Project 86-060-29
April 1992

Canonie Environmental

As-Built Report

South Cell Interim Stabilization

Church Rock Site
Gallup, New Mexico

Prepared For:

UNC Mining and Milling
A Division of United Nuclear Corporation
Gallup, New Mexico

As-Built Report

South Cell Interim Stabilization

Canonie Environmental

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

AS-BUILT CONSTRUCTION REPORT
INTERIM STABILIZATION
SOUTH CELL TAILINGS DISPOSAL AREA
UNITED NUCLEAR CORPORATION
CHURCH ROCK FACILITY

1.0 INTRODUCTION

This report describes construction of the fourth and final phase of interim stabilization and reclamation measures for the uranium tailings disposal area at United Nuclear Corporation's (United Nuclear) Church Rock facility. The site is located northeast of Gallup, New Mexico along State Highway 566, as shown on Sheet 1. United Nuclear is continuing interim stabilization measures as scheduled at its Church Rock, New Mexico uranium mill and tailings disposal facility in accordance with the Reclamation Plan, License Number SUA-1475, as amended, submitted to the Nuclear Regulatory Commission (NRC) (Canonie, 1987, 1988a, 1991).

The fourth phase of interim stabilization and reclamation consisted of regrading and placing interim soil cover over the south cell of the tailings disposal area (south cell). Interim stabilization for the approximate 100-acre tailings disposal area has been conducted over a three-year period with work progressing from north to south. South cell interim stabilization was completed during this phase, with work in the north and central cells completed in 1989 and 1990, respectively. An As-Built Report for interim stabilization of the north cell was prepared by Canonie Environmental Services Corp. (Canonie) in January 1990 (Canonie, 1990), and a similar As-Built Report was prepared for the central cell by Western Technologies, Inc. (WT) in January 1991 (WT, 1991). The first phase of interim stabilization, completed in early 1989, consisted of constructing two synthetically-lined evaporation ponds to hold and evaporate ground water extracted from beneath the site. Canonie prepared an As-Built Report for pond construction in March 1989 (Canonie, 1989).

Activities for the fourth phase of interim stabilization included:

1. Regrading approximately 23 acres of the south cell of the tailings disposal area,

2. Placing additional fill to bring the south cell surface up to design grade, and

3. Placing an interim soil cover.

Sheet 2 shows the location of these fourth-phase interim stabilization activities.

Construction services for the fourth-phase were provided to United Nuclear by Nielsons General Contractors. WT provided geotechnical sampling and testing services. Appendix A provides descriptions of the daily construction activities in the Daily Review of Earthwork Construction.

South cell interim stabilization was part of scheduled 1991 reclamation work as identified in the document entitled "Tailings Reclamation Plan as Approved by NRC March 1, 1991, License No. SUA-1475" (Reclamation Plan; Canonie, 1991). Interim stabilization measures, as documented by WT, were constructed in accordance with the technical specifications and construction drawings presented in the Reclamation Plan. As-built construction drawings are presented on Sheets 1 through 4 and are included in the Figures section following the text of this report.

Interim stabilization measures were implemented to minimize emissions to the air through windblown tailings and radon gas, as well as precipitation infiltrating the tailings. Windblown tailings from the south cell were minimized or eliminated by covering the tailings with a compacted soil cover. Before placing the soil cover, the

tailings were recontoured to provide positive drainage to the center of the cell, while maintaining a gradual slope to avoid inducing soil cover erosion.

The south cell, unlike the north and central cells, was left in an impounded configuration to provide secondary containment for the evaporation ponds during the interim reclamation period. During final reclamation, the south cell will be armored with a rock-soil matrix, and the southern embankment will be opened up to provide free drainage into Pipeline Arroyo.

Recontouring of the south cell was accomplished by cutting and filling the materials located in and around the cell, including coarse tailings, and by importing clay soils from the Northeast Church Rock (NECR) mine site. Recontouring the tailings provided placement of low radium content soils over tailings material having a higher radium content. This soil placement reduces the radon flux from the areas having the highest radium content, and thus, the highest radon flux rates.

Placing the interim soil cover further reduces radon flux rates from the tailings impoundment and provides a low permeability cap to reduce precipitation infiltration. An additional one-half foot of soil cover will be required during final reclamation to limit radon emissions to the National Emissions Standards for Hazardous Air Pollutants (NESHAPs) requirement of 20 picoCuries per square meter per second (Canonie, 1991).

