
DUR-SV-C-09-02	3	>15
DUR-SV-C-09-03	1	>15
DUR-SV-C-09-04	5	>15
DUR-SV-C-09-07	1	>15
DUR-SV-C-09-08	2	>15
DUR-SV-C-09-09	2	<15
DUR-SV-C-09-10	1	<15
DUR-SV-C-09-11	2	<15
DUR-SV-C-09-12	5	<15
DUR-SV-C-09-13	6	<15
DUR-SV-C-09-14	5	>15
DUR-SV-C-09-15	11	>15
DUR-SV-C-09-16	5	>15
DUR-SV-C-09-17	8	>15
DUR-SV-C-09-18	16	<15
DUR-SV-C-09-19	21	<15
DUR-SV-C-09-20	21	<15
DUR-SV-C-09-21	6	<15
DUR-SV-C-09-22	12	<15
DUR-SV-C-09-23	17	<15
DUR-SV-C-09-24	12	<15
DUR-SV-C-09-25	5	<15

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SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-C-10-06	15	>15
DUR-SV-C-10-07	4	>15
DUR-SV-C-10-08	3	>15
DUR-SV-C-10-09	5	>15
DUR-SV-C-10-11	20	>15
DUR-SV-C-10-12	8	>15
DUR-SV-C-10-13	12	>15
DUR-SV-C-10-14	10	>15
DUR-SV-C-10-15	3	>15
DUR-SV-C-10-16	15	>15
DUR-SV-C-10-17	15	>15
DUR-SV-C-10-18	11	>15
DUR-SV-C-10-19	3	>15
DUR-SV-C-10-20	6	>15
DUR-SV-C-10-21	15	>15
DUR-SV-C-10-22	15	>15
DUR-SV-C-10-23	15	>15
DUR-SV-C-10-24	10	>15
DUR-SV-C-10-25	12	>15

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SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-C-11-11	12	>15
DUR-SV-C-11-12	2	>15
DUR-SV-C-11-16	2	>15
DUR-SV-C-11-17	2	>15
DUR-SV-C-11-18	2	>15
DUR-SV-C-11-19	10	>15
DUR-SV-C-11-20	9	>15
DUR-SV-C-11-21	5	>15
DUR-SV-C-11-22	11	>15
DUR-SV-C-11-23	43	>15
DUR-SV-C-11-24	10	>15
DUR-SV-C-11-25	6	>15

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SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-C-12-16	1	>15
DUR-SV-C-12-21	2	>15
DUR-SV-C-12-22	9	>15

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SAMPLE #	20 DAY FA-226	DEPTH
DUR-SV-C-19-01	19	>15
DUR-SV-C-19-02	9	>15
DUR-SV-C-19-03	49	>15
DUR-SV-C-19-04	20	>15
DUR-SV-C-19-05	1	>15
DUR-SV-C-19-06	9	>15
DUR-SV-C-19-07	10	>15
DUR-SV-C-19-08	45	>15
DUR-SV-C-19-09	15	>15
DUR-SV-C-19-10	9	>15
DUR-SV-C-19-11	10	>15
DUR-SV-C-19-12	11	>15
DUR-SV-C-19-13	45	>15
DUR-SV-C-19-14	45	>15
DUR-SV-C-19-15	4	>15
DUR-SV-C-19-16	9	>15
DUR-SV-C-19-17	9	>15
DUR-SV-C-19-18	10	>15
DUR-SV-C-19-19	9	>15
DUR-SV-C-19-20	10	>15
DUR-SV-C-19-21	2	>15
DUR-SV-C-19-22	0	>15
DUR-SV-C-19-23	21	>15
DUR-SV-C-19-24	12	>15
DUR-SV-C-19-25	13	>15

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SAMPLE #	20 DAY RA-E26	DEPTH
DUR-SV-C-20-01	9	>15
DUR-SV-C-20-02	5	>15
DUR-SV-C-20-03	4	>15
DUR-SV-C-20-04	6	>15
DUR-SV-C-20-05	2	>15
DUR-SV-C-20-07	5	>15
DUR-SV-C-20-08	3	>15
DUR-SV-C-20-09	6	>15
DUR-SV-C-20-10	9	>15
DUR-SV-C-20-11	2	>15
DUR-SV-C-20-12	2	>15
DUR-SV-C-20-13	8	>15
DUR-SV-C-20-14	12	>15
DUR-SV-C-20-15	5	>15
DUR-SV-C-20-16	14	>15
DUR-SV-C-20-17	6	>15
DUR-SV-C-20-18	7	>15
DUR-SV-C-20-19	3	>15
DUR-SV-C-20-20	12	>15
DUR-SV-C-20-21	14	>15
DUR-SV-C-20-22	1	>15
DUR-SV-C-20-23	4	>15
DUR-SV-C-20-24	7	>15
DUR-SV-C-20-25	9	>15

