0071

Pm

CONSULTANTS/ENGINEERS
HANSEN ALLEN & LUCE inc
6771 SOUTH 900 EAST
P.O. BOX 21146
SALT LAKE CITY, UTAH 84121-0146
(801) 566-5599

ACT/007/006
#2

April 27, 1992

Mr. Lowell Braxton
State of Utah Department of Natural Resources
Division of Oil, Gas & Mining
355 West North Temple
Salt Lake City, Utah 84180-1203

RE: Certification of Pond Calculations.

Dear Mr. Braxton:

As requested in your letter to Cyprus Plateau Mining Company (CPMC) dated April 22, 1992, and as directed by Mr. Ben Grimes we are hereby submitting to you 8 copies of the certified calcualation details which were attached to our earlier letter to you dated March 23, 1992.

Should you have any questions regarding the information contained herein, please call either myself or Mr. Ben Grimes.

Sincerely,

David E Hansen

Dr. David E. Hansen, Ph.D., P.E.
Project Manager

cc: Mr. Ben Grimes - CPMC

HANSEN ALLEN & LUCE inc

CLIENT PLATEAU
PROJECT Permit Response
FEATURE Check of Ponds 1, 3 + 7
PROJECT NO. 002.08.200

SHEET 1 OF 12
COMPUTED DEH
CHECKED
DATE 5 MAR 92

Check Ponds 1, 3 + 7 for new Spillway or Storage Capacities

OPTIONS

1. Use two Spillways (As modified for Nov 4, 91 Submittal to CPMK).
2. Retain 25 Yr-6Hr Event with a review of Safety for "loss of life".
3. Retain or Pass the 100 Yr-6Hr event without "loss of life" review.

Option 1 was designed, not yet installed as of this date.

Check Option 3. $P_{100 Yr-6Hr}$ = 2.1 inches (10 Yr-24 hr P = 2.1 in)

Pond#	Avail Vol (ac-ft)	10 Y 24 Hr Vol (ac-ft)	100 Y 6 Hr Vol (ac-ft)
1	0.25	0.76	0.76
3	2.26	2.22	2.21
7	0.63	0.58	0.57

This is expected based on SCS Curve theory, however, Printouts are attached to verify vols and calculate Peaks.

Pond#	Spillway Capacity (cfs)*	100 Yr 6 Hr Inflow (cfs)
1	3.2	3.48
3	5.2	20.1
7	1.7	4.18

* Based on Current configuration as shown on Table 742.221d in 1991 Permit Application

SUMMARY

Although none of the Ponds meet the flow criteria, they do meet storage criteria.

I certify that to the best of my knowledge, the information contained herein is true and accurate to a degree consistent with standard engineering practices at the time the work was completed.

David Hansen

AMENDMENT

APPROVED Mining & Reclamation Plan
Approved, Division of Oil, Gas & Mining
by TM date 4/22/92

HANSEN ALLEN & LUCE inc

CLIENT PLATEAU
PROJECT Permit Reports
FEATURE Check of all Ponds for Spillway Requirement
PROJECT NO. 002.08.200

SHEET 2 OF 12
COMPUTED DEH
CHECKED
DATE 5 MAR 92

Check all Ponds to see how they fit into New Regs.

- Storage enough to hold 100 yr, 6 hr Vol, or
- Spillways able to pass " " Runoff

Pond #	Storage Capacity (ac-ft)	100 yr 6 Hr Volume (ac-ft)	Spillway Capacity (cfs)	100 yr 6 Hr Inflow (cfs)
1	0.25	0.76	3.2	8.48 *
2	1.03	1.02	17.0	10.19
3	2.26	2.21	5.2	20.1 *
4	2.62	2.41	11.5	22.8 *
5	5.48	4.23	21.9	23.4 *
6	1.84	0.97	2.5	4.7 *
7	0.65	0.57	1.7	4.13 *
8	2.77	2.20	41.9	21.95
9	4.50	4.45	40.0	28.76

* Exceeds Capacity, routing may allow passage

Summary

All pass design requirements for Containment
Ponds 2, 8 and 9 Pass flow
Ponds 1 and 3-7 exceed discharge capacity but some may pass if routed.