The following sections of this document describe the interim stabilization construction activities, provide quality control procedures and documentation, describe as-built details, and present post-construction monitoring procedures.

2.0 EARTHWORK CONSTRUCTION

2.1 Haul Road Construction

As part of interim stabilization activities, a 50-foot-wide haul road was constructed along the tailings retention embankment to the west of the south cell (west embankment) at the location shown on Sheet 3. The haul road was constructed to provide access to the tailings disposal area during interim stabilization and final reclamation construction activities.

The west embankment was excavated to the elevation of the regraded south cell and widened to its final configuration. The haul road was constructed in accordance with the specifications contained in the Reclamation Plan, which requires that fill be placed in lifts no greater than one foot thick and compacted to a minimum of 95 percent of the Standard Proctor maximum attainable dry density as determined by American Society for Testing and Materials (ASTM) test method D-698. WT provided in-place and laboratory soil density testing services for the haul road construction. In-place moisture-density tests were conducted using the sand cone (ASTM D-1556) method. A total of 27 in-place moisture-density tests were conducted to verify that compaction criteria were being met. Appendix B presents the haul road density test results. Areas that did not meet the required minimum density criteria were reworked until testing confirmed that the required minimum density standards were met.

2.2 Recontouring the South Cell

Approximately 23 acres of the south cell of the tailings disposal area were recontoured as part of the fourth phase of interim stabilization measures. Recontouring was conducted to control ponding and infiltration of precipitation while encouraging positive drainage without excessive erosion. The recontouring also

placed low radium content soils (coarse tailings and alluvial soils) over higher radium content soils (slimes), which reduces radon flux from the tailings disposal area.

The following sections describe the methods and procedures used to recontour the south cell.

2.2.1 Regrading Coarse Tailings

Coarse tailings were excavated from areas of the south cell where the original ground elevation was above the regraded design contours. These coarse tailings were placed as fill in the lower portions of the south cell (i.e., over slimes) to aid in attenuating radon emissions from the slimes and to raise the elevation of the south cell to the design grade. The original design called for placing approximately 7 feet of coarse tailings as fill. Since an insufficient quantity of coarse tailings was available in the work area, other materials, including affected soils and clean soil, were used as fill. These imported fill materials have much lower radium contents and lower diffusion coefficients than coarse tailings and will provide a soil cover with greater radon attenuating properties than materials used in the Reclamation Plan design.

2.2.2 Construction Methods and Equipment

South cell recontouring was completed with conventional earthmoving equipment. Table 1 lists the types of construction equipment used for earthmoving operations, which included scrapers, bulldozers, graders, a sheepsfoot compactor, and a smooth drum vibratory roller. The bulldozers were equipped with rippers for rock excavation.

2.2.3 Compaction Criteria and Testing

The Reclamation Plan specifications require the top 12 inches of the recontoured surface be compacted to a minimum 90 percent of the maximum dry density attainable by the Standard Proctor method of compaction as determined by ASTM D-698. This test method identifies the maximum attainable dry density of a soil under a specified level of compactive effort, as well as the optimal soil moisture content at which that density is obtained. This criterion was specified for the recontoured surface to increase the radon attenuating characteristics (decreased porosity) of the fill material and to provide a firm base for subsequent placement and compaction of the interim soil cover.

WT conducted specified geotechnical testing and sampling related to field quality control in accordance with design specifications. Appendix C presents WT's test results. Field in-place density tests on representative surface samples of fill material indicated an average dry density of 111.0 pounds per cubic foot (pcf) and an average moisture content of 8.7 percent. This average dry density and in-situ moisture content are significantly higher than the values used in the Reclamation Plan design (97.3 pcf and 6.0 percent, respectively). These values correspond to an in-situ porosity of 0.33 and a saturation of 46.7 percent, as compared to the design values of 0.47 and 19.9 percent for porosity and saturation, respectively. The lower in-situ porosity and higher in-situ saturation of the regraded tailings surface compared to design values will provide improved radon attenuating capabilities as compared to the layer modeled in the Reclamation Plan.

