



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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December 13, 1988

TO: Susan Linner, Permit Supervisor

FROM: Rick P. Summers, Reclamation Hydrologist *ERPS*

RE: Determination of Runoff Volume Expected from a 100 yr. -24 hr. Precipitation Event Reporting to Upper and Lower Refuse Ponds and Clear Water Pond, Wellington Coal Preparation Plant, Kaiser Steel Corporation, ACT/007/012, Carbon County, Utah

INTRODUCTION:

This memo presents a cursory calculation, based upon available information contained in the approved MRP, of the runoff volume expected from a 100 yr. - 24 hr. precipitation event for drainage reporting to the above cited impoundment structures. It is to be recognized that current, accurate maps are not available of the impoundment structures. Therefore, stage-volume calculations were not performed for the site. However, the calculations demonstrate that the existing structures can be reasonably expected to contain the design precipitation event.

ANALYSIS:

The runoff volume calculations were performed using accepted Soil of Conservation hydrologic techniques (SCS, NEH -4, 1972). Plate A9-1429 contained in Volume 3 of the MRP (attached) was used to determine the drainage areas reporting to the aforementioned structures. Watersheds P1, P2, P3, A, and B were digitized to determine the acreages involved. The total area was found to be 408.34 acres. The Division assumed a curve number of 85 (actual value is 84.16) from the MRP (Sheet 1 of 23, Appendix A, Volume 3), and a precipitation value of 2.74 inches (Page B-17, Rev. 1: 6-30-83, Vol. 3) for a 100 yr. - 24 hr. precipitation event. Using those assumptions, the runoff volume for this area can be expected to be 46.7 ac-ft.

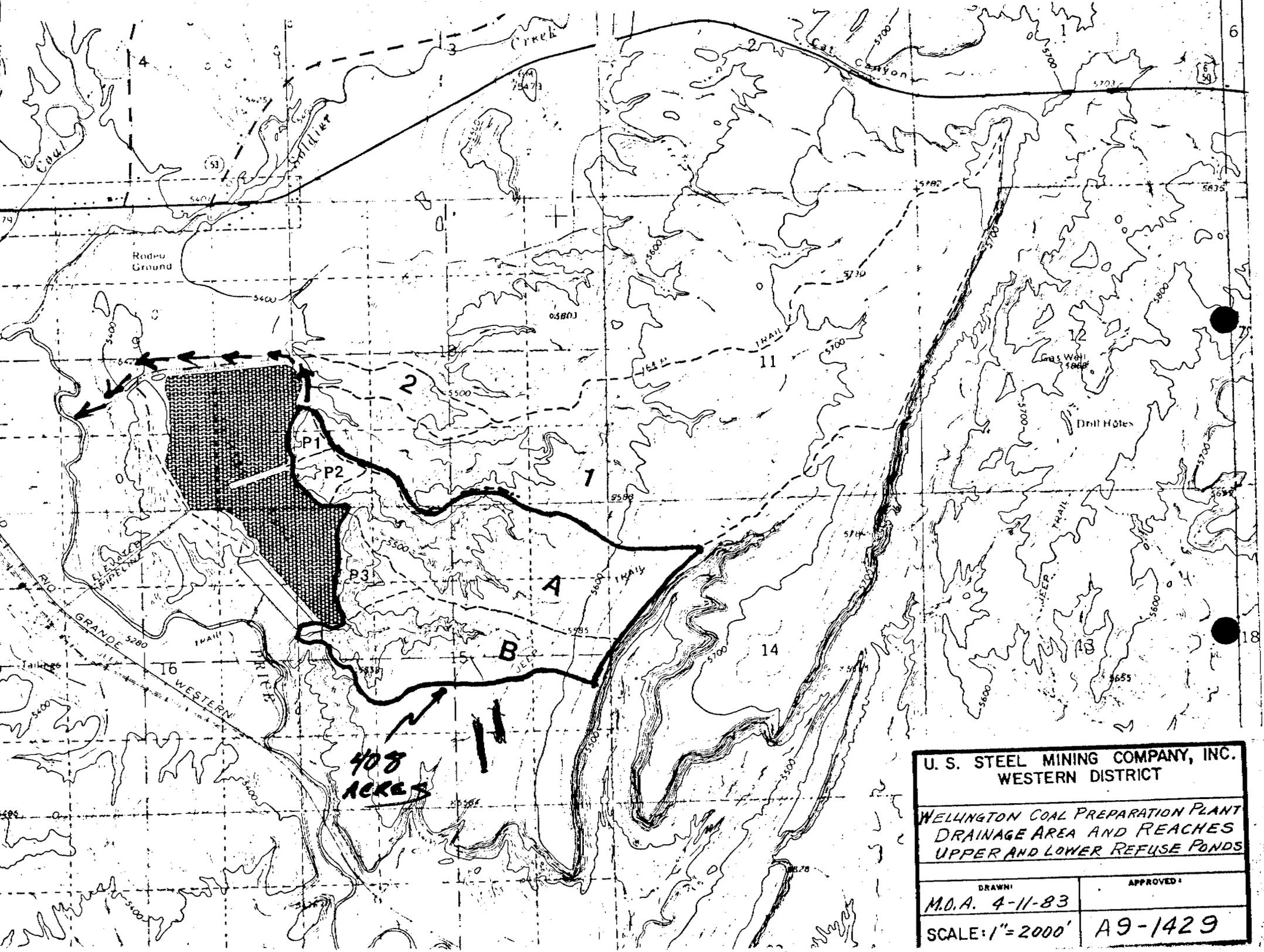
Page 2
Wellington Coal Prep Plant
ACT/007/012