AMENDMENT TO
APPROVED
Approved, D... Reclamation Plan
...as & Mining
by TM Date 4/22/92

I certify that to the best of my knowledge, the information contained herein is true and accurate to a degree consistent with standard engineering practices at the time the work was completed.

REGISTERED PROFESSIONAL ENGINEER #7888 DAVID E. HANSEN STATE OF UTAH

PROJECT : CPMC - Pond Inflow Hydrograph - 100 Yr, 6 Hr Runoff Event

AREA= 14.6 ACRES
AVERAGE BASIN SLOPE= 52.0 PERCENT
CURVE NUMBER= 80.0
DESIGN STORM= 2.10 INCHES
STORM DURATION= 6.0 HOURS
HYDRAULIC LENGTH= 1420. FEET
MINIMUM INFILTRATION RATE= .00 IN/HR

TP= .0648 HOURS QPCFS= 170.35 CFS QPIN=11.5708 INCHES
C3= 57.0327 ITERATIONS= 8 SCS 6-hour

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
2.01	.4967	.0000	.0000	.0	.00
2.03	.5218	.0002	.0002	16.2	.00
2.04	.5470	.0009	.0007	83.4	.03
2.06	.5722	.0020	.0012	148.2	.10
2.07	.5974	.0037	.0016	170.3	.26
2.09	.6225	.0057	.0021	154.3	.49
2.11	.6477	.0082	.0025	120.2	.78
2.12	.6729	.0112	.0029	84.3	1.12
2.14	.6981	.0145	.0034	54.8	1.48
2.15	.7232	.0183	.0038	33.6	1.86
2.17	.7484	.0225	.0042	19.7	2.24
2.19	.7736	.0270	.0045	11.1	2.62
2.20	.7988	.0319	.0049	6.1	3.00
2.22	.8239	.0372	.0053	3.3	3.36
2.24	.8491	.0428	.0056	1.7	3.72
2.25	.8743	.0487	.0060	.9	4.07
2.27	.8995	.0550	.0063	.4	4.41
2.28	.9246	.0617	.0066	.2	4.74
2.30	.9498	.0686	.0069	.1	5.06
2.32	.9750	.0758	.0072	.0	5.37
2.01	.4967	.0000	.0000	.0	.00
2.03	.5218	.0002	.0002	16.2	.00
2.04	.5470	.0009	.0007	83.4	.03
2.06	.5722	.0020	.0012	148.2	.10
2.07	.5974	.0037	.0016	170.3	.26
2.09	.6225	.0057	.0021	154.3	.49
2.11	.6477	.0082	.0025	120.2	.78
2.12	.6729	.0112	.0029	84.3	1.12
2.14	.6981	.0145	.0034	54.8	1.48
2.15	.7232	.0183	.0038	33.6	1.86
2.17	.7484	.0225	.0042	19.7	2.24
2.19	.7736	.0270	.0045	11.1	2.62
2.20	.7988	.0319	.0049	6.1	3.00
2.22	.8239	.0372	.0053	3.3	3.36
2.24	.8491	.0428	.0056	1.7	3.72

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by TM 4/22/92

PROJECT : CPMC - Pond Inflow Hydrograph - 100 Yr 6 Hr Runoff Event
(Continued)

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
2.25	.8743	.0487	.0060	.9	4.07
2.27	.8995	.0550	.0063	.4	4.41
2.28	.9246	.0617	.0066	.2	4.74
2.30	.9498	.0686	.0069	.1	5.06
2.32	.9750	.0758	.0072	.0	5.37
2.33	1.0002	.0834	.0075	.0	5.68
2.35	1.0253	.0912	.0078	.0	5.97
2.37	1.0505	.0994	.0081	.0	6.26
2.38	1.0757	.1078	.0084	.0	6.54
2.40	1.1009	.1164	.0087	.0	6.82
2.41	1.1260	.1254	.0089	.0	7.09
2.43	1.1512	.1346	.0092	.0	7.35
2.45	1.1764	.1440	.0095	.0	7.60
2.46	1.2016	.1537	.0097	.0	7.85
2.48	1.2267	.1637	.0099	.0	8.09
2.49	1.2519	.1739	.0102	.0	8.33
2.51	1.2646	.1791	.0052	.0	8.48
2.53	1.2714	.1819	.0028	.0	8.23
2.54	1.2782	.1847	.0028	.0	7.46
2.56	1.2850	.1876	.0029	.0	6.38
2.58	1.2918	.1905	.0029	.0	5.29
2.59	1.2986	.1934	.0029	.0	4.39
2.61	1.3054	.1963	.0029	.0	3.72