In-place field moisture-density testing was conducted using the sand cone method (ASTM D-1556). A total of 47 locations spaced uniformly over the regraded surface were tested, of which 39 met the required density specifications of 90 percent of maximum Standard Proctor on the initial test. The remaining eight locations were

reworked and retested with all tests meeting density specifications. Although a specified frequency for density tests was not established in the Reclamation Plan, the Response to Comments letter dated June 29, 1988 (Canonie, 1988a) specified one in-place density test per 5,000 cubic yards (cy) of soil placed. Therefore, the upper one foot of the recontoured surface, which is equivalent to approximately 37,000 cy of material, would require that at least eight in-place density tests be taken. The 47 tests actually conducted are equivalent to one test every 800 cy of material.

Thirteen additional sand cone tests, designated as "Intermediate Fill" tests, were conducted on fill placed lower than the top one foot of the regraded surface. These tests were not required by earthwork specifications, but were conducted to provide additional information for characterizing the fill material. These tests averaged 106.3 pcf dry density and 11.2 percent moisture, both significantly higher than the modeled values of 97.3 pcf and 6.0 percent moisture. Appendix D provides results of the Intermediate Fill tests. The high density and moisture values of the intermediate fill and the regraded surface indicate that the fill material will provide a stable base for placing soil cover and that the field properties of this material meet or exceed those modeled in the Reclamation Plan.

2.3 Interim Soil Cover Placement

A 1.33-foot-thick interim soil cover was placed over the south cell after recontouring and compacting the regraded surface. The interim soil cover eliminates windblown tailings originating from the south cell, substantially reduces precipitation infiltration into the tailings that could impact ground water, and serves to reduce radon flux from the tailings.

2.3.1 Interim Soil Cover Borrow Areas

The haul road embankment located on the west side of the south cell and the Borrow Pit No. 2 stockpile served as the borrow sources for constructing the soil cover. These interim cover soils consisted mainly of sandy, low-plasticity clays and silty clays. These soils were placed and compacted in accordance with the specifications in the Reclamation Plan, as described in the following sections.

2.3.2 Construction Methods and Equipment

The south cell interim cover was completed with conventional earthmoving equipment. The soil was transported with scrapers and placed with dozers and graders. Water was added and incorporated into the soil with water trucks and a rome plow. A sheepsfoot compactor was used to knead the soil, and a pneumatic roller was used to further compact and seal the soil cover surface. Table 1 presents a complete listing of the types of construction equipment used for the earthmoving operation.

The technical specifications in Appendix B of the Reclamation Plan (Canonie, 1991) specified that the interim soil cover be placed in lifts up to 12-inch maximum thickness, measured loose. This method was modified in the field to placing one lift that measured a minimum of 12 inches after water processing and compaction. This field modification was necessary to minimize contamination of the soil cover by the underlying tailings material, which could occur when working a thinner lift of soil with a rome plow and sheepsfoot compactor. Adequate density and moisture content were achieved by increasing the compaction effort and the amount of water added.

2.3.3 Compaction Criteria and Testing

The Reclamation Plan specifies that the radon barrier over the recontoured tailings be compacted to a minimum of 95 percent of the maximum Standard Proctor dry density at a moisture content between optimum and optimum plus 2 percent, as determined by ASTM D-698. This density criteria was specified to provide increased soil density, decreased porosity, and higher long-term moisture content, allowing the soil cover to be an effective radon barrier.

As with field quality control for the recontoured surface, WT was contracted to test and inspect the interim cover placement and compaction. Appendix E presented WT's test results. Field in-place density tests on representative cover soil samples indicate an average dry density for the cover soils of approximately 111.5 pcf, with an average moisture content of approximately 15.6 percent. The average dry density and in-situ moisture content are higher than the values used in the Reclamation Plan soil cover design. The design values were 108.0 pcf and 12.9 percent for the dry density and moisture content, respectively. These field values correspond to an in-situ porosity of approximately 0.33 and a saturation of 84 percent, as compared to the design values of 0.33 and 68 percent for porosity and saturation, respectively. The higher density and degree of saturation of the interim soil cover will provide a radon barrier with improved radon attenuating properties, as compared to the cover modeled in the Reclamation Plan.

In-place field moisture-density testing of the interim cover was conducted using the sand cone method (ASTM D-1556). A total of 82 locations spread uniformly over the regraded surface were tested, of which 58 met the required density and moisture specifications on the initial test. The remaining 24 locations were reworked until additional testing confirmed that required minimum moisture-density standards were met. The Reclamation Plan specifies that one field test for moisture and density be

conducted for each 500 cy of cover soil, and a minimum of two tests for each day of cover soil in excess of 150 cy. The cover soil was placed at an average daily rate of 2,600 cy from August 23, 1991 to September 19, 1991. The interim soil cover consists of approximately 37,000 cy (i.e., 1 foot of soil on 23 acres) indicating that a minimum of 74 field tests (i.e., 37,000 cy ÷ 500 cy/test) were required. The 82 tests actually conducted represent more than the minimum required.

