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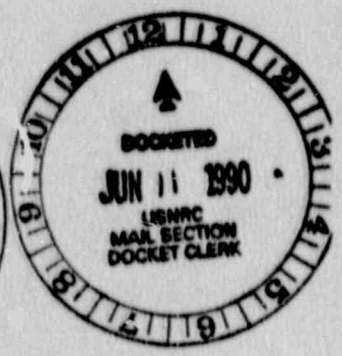
HOMESTAKE MINING COMPANY
P.O. BOX 98
GRANTS, NEW MEXICO 87020
(505) 287-4456

RETURN ORIGINAL TO PDR, HQ.

June 8, 1990



CERTIFIED MAIL NO.: P 996 443 890

Mr. S. E. Reynolds, State Engineer
Bataan Memorial Building
Santa Fe, New Mexico 87503

Re: File No. 3700
Quarterly Report

Dear Mr. Reynolds:

Submitted herewith in compliance with your orders, as amended on November 22, 1988, please find a report on the progress of the construction of the tailing impoundment at Homestake Mining Company's Grants Mill for the period March 1, 1990 through May 31, 1990. This report certifies that the structure meets all the current criteria and is safe for tailing impoundment.

During this quarter, Homestake did not build up the crest of the embankment; nor was tailing material placed on the outslopes. Tailing solultion was discharged during the quarter onto the tailing impoundment. Homestake is continuing to extract uranium from mine and mill waters and discharge barren solution into the impoundment.

A copy of Dr. Kuhn's Stability Assessment is attached which shows that all sections are within the regulatory criteria.

Pursuant to the State Engineer's memo of November 22, 1988, Homestake is including in this report the quarterly monitoring information required for continuously observing the critical stability indicators.

Please find the following information including in this report as a condition of Homestake's Tailing Management Plan:

a. Weekly liquid elevations in the east and west ponds:

00063

Certified By Mary C. Hood

1F02

90-0602

Date	East Pond	West Pond
03/02/90	6668.21	6648.96
03/09/90	6668.25	6648.92
03/16/90	6668.09	6649.07
03/23/90	6669.06	6649.01
03/30/90	6668.11	6648.85
04/06/90	6668.17	6648.75
04/13/90	6668.12	6648.76
04/20/90	6668.18	6648.61
04/27/90	6668.34	6648.54
05/04/90	6668.37	6648.26
05/11/90	6668.34	6648.13
05/18/90	6668.21	6647.81
05/25/90	6668.05	6647.46

b. Monthly reading of horizontal movement points are attached.

c. The minimum observed beach width was estimated to have been greater than 50 feet for the period covered by this report. The minimum observed freeboard was 5.00 feet.

d. Piezometer readings are attached.

e. Monthly tailing pile elevation survey map.

If you have any questions or comments concerning this quarterly report, please don't hesitate to contact me.

Very truly yours,

HOMESTAKE MINING COMPANY

Mark D. Hiles

Mark D. Hiles
Radiation Protection
Administrator

RFF:jg
Attachments

xc: F. R. Craft
K. E. Skiff
A. Kuhn
R. Hall (NRC)

AK GeoConsult, Inc.
GEOLOGICAL ENGINEERING & APPLIED GEOSCIENCE

June 5, 1990 84102A

Mr. Eluid Martinez
Chief, Technical Division
State Engineer Office
Bataan Memorial Building
Santa Fe, NM 87503

**REPORT ON THE CONDITION OF TAILING IMPOUNDMENT
HOMESTAKE MINING COMPANY - GRANTS
SECOND QUARTER 1990**

Dear Mr. Martinez:

In accordance with the requirements of the State Engineer office, the undersigned has inspected the tailing impoundment at the Homestake Grants operation and has evaluated its condition for the second quarter of 1990. A visual inspection of the impoundment was made with Mr. Mark Hiles of Homestake on May 31. My observations from that inspection as well as piezometer measurements, monitor-point surveys, and crest and water surface elevation records were used in the evaluation of the impoundment for this quarter. The following paragraphs describe the findings and conclusions of this evaluation.