HYDROGRAPH PEAK= 8.48 cfs
TIME TO PEAK= 2.51 Hours
RUNOFF VOLUME= .76 Acre-Feet

AMENDMENT TO
APPROVED Mining & Reclamation Plan
Approved, Division of Oil, Gas & Mining

by TM date 4/22/92

PROJECT : CPMC Pond 2 Inflow Hydrograph - 100 Yr, 6 Hr Runoff Event

AREA= 15.1 ACRES
AVERAGE BASIN SLOPE= 32.0 PERCENT
CURVE NUMBER= 84.0
DESIGN STORM= 2.10 INCHES
STORM DURATION= 6.0 HOURS
HYDRAULIC LENGTH= 3860. FEET
MINIMUM INFILTRATION RATE= .00 IN/HR

TP= .1614 HOURS QPCFS= 70.76 CFS QPIN= 4.6470 INCHES
C3= 22.9049 ITERATIONS= 8 SCS 6-hour

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
1.74	.3805	.0000	.0000	.0	.00
1.78	.3933	.0000	.0000	3.6	.00
1.81	.4062	.0003	.0003	22.0	.00
1.84	.4191	.0007	.0004	47.0	.01
1.87	.4320	.0013	.0006	65.0	.03
1.90	.4449	.0021	.0007	70.8	.06
1.94	.4577	.0030	.0009	66.3	.10
1.97	.4706	.0040	.0011	55.9	.15
2.00	.4849	.0054	.0013	43.8	.21
2.03	.5351	.0115	.0062	32.3	.29
2.07	.5852	.0198	.0082	22.8	.47
2.10	.6354	.0300	.0102	15.5	.82
2.13	.6856	.0420	.0120	10.2	1.34
2.16	.7357	.0557	.0137	6.5	2.00
2.19	.7859	.0710	.0153	4.1	2.76
2.23	.8360	.0878	.0168	2.5	3.57
2.26	.8862	.1059	.0182	1.5	4.39
2.29	.9364	.1254	.0195	.9	5.21
2.32	.9865	.1461	.0207	.5	6.00
2.36	1.0367	.1679	.0218	.3	6.76
2.39	1.0868	.1909	.0229	.2	7.48
2.42	1.1370	.2148	.0240	.1	8.16
2.45	1.1872	.2398	.0249	.0	8.80
2.49	1.2373	.2656	.0258	.0	9.40
2.52	1.2674	.2815	.0159	.0	9.93
2.55	1.2810	.2888	.0073	.0	10.19
2.58	1.2945	.2961	.0073	.0	9.98
2.61	1.3081	.3035	.0074	.0	9.29
2.65	1.3217	.3110	.0075	.0	8.31
2.68	1.3352	.3185	.0075	.0	7.26
2.71	1.3488	.3261	.0076	.0	6.29
2.74	1.3623	.3337	.0076	.0	5.49

HYDROGRAPH PEAK= 10.19 cfs
TIME TO PEAK= 2.55 Hours
RUNOFF VOLUME= 1.02 Acre-Feet

AMENDMENT
APPROVED Mining & Reclamation Plan
Approved, Division of Oil, Gas & Mining

by TM date 4/22/92

PROJECT : CPMC - Pond Inflow Hydrograph - 100 Y, 6 Hr Runoff Event

AREA= 57.1 ACRES
AVERAGE BASIN SLOPE= 65.0 PERCENT
CURVE NUMBER= 76.0
DESIGN STORM= 2.10 INCHES
STORM DURATION= 6.0 HOURS
HYDRAULIC LENGTH= 3590. FEET
MINIMUM INFILTRATION RATE= .00 IN/HR