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SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-C-21-11	11	>15
DUR-SV-C-21-16	4	>15
DUR-SV-C-21-17	9	>15
DUR-SV-C-21-21	15	>15
DUR-SV-C-21-22	6	>15
DUR-SV-C-21-23	4	>15

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Standard Report

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SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-C-29-01	12	>15
DUR-SV-C-29-02	12	>15
DUR-SV-C-29-03	15	>15
DUR-SV-C-29-04	1	>15
DUR-SV-C-29-06	7	>15
DUR-SV-C-29-07	8	>15
DUR-SV-C-29-08	3	>15
DUR-SV-C-29-09	7	>15
DUR-SV-C-29-10	2	>15
DUR-SV-C-29-11	2	>15
DUR-SV-C-29-12	23	>15
DUR-SV-C-29-13	12	>15
DUR-SV-C-29-14	3	>15
DUR-SV-C-29-15	5	>15
DUR-SV-C-29-16	10	>15
DUR-SV-C-29-17	4	>15
DUR-SV-C-29-18	43	>15
DUR-SV-C-29-19	3	>15
DUR-SV-C-29-20	7	>15
DUR-SV-C-29-21	11	>15
DUR-SV-C-29-22	0	>15
DUR-SV-C-29-23	9	>15
DUR-SV-C-29-24	6	>15
DUR-SV-C-29-25	5	>15

4/23/91

Standard Report

Page 1

SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-C-30-11	2	>15
DUR-SV-C-30-16	9	>15
DUR-SV-C-30-17	16	>15
DUR-SV-C-30-21	2	>15
DUR-SV-C-30-22	5	>15
DUR-SV-C-30-23	1	>15

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Standard Report

Page 1

SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-C-37-01	2	>15
DUR-SV-C-37-02	3	>15
DUR-SV-C-37-03	5	>15
DUR-SV-C-37-04	3	>15
DUR-SV-C-37-05	1	>15
DUR-SV-C-37-06	4	>15
DUR-SV-C-37-07	8	>15
DUR-SV-C-37-08	10	>15
DUR-SV-C-37-09	7	>15
DUR-SV-C-37-10	9	>15
DUR-SV-C-37-11	4	>15
DUR-SV-C-37-12	5	>15
DUR-SV-C-37-13	12	>15
DUR-SV-C-37-14	8	>15
DUR-SV-C-37-15	3	>15
DUR-SV-C-37-16	3	>15
DUR-SV-C-37-17	4	>15
DUR-SV-C-37-18	4	>15
DUR-SV-C-37-19	5	>15
DUR-SV-C-37-20	2	>15
DUR-SV-C-37-21	4	>15
DUR-SV-C-37-22	3	>15
DUR-SV-C-37-23	5	>15
DUR-SV-C-37-24	4	>15
DUR-SV-C-37-25	3	>15

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SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-C-38-01	2	>15
DUR-SV-C-38-02	2	>15
DUR-SV-C-38-03	3	>15
DUR-SV-C-38-06	3	>15
DUR-SV-C-38-07	1	>15
DUR-SV-C-38-08	3	>15
DUR-SV-C-38-09	2	>15
DUR-SV-C-38-11	2	>15
DUR-SV-C-38-12	0	>15
DUR-SV-C-38-13	8	>15
DUR-SV-C-38-14	3	>15
DUR-SV-C-38-15	2	>15
DUR-SV-C-38-17	0	>15
DUR-SV-C-38-18	1	>15
DUR-SV-C-38-19	2	>15
DUR-SV-C-38-20	2	>15
DUR-SV-C-38-21	4	>15
DUR-SV-C-38-22	1	>15
DUR-SV-C-38-23	1	>15
DUR-SV-C-38-24	4	>15
DUR-SV-C-38-25	3	>15

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Standard Report

Page 1

SAMPLE #	20 DAY RF-226	DEPTH
DUR-SV-C-46-01	1	>15
DUR-SV-C-46-02	12	>15
DUR-SV-C-46-03	2	>15
DUR-SV-C-46-04	1	>15
DUR-SV-C-46-05	2	>15
DUR-SV-C-46-06	3	>15
DUR-SV-C-46-07	2	>15
DUR-SV-C-46-08	2	>15
DUR-SV-C-46-09	6	>15
DUR-SV-C-46-10	4	>15
DUR-SV-C-46-11	2	>15
DUR-SV-C-46-12	3	>15
DUR-SV-C-46-13	3	>15
DUR-SV-C-46-14	5	>15
DUR-SV-C-46-15	3	>15
DUR-SV-C-46-16	5	>15
DUR-SV-C-46-17	3	>15
DUR-SV-C-46-18	3	>15
DUR-SV-C-46-19	5	>15
DUR-SV-C-46-20	4	>15
DUR-SV-C-46-21	5	>15
DUR-SV-C-46-22	2	>15
DUR-SV-C-46-23	2	>15
DUR-SV-C-46-24	10	>15
DUR-SV-C-46-25	4	>15