Impoundment Operations

The mill remained in shut-down status during this quarter. Shut-down activities included the discharge of residual and wash-down fluids from the mill circuits to the tailing impoundment. Therefore, liquid discharges continued until late in this quarter. All wash-down and residual liquids were discharged to the east pond during this quarter.

The spray evaporation systems were operated around the entire circumference (the beach areas) of both the east and the west ponds during this quarter.

Visual Inspection

I made a visual inspection of all impoundment surfaces for indications of surface erosion, slope instability, seepage conditions, or any other significant changes in impoundment conditions or configuration. Although the evaporation rates have increased this quarter, there was no significant change in the beach or pond surface areas of the east pond. However, the west pond surface has dropped significantly, and the beach areas on that pond have expanded. The minimum beach width on the east pond is only slightly greater than last quarter, approximately 100 feet. The minimum beach width on the west pond is several hundred feet, a considerable increase from last quarter.

Because of the high winds during this quarter, there are substantial new accumulations of tailing sands on the leeward side of the north corners of the pile. The Curlex blankets have remained in place and intact. They have functioned well in arresting erosion of the underlying sand as well in creating traps for accumulation of windblown sands moving across their surfaces.

The seepage face around the east pond has declined slightly from its relatively high level of last quarter. The backhoe-excavated drainage trench along the toe of the west pond and the south side of the east pond continues to be effective in suppressing the seepage face in the toe areas of the adjacent slopes.

Assessment of Measurements

Beach Width and Freeboard: As noted earlier in this report, the beach widths of both ponds have expanded from the minimums of last quarter. The minimum beach width on the east pond, approximately 100 feet, occurs slightly west of the northeast corner of the east pond. The beach width around the west pond has increased fairly uniformly as the pond level has dropped and is now several hundred feet at it narrowest point.

According to measurements made during the survey on May 26, the pond level in the east pond remains virtually unchanged from last quarter. The difference in elevation between this pond level, elev. 6668.10, and the lowest surveyed point on the crest gives a minimum freeboard on the east pond of 5.69 feet. On the west pond the water level has dropped 1.68 feet since last quarter to elev. 6647.04. The elevation difference between the present pond level and the lowest crest elevation on the west pond measured gives a minimum freeboard of 8.67 feet for the west pond.

Piezometers: The piezometers measurements which were made between May 18 and May 21 for this quarter indicate only small changes in the phreatic surface in general. However, along the east side of the east pond, piezometers along section 4-4' have recorded substantial piezometric rises, as much as 1.77 feet. Piezometer ST-21A, located near section 3 on the north side of the west pond, had a recorded drop of 31.05 feet this quarter. This piezometer has not been functioning properly for several quarters; therefore, this measurement is not to be considered reliable and has not been included in the evaluation of the phreatic surface for this quarter. The largest recorded drop in piezometric level which is considered to be reliable occurred on piezometer ST-12A, located along the south side of the west pond, on which the water level dropped 1.49 feet. All other changes in piezometric levels that exceeded one foot occurred in piezometers which measure the water levels in the alluvium under the tailing pile.

Monitor points: Survey #107 was performed on May 26 this quarter. Because of tailing sand accumulation at ground surface, two monitor points, A1 and F1, were not accessible for survey this quarter. The largest apparent changes in elevation from that survey was recorded on point B1 (-0.06 feet) and point D2 (-0.05 feet). The changes on these points last quarter were 0 and +0.01, respectively. The changes on these two points this quarter are approximately equal to the expectable range of survey error. The maximum change in latitude measured on any point this quarter was 0.03 feet on both points B3 and F3, on which changes last quarter were apparent movements in the opposite direction or no movement at all. The maximum survey departure change was recorded for point F3, 0.04 feet west compared to 0.04 feet east last quarter. All apparent monitor point movements are within the expectable range of survey error, and there is no apparent trend or pattern of movement in the embankment.