TP= .1374 HOURS QPCFS= 314.39 CFS QPIN= 5.4602 INCHES
C3= 26.9135 ITERATIONS= 8 SCS 6-hour

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
2.09	.6194	.0000	.0000	.0	.00
2.12	.6620	.0003	.0003	15.8	.00
2.14	.7047	.0017	.0014	97.7	.05
2.17	.7474	.0041	.0024	208.7	.23
2.20	.7901	.0076	.0035	288.6	.66
2.23	.8328	.0121	.0045	314.4	1.41
2.25	.8755	.0175	.0054	294.5	2.47
2.28	.9182	.0238	.0064	248.6	3.81
2.31	.9609	.0311	.0072	194.4	5.37
2.33	1.0036	.0392	.0081	143.5	7.08
2.36	1.0462	.0481	.0089	101.1	8.87
2.39	1.0889	.0579	.0097	68.7	10.71
2.42	1.1316	.0684	.0105	45.2	12.54
2.44	1.1743	.0796	.0112	29.0	14.36
2.47	1.2170	.0916	.0120	18.2	16.14
2.50	1.2597	.1042	.0127	11.2	17.88
2.53	1.2715	.1078	.0036	6.8	19.41
2.55	1.2830	.1114	.0036	4.1	20.09
2.58	1.2945	.1150	.0036	2.4	19.57
2.61	1.3061	.1187	.0037	1.4	18.09
2.64	1.3176	.1224	.0037	.8	16.14
2.66	1.3291	.1262	.0038	.5	14.15
2.69	1.3407	.1300	.0038	.3	12.41
2.72	1.3522	.1339	.0039	.1	11.02
2.75	1.3638	.1378	.0039	.0	10.00

HYDROGRAPH PEAK= 20.09 cfs
TIME TO PEAK= 2.55 Hours
RUNOFF VOLUME= 2.21 Acre-Feet

AMENDMENT NO
APPROVED Mining & Reclamation Plan
Approved, Division of Oil, Gas & Mining

by TM date 4/22/92

PROJECT : CPMC Pond 4 Inflow Hydrograph - 100 Yr 6 Hr Runoff Event

AREA= 40.6 ACRES
AVERAGE BASIN SLOPE= 33.0 PERCENT
CURVE NUMBER= 82.0
DESIGN STORM= 2.10 INCHES
STORM DURATION= 6.0 HOURS
HYDRAULIC LENGTH= 4120. FEET
MINIMUM INFILTRATION RATE= .00 IN/HR

TP= .1790 HOURS QPCFS= 171.42 CFS QPIN= 4.1902 INCHES
C3= 20.6537 ITERATIONS= 8 SCS 6-hour

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
1.86	.4277	.0000	.0000	.0	.00
1.90	.4420	.0000	.0000	8.6	.00
1.93	.4563	.0001	.0001	53.2	.00
1.97	.4705	.0004	.0003	113.8	.01
2.00	.4901	.0012	.0007	157.4	.04
2.04	.5458	.0049	.0038	171.4	.13
2.08	.6014	.0112	.0062	160.6	.41
2.11	.6570	.0197	.0085	135.5	1.02
2.15	.7126	.0303	.0106	106.0	2.04
2.18	.7683	.0429	.0126	78.2	3.44
2.22	.8239	.0574	.0145	55.1	5.16
2.26	.8795	.0736	.0162	37.4	7.10
2.29	.9351	.0915	.0178	24.7	9.16
2.33	.9908	.1108	.0194	15.8	11.27
2.36	1.0464	.1316	.0208	9.9	13.37
2.40	1.1020	.1538	.0222	6.1	15.42
2.43	1.1576	.1772	.0234	3.7	17.40
2.47	1.2133	.2019	.0246	2.2	19.29
2.51	1.2624	.2246	.0227	1.3	21.05
2.54	1.2774	.2317	.0071	.8	22.44
2.58	1.2925	.2389	.0072	.4	22.80
2.61	1.3075	.2462	.0073	.3	21.88
2.65	1.3225	.2536	.0074	.1	20.00
2.68	1.3376	.2610	.0074	.0	17.70
2.72	1.3526	.2685	.0075	.0	15.44
2.76	1.3676	.2761	.0076	.0	13.50
2.79	1.3827	.2837	.0076	.0	11.97

