

HOMESTAKE MINING COMPANY

P.O. BOX 98
GRANTS, NEW MEXICO 87020
(505) 287-4456

October 22, 1998

UPS Next Day Air: 1Z 875 261 01 1000 215 9

U. S. Nuclear Regulatory Commission
Division of Waste Management, MST7J9
Attn: Mr. Ken Hooks, Project Manager
High Level Waste and Uranium
Recovery Projects Branch
11555 Rockville Pike
Rockville, MD 20852

Re: Docket No. 40-8903
License No. SUA-1471
Mill Cover Inspection Dated 10/15/98
Response to Comments

Dear Mr. Hooks:

I have enclosed the additional information to support the engineering data that was submitted in October 8, 1998 Response as you requested, during the NRC inspection of the mill rock cover at the Homestake Mining Company (HMC) Uranium Mill Site in Grants, New Mexico, on October 15, 1998.

This package contains the following:

- An additional copy of the NRC approved Homestake Mining Company, Reclamation Plan, Volumes 1 and 2, Revision 10/93. The engineering specifications and engineering calculations for the mill site cover is located in Volume 2, Appendix B2-1, and Appendix C9 and C10;
- Two copies of the Knight Piésold generated "Grain Size Distribution Test Reports" for the Mill Cover Rock/Soil Matrix for Test Locations MC- Mix-3 through MC-Mix-8;
- Two copies of the Knight Piésold "Mill Cover Test Location Map", Dwg. No. 1306A.180, Rev. A. The map shows the sample locations for the enclosed grain size distribution test reports;

9810280085 981022
PDR ADCK 04008903
B PDR

200000 Drawing: In Files

ML05

- Two copies of the Community Sciences Corp final Mill Site Rock - Final Contours Drawing, dated 12/18/95. This drawing represents the final site topography for the mill site;
- One copy of photographs taken of the rock placed on the mill site area, including a photo of the area sampled by Ted Johnson during the inspection visit to the site.

It is HMC's hope the data supplied within will complete the remaining requirements to close and finalize the Mill Completion Report.

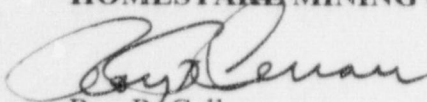
HMC requests that this submittal response to the NRC comments on the Mill Cover be considered as addenda to the Mill Decommissioning Completion Report.

We hope that this is responsive to your questions. Please advise me if you need additional information. If you have any questions, please call me at Grants at (505) 287-4456.

Thank you.

Sincerely,

HOMESTAKE MINING COMPANY OF CALIFORNIA



Roy R. Cellan
Corporate Manager, Reclamation

Attachments

cc: Mr. Ken Hooks, NRC Project Manager, Rockville, NJ w/encl
Mr. Harold F. Barnes, HMC SFO wo/encl

Attachment 1

Knight Piésold Grain Size Distribution Test Reports

GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 9

Date: 12/09/95
 Project No.: 1306A
 Project: Grants Reclamation Project

Sample Data

Location of Sample: MC-mix-3
 Sample Description: GRAVEL w/ silty sand
 USCS Class: GP Liquid limit:
 AASHTO Class: Plasticity index:

Notes

Remarks: Mill Cover Rock/Soil Matrix
 N1543217 / E493723 Elev. AFG
 Fig. No.: 1

Mechanical Analysis Data

Initial
 Dry sample and tare= 49.40
 Tare = 0.00
 Dry sample weight = 49.40
 Sample split on number 4 sieve
 Split sample data:
 Sample and tare = 257.2 Tare = 0 Sample weight = 257.2
 Cumulative weight retained tare= 0
 re for cumulative weight retained= 0