Stability Analysis

Complete profile surveys and stability analyses were performed on all eight analytical cross-sections in the fourth quarter of 1989. No new cross-section surveys have been performed since that time. However, changes in input parameters on three sections have been significant enough this quarter to justify new analyses. The input parameters for the other five cross-sections have remained virtually the same or have no impact on stability; therefore, these five sections were not analyzed for stability again this quarter.

The factors of safety for the three sections analyzed this quarter are tabulated below:

Section	This Quarter Static/Pseudostatic	Previous Quarter Static/Pseudostatic
2	1.93/1.37	1.57/1.16
3	1.80/1.30	1.72/1.25
4	1.63/1.18	1.63/1.18

The results of these stability analyses show that the safety factors have increased for sections 2 and 3, a direct result of the decrease in the west pond level this quarter. Despite increases in piezometric levels at section 4, the factors of safety for that section have remained unchanged.

The factors of safety have not been calculated again for section 5 for this quarter because the input parameters for section 5 have remained virtually unchanged from last quarter. The safety factors for section 5 remain the lowest of all eight sections. Because the discharge of liquids to the east pond from the mill wash-down is virtually complete, that source will not contribute liquid to the pond during much of the next quarter. Essentially all liquid being discharged to the tailing pile during this coming quarter should be coming from the collection well system. Therefore, with a combination of decreased discharges to the pond and increased evaporation rates through the summer months, both pond levels can be expected to decline significantly. The safety factors for section 5, and for all other sections, should increase through the coming quarters as the tailing impoundment is gradually dewatered.

Condition of the Impoundment

The visual inspection of the impoundment, evaluation of monitoring data, and stability analyses indicate that the impoundment is within operating limits established by the State Engineer. The impoundment is in good condition, with factors of safety improving in the west pond and stabilizing and probably beginning to improve in the east pond. Continued operation of the evaporation spray system will accelerate the decline of pond levels and will continue to help stabilize beach areas against wind erosion. No remedial measures or adjustments in operating procedures are required.

If you have any questions concerning this report, please contact me.