HYDROGRAPH PEAK= 22.80 cfs
TIME TO PEAK= 2.58 Hours
RUNOFF VOLUME= 2.41 Acre-Feet

AMENDMENT
APPROVED Mining & Reclamation Plan
Approved, Division of Oil, Gas & Mining
by TM date 4/22/92

PROJECT : CPMC Pond 5 Inflow Hydrograph - 100 Yr, 6 Hr Runoff Event

AREA= 95.0 ACRES
AVERAGE BASIN SLOPE= 26.6 PERCENT
CURVE NUMBER= 78.0
DESIGN STORM= 2.10 INCHES
STORM DURATION= 6.0 HOURS
HYDRAULIC LENGTH= 9700. FEET
MINIMUM INFILTRATION RATE= .00 IN/HR

TP= .4482 HOURS QPCFS= 160.26 CFS QPIN= 1.6733 INCHES
C3= 8.2478 ITERATIONS= 8 SCS 6-hour

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
1.97	.4718	.0000	.0000	.0	.00
2.06	.5789	.0000	.0000	8.0	.00
2.15	.7182	.0080	.0079	49.8	.07
2.24	.8575	.0276	.0197	106.4	.56
2.33	.9968	.0575	.0299	147.1	2.07
2.42	1.1361	.0964	.0389	160.3	5.07
2.51	1.2642	.1392	.0428	150.1	9.63
2.60	1.3018	.1529	.0137	126.7	15.12
2.69	1.3394	.1672	.0142	99.1	19.82
2.78	1.3771	.1819	.0147	73.1	22.58
2.87	1.4147	.1971	.0152	51.5	23.40
2.96	1.4524	.2128	.0157	35.0	22.91
3.05	1.4860	.2271	.0144	23.1	21.78
3.14	1.5162	.2403	.0131	14.8	20.46
3.23	1.5463	.2537	.0134	9.3	19.16
3.32	1.5764	.2674	.0137	5.7	17.98
3.41	1.6065	.2813	.0139	3.5	17.00
3.50	1.6366	.2955	.0142	2.1	16.26
3.59	1.6578	.3056	.0101	1.2	15.71
3.68	1.6785	.3156	.0100	.7	15.19
3.76	1.6992	.3257	.0101	.4	14.57
3.85	1.7199	.3359	.0102	.2	13.88
3.94	1.7406	.3463	.0103	.1	13.19
4.03	1.7606	.3564	.0101	.0	12.59

HYDROGRAPH PEAK= 23.40 cfs
TIME TO PEAK= 2.87 Hours
RUNOFF VOLUME= 4.23 Acre-Feet

AMENDME
APPROVED Mining
Approved, Division of Oi

by TM date 4/22/92

PROJECT : CPMC Pond 6 Inflow Hydrograph - 100 Yr, 6 Hr Runoff Event

AREA= 38.0 ACRES
AVERAGE BASIN SLOPE= 17.9 PERCENT
CURVE NUMBER= 71.0
DESIGN STORM= 2.10 INCHES
STORM DURATION= 6.0 HOURS
HYDRAULIC LENGTH= 3380. FEET
MINIMUM INFILTRATION RATE= .00 IN/HR

TP= .2871 HOURS QPCFS= 100.08 CFS QPIN= 2.6119 INCHES
C3= 12.8742 ITERATIONS= 8 SCS 6-hour

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
2.18	.7662	.0000	.0000	.0	.00
2.24	.8554	.0004	.0004	5.0	.00
2.30	.9447	.0039	.0035	31.1	.03
2.35	1.0339	.0109	.0071	66.4	.17
2.41	1.1231	.0214	.0104	91.9	.54
2.47	1.2124	.0349	.0136	100.1	1.22
2.53	1.2712	.0455	.0106	93.8	2.20
2.58	1.2954	.0502	.0047	79.1	3.28
2.64	1.3195	.0551	.0049	61.9	4.12
2.70	1.3436	.0602	.0051	45.7	4.59
2.76	1.3677	.0655	.0053	32.2	4.70
2.81	1.3918	.0709	.0055	21.9	4.60
2.87	1.4160	.0766	.0057	14.4	4.41
2.93	1.4401	.0825	.0059	9.2	4.21
2.99	1.4642	.0885	.0061	5.8	4.06
3.04	1.4847	.0938	.0053	3.6	3.97
3.10	1.5040	.0989	.0051	2.2	3.90
3.16	1.5232	.1041	.0052	1.3	3.84
3.22	1.5425	.1095	.0053	.8	3.77
3.27	1.5618	.1149	.0054	.4	3.71
3.33	1.5811	.1205	.0055	.3	3.66
3.39	1.6004	.1261	.0057	.1	3.64
3.45	1.6197	.1319	.0058	.0	3.63