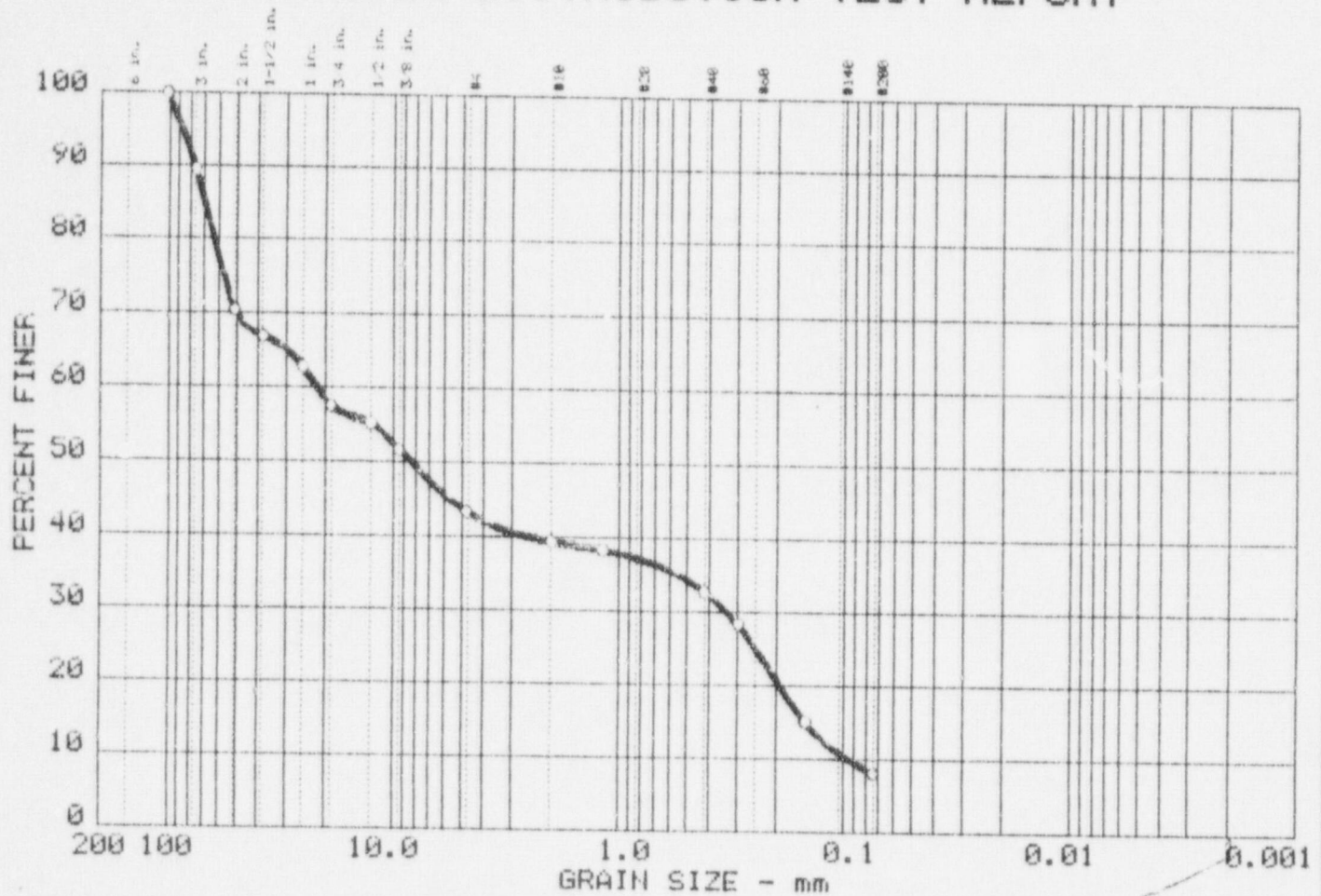
Sieve	Cumul. Wt. retained	Percent finer
5 inches	0.00	100.0
4 inches	4.10	91.7
3 inches	7.40	85.0
2 inches	15.10	69.4
1.5 inches	16.90	65.8
1 inches	18.80	61.9
0.75 inches	19.90	59.7
0.5 inches	21.00	57.5
0.375 inches	22.20	55.1
# 4	24.10	51.2
# 10	26.60	45.9
# 16	28.60	45.5
# 40	59.70	39.3
# 50	79.80	35.3
# 100	174.40	16.5
# 200	225.50	6.3

Fractional Components

% + 3 in. = 15.0 % GRAVEL = 39.1 % SAND = 39.6
 % FINES = 6.3

D85= 75.86 D60= 19.724 D50= 3.936
 D0= 0.2371 D15= 0.13964 D10= 0.10351
 Cc = 0.0275 Cu = 190.5461