Respectfully submitted,

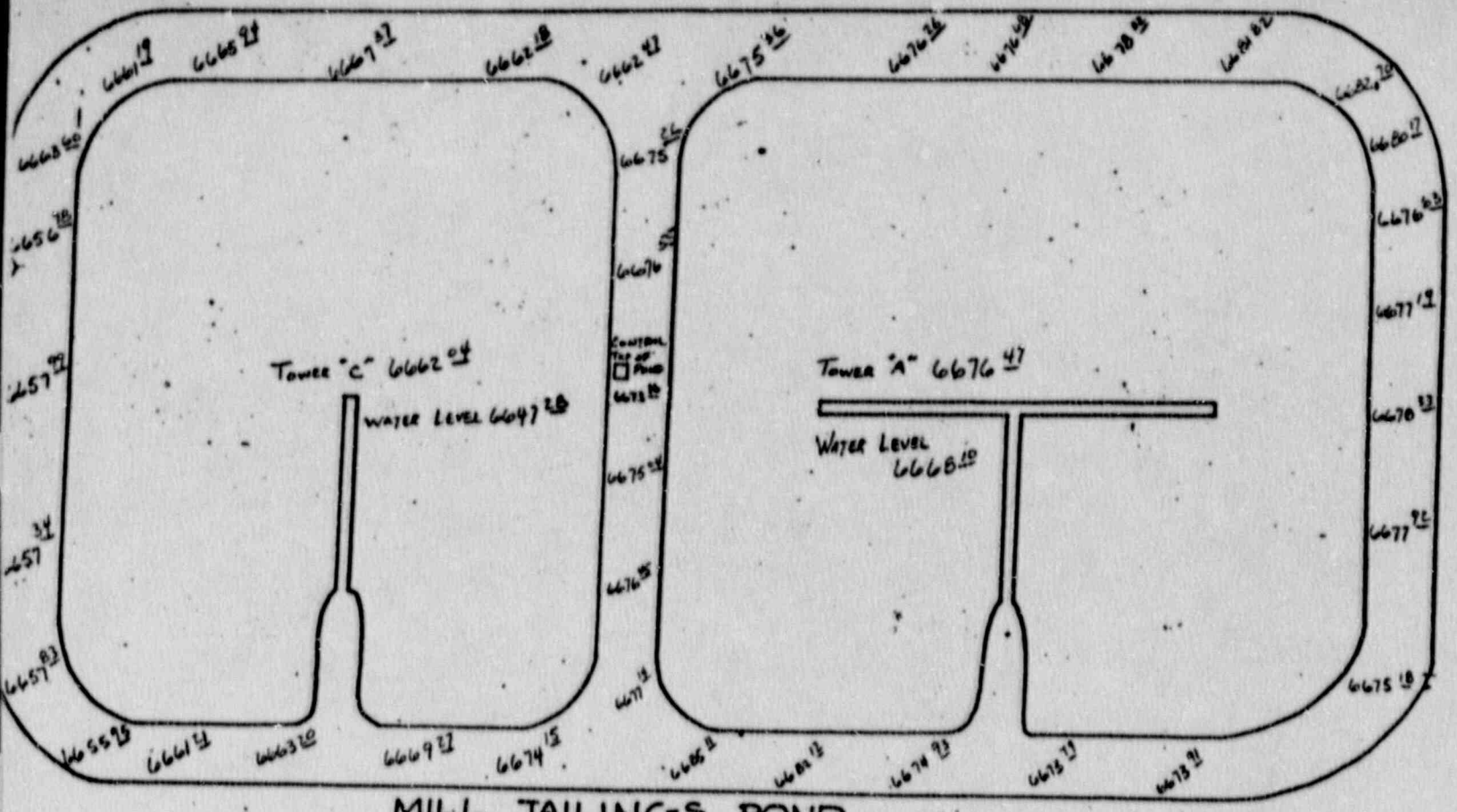
ALAN K. KUHN
NEW MEXICO
6798
REGISTERED PROFESSIONAL ENGINEER

Alan K. Kuhn

Alan K. Kuhn, Ph.D., P.E.
President

cc: Mark Hiles, Homestake

AKK/kmk



MILL TAILINGS POND

SIGNED T. T ATTEST FRANK G ALFRED D. G

DATE: 05/26/90

HOMESTAKE MINING COMPANY GRANTS, N.M.

NAME 107TH SURVEY

PROJECT TAILINGS POND MONITOR POINTS

IS	DATE	HI	VERT. PROJ.	HORZ. PROJ.	AVG. VERT. ANGLE	AZIMUTH BEARING	ELEV.	COORDINATES LATITUDE (Y)	COORDINATES DEPARTURE (X)	FS
NE	26 MAY 1990	S. UNABLE TO SURVEY		1192.	88-	192-58-	6625.	1543871.	492839.	A1
"	"	5.40		1215.39	86-58-57	196-12-45	6655.50	1543866.69	492768.16	A2
"	"	"		1227.85	86-20-38	198-45-51	6669.90	1543871.15	492712.54	A3
SE	"	"		1506.06	89-35-49	279-39-06	6597.58	1542963.07	491582.49	B1
"	"	"		1524.97	88-34-39	282-49-30	6624.88	1543049.09	491580.32	B2
"	"	"		1551.08	87-20-34	286-13-05	6659.01	1543143.75	491577.88	B3
SW	"	"		1062.96	89-20-53	70-46-36	6594.63	1543074.65	489903.65	C1
"	"	"		1090.55	87-37-37	66-40-34	6627.73	1543156.47	489901.46	C2
"	"	"		1121.39	86-08-37	62-59-46	6658.12	1543233.86	489899.14	C3
"	"	"		1286.00	89-36-08	6-15-50	6591.48	1544003.01	489040.37	D1
"	"	"		1299.97	88-04-36	10-19-72	6626.21	1544003.64	489132.91	D2
"	"	"		1314.59	86-46-59	13-39-43	6656.48	1544002.98	489206.80	D3
NW	"	5.37		1097.89	89-30-11	105-12-08	6597.56	1544849.44	489968.83	E1
"	"	"		1114.37	87-37-48	106-22-39	6634.13	1544785.97	489966.90	E2
"	"	"		1135.37	85-51-52	111-33-42	6670.64.13	1544720.06	489965.27	E3
NE	"	S. UNABLE TO SURVEY		1361.	89-40-	259-4 -	6599.	1544793.	491767.	F1
"	"	5.40		1383.87	88-31-35	257-24-34	6627.03	1544732.10	491756.91	F2
"	"	"		1417.93	86-45-53	254-15-42	6671.60	1544649.14	491742.72	F3
							SIXTO T. A	FRANK G. JR	ALFRED D. P	

