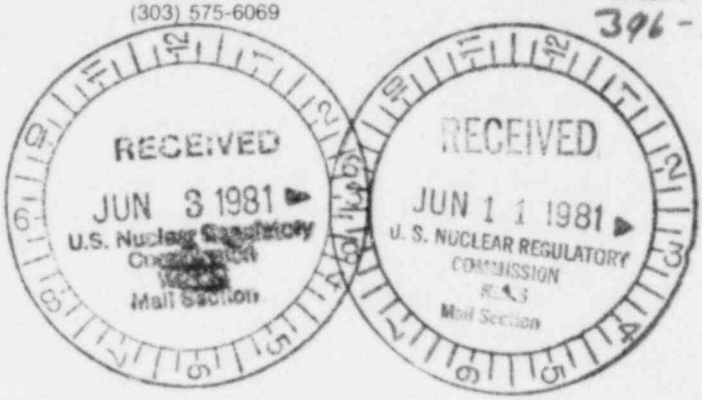
Docket 40-8743
PDR

conoco

Return to
D. Cramer
396-55

**T. W. Quigley**
Environmental Project Leader
Sand Rock Mill
Minerals Department

**Conoco Inc.**
555 Seventeenth Street
Denver, CO 80202
(303) 575-6069




June 2, 1981

Mr. Thomas E. Fleming
Project Manager
U.S. Nuclear Regulatory Commission
7915 Eastern Avenue
Silver Spring, Maryland 20910

Re: Correction for Seepage Estimate Methodology - Sand Rock Mill Project - NRC Docket No. 40-8743

Dear Mr. Fleming:

In our May 14, 1981 conference call with George Hoffman of Hydro-Engineering and Ott Water Engineers, questions were raised concerning methodology of computing seepage rates. Mr. Hoffman has reviewed his work, and offered the attached correction.

Under separate cover, I am forwarding a copy of this material to Ott Water Engineers in Denver.

If you have any questions regarding this material, please contact me.

Sincerely,

T. W. Quigley

T. W. Quigley

kr

Enclosure

cc: J. E. Cearley
D. W. Bollig
C. Kraeger-Rovey - Ott


FEE EXEMPT



10122
Add'l Info

HYDRO

May 26, 1981



CONOCO, INCORPORATED
555 Seventeenth St.
Denver, CO 80202
ATTN: Mr. T. W. Quigley

Dear Terry:

As noted by the NRC consultants, we did use the total area of the evaporation pond for $R^2$ in our seepage calculations when we should have used the total area divided by $\pi$. We have recomputed the seepage rate for the proposed alternative (cutoff trenches in the Upper Sandstone) with the correct $R^2$.

A corrected Figure 5-7 of the E.R. is included. Very little difference in the seepage rates was obtained by the change in the $R^2$ value. The parameters used in the calculation and the seepage values are given on the enclosed calculation sheet. This sheet should aid the reviewers in checking our calculations.

Please give me a call if you have a question on this error.

Sincerely,

George L.

GEORGE L. HOFFMAN, P.E.
Hydrologist

GLH/kr

encl.

HYDRO - ENGINEERING
P.O. BOX 473 CASPER, WYOMING 82602 (307)266-6597

CALCULATION SHEET FOR SEEPAGE

Site: Evaporation Pond

Conditions: With cutoff trench and no liner (all seepage must go through mudstone)

Parameters: $y = 20$ ft, $Ds = D_t = D_\ell = 0.00000001^{ft}$,

$K_s = K_t = K_\ell = 0.1$ ft/yr, $Dm = 15$ ft, $Km = 15$ ft/yr,

$n\text{-}\theta i = 0.15$, $R^2 = 1.6 \times 10^6$ ft$^2$, $hd = -13$ ft

$\lambda = 2$, $Hm = 20$ ft

Phase I: @ $L = 15$ ft (distance front below tailings)

$q = 33$ ft/yr (seepage at end of Phase I)

$t = 0.038$ yr (time at end of Phase I) (goes directly to Phase III)

PHASE III CALCULATIONS

| SEEPAGE RATE (ft/yr) | PHASE III TIME (yrs) | TIME SINCE START OF SEEPAGE (yrs) | SEEPAGE RATE* (gpm) |
|---|---|---|---|
| 0.5 | 0.018 | 0.056 | 36 |
| 0.3 | 0.050 | 0.088 | 21 |
| 0.2 | 0.11 | 0.15 | 14 |
| 0.1 | 0.46 | 0.50 | 7.1 |
| 0.08 | 0.72 | 0.76 | 5.7 |
| 0.06 | 1.31 | 1.34 | 4.3 |
| 0.05 | 1.90 | 1.94 | 3.6 |
| 0.04 | 3.03 | 3.07 | 2.8 |
| 0.03 | 5.54 | 5.58 | 2.1 |
| 0.02 | 13.2 | 13.3 | 1.4 |