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Standard Report

Page 1

SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-E-06-01	4	>15
DUR-SV-E-06-02	4	>15
DUR-SV-E-06-03	3	>15
DUR-SV-E-06-04	9	>15
DUR-SV-E-06-05	5	>15
DUR-SV-E-06-06	4	>15
DUR-SV-E-06-07	3	>15
DUR-SV-E-06-08	10	>15
DUR-SV-E-06-09	12	>15
DUR-SV-E-06-10	4	>15
DUR-SV-E-06-11	4	>15
DUR-SV-E-06-12	22	>15
DUR-SV-E-06-13	3	>15
DUR-SV-E-06-14	5	>15
DUR-SV-E-06-15	6	>15
DUR-SV-E-06-16	4	>15
DUR-SV-E-06-17	17	>15
DUR-SV-E-06-18	8	>15
DUR-SV-E-06-19	7	>15
DUR-SV-E-06-20	14	>15
DUR-SV-E-06-21	2	>15
DUR-SV-E-06-22	3	>15
DUR-SV-E-06-23	1	>15
DUR-SV-E-06-24	2	>15
DUR-SV-E-06-25	2	>15

4/23/91

Standard Report

Page 1

SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-E-07-11	3	>15

4/23/91

Standard Report

Page 1

SAMPLE #	PO DAY RA-226	DEPTH
DUR-SV-E-13-01	10	>15
DUR-SV-E-13-02	10	>15
DUR-SV-E-13-03	1	>15
DUR-SV-E-13-04	2	>15
DUR-SV-E-13-05	3	>15
DUR-SV-E-13-06	3	>15
DUR-SV-E-13-07	2	>15
DUR-SV-E-13-08	2	>15
DUR-SV-E-13-09	2	>15
DUR-SV-E-13-10	3	>15
DUR-SV-E-13-11	2	>15
DUR-SV-E-13-12	4	>15
DUR-SV-E-13-13	7	>15
DUR-SV-E-13-14	2	>15
DUR-SV-E-13-15	3	<15
DUR-SV-E-13-16	2	>15
DUR-SV-E-13-17	2	>15
DUR-SV-E-13-18	2	>15
DUR-SV-E-13-19	2	>15
DUR-SV-E-13-20	2	>15
DUR-SV-E-13-21	2	>15
DUR-SV-E-13-22	2	>15
DUR-SV-E-13-23	4	>15
DUR-SV-E-13-24	2	>15
DUR-SV-E-13-25	3	>15

4/23/91

Standard Report

Page 1

SAMPLE #	20 DAY RA-226	DEPTH
DUR-SV-E-14-01	16	>15
DUR-SV-E-14-02	3	>15
DUR-SV-E-14-03	10	>15
DUR-SV-E-14-04	22	>15
DUR-SV-E-14-05	3	>15
DUR-SV-E-14-06	7	>15
DUR-SV-E-14-07	3	>15
DUR-SV-E-14-08	2	>15
DUR-SV-E-14-09	4	>15
DUR-SV-E-14-10	2	>15
DUR-SV-E-14-11	17	>15
DUR-SV-E-14-12	4	>15
DUR-SV-E-14-13	9	>15
DUR-SV-E-14-14	9	>15
DUR-SV-E-14-16	3	>15
DUR-SV-E-14-17	29	>15
DUR-SV-E-14-18	114	>15
DUR-SV-E-14-21	40	>15
DUR-SV-E-14-22	6	>15
DUR-SV-E-14-18	114	>15

RD 5/13/91

Vicinity Property No. DU-144A S

APPENDIX B

OWNERS/STATE, DOE AND NRC COMMENTS TO APPLICATION
SUPPLEMENTAL STANDARDS

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

September 7, 1989

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

SUBJECT: Use of Supplemental Standards - ~~DU~~ DU-144

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-144) for remedial action. Further evaluation of the contamination on your property has been performed and a recommendation has been proposed to leave the contaminated material and place 2' of soil and riprap over the area. This recommendation is 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-144) has revealed that radioactive contaminated materials are present in two areas on your property; the Riprap Area and Uranium Lens Area (Figure 3.1). The contamination in the Riprap Area is presently covered with 3 feet of radiologically clean riprap. Contamination is sporadically distributed through the 2 foot layer of soil beneath the riprap. In the Uranium Lens Area, contamination is present in a 1 to 6 inch lens that is exposed at the high water mark on the bank of the Animas River. This lens possibly extend from the river back to the property line beneath 2 to 25 feet of radiologically clean overburden.

The overburden consists mainly of slag generated by a lead smelter that was operated from the 1880's to 1930. It has been tentatively proposed that 2 feet of backfill and riprap be placed over the exposed portions of the Uranium Lens along the river. The cover will be blended to match the existing topography.