NOTE: MONITOR POINT A1 MARKED WITH ALUMINUM PIPE, UNABLE TO SURVEY

WATER LEVEL ELEVATION (FT-MSL)

DATE	WELL IDS	DB 1A	DB 1B	DB 2A	DB 2B	DB 3	DB 4	DB 5A	DB 5B	DB 6A	DB 6B	DB 7
02/23/89		-----	-----	-----	-----	-----	6,584.19	6,568.93	6,600.82	6,535.72	6,585.69	6,595.78
02/24/89		6,559.47*	6,597.95	6,589.58	6,589.36	6,596.44	-----	-----	-----	-----	-----	-----
05/25/89		6,560.22	6,597.39	6,589.50	6,589.11	6,596.34	6,583.78	6,570.21	6,600.53	6,535.94	6,585.07	6,595.48
08/18/89		6,559.22	6,599.37	6,589.50	6,589.46	6,596.02	6,582.96	6,569.12	6,600.20	6,535.79	6,584.68	6,595.15
11/15/89		-----	-----	-----	-----	-----	6,583.84	6,569.30	6,600.52	6,535.99	6,584.95	6,595.35
11/16/89		6,558.22*	6,600.05	6,589.32	6,590.42	6,596.83	-----	-----	-----	-----	-----	-----
02/22/90		6,560.22	6,598.55	6,589.89	6,589.90	6,597.60	6,584.42	6,569.42	6,601.31	6,536.14	6,585.75	6,595.81
05/21/90		6,558.89*	6,599.79	6,589.96	6,589.97	6,597.14	6,583.92	6,569.30	6,600.98	6,536.27	6,585.49	-----

* DRY, ACTUALLY TOTAL DEPTH OF PIZOMETER

DATE	WELL IDS	DB 11	DB 12	DB 14	DB 16	DB 17A	DB 17B	DB 18	DB 19A	DB 19B	ST 3	ST 7
02/23/89		6,588.50	-----	-----	6,600.46	6,549.32	-----	6,586.83	6,541.70	6,590.38	6,598.03	6,590.51
02/24/89		-----	6,591.72	6,595.55	-----	-----	-----	-----	-----	-----	-----	-----
05/25/89		6,587.59	6,591.27	6,595.07	6,600.56	6,551.53	-----	6,586.41	6,541.20	6,590.30	6,597.84	6,590.19
08/18/89		6,588.72	6,591.39	6,596.16	6,599.99	6,552.66	6,606.94	6,585.82	6,541.70	6,590.22	6,597.12	6,588.62
11/15/89		6,587.91	6,590.84	6,597.52	6,650.46	-----	-----	-----	-----	-----	6,597.76	6,591.52
11/16/89		-----	-----	-----	-----	6,550.92	6,606.33	6,586.20	6,541.20	6,590.45	-----	-----
02/22/90		6,588.32	6,590.93	6,596.37	6,650.46*	6,550.93*	6,607.58*	6,585.78	6,541.20*	6,590.53	6,598.39	6,591.49
05/20/90		-----	6,590.89	-----	-----	-----	-----	-----	-----	-----	-----	-----
05/21/90		-----	-----	6,597.06	6,650.21*	6,548.82*	6,607.58*	6,585.47	6,541.20*	6,590.46	6,598.45	6,591.49