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
10.4	50.2	31.2	8.2	

LL	PI	D85	D60	D50	D30	D15	D10	C _c	C _u
		69.18	21.88	8.32	0.331	0.1479	0.0933	0.05	234.4

MATERIAL DESCRIPTION	USCS	AASHTO
GRAVEL w/ silty sand	GP	

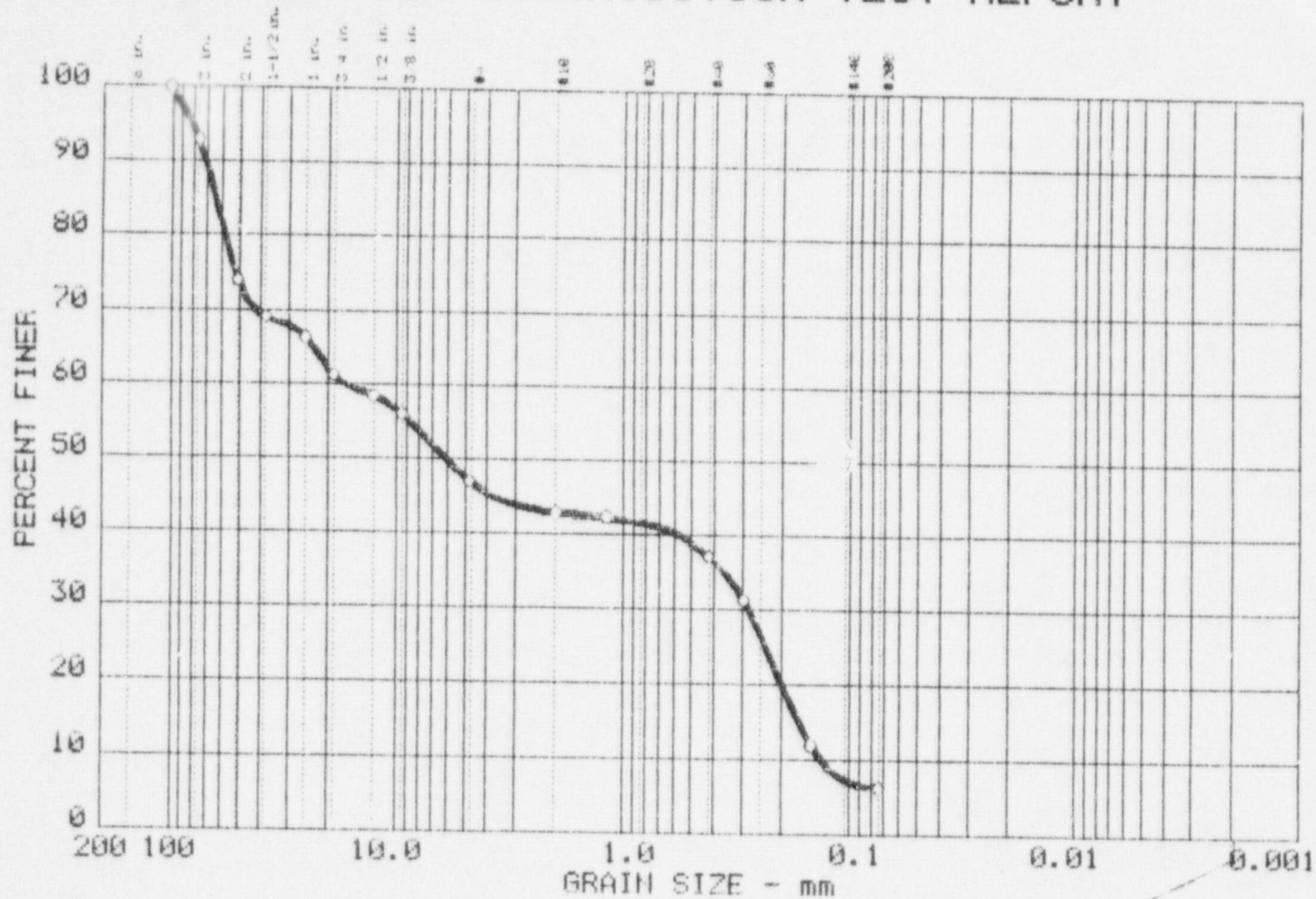
Project No.: 1306A
 Project: Grants Reclamation Project
 Location: MC-Mix-4
 Date: 12/09/95

Remarks:
 Mill Cover
 Rock/Soil Matrix
 N1542872 / E493008
 Elev. AFG

GRAIN SIZE DISTRIBUTION TEST REPORT
Knight Piesold and Co.

Figure No.1

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
7.0	50.1	36.6	6.3	

LL	PI	D85	D60	D50	D30	D15	D10	Cc	Cu
		64.19	16.88	5.99	0.280	0.1688	0.1326	0.04	127.4

MATERIAL DESCRIPTION	USCS	AASHTO
o GRAVEL w/ silty sand	GP	

Project No.: 1306A Project: Grants Reclamation Project o Location: MC-Mix-5 Date: 12/09/95 GRAIN SIZE DISTRIBUTION TEST REPORT Knight Piesold and Co.	Remarks: Mill Cover Rock/Soil Matrix N1542469 / E493242 Elev. AFG Figure No.1
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GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 11

Date: 12/09/95
 Project No.: 1306A
 Project: Grants Reclamation Project

Sample Data

Location of Sample: MC-Mix-5
 Sample Description: GRAVEL w/ silty sand
 USCS Class: GP Liquid limit:
 AASHTO Class: Plasticity index:

Notes

Remarks: Hill Cover Rock/Soil Matrix
 N1542469 / E493242 Elev. AFG
 Fig. No.: 1

Mechanical Analysis Data

Initial

Dry sample and tare= 36.60
 Tare = 0.00
 Dry sample weight = 36.60
 Sample split on number 4 sieve
 Split sample data:
 Sample and tare = 266.6 Tare = 0 Sample weight = 266.6
 Cumulative weight retained tare= 0
 re for cumulative weight retained= 0