A total of 41 soil gradation and classification tests of cover soils were conducted during placement of the south cell cover. All tests indicated that the soil was within specified gradation limits and met soil classification requirements. The reclamation plan specified that gradation and classification testing would be conducted a minimum of one test each day of cover soil placement in excess of 150 cy and one test per 1,000 cy. The 41 tests conducted were based on the Reclamation Plan specifications of one foot of interim soil cover over the south cell, which is equivalent to approximately 37,000 cy of soil material (i.e., minimum of 37 gradation tests required).

The Reclamation Plan also specifies that Full Proctor Tests be conducted for every 15 field density tests and One-Point Proctor tests be performed every 5 field density tests. A total of 13 Full Proctor tests and 2 One-Point Proctor tests were conducted during south cell soil cover material placement resulting in a rate of 1 Full Proctor test every 6.3 field density tests and 1 One-Point Proctor test every 41 field density tests. The increased frequency of Full Proctor testing adequately compensates for the low rate of One-Point Proctor testing, since Full Proctor tests are of considerable more value in monitoring soil compaction characteristics compared to One-Point Proctor testing.

Three in-situ samples of the soil cover were obtained, remolded, and tested by WT to determine the soil cover's permeability. The samples were tested in accordance with

the Response to Comments submitted to the NRC (Canonie, 1988b). The results of the testing indicate that the soil cover has a permeability ranging from 1.1×10^{-8} to 5.3×10^{-8} centimeters per second. These results are indicative of a material with a low permeability, and therefore, a low precipitation infiltration capacity.

The south cell, unlike the north and central cells, was not seeded after completion of the interim soil cover. The south cell is in an impounded configuration that precludes off-site transport of eroded material, making revegetation within the cell unnecessary during the interim reclamation period. In addition, native vegetation has become established in areas of the north and central cells where re-vegetation efforts were not complete within one growing season. Native vegetation is expected to grow in the south cell also. Unfavorable weather conditions did not allow for the seeding of the cell's outside embankments after completion of interim reclamation. However, mulch was crimped into the soil to minimize the potential for erosion. This mulch and volunteer vegetation by native species is anticipated to be adequate to protect the embankment against the potential for exposing tailings material until the rock armor is placed during final reclamation.

3.0 SETTLEMENT MONITORING

The Reclamation Plan (Canonie, 1991) described a detailed settlement monitoring plan for interim reclamation activities. The monitoring plan calls for installation of nine settlement monuments throughout the reclaimed tailings disposal area, placed in the areas of greatest fill and softest foundation soil conditions. This plan was designed to verify that settlement of the tailings would not adversely affect the radon barrier.

Three of the settlement monuments, Settlement Monuments No. 1, No. 2 and No. 4A (SM-1, SM-2 and SM-4A) are located in the south cell. These monuments were installed in the south cell before interim fill placement as specified in the settlement plan. Sheet 3 shows settlement monument locations. Sheet 4 shows a construction detail of the settlement monuments.

Settlement monument elevations were surveyed weekly during construction to monitor the rate of settlement and total settlement of the tailings. Appendix F presents plots of magnitude of settlement versus logarithm of time. These plots indicate a maximum settlement of approximately .18 feet at SM-1, .90 feet at SM-2, and 1.1 feet at SM-4A. These plots indicate that 90 percent of primary consolidation has occurred. Therefore, continued monitoring is not required per the Response to Comments (Canonie, 1988b) previously submitted to the NRC.

4.0 CLOSING REMARKS

The south cell of the tailings disposal facility has been regraded and stabilized with an interim soil cover in accordance with the specifications and construction drawings contained in the Reclamation Plan. Settlement monitoring indicates that settlement is decreasing and is not expected to impact the interim soil cover/radon barrier.

Canonie appreciates this opportunity to provide engineering services in summarizing information regarding work conducted during 1991 in the South Cell Tailing Disposal Area at the Church Rock Facility. If you have any questions, please contact me at (303) 790-1747.