Alfred A. Shablo
September 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.

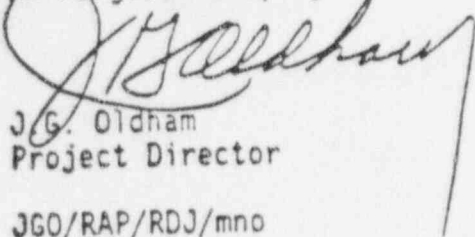
After the proposed remedial action occurs and the Uranium Lens has been covered with 2' of backfill and riprap, general area radiation levels will range from 14 to 25 micro R/hr. Background for the Durango area is 14 micro R/hr. If a person spent 8 hours a day, 5 days a week, for 50 weeks in a 25 micro R/hr radiation field, he would receive about 50 millirem of gamma exposure in one year. This is 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 940 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 request your response by September 18, 1989.

If you have any questions or need additional information concerning this matter, please call either Dave Charlton 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



J.G. Oldham
Project Director

JGO/RAP/RDJ/mno
Enclosures

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

FILE	FILE	FILE	FILE
✓ WFO			WFO
✓ DE			ADAM
✓ K		✓ DED	DAD
DEW			FINDING
TH			SS-100
DO			HJ
✓ DOT			SOS
UOP			DEW
DER			RVS
DISCOC			MALZ
✓ ROJ			TSLV

CORIC FILE STO-CO
 COTTON FILE DUR

STATE OF COLORADO

COLORADO DEPARTMENT OF HEALTH

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



Roy Romer
Governor

Thomas M. Vernon, M.D.
Executive Director

MK-FERGUSON CO.
ALBUQUERQUE

NOV 1 1989

November 1, 1989

RECEIVED

J. G. Oldham
MK-Ferguson Company
P.O. Box 9136
Albuquerque, New Mexico 87119

Re: State Concurrence on Durango Processing Site Draft REA for
DUR-144, File No. DUR-XIII.N

Dear Mr. Oldham:

On October 10, we received from your staff a Draft Radiological and Engineering Assessment (REA) for Vicinity Property No. Dur 144. The State herein provides concurrence on this document.

The Vicinity Property Dur 144 includes a strip of land located between the processing site to the south and the Animas River to the north. Approximately 940 cubic yards of contaminated material have been identified along this strip in areas beneath either 2 to 20 foot thick slag piles or 3 foot thick riprap. The REA states that the decontamination of these areas would require removal of the overlying slag and riprap piles at great expense as compared to the long-term health benefits.

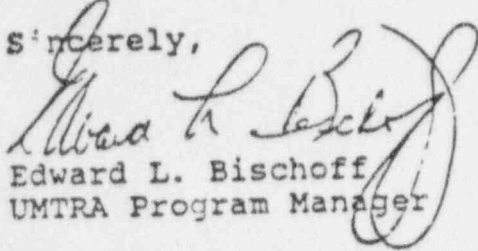
The recommended option involves backfilling the contaminated exposed area beneath the slag pile with two feet of backfill material and riprap. No action is recommended in the riprap area. It is stated that health risks associated with exposure to these contaminated areas after the recommended remediation will be minimal.

We concur that supplemental standards should appropriately be applied to this area, and that the recommended options will satisfactorily protect the public health and environment.

J. G. Oldham
November 1, 1989
Page 2

If you have any questions, please contact Patricia Martinek at
(303) 331-4828.

Sincerely,


Edward L. Bischoff
UMTRA Program Manager

HAZARDOUS MATERIALS AND WASTE MANAGEMENT DIVISION

cc: B. Franz, CDH
M. Matthews, DOE
J. Garcia, DOE
M. Thomson, MK-F

REP	INFO	DIST	REP	INFO	DIST
	✓	JGO			FDC
					MWH
	✓	REC		✓	FAP
	✓	JENIGER			JAP
		CDW			FJF/MKE
		JFH			GCID
		JD			REI
	✓	RET			
		JET			
		REP			JWS
		ESIDE			WAZ
					RSW
ORIG FILE <i>STP+CO</i>					
WORK FILE <i>DUR</i>					

DA - 144A

COLORADO DEPARTMENT OF HEALTH

Telefax:
(303) 322-9076 (Main Building/Denver)
(303) 320-1529 (Pittsman Place/Denver)
(303) 248-7198 (Grand Junction Regional Office)



Thomas M. Vernon, M.D.
Executive Director

JAN 08 1990

RECEIVED

J. G. Oldham
MK-Ferguson Company
P.O. Box 9136
Albuquerque, New Mexico 87119

Dear Mr. Oldham:

We are pleased to provide State concurrence on the Final REA for DU-144A.

On November 1, 1989, we provided State concurrence on the draft REA for DU-144. The final REA is substantitively similar to the draft REA. Therefore, our comments have not changed.