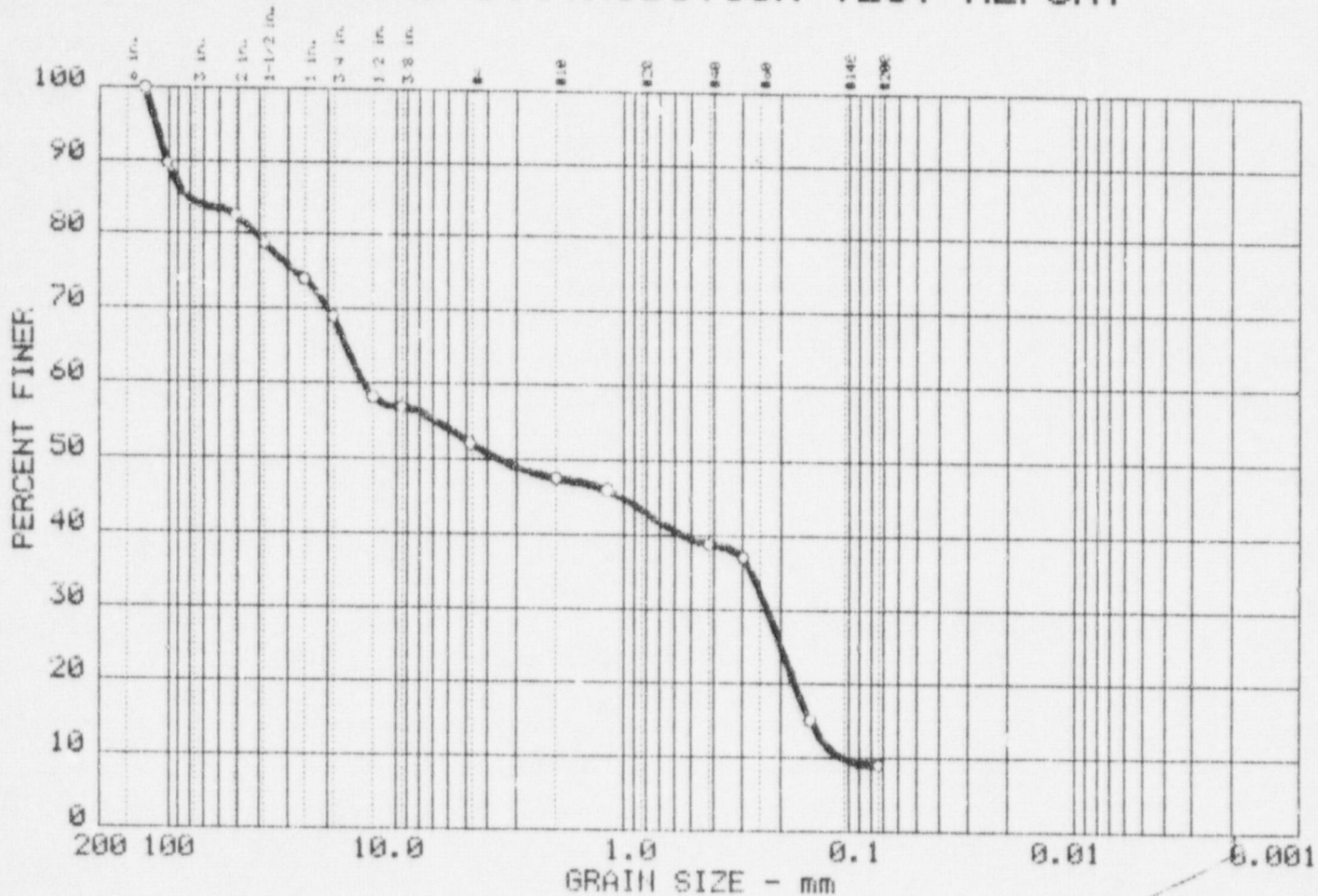
Sieve	Cumul. Wt. retained	Percent finer
4 inches	0.00	100.0
3 inches	2.56	93.0
2 inches	9.50	74.0
1.5 inches	11.30	69.1
1 inches	12.30	66.4
0.75 inches	14.20	61.2
0.5 inches	15.20	58.5
0.375 inches	16.10	56.0
# 4	19.40	47.0
# 10	23.30	42.9
# 16	26.70	42.3
# 40	55.50	37.2
# 50	88.70	31.4
# 100	198.90	11.9
# 200	231.10	6.3

Fractional Components

% + 3 in. = 7.0 % GRAVEL = 50.1 % SAND = 36.6
 % FINES = 6.3

D85= 64.19 D60= 16.885 D50= 5.991
 D30= 0.2802 D15= 0.16885 D10= 0.13259
 Cu = 0.0351 Cu = 127.3503

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
15.8	36.7	38.4	9.1	

LL	PI	D85	D60	D50	D30	D15	D10	Cc	Cu
		82.22	13.92	3.54	0.228	0.1474	0.1080	0.03	128.8

MATERIAL DESCRIPTION	USCS	AASHTO
GRAVEL w/ silty sand	GP	

<p>Project No.: 1306A Project: Grants Reclamation Project Location: MC-Mix-7</p> <p>Date: 12/09/95</p> <p style="text-align: center;">GRAIN SIZE DISTRIBUTION TEST REPORT Knight Piesold and Co.</p>	<p>Remarks: Mill Cover Rock/Soil Matrix N1542882 / E493723 Elev. AFG</p> <p>Figure No.1</p>
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GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 13

Date: 12/09/95
 Project No.: 1305A
 Project: Grants Reclamation Project

Sample Data

Location of Sample: MC-Mix-7
 Sample Description: GRAVEL w/ silty sand
 USCS Class: GP Liquid limit:
 AASHTO Class: Plasticity index:

Notes

Remarks: Mill Cover Rock/Soil Matrix
 N1542882 / E493723 Elev. AFG
 Fig. No.: 1

Mechanical Analysis Data

Initial
 Dry sample and tare= 38.00
 Tare = 0.00
 Dry sample weight = 38.00
 Sample split on number 4 sieve
 Split sample data:
 Sample and tare = 266.5 Tare = 0 Sample weight = 266.5
 Cumulative weight retained tare= 0
 re for cumulative weight retained= 0