Respectfully submitted,

David W. Kurz

David W. Kurz, P.E.
Project Manager

DWK/ajw

REFERENCES

REFERENCES

REFERENCES

Canonie Environmental Services Corp., 1987, "Reclamation Plan, License No. SUA-1475, Volumes I and II," prepared for UNC Mining and Milling, a Division of United Nuclear Corporation, Gallup, New Mexico.

Canonie Environmental Services Corp., 1988a, "Responses to the Nuclear Regulatory Commission Geotechnical Comments," prepared for United Nuclear Corporation, Church Rock Reclamation Plan, Gallup, New Mexico.

Canonie Environmental Services Corp., 1988b, "Responses to the Nuclear Regulatory Commission Geotechnical Comments," prepared for United Nuclear Corporation, Church Rock Reclamation Plan, Gallup, New Mexico.

Canonie Environmental Services Corp., 1989, "As-Built Construction Report, Evaporation Pond System," prepared for United Nuclear Corporation, Church Rock Facility, Gallup, New Mexico.

Canonie Environmental Services Corp., 1990, "As-Built Construction Report, North Cell Interim Stabilization," prepared for United Nuclear Corporation, Church Rock Facility, Gallup, New Mexico.

Canonie Environmental Services Corp., 1991, "Tailings Reclamation Plan as Approved by NRC March 1, 1991, License No. SUA-1475," prepared for United Nuclear Corporation, Church Rock Facility, Gallup, New Mexico.

Western Technologies, Inc., 1991, "As-Built Construction Report, Interim Stabilization, Central Cell Tailings Disposal Area," prepared for United Nuclear Corporation, Church Rock Facility, Gallup, New Mexico.

TABLES

TABLES

TABLE 1

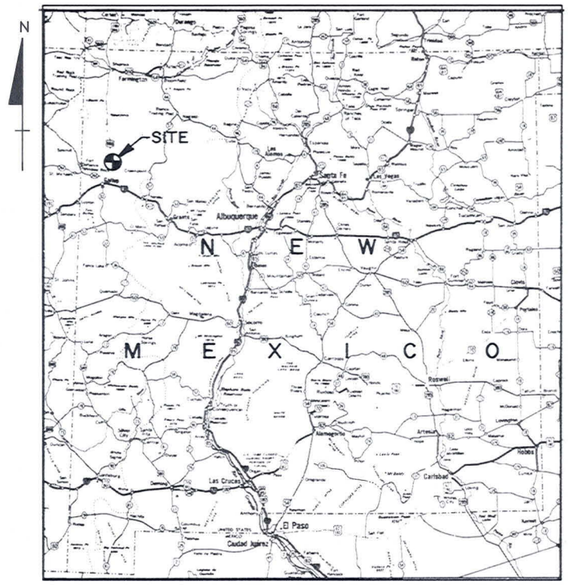
EARTH-MOVING EQUIPMENT

Equipment Type	Amount
Caterpillar 633 Scrapers	4
Caterpillar D-8H Dozer	1
Caterpillar D-6 Dozers	2
Caterpillar 14 G Grader	1
Caterpillar 12 G Grader	1
Caterpillar 631 Water Wagon	1
Tampo Pneumatic Roller	1
Caterpillar 825 Sheepsfoot Compactor	1
Water Truck	1
Rome Plow	1

