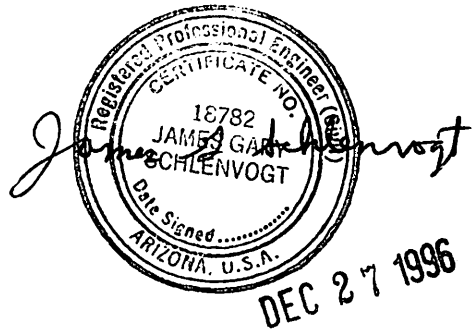


INSPECTION REPORT
Temporary Sedimentation Structure
TPF-A
Kayenta Mine
Navajo County, Arizona
for
PEABODY WESTERN COAL COMPANY



INSPECTION REPORT

Temporary Sedimentation Structure

TPF-A

Kayenta Mine

Navajo County, Arizona

for

PEABODY WESTERN COAL COMPANY

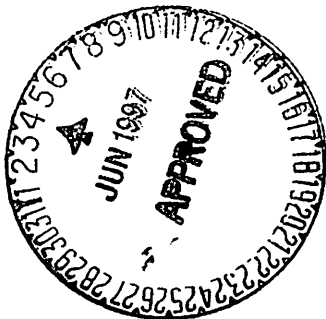


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APPENDIX A Hydrology and Hydraulic Calculations

APPENDIX B SEDCAD+ (Input and Output) 10-Year, 24-Hour Storm Event

APPENDIX C SEDCAD+ (Input and Output) 100-Year, 6-Hour Storm Event

EXHIBIT 1 - TPF-A Pond (As-Built)



INTRODUCTION

Sedimentation structure TPF-A is a partially incised structure with an earthen embankment, designed and constructed by Peabody Western Coal Company in 1982 with remedial work completed in 1995 as a temporary sedimentation structure to control runoff and sediment from disturbed mining areas including "Transfer F" and a portion of the overland conveyor at the Kayenta Mine. The location of structure TPF-A and its watershed boundary is shown on Drawing No. 85400 (Sheets J-7 and K-7) and Drawing No. 85405. The existing as-built plans are shown on the attached Exhibit 1.

This inspection report contains information specific to existing Structure TPF-A, which is located in series with existing sedimentation Structure TPF-D and proposed Structure TPF-E. Mine-wide design, construction, and reclamation information is presented in the "General Report, Kayenta and Black Mesa Mines, Navajo County, Arizona for Peabody Western Coal Company", December, 1985 (PAP), Chapter 6, Attachment D, Volume 2, along with the methods and results of analyses used for slope stability, hydrology, and hydraulics, and in Chapter 6, Pages 11 to 42, "Sediment and Water Control Facility Plan".

INSPECTION

The construction site of existing structure TPF-A was inspected by a Registered Professional Engineer from Peabody Western Coal Company, to ensure that the location was suitable and no adverse conditions existed to prevent the successful construction of the structure. A detailed geotechnical investigation was not performed, rather, the information in Chapter 6, Attachment D was utilized for embankment design.



SITE DESCRIPTION

Land Use

The TPF-A, TPF-D, and TPF-E structures have a 517.6 acre combined drainage area and is located on a tributary to Yellow Water Canyon Wash. The 219.1 acre watershed contributing directly to the TPF-A structure is classified as 1% disturbed, 60% Pinion Juniper (poor cover), and 39% Pinion Juniper (fair cover).

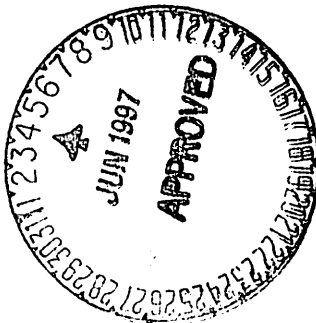
Embankment

A homogeneous earthen embankment, approximately 16 feet wide was assumed for the hydraulic analysis. The embankment has an upstream slope of 2.4H:1V and a downstream slope of 4.5H:1V. The embankment material is a category A-4 material (see Attachment D).

DESIGN ANALYSES

General

Structure TPF-A was designed under the supervision of a Registered Professional Engineer from Peabody Western Coal Company. The design was performed in accordance with applicable 30 CFR 780 and 816 regulations of the United States Department of Interior, Office of Surface Mining (OSM) and included a review of available project files. The most current information contained in the Peabody Western Coal Company files includes topographic maps developed from aerial photography flown in 1992 for Peabody Western Coal Company and was used in the analyses of the structure.



Stability

Structure TPF-A is a category A-4 embankment. A standard category A-4 embankment has static and seismic factors of safety equal to or greater than 1.5 and 1.2, respectively, under the following conditions:

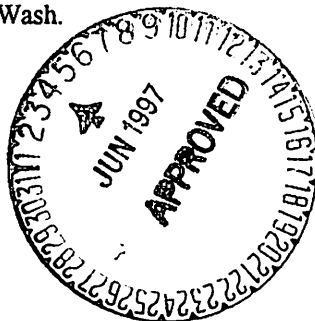
1. Maximum height = 30 ft
2. Average upstream slope = 2.0H:1V
3. Average downstream slope = 4.25H:1V
4. Normal pool with steady seepage saturation conditions

The TPF-A embankment is lower in height and has a downstream slope flatter than the category standard; therefore, the embankment has factors of safety is more than the design minimum.