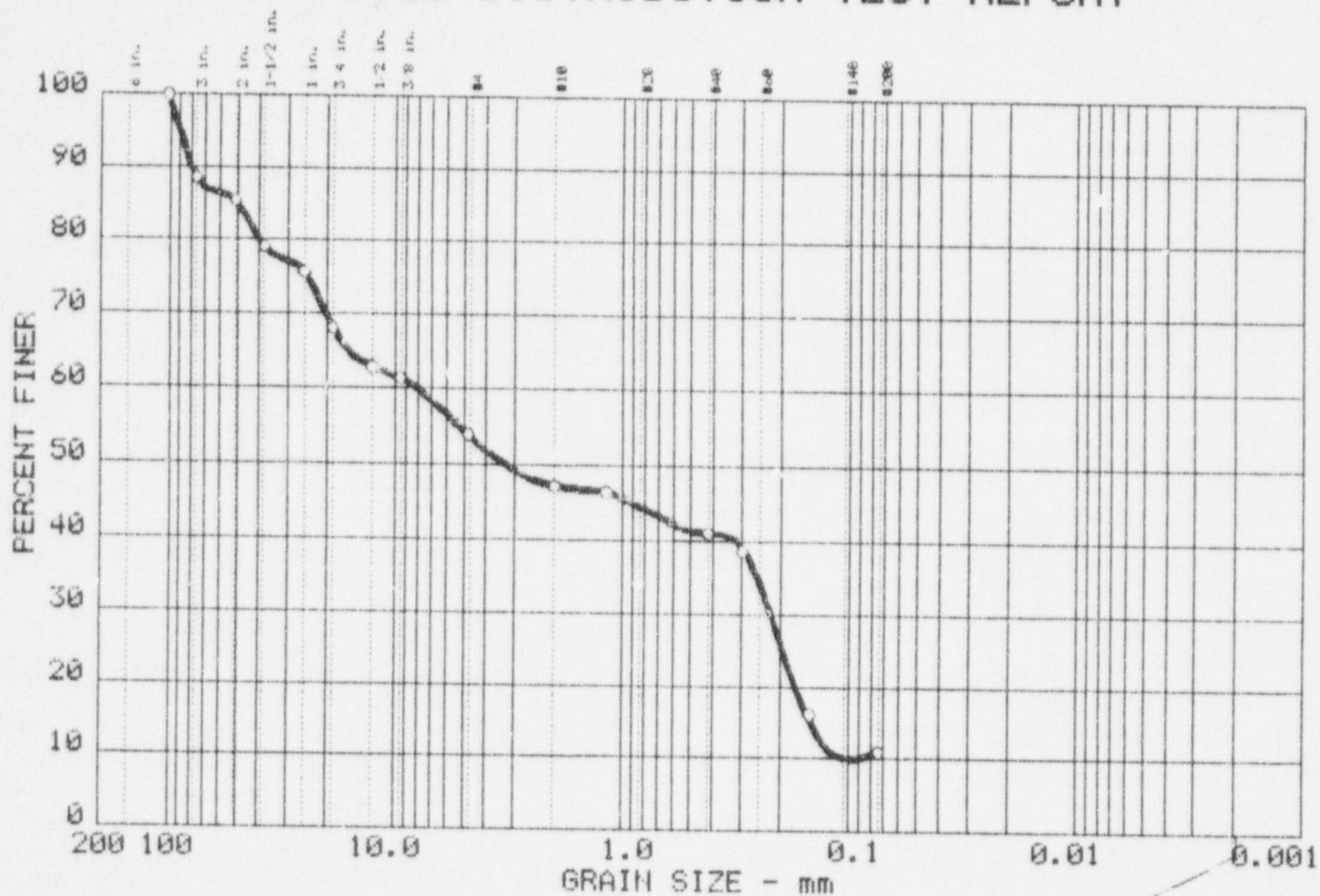
Sieve	Cumul. Wt. retained	Percent finer
5 inches	0.00	100.0
4 inches	3.90	89.7
2 inches	6.60	82.6
1.5 inches	8.10	78.7
1 inches	9.90	73.9
0.75 inches	11.80	68.9
0.5 inches	15.90	58.2
0.375 inches	16.40	56.8
# 4	18.20	52.1
# 10	23.30	47.5
# 16	31.00	46.0
# 40	67.70	38.9
# 50	76.90	37.1
# 100	189.30	15.1
# 200	219.90	9.1

Fractional Components

% + 3 in. = 15.8 % GRAVEL = 36.7 % SAND = 38.4
 % FINES = 9.1

D85= 82.22 D60= 13.916 D50= 3.536
 D30= 0.2283 D15= 0.14740 D10= 0.10802
 Cu = 0.0347 Cc = 128.8250

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
15.8	36.7	38.4	9.1	

LL	PI	D85	D60	D50	D30	D15	D10	Cc	Cu
							0.0000	0.03	126.6

MATERIAL DESCRIPTION	USCS	AASHTO
GRAVEL w/ silty sand	GP	

Project No.: 1306A
 Project: Grants Reclamation Project
 Location: MC-Mix-8
 Date: 12/09/95

Remarks:
 Mill Cover
 Rock/Soil Matrix
 H1542866 / E493344
 Elev. AFG

GRAIN SIZE DISTRIBUTION TEST REPORT
Knight Piesold and Co.