FIGURES

FIGURES

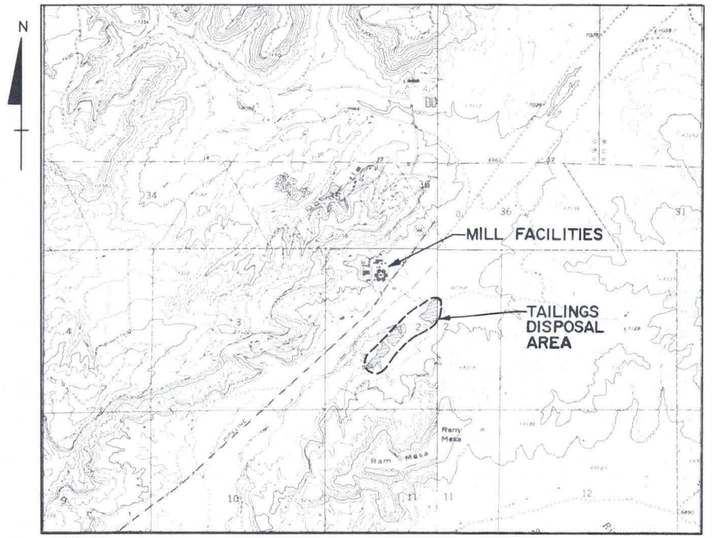
DRAWING NUMBER 86-060-E721



LOCATION MAP

SCALE
50 0 50 100 MILES

INDEX OF DRAWINGS		
SHEET NO.	DRAWING NO.	TITLE
1 of 4	86-060-E721	TITLE SHEET
2 of 4	86-060-E722	INTERIM STABILIZATION PLAN – SOUTH END
3 of 4	86-060-E723	SOUTH CELL INTERIM STABILIZATION AS-BUILT CONDITIONS
4 of 4	86-060-E724	INTERIM STABILIZATION DETAIL SHEET



REFERENCE:
– U.S.G.S. 7.5' TOPOGRAPHIC MAPS OF HARD GROUND FLATS AND OAK SPRING, NEW MEXICO. DATED: 1963. PHOTOREVISED IN 1979.

VICINITY MAP

SCALE
2000 0 2000 4000 FEET

AS-BUILT CONSTRUCTION DRAWINGS SOUTH CELL INTERIM STABILIZATION

MC KINLEY COUNTY, NEW MEXICO

PREPARED FOR

UNC MINING AND MILLING GALLUP, NEW MEXICO

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	4-21-92	AS-BUILT CONSTRUCTION DRAWING FOR SOUTH CELL INTERIM STABILIZATION REPORT	P.M.W.	FJF	DWK

TITLE SHEET
PREPARED FOR
UNC MINING AND MILLING
GALLUP, NEW MEXICO

Canonie Environmental

DATE: 4-8-92	SHEET 1 of 4	DRAWING NUMBER 86-060-E721	REV. 1
SCALE: AS SHOWN			

DRAWING NUMBER 86-060-E722

E641

86-060-E641

N

MILL FACILITIES AREA

BUILDINGS TO REMAIN

APPROXIMATE LIMITS OF PIPELINE ARROYO

CATCH BASIN No. 2

CATCH BASIN No. 1

HAUL ROAD (TYP.) (SEE NOTE 6)

EL PASO PIPELINE RIGHT-OF-WAY

STATE HIGHWAY 566

EVAPORATION PONDS

PSM-1 PSM-2 PSM-3 PSM-4 PSM-5 PSM-6 PSM-7 PSM-8 PSM-9 PSM-10

SM-1 SM-2 SM-3 SM-4 SM-4A SM-5 SM-6 SM-7 SM-8

REGRADED COVERED TAILINGS (SEE DETAIL FIGURE 4-5)

BORROW PIT No.2 (SEE NOTE 3)

W.L. 6958.7

SOIL STOCKPILE

NORTH DIVERSION DITCH

SOUTH DIVERSION DITCH

DIRECTION OF FLOW

DISCHARGE TO NATURAL DRAINAGE

DISCHARGE TO NATURAL DRAINAGE

REFERENCE

TOPOGRAPHIC MAP PROVIDED BY UNITED NUCLEAR CORPORATION. DRAWING NO. 1738-2 DATED: MAY 1, 1985. SCALE: 1" = 200'

NOTES:

1. WIND-BLOWN TAILINGS HAVE BEEN REMOVED FROM THE AREAS SHOWN BY EXCAVATING A MINIMUM OF 6 INCHES OF SOIL. THE EXCAVATED MATERIAL WAS PLACED OVER THE TAILINGS AS FILL OR IN BORROW PIT No. 2.
2. THE INTERIM SOIL COVER IS A MINIMUM 12 INCHES IN THICKNESS AND WAS PLACED OVER THE REGRADED LIMITS OF THE TAILINGS IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFICATIONS (SEE SHEET 4).
3. BORROW PIT No. 2 IS BEING USED FOR DISPOSAL OF MILL FACILITIES DEMOLITION DEBRIS, CATCH BASIN MATERIALS AND ORE PAD MATERIALS.
4. MILL WILL BE DECOMMISSIONED BY 1992. MARKED BUILDINGS TO REMAIN.
5. WELLS THAT LIE WITHIN THE AREA TO BE DISTURBED WERE PLUGGED IN ACCORDANCE WITH NEW MEXICO STATE ENGINEERS OFFICE (NMSEO) REGULATIONS OR USED FOR FUTURE MONITORING.
6. THE HAUL ROAD WAS CONSTRUCTED TO A WIDTH OF 50 TO 75 FEET. IN AREAS WHERE THE HAUL ROAD PASSED OVER COARSE TAILINGS, THE TAILINGS WERE COMPACTED, COVERED WITH A LAYER OF GEOTEXTILE, AND BACKFILLED WITH A MINIMUM OF 2 FEET OF COMPACTED SOIL IN ACCORDANCE WITH THE DETAIL ON SHEET 4 AND WITH THE SPECIFICATIONS.
7. THE HAUL ROAD, EXISTING ACCESS ROADS AND THOSE ADDED FOR CONVENIENCE DURING INTERIM STABILIZATION WILL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION IN ACCORDANCE WITH THE SPECIFICATIONS.
8. THROUGHOUT REGRADING OPERATIONS, DUST IS MINIMIZED BY THE APPLICATION OF WATER OR APPROVED DUST PREVENTATIVE.
9. SECTIONS AND DETAILS ARE SHOWN ON SHEET 4.
10. INTERIM STABILIZATION CONSTRUCTION IN NORTH CELL AND CENTRAL CELL AREAS WAS ACCOMPLISHED IN 1989 AND 1990, RESPECTIVELY.
11. AFTER DRAWING No. 86-060-E536 (FIGURE 4-1) IN THE 1991 RECLAMATION PLAN (CANONIE, 1991).