The MRP does not contain current, accurate maps of the existing slurry impoundments. However, sheet 1 of 2, Appendix A, Volume 3 (attached) presents the pond area in acres for the upper, lower, and clear water ponds. The total area of the ponds is 124.53 acres. If we solve the problem to determine the total depth of the runoff volume in the existing impoundments, we find the depth to be approximately:

$$\frac{46.7 \text{ ac-ft}}{124.53 \text{ acres}} = 0.38 \text{ feet}$$

In summary, the available pond depth would have to be less than a half foot to contain the 100 yr. 24 hr. precipitation event runoff. It can be reasonably assumed this volume exists at the site.

cc: L. Braxton
J. Helfrich
BT6005/53-54



U. S. STEEL MINING COMPANY, INC.
WESTERN DISTRICT

WELLINGTON COAL PREPARATION PLANT
DRAINAGE AREA AND REACHES
UPPER AND LOWER REFUSE PONDS

DRAWN:
M.O.A. 4-11-83

APPROVED:
A9-1429

SCALE: 1" = 2000'

CALCULATION NOTES

By V R Watts
 Checked _____
 Acc't _____
 Date May 27 1983
 Sheet No. 1 of 2 Sheets

Subject Storm Calculations

100 year 24 hour Storm

Wellington Coal Cleaning Plant

Lower Refuse Pond during Construction

Vertical Pipe from Lower Refuse Pond

General Data - Calculation 3

Number of units of storm data
 Number of hours per unit of storm data
 Design storm magnitude in inches
 Storm duration in hours
 Cleaning Plant Discharge

75
2.0
2.74
24.0
7.58

Upper Refuse Pond Data

Pond area in acres
 Number of overflow weirs
 Weir length in feet
 Elevation difference between weir and pond

52.37
2
1.44
-0.94



Lower Refuse Pond Data

Pond area in acres
 Number of overflow pipe(s)
 Pipe diameter
 Elevation difference between pipes and pond

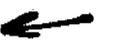
59.87
1
1.44
-0.62



Clear Water Pond Data

Pond area in acres
 Number of overflow pipes
 Inside pipe diameter
 Roughness factor
 Slope as a ratio
 Elevation difference between pipe and pond

12.29
1
3.0
0.012
0.01
0.1



$\Sigma = 124.53$ acres