Figure No.1

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GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 14

Date: 12/09/95
 Project No.: 1306A
 Project: Grants Reclamation Project

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Sample Data

Location of Sample: MC-Mix-8
 Sample Description: GRAVEL w/ silty sand
 USCS Class: GP Liquid limit:
 AASHTO Class: Plasticity index:

Notes

Remarks: Mill Cover Rock/Soil Matrix
 N1542866 / E493344 Elev. AFG
 Fig. No.: 1

Mechanical Analysis Data

Initial
 Dry sample and tare = 41.70
 Tare = 0.00
 Dry sample weight = 41.70
 Sample split on number 4 sieve
 Split sample data:
 Sample and tare = 278.8 Tare = 0 Sample weight = 278.8
 Cumulative weight retained tare = 0
 re for cumulative weight retained = 0

Sieve	Cumul. Wt. retained	Percent finer
4 inches	0.00	100.0
3 inches	4.80	88.5
2 inches	6.10	85.4
1.5 inches	8.80	78.9
1 inches	10.20	75.5
0.75 inches	13.30	68.1
0.5 inches	15.50	62.8
0.375 inches	16.10	61.4
# 4	19.20	54.0
# 10	35.10	47.2
# 16	38.90	46.4
# 40	66.80	41.0
# 50	78.90	38.7
# 100	196.90	15.9
# 200	222.80	10.8

Fractional Components

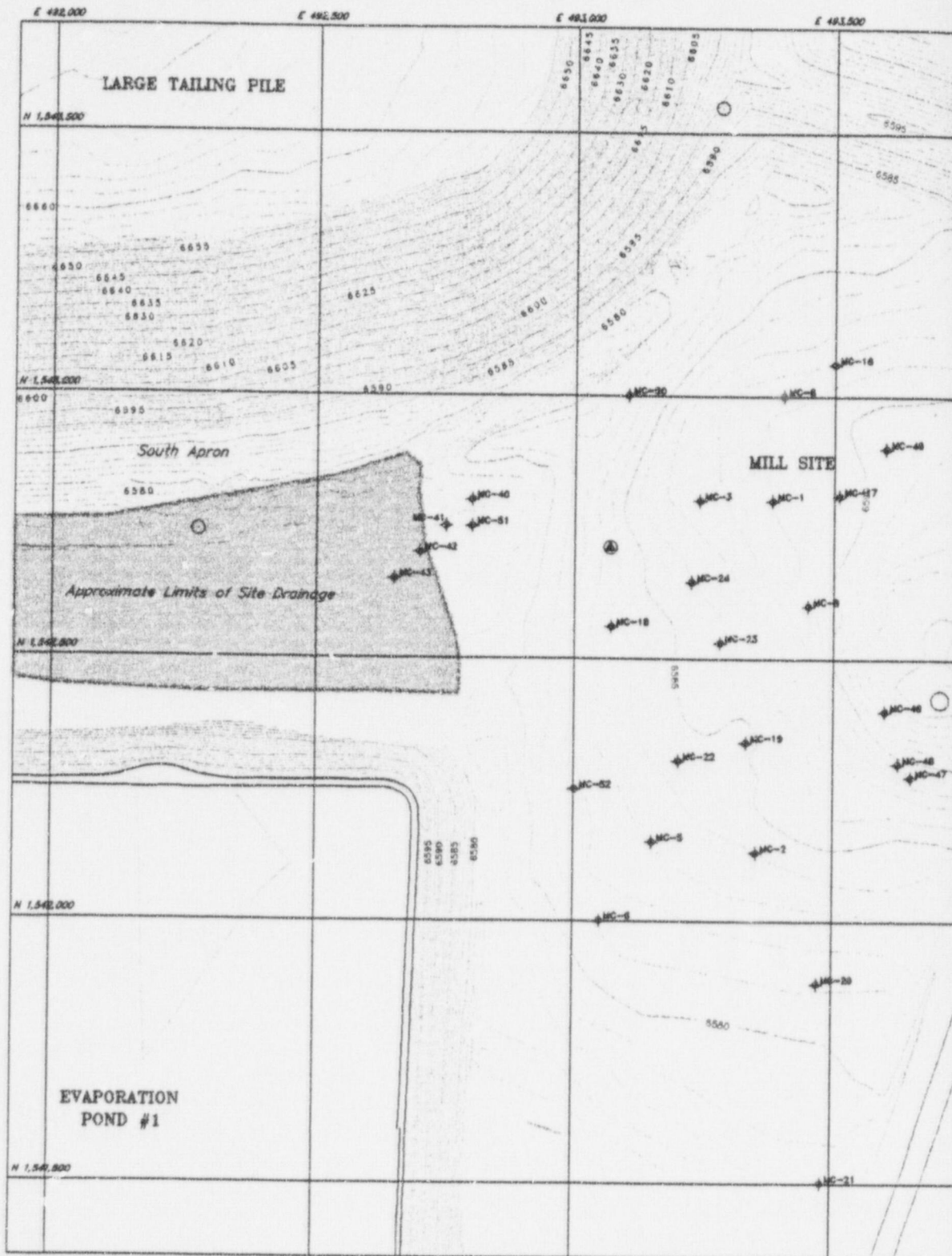
% + 3 in. = 15.8 % GRAVEL = 36.7 % SAND = 38.4
 % FINES = 9.1