* SEEPAGE RATE (gpm) = $\dfrac{\text{Seepage rate (ft/yr) Pond Area (ft}^2\text{) (7.48 gal/ft}^3\text{)}}{\text{(365 day/yr)(1490 min/yr)}}$

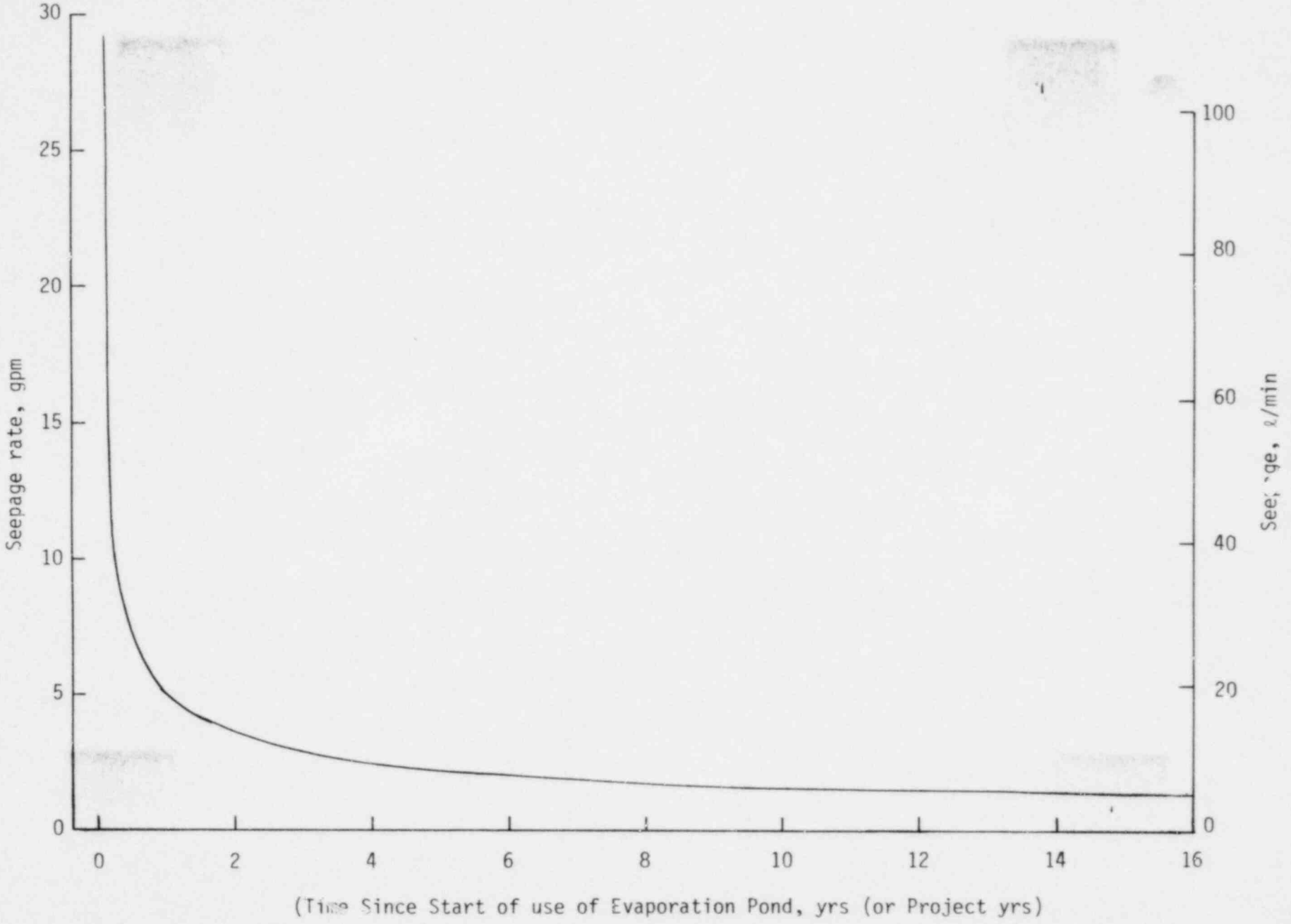



FIGURE 5-7. (updated 5/81) ESTIMATED SEEPAGE FROM THE EVAPORATION POND WITH CUTOFF TRENCHES IN THE UPPER SANDSTONE