HYDROGRAPH PEAK= 4.70 cfs
TIME TO PEAK= 2.76 Hours
RUNOFF VOLUME= .97 Acre-Feet

AMENDM
APPROVED Mining & Plan
Approved, Division of Oil, Mining

by TM date 4/22/92

PROJECT : CPMC Pond 7 Inflow Hydrograph - 100 Yr, 6 Hr Runoff Event

AREA= 14.8 ACRES
AVERAGE BASIN SLOPE= 15.0 PERCENT
CURVE NUMBER= 76.0
DESIGN STORM= 2.10 INCHES
STORM DURATION= 6.0 HOURS
HYDRAULIC LENGTH= 2750. FEET
MINIMUM INFILTRATION RATE= .00 IN/HR

TP= .2310 HOURS QPCFS= 48.45 CFS QPIN= 3.2465 INCHES
C3= 16.0018 ITERATIONS= 8 SCS 6-hour

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
2.08	.6059	.0000	.0000	.0	.00
2.13	.6777	.0007	.0007	2.4	.00
2.17	.7495	.0042	.0036	15.0	.02
2.22	.8213	.0108	.0065	32.2	.09
2.26	.8931	.0200	.0093	44.5	.27
2.31	.9649	.0318	.0118	48.4	.57
2.36	1.0367	.0461	.0142	45.4	1.00
2.40	1.1085	.0626	.0165	38.3	1.55
2.45	1.1803	.0812	.0187	30.0	2.18
2.49	1.2521	.1019	.0207	22.1	2.86
2.54	1.2773	.1096	.0077	15.6	3.53
2.59	1.2967	.1157	.0061	10.6	4.01
2.63	1.3161	.1219	.0062	7.0	4.18
2.68	1.3355	.1283	.0064	4.5	4.06
2.73	1.3549	.1348	.0065	2.8	3.76
2.77	1.3743	.1414	.0066	1.7	3.41
2.82	1.3937	.1482	.0067	1.0	3.07
2.86	1.4131	.1550	.0069	.6	2.79
2.91	1.4325	.1620	.0070	.4	2.58
2.96	1.4519	.1692	.0071	.2	2.44
3.00	1.4711	.1763	.0071	.1	2.36
3.05	1.4866	.1822	.0059	.0	2.31

HYDROGRAPH PEAK= 4.18 cfs
TIME TO PEAK= 2.63 Hours
RUNOFF VOLUME= .57 Acre-Feet

AMENDMENT TO
APPROVED Mining & Reclamation Plan
Approved, Division of Oil, Gas & Mining