* DRY, ACTUALLY TOTAL DEPTH OF PIZOMETER

DATE	WELL IDS	ST 7B	ST 9	ST 11	ST 11A	ST 12A	ST 13	ST 15	ST 16	ST 17	ST 18	ST 19
02/23/89		6,601.25	6,587.75	6,552.16	6,580.91	6,583.48	6,594.11	-----	6,589.21	6,603.43	6,569.77	-----
02/24/89		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	6,532.76
05/25/89		6,600.64	6,586.27	6,552.04	6,580.44	6,582.16	6,593.59	-----	6,588.82	6,603.04	6,570.00	6,532.12
08/18/89		6,600.43	6,587.41	6,552.75	6,580.95	6,582.01	6,596.34	6,563.96	6,589.20	6,604.19	6,569.32	6,532.72
11/15/89		6,599.59	6,584.93	6,552.08	6,580.47	6,582.03	6,596.31	-----	6,588.85	6,603.70	6,571.83	6,532.51
02/22/90		6,598.49	6,585.29	6,551.85	6,580.47	6,583.32	6,594.12	-----	6,588.92	6,603.68	6,575.88	6,532.86
05/18/90		-----	-----	-----	-----	-----	-----	-----	6,589.02	6,603.62	6,577.53	-----
05/21/90		6,598.44	6,584.79	6,551.96	6,580.44	6,581.83	6,595.89	-----	-----	-----	-----	6,533.38

* DRY, ACTUALLY TOTAL DEPTH OF PIZOMETER

WATER LEVEL ELEVATION (FT-MSL)

DATE	WELL IDS	ST 19A	ST 20	ST 20A	ST 21	ST 21A	ST 23	ST 23A	HMC 3A	DB81 1	ST 22	ST 22A
02/23/89		-----	6,534.98	6,591.90	6,556.08	-----	6,526.02	6,579.08	6,601.82*	-----	6,550.96*	6,577.25
02/24/89		6,586.19	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
05/25/89		6,585.42	6,534.98	6,591.16	6,554.96	6,603.41*	6,527.22	6,578.60	6,602.59*	-----	6,552.20*	6,575.74
08/18/89		6,586.52	6,534.56	6,590.87	-----	-----	-----	-----	-----	-----	-----	-----
08/22/89		-----	-----	-----	6,555.78	6,602.38*	6,526.51	6,578.89	6,601.54*	6,679.59*	6,551.38	6,575.22
11/15/89		6,587.36	6,535.37	6,591.24	6,555.64	6,602.16	6,526.44	6,577.95	6,602.07	-----	6,551.32	6,574.36
02/22/90		6,586.82	6,535.50	6,591.85	6,556.44	6,571.11*	6,528.67	6,577.88*	6,602.27*	6,679.59*	6,551.34*	6,575.26
05/18/90		-----	6,535.62	6,590.92	6,556.61	-----	-----	-----	-----	-----	6,551.98	6,574.89
05/21/90		6,587.00	-----	-----	-----	-----	6,529.40	6,577.88*	6,602.27*	-----	-----	-----

* DRY, ACTUALLY TOTAL DEPTH OF PIZOMETER

DATE	WELL IDS	S1	S2	S3	S4	S5	S6
02/23/89		6,586.33	6,589.15	6,586.90*	6,578.91*	6,576.04	-----
05/25/89		6,584.75	6,588.91	6,586.41	6,578.62	6,575.37*	-----
08/22/89		6,583.30	6,588.44	6,586.49	6,579.14	6,574.88	-----
11/15/89		6,583.41	6,588.18	6,585.97	6,577.95*	6,574.94*	-----
02/22/90		6,583.23	6,588.70	6,586.59	6,577.93*	6,574.72*	-----
05/21/90		6,582.58	6,588.21	6,586.48	6,577.93*	6,575.37*	-----

* DRY, ACTUALLY TOTAL DEPTH OF PIZOMETER