LEGEND:

- SM-1 — SETTLEMENT MONUMENT (SEE SHEET 4)
- 6980 — ELEVATION OF GRADED TAILINGS, FEET
- LIMITS OF WINDBLOWN TAILINGS REMOVED AS IDENTIFIED IN WINDBLOWN TAILINGS CLEANUP VERIFICATION REPORTS FOR SECTIONS 1, 2, AND 36
- APPROXIMATE LIMITS OF EXPOSED FINE-GRAINED TAILINGS
- APPROXIMATE LIMITS OF GRADING
- APPROXIMATE LIMITS OF WINDBLOWN TAILINGS AND AREA REQUIRING STRIPPING (SEE NOTE 1)
- APPROXIMATE LIMITS OF TAILINGS SAND BLANKET MATERIAL

SCALE

200 0 200 400 FEET

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	4-21-92	AS-BUILT CONSTRUCTION DRAWING FOR SOUTH CELL INTERIM STABILIZATION REPORT	P.M.H.	F.J.F	DWK

INTERIM STABILIZATION PLAN SOUTH END

PREPARED FOR

UNC MINING AND MILLING GALLUP, NEW MEXICO

Canonie Environmental

DATE: 4-9-92	SHEET 2 of 4	DRAWING NUMBER 86-060-E722
SCALE: AS SHOWN		

86-060-E641

1

DRAWING NUMBER 86-060-E723

86-060-E716

E716

MILL FACILITIES AREA

NORTH CELL

CENTRAL CELL

SOUTH CELL

EVAPORATION PONDS

BORROW PIT No. 2

STATE HIGHWAY 566

HAUL ROAD

HAUL ROAD

SM-1 N 72,160.0 E 57,298.6

SM-2 N 72,478.8 E 57,653.5

SM-4A N 72,698.4 E 57,900.7

SM-5 N 73,636.4 E 58,638.9

SM-6 N 73941.9 E 59,391.6

SM-7 N 80,259.3 E 73,880.2

SM-8 N 74,874.6 E 59,706.1

73,000N

74,000N

72,000N

57,000E

58,000E

59,000E

60,000E

61,000E

62,000E

H

H'

LEGEND:

SM-4A △ N 72,698.4 E 57,900.7 — SETTLEMENT MONUMENT AND LOCATION COORDINATES, SEE SHEET 4 FOR CONSTRUCTION DETAIL

NOTES:

1. THE SOUTH CELL WAS RECONTOURED AND CAPPED WITH A ONE-FOOT THICK INTERIM SOIL COVER. CONTOURS WITHIN THE SOUTH CELL AREA REPRESENT TOP OF INTERIM COVER.
2. SEE SHEET 4 FOR CROSS SECTIONS AND DETAILS.