We concur that supplemental standards should be applied to this area, and that the recommended options will satisfactorily protect the public health and environment.

If you have any questions, please contact Patricia Martinek at (303) 331-4828.

Sincerely,

Edward L. Bischoff
UMTRA Program Manager


HAZARDOUS MATERIALS AND WASTE MANAGEMENT DIVISION

cc: B. Franz, CDH
M. Matthews, DOE
J. Garcia, DOE

INFO	DIST	REP	INCO	DIST
V	JGO			PDC
				AJWH
V	PDC		L	RAP
V	JGO			JATP
	CST			FBI/ARKE
	JGO			GGND
	JGO			FI
V	JGO			TMS
	JGO			GEM
	JGO			JWIS
V	PDC		V	NVAZ
V	JGO			BSW

ORIG FILE STOT CO

WORK FILE DUD

 Rob P.

RADIOLOGICAL AND ENGINEERING ASSESSMENT (REA)
Review Form

DOE Location No. DU 144A Rev. No. 0

PRIORITY: ☒ ROUTINE ☐ URGENT
REQUESTED RESPONSE BY 12-15-89

DATE 11-29-89

COMMENTS: RECOMMENDATION OF SUPPLEMENTAL STANDARDS
AS PREVIOUSLY DISCUSSED BY RAC, CDH, DOE, NRC.

Robert A. Po...
VP MANAGER

11-29-89
DATE

CONT. ON ATTACHED SHEET NO. _____

DATE RECEIVED 1/25/90 (REVISED)

☐ RECOMMEND APPROVAL ☒ RECOMMEND APPROVAL
AS NOTED BELOW ☐ DO NOT RECOMMEND
APPROVAL AS NOTED
BELOW

COMMENTS: SEE ATTACHED

Standard REA response
form is appropriate

Robert A. Po... 2/1/90
Robert A. Po... 1/29/90
TAC DATE

CONT. ON ATTACHED SHEET NO. _____

DATE TRANSMITTED _____

☐ APPROVED ☐ APPROVED AS NOTED ☐ NOT APPROVED AS NOTED

RESPONSE DATE _____

ATTACHED RESPONSE ON SHEET NO. _____

DATE TRANSMITTED _____

☐ APPROVED ☐ APPROVED AS NOTED ☐ NOT APPROVED AS NOTED

RESPONSE DATE _____

ATTACHED RESPONSE ON SHEET NO. _____

DATE TRANSMITTED _____

☐ APPROVED ☐ APPROVED AS NOTED ☐ NOT APPROVED AS NOTED

RESPONSE DATE _____

ATTACHED RESPONSE ON SHEET NO. _____

DATE RECEIVED Nov 30 1989

☐ APPROVED ☒ APPROVED AS NOTED ☐ NOT APPROVED AS NOTED

COMMENTS:

MK-FERGUSON CO.
ALBUQUERQUE

FEB 02 1990

RECEIVED

SHEET NO. 1 OF _____

RL Th...
DOE VP MANAGER

2/1/90
DATE

RADIOLOGICAL AND ENGINEERING ASSESSMENT (REA)
Review Form

Date Received: 1/25/90 (Revised)
Date due DOE:

DOE Location No. DU-144A

☒ RECOMMEND APPROVAL AS NOTED BELOW

☐ DO NOT RECOMMEND APPROVAL AS NOTED BELOW

REVIEWED BY:

Robert J. Murphy

DATE:

1/29/90

REVIEWED BY:

DATE:

VP MANAGER:

Paul M. Moore

DATE:

2/1/90

PAGE	COMMENT
2	In "Estimated Extent of Contamination" section, the following should be added to the end of the first paragraph: "However, the deposit in Area G does not exceed the EPA standards or NRC guidelines, as discussed in Appendix D."
2	In "Option I" section, it should be stated that areas D and F are presently covered with 2 feet of riprap.
2	In "Option II" section, the depths should be specified as estimated.
2	In "Option II" section, the excavation depth in Area D is inconsistent with drawing DU-144A-015, which indicates a depth of 2½ feet. (Also on page 3.)
5	Estimated volume of material to remain should be 845 cy.
17	Is this the cost for common fill and riprap?
18	Item 1.1 should state "Z-Pile" not "2-Pile." Item 2.1 should indicate a quantity of 85 cy and Item 2.5 should indicate a quantity of 40 cy (per Drawing DUR-144A-015). Item 2.5 should indicate Area B.
App. C	The most recent letter from CDH should be included.