Cc = 0.0347 Cu = 128.8250

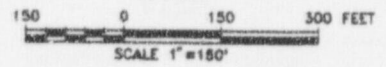
Attachment 2

Knight Piésoid Mill Cover Test Location Map

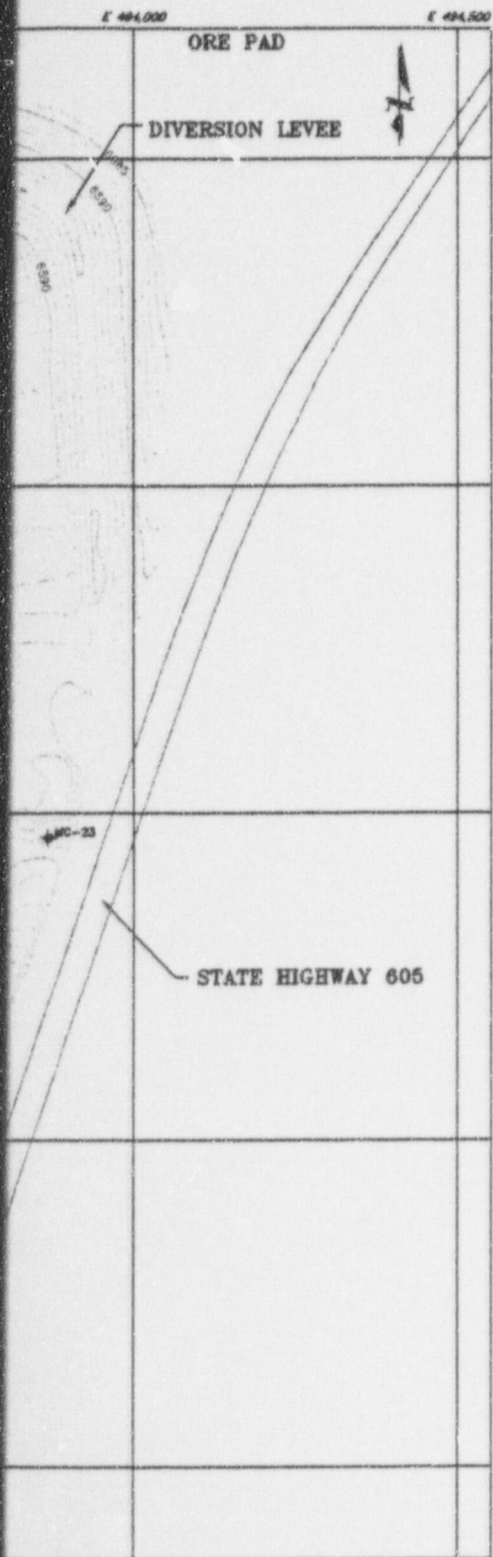
Attachment 2



PLAN








REV.	DATE	DESCRIPTION	APPROVED	REV.
				A
REVISIONS				



APERTURE CARD

Also Available on Aperture Card

LEGEND:

-  Constructed Condition or Existing Ground Contour
-  Road
-  Mill Cover Density Test Locations
-  Survey Control Points
-  Survey Turning Points

9810280085-01

Knight Pietsold LLC <small>CONSULTING ENGINEERS AND ENVIRONMENTAL SCIENTISTS</small>		CLIENT	HOMESTAKE MINING COMPANY
		PROJECT	GRANTS RECLAMATION PROJECT
ISSUED FOR CONSTRUCTION REPORT		DESIGNED	SDG
		DRAWN	RLD/JTR
		CHECKED	
		APPROVED	
DATE	DESCRIPTION	APPROVED	
REVISIONS	DATE	SCALE	AS SHOWN
		DWG. NO.	1306A.180
		REV.	A