SCALE

200 0 200 400 FEET

SOUTH CELL INTERIM
STABILIZATION AS-BUILT CONDITIONS
PREPARED FOR

UNC MINING AND MILLING
GALLUP, NEW MEXICO

CanonieEnvironmental

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
△	4-21-92	AS-BUILT CONSTRUCTION DRAWING FOR SOUTH CELL INTERIM STABILIZATION REPORT	P.M.W.	FJF	DWK

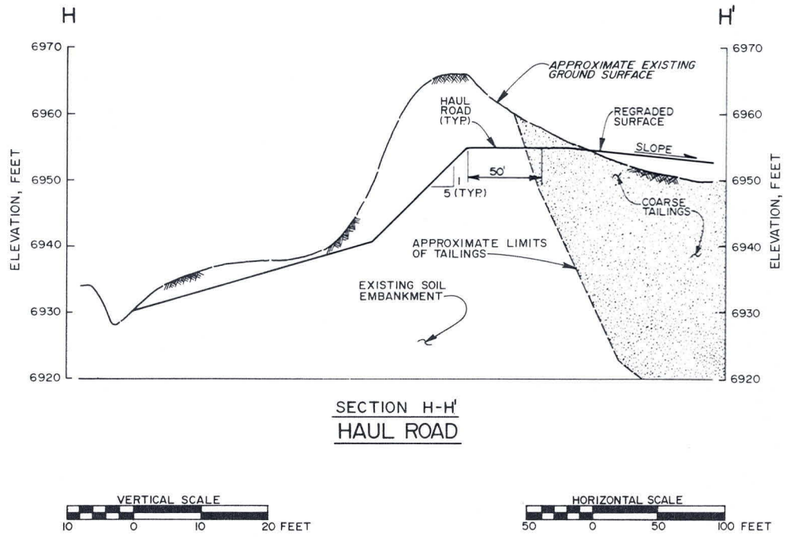
DATE: 4-8-92
SCALE: AS SHOWN

SHEET 3 of 4

DRAWING NUMBER 86-060-E723 △

86-060-E716

DRAWING NUMBER 86-060-E724

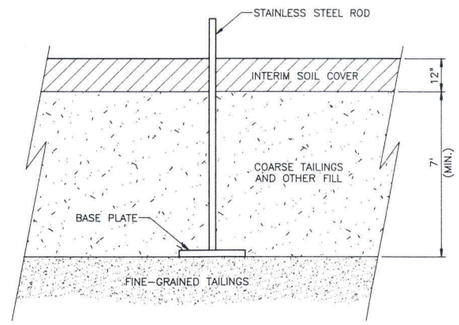


SECTION H-H'
HAUL ROAD

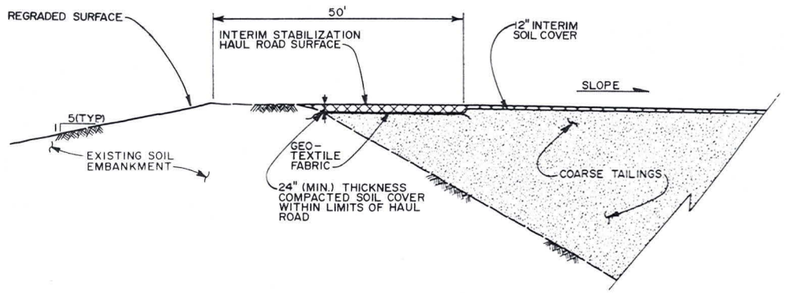
VERTICAL SCALE
10 0 10 20 FEET

HORIZONTAL SCALE
50 0 50 100 FEET

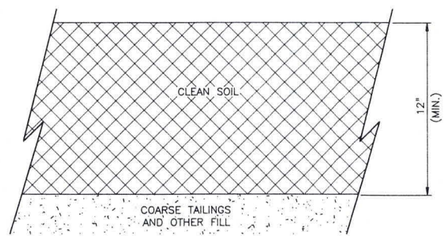
NOTE:
1. PLAN LOCATION OF SECTION H–H' SHOWN ON SHEET 2.



SETTLEMENT MONUMENT (TYP.)
NOT TO SCALE



HAUL ROAD (TYP)
NOT TO SCALE



INTERIM STABILIZATION SOIL COVER
NOT TO SCALE

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	4-21-92	AS-BUILT CONSTRUCTION DRAWING FOR SOUTH CELL INTERIM STABILIZATION REPORT	P.M.W.	FJF	DWK

INTERIM STABILIZATION
DETAIL SHEET
PREPARED FOR

UNC MINING AND MILLING
GALLUP, NEW MEXICO

Canonie Environmental

DATE: 4-8-92	SHEET 4 of 4	DRAWING NUMBER 86-060-E724	1
SCALE: AS SHOWN			