MK-FERGUSON COMPANY

A MORRISON-KNUDSEN COMPANY

REVIEW COMMENTS

UMTRA Project No. DE-AC04 83AL18796

Date February 6, 1990

1 1

Page _____ of _____

Site Name Durango

Document Reviewed

Site No. DU-144A

Radiological and Engineering Assessment (REA)

Reference (Drwg. No., Spec. Sec., Etc.)	Reviewer	Comment	Resolution
Page 2	TAC	In "Estimated Extent of Contamination" section, the following should be added to the end of the first paragraph: "However, the deposit of Area G does not exceed the EPA standards or NRC guidelines, as discussed in Appendix D."	Agreed, REA revised.
Page 2	TAC	In "Option I" section, it should be stated that Areas D and F are presently covered with 2 feet of riprap.	Agreed, REA revised.
Page 2	TAC	In "Option II" section, the depths should be specified as estimated.	Agreed, REA revised.
Page 2	TAC	In "Option II" section, the excavation depth in Area D is inconsistent with drawing DU-144A-015, which indicated a depth of 2.5 feet. (Also on page 3)	REA revised to indicate an estimated depth of 2.5 feet in Area D.
Page 5	TAC	Estimated volume of material to remain should be 845 cy.	Agreed, REA revised.
Page 17	TAC	Is this the cost for common fill and riprap?	The cost for riprap will be added to the table.
Page 18	TAC	Item 1.1 should state "Z-Pile" not "2-Pile." Item 2.1 should indicate a quantity of 85 cy and Item 2.5 should indicate a quantity of 40 cy (per Drawing DU-144A-015). Item 2.5 should indicate Area B.	Agreed, REA revised.
Appendix C 2786F	TAC	The most recent letter from CDH should be included.	See Appendix C.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
URANIUM RECOVERY FIELD OFFICE
BOX 25325
DENVER, COLORADO 80225

NRC/UMT/0490-0024

3050-90-578

Rob P.

DU-144A

FILE

APR 12 1990

URFO: PWM
Docket No. 40-WM039
040WM039480E

MK-FERGUSON CO.
ALBUQUERQUE

APR 24 1990

RECEIVED

Mark L. Matthews, 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-144A located in Durango, Colorado.

Based upon our review, we conclude that the criteria for applying supplemental standards contained in 40 CFR 192.21(c) have been met. The proposed remedial action of covering the exposed areas with 2 feet of backfill and riprap is reasonable under the circumstances and meets the requirements of 40 CFR 192.22(a). The Site Restoration Plan, which is yet to be submitted, will be required to include provisions to place the cover material as proposed.

We therefore concur with the application of supplemental standards as proposed in the REA for vicinity property DU-144A. Should you have any questions, please contact Paul Michaud of my staff at FTS 776-2805.

Sincerely,

Ramon E. Hall
Director

Case Closed: 040WM039480E

REP	INFO	DIST	REP	INFO	DIST
	✓	JGO			PDC
	✓	JBH			MWH
	✓	WAZ		✓	EAP
	✓	REC			MFP
		CDW			FJF/MKE
		JDM			GG/PD
		JJD			JEJ
	✓	MDT			TBS
		JCP			DEW
		DZB			JWS
		SJS/DC			TGS
					RSW
ORIG. FILE 10-1					
WORK FILE DU-144A					

Vicinity Property No. DU-144A S

APPENDIX C
LEGAL DESCRIPTION

LEGAL DESCRIPTION

The property which is the subject of this Completion Report, the address of which is Truck By-Pass, Camino del Rio, Durango, Colorado, is more particularly described in the County Recorder's Office, as follows:

DU-144 has been divided into two portions, two simplify the application for Supplemental Standards to one portion of the property. This property is Highway 550/160 right of way. A portion of the property on the east side of the highway was previously remediated. The part of the property of concern is the highway right of way on the west side of the highway. More specifically, the highway right of way on the west side of the Animas River adjacent to the Durango UMTRA Processing Site.

ATTACHMENT B

VICINITY PROPERTY CERTIFICATION SUMMARY AND DECISION

VP NO. DU-144A S

The data presented in the certification folder indicate:

	TAC Evaluation			DOE Evaluation		
	Yes	No	N/A	Yes	No	N/A
1. The Ra-226 concentration in the top 15 cm of soil averages ≤ 5 pCi/g above background over 100 sq m, in-situ <input type="checkbox"/> lab <input checked="" type="checkbox"/> .	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The Ra-226 concentration in any 15 cm of soil below the top 15 cm surface layer averages ≤ 15 pCi/g above background over 100 sq m, in-situ <input type="checkbox"/> lab <input checked="" type="checkbox"/> .	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The indoor gamma readings are ≤ 20 uR/h above background in every habitable room.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The radon daughter concentration (RDC) in any habitable room is < 0.02 working levels, or at most 0.03 WL.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	[] RDC levels exceed 0.03 WL due to non-tailings material					
5. Supplemental standards were applied in accordance with EPA standards 40 CFR Part 192.21.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

No Structures

TAC Recommendation: ☐ Certification, ☒ Certification upon receipt of NRC concurrence, ☐ Holding pending long-term RDC results (detectors previously installed), ☐ Request additional measurements per the TAC/RAC consensus form, ☐ Close Out (Stage 2 / Stage 3).