Attachment 3

Community Sciences Corp Drawing
Mill Site Rock - Final Contours

Attachment 3



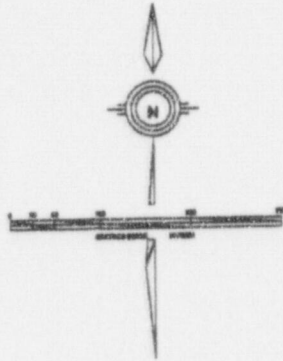
MILL SITE ROCK - FINAL

3D CONTOURS

DATE OF SURVEY: 12/18/95

**APERTURE
CARD**

Also Available on
Aperture Card



981028008502

DATE	12-18-95
TIME	11:00
PROJECT	200
SCALE	1:500
BY	JMS
CHECKED	

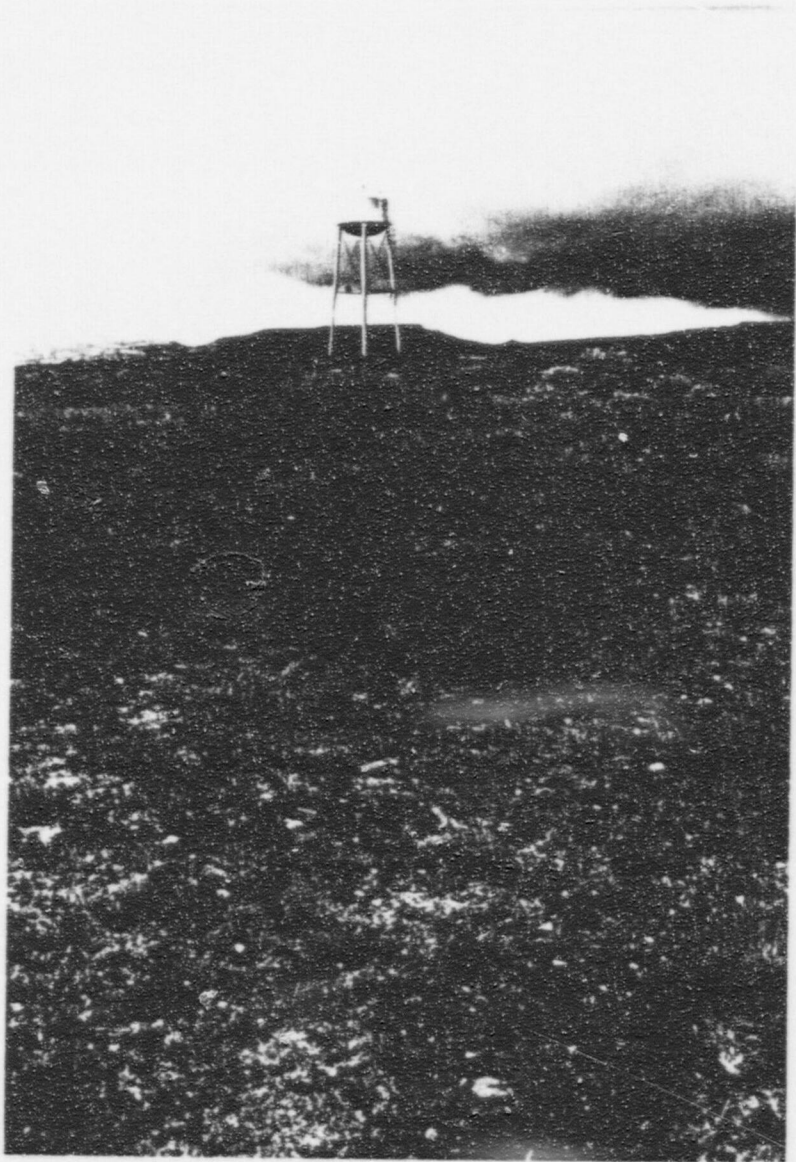
community
sciences
corporation

COMMUNITY SCIENCES CORPORATION
1000 UNIVERSITY AVENUE
ANN ARBOR, MI 48106-1500
PH 313.763.2000 FAX 313.763.2001

Attachment 4

Photographs of Rock on the Mill Site

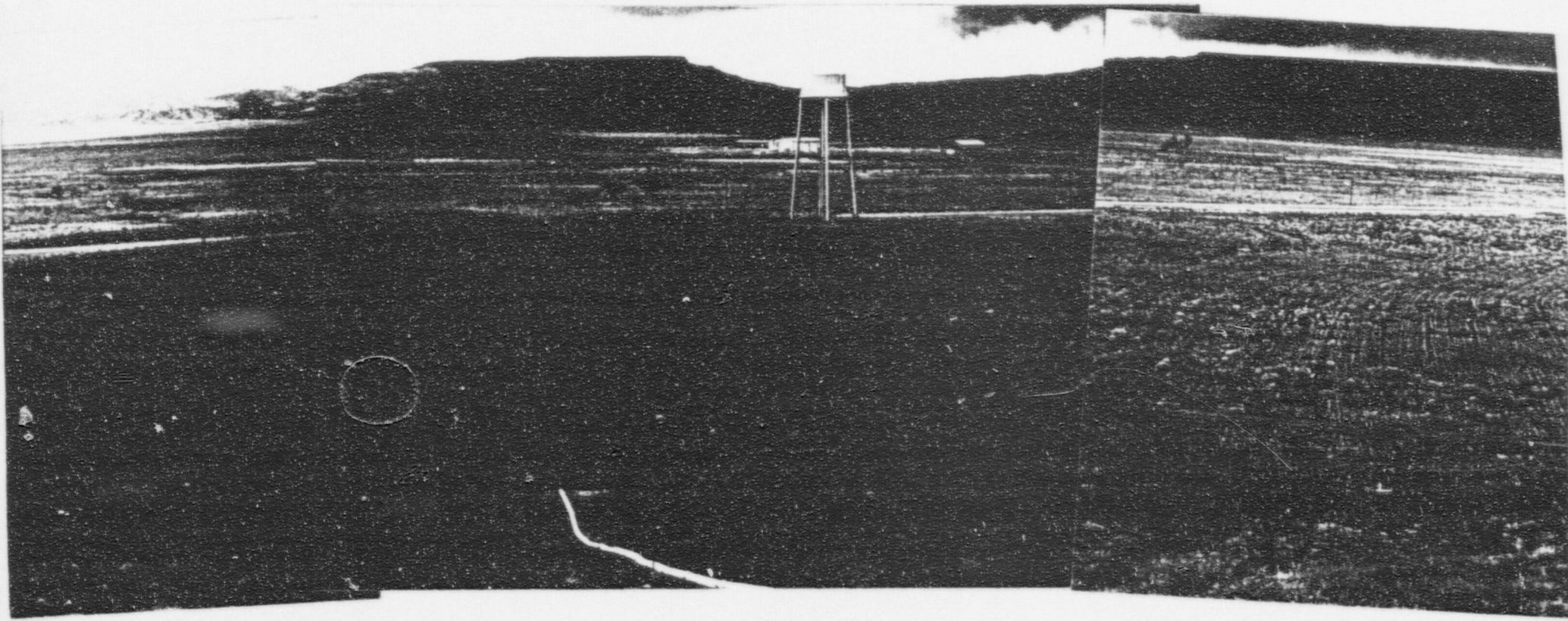
Attachment 4



Area 1
Mill Site - Rock Cover, NRC Sample Area



Area 2
Mill Site - Rock Cover



Mill Site - With Erosion Protection Rock Cover (Area 1 & Area 2)