by TM date 4/22/92

PROJECT : CPMC Pond 8 Inflow Hydrograph - 100 Yr, 6 Hr Runoff Event

AREA= 56.6 ACRES

AVERAGE BASIN SLOPE= 64.0 PERCENT
CURVE NUMBER= 76.0
DESIGN STORM= 2.10 INCHES
STORM DURATION= 6.0 HOURS

HYDRAULIC LENGTH= 2180. FEET
MINIMUM INFILTRATION RATE= .00 IN/HR

TP= .0929 HOURS QPCFS= 460.72 CFS QPIN= 8.0752 INCHES
C3= 39.8028 ITERATIONS= 8 SCS 6-hour

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
2.08	.6079	.0000	.0000	.0	.00
2.10	.6367	.0000	.0000	23.1	.00
2.12	.6656	.0004	.0004	143.1	.00
2.14	.6945	.0012	.0009	305.9	.07
2.15	.7233	.0026	.0014	422.9	.27
2.17	.7522	.0044	.0018	460.7	.66
2.19	.7811	.0068	.0023	431.6	1.27
2.21	.8099	.0095	.0028	364.3	2.09
2.23	.8388	.0128	.0032	284.9	3.10
2.25	.8677	.0164	.0037	210.3	4.23
2.27	.8965	.0205	.0041	148.2	5.46
2.28	.9254	.0250	.0045	100.6	6.75
2.30	.9543	.0299	.0049	66.3	8.06
2.32	.9831	.0352	.0053	42.5	9.38
2.34	1.0120	.0409	.0057	26.7	10.69
2.36	1.0409	.0470	.0061	16.5	11.99
2.38	1.0697	.0534	.0064	10.0	13.26
2.40	1.0986	.0602	.0068	6.0	14.51
2.41	1.1274	.0673	.0071	3.5	15.73
2.43	1.1563	.0748	.0075	2.0	16.92
2.45	1.1852	.0826	.0078	1.2	18.09
2.47	1.2140	.0907	.0081	.7	19.22
2.49	1.2429	.0992	.0084	.4	20.34
2.51	1.2632	.1053	.0061	.2	21.36
2.53	1.2710	.1077	.0024	.1	21.95
2.54	1.2788	.1101	.0024	.0	21.59
2.56	1.2866	.1125	.0024	.0	20.21
2.58	1.2944	.1150	.0025	.0	18.15
2.60	1.3022	.1175	.0025	.0	15.87
2.62	1.3100	.1200	.0025	.0	13.76
2.64	1.3178	.1225	.0025	.0	11.99

HYDROGRAPH PEAK= 21.95 cfs
TIME TO PEAK= 2.53 Hours
RUNOFF VOLUME= 2.20 Acre-Feet

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by TMS date 4/22/92

PROJECT : CPMC Pond 9 Inflow Hydrograph

AREA= 80.0 ACRES
AVERAGE BASIN SLOPE= 26.6 PERCENT
CURVE NUMBER= 81.0
DESIGN STORM= 2.10 INCHES
STORM DURATION= 6.0 HOURS
HYDRAULIC LENGTH= 9130. FEET
MINIMUM INFILTRATION RATE= .00 IN/HR

TP= .3891 HOURS QPCFS= 155.48 CFS QPIN= 1.9274 INCHES
C3= 9.5000 ITERATIONS= 8 SCS 6-hour

TIME HOURS	ACCUMULATED RAINFALL INCHES	RUNOFF INCHES	RAINFALL EXCESS INCHES	UNIT HYDROGRAPH CFS	OUTFLOW HYDROGRAPH CFS
1.95	.4613	.0000	.0000	.0	.00
2.02	.5194	.0011	.0011	7.8	.00
2.10	.6403	.0116	.0106	48.3	.13
2.18	.7612	.0323	.0207	103.2	.78
2.26	.8822	.0618	.0295	142.7	2.47
2.33	1.0031	.0990	.0372	155.5	5.53
2.41	1.1241	.1429	.0439	145.6	9.94
2.49	1.2450	.1928	.0499	122.9	15.45
2.57	1.2886	.2122	.0193	96.2	21.41
2.65	1.3213	.2271	.0149	71.0	26.18
2.72	1.3540	.2424	.0153	50.0	28.62
2.80	1.3867	.2580	.0156	34.0	28.76
2.88	1.4194	.2740	.0160	22.4	27.34
2.96	1.4521	.2903	.0163	14.4	25.25
3.04	1.4818	.3054	.0151	9.0	23.11
3.11	1.5079	.3188	.0135	5.6	21.20
3.19	1.5341	.3325	.0137	3.4	19.58
3.27	1.5602	.3464	.0139	2.0	18.22
3.35	1.5864	.3605	.0141	1.2	17.13
3.42	1.6125	.3747	.0142	.7	16.29
3.50	1.6385	.3890	.0143	.4	15.70
3.58	1.6564	.3990	.0100	.2	15.27
3.66	1.6744	.4091	.0101	.1	14.83
3.74	1.6924	.4193	.0102	.0	14.25

HYDROGRAPH PEAK= 28.76 cfs
TIME TO PEAK= 2.80 Hours
RUNOFF VOLUME= 4.45 Acre-Feet

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