Comments: Grid # E-14-17 should be marked for supplemental standards.

Mark Mills 6/17/91
Radiological Services Manager / Date

Robert A. Rose 6/17/91
Vicinity Property Manager / Date

DOE Decision: ☐ Certification, ☒ Certification upon receipt of NRC concurrence, ☐ Hold pending long-term RDC results, ☐ Request additional measurements as noted below, ☐ Close Out (Stage 2/Stage 3).

Comments:

Gaeton B. Zalame 06-17-91
DOE Certification Evaluator/Date

NRC Concurrence Dated: _____

CERTIFICATION REVIEW SUMMARY

Property No.: DV-144A S

Reviewed by: R. Conway

Date: 6/12/91

Address: Truck By-Pass

Approved by: Alto H. Hilly

Date: 6/17/91

(Camino Del Rio)

Durango, CO 81301

Mark Miller

Manager, Radiological Services

Jacobs-Weston Team

Property Category: Open Land

Quantity of soil removed: N/A (yd³)

RA Contractor: MK-F

This property was remediated in conjunction with the processing site.

The recommendation for certification is based on a review of the Completion Report and other available data describing remedial actions and resulting radiological conditions at this property. Measurement methods and data are compared to the requirements provided in the Vicinity Properties Management and Implementation Manual, and in 40 CFR 192. The following recommendations are made according to the intent of those requirements:

1.0 CERTIFICATION

- ☒ This property complies with the EPA standards and is recommended for Certification.
- This property is recommended for Certification only after the conditions listed in 3.0, below, are met.
- Remedial actions were refused by the property owner, and the property cannot be Certified.

2.0 SUPPLEMENTAL STANDARDS

- Supplemental Standards were not applied at this property.
- ☒ Supplemental Standards were applied as described in the Completion Report.
- ☒ The following agencies concurred in the application of Supplemental Standards at this property.

State of Colorado
NRC

3.0 CONDITIONS

- Annual average RDC results are required.
- The following additional measurements are required:

- The following additional actions must be completed:

VICINITY PROPERTY CERTIFICATION REVIEW FOR COMPLIANCE WITH RADIOLOGICAL STANDARDS

CERTIFICATION REQUIREMENT	COMPLIANCE*			COMMENTS (Reference Page in Completion Report)
	Yes	No	N/A	
I. SOIL EXCAVATION				198 soil sampler all taken at ≥ 15 cm depth.
1. Were soil samples collected/analyzed? (List quantity of surface and subsurface samples.)	✓			
2. Did grid intervals equal 10 meters or less? (List grid size and quantity sampled.)	✓			198 verification grids were sampled.
3. Were adequate spatial averaging techniques clearly demonstrated?	✓			
4. Was an outdoor gamma survey conducted? (List results.)			✓	Not required for verification.
5. Were alternate measurements performed? (List types of measurements, range, and average or results.)			✓	
6. Were all contaminated areas sampled after excavation?	✓			Five areas of contamination. A, B, C, D + F

* If no or N/A, then an explanation is required.

VICINITY PROPERTY CERTIFICATION REVIEW FOR COMPLIANCE WITH RADIOLOGICAL STANDARDS (continued)

CERTIFICATION REQUIREMENT	COMPLIANCE*			COMMENTS (Reference Page in Completion Report)
	Yes	No	N/A	
I. SOIL EXCAVATION (continued)				<p>Of the 198 grids sampled all were less than 15 pCi/g except ^{twelve} eleven grids where supplemental standards are being applied.</p> <p>BKG = 1.5 pCi/g</p>
7. Were soil concentrations of Ra-226, averaged over 100 square meters, less than or equal to:		✓		
o 5 pCi/g plus background (surface)?				
o 15 pCi/g plus background (subsurface)?				
8. If excavation was done around structures or utility conduits to structures, was contamination removed to meet EPA Standards?			✓	
II. INDOOR GAMMA SURVEY				Open land - no structures
1. Were assessment measurements taken in the lowest habitable level of every habitable building?			✓	
2. Were small rooms scanned and large rooms (2000 ft ²) gridded at intervals of 10 feet or smaller?			✓	
3. Were verification measurements taken at locations of prior maximum readings?			✓	

* If no or N/A, then an explanation is required.

VICINITY PROPERTY CERTIFICATION REVIEW FOR COMPLIANCE WITH RADIOLOGICAL STANDARDS (continued)

CERTIFICATION REQUIREMENT	COMPLIANCE*			COMMENTS (Reference Page in Completion Report)
	Yes	No	N/A	
II. INDCOR GAMMA SURVEY (continued)				
4. Were instrument readings converted to indicate microR/hr? (List range of readings.)			✓	
5. After remedial action, was the average value for each room or 2000 ft ² area less than 20 microR/hr above background?			✓	
6. If any reading exceeded 20 microR/hr above background, was it satisfactorily investigated to ensure no tailings involvement?			✓	
III. INDOOR RDC MEASUREMENTS				
1. If RDC measurements were performed before remedial action, and results were above standards, were they repeated after remedial action was complete?			✓	no structure
2. If RDC measurements were not performed before remedial action, were they taken in every habitable structure after remedial action?			✓	

* If no or N/A, then an explanation is required.

VICINITY PROPERTY CERTIFICATION REVIEW FOR COMPLIANCE WITH RADIOLOGICAL STANDARDS (continued)

CERTIFICATION REQUIREMENT	COMPLIANCE*			COMMENTS (Reference Page in Completion Report)
	Yes	No	N/A	
III. INDOOR RDC MEASUREMENTS (continued)				
3. If tailings were excavated within 10 ft of the structure or around utility conduits into the structure, were RDC measurements performed after remedial action?			✓	
4. If grab samples were used for verification, were acceptable procedures used?			✓	
5. Were grab sample results less than 0.01 WL? (List range and average of results.)			✓	
6. If annual average measurements were used for verification, were acceptable procedures followed?			✓	
7. Were annual average RDC results less than EPA WL standards? (List range and average of results.)			✓	
8. If annual average RDC results were between 0.02 WL and 0.03 WL, was appropriate justification given?			✓	

* If no or N/A, then an explanation is required.

VICINITY PROPERTY CERTIFICATION REVIEW FOR COMPLIANCE WITH RADIOLOGICAL STANDARDS (continued)

CERTIFICATION REQUIREMENT	COMPLIANCE*			COMMENTS (Reference Page in Completion Report)
	Yes	No	N/A	
IV. OTHER VERIFICATION MEASUREMENTS			✓	Adequate data is present.
1. If adequate verification data are not presented, were additional measurements taken?				
2. Were acceptable procedures used?			✓	
3. Were surface alpha contamination levels less than:			✓	
o 20 dpm/100 sq cm for removable alpha activity?				
o 100 dpm/100 sq cm for total alpha activity?			✓	
4. Was Ra-226 the only radionuclide of concern at this property?			✓	
5. Were additional measurements performed? (List type and results.)			✓	

* If no or N/A, then an explanation is required.

VICINITY PROPERTY CERTIFICATION REVIEW FOR COMPLIANCE WITH RADIOLOGICAL STANDARDS (continued)

CERTIFICATION REQUIREMENT	COMPLIANCE*			COMMENTS (Reference Page in Completion Report)
	Yes	No	N/A	
V. SUPPLEMENTAL STANDARDS				
1. If numerical standards were not met, is this due to the presence of natural radioactivity? What data show this?		✓		Supplemental standards were applied to ^{twelve} eleven unperfected such as stated in the completion Report.
2. If all residual radioactive material at the property was not cleaned up, were supplemental standards (40 CFR 192 Subpart C) applied?	✓			Contaminated area to remain = 1150 sq. Volume of contaminated material = 845 cy Exposure rate range = 14 to 25 uR/hr. BKG = 14 uR/hr.
3. Was the application of supplemental standards in accordance with the Plan for Implementing EPA Standards?	✓			<input type="checkbox"/> a. Risk injury to workers/public <input type="checkbox"/> b. Environmental harm <input checked="" type="checkbox"/> c. High cost relative to long-term benefits <input type="checkbox"/> d. High cost of cleaning up building relative to benefits <input type="checkbox"/> e. No known remedial action <input type="checkbox"/> f. Radionuclides other than Ra-226 exist
4. Did appropriate state and Federal agencies concur in this application of Supplemental Standards? (Note: final NRC concurrence of the Completion Report is obtained following the DOE certification decision.)	✓			<input checked="" type="checkbox"/> The application of Supplemental Standards appears in the REA. <input type="checkbox"/> The application of Supplemental Standards does not appear in the REA. Supplemental Standards were applied in the field. State concurrence dated <u>1/8/90</u> NRC concurrence dated <u>4/12/90</u>

* If no or N/A, then an explanation is required.

VICINITY PROPERTY CERTIFICATION REVIEW FOR COMPLIANCE WITH RADIOLOGICAL STANDARDS (continued)

CERTIFICATION REQUIREMENT	COMPLIANCE*			COMMENTS (Reference Page in Completion Report)
	Yes	No	N/A	
VI. SITE AUDIT REPORTS			✓	
1. If a site audit was performed at this property, were the results satisfactory?				
2. If the contractor's efforts were evaluated at other properties, were the results satisfactory?	✓			
VII. ADDITIONAL CONSIDERATIONS				
1. Are there any additional comments or considerations?	✓			Grid number E-14-17 should be marked for application of supplemental standards.
VIII. CERTIFICATION				
1. Is this property recommended for certification as meeting the EPA standards for residual radioactive material?	✓			

* If no or N/A, then an explanation is required.