Hydrology

The hydrologic analysis was completed using the computer program SEDCAD+ (see Appendices A, B, and C). Structure TPF-A is located in series with existing Structure TPF-D and proposed Structure TPF-E. Structure TPF-A is classified as a low hazard structure (see Drawing No. 85408). The mine area is sparsely populated with no one living in the downstream flood plain. The embankment structure impounds less than 20 acre-feet and is less than 20 vertical feet in height from the upstream toe of embankment of the natural stream elevation to the emergency spillway elevation. The three structures have a combined capacity greater than 20 acre-feet; therefore, the spillway was analyzed using the 100-year, 6-hour storm event in lieu of the 25-year, 6-hour storm. Structures TPF-D, TPF-A, and TPF-E were conservatively assumed to be full to the emergency spillway at the time of 100-year storm event. The storage capacity of structure TPF-A was analyzed using the 10-year, 24-hour storm event. The combined ponds in series were conservatively assumed to completely contain the 10-year, 24-hour storm event, and provide adequate sediment storage volume, without discharging downstream into the Yellow Water Canyon Wash.

Revised (04/22/97)



TPF-A SEDIMENTATION POND HYDRAULICS TABLE

	<u>Units</u>	<u>10-Yr. 24-Hr Storm</u>	<u>100-Yr. 6-Hr Storm</u>
Initial Reservoir Volume Condition		Empty	Full to emergency spillway
Inflow			
Peak Flow	cfs	167.76	542.9
Volume	ac-ft	15.87	43.9
Storage			
Peak Stage	msl	N/A	6599.5
Emerg. Spillway Elev.	msl	6596.1	6596.1
Peak Storage	ac-ft	N/A	31.24
Storage Capacity	ac-ft	25.04	25.04
Outflow			
Peak Flow	cfs	N/A	496.4
Spillway Elevation	msl	6596.1	6596.1
Embankment Crest Elev.	msl	6603.6	6603.6
Peak Stage	msl	--	6599.5
Freeboard	ft	--	4.1
Emergency Spillway Channel			
Flow Depth	ft	--	3.4
Critical Velocity	fps	--	7.6
Mannings "n"	--	--	.035
Width	ft	--	25
Outflow Channel			
Average Slope	%	--	13.8
Normal Velocity	fps	--	11.5
Normal Depth	ft	--	1.5
Mannings "n"	--	--	.057
Gravimetric D ₅₀	in	--	12



Emergency Spillway and Outlet Channel

The emergency spillway and outlet channel for TPF-A will be a trapezoidal channel, the alignment and dimensions are shown on Exhibit 1 and includes the following dimensions:

Minimum Channel Depth	(Spillway)	4.4	ft
	(Outflow)	2.5	ft
Channel Width		25	ft
Channel Length	(Spillway)	53	ft
	(Outflow)	230	ft
Side Slopes (Horizontal to Vertical)		1.7:1	or flatter
Average Slope	(Spillway)	0	%
Average Slope	(Outflow)	13.8	%
Spillway Elevation		6596.1	ft

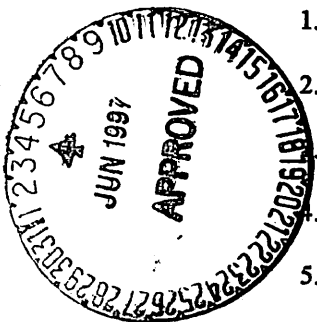
A minimum 15-foot long riprap lined channel has been constructed beyond the toe of the embankment as a transition into the downstream natural channel.

Storage Capacity

The impoundment stage-capacity table (see Exhibit 1) is based on previously reported capacities and design topography. The total storage capacity of structure TPF-A is designed to contain approximately 25.04 acre-feet. The structure is incised approximately 5.15 acre-feet.

The calculations for the sediment load entering structure TPF-A were made utilizing the Revised Universal Soil Loss Equation with the following parameters:

1. Rainfall Factor, R 40
2. Soil Erodibility Factor, K 0.18
- Slope Factor, LS 14.4
- Cover Factor 0.19
5. Erosion Control Factor, P 1.0



The hydrologic analysis gives the storage volume required to contain the 10-year, 24-hour storm, and the remaining storage volume available for storing sediment. Structure TPF-A does not have sufficient storage to contain the 10-year, 24 hour storm by itself; however, in series with structures TPF-D and TPF-E, sufficient storage is achieved. The combined sediment storage capacity was determined for the three structures in series and the results of the analysis are presented in the following table.

Combined Storage for Structures TPF-A, TPF-D, and TPF-E

	TPF-A	TPF-D	TPF-E	Combined
Total Storage Capacity	25.04	19.77	19.63	64.44 acre-ft
10-Year, 24-Hour Storm Inflow	15.87	18.80	2.17	36.84 acre-ft
Available Sediment Storage Capacity	---	---	---	27.60 acre-ft
Sediment Inflow Rate/Year	1.94	2.53	0.16	4.63 acre-ft
Sediment Storage Life	-----	-----	-----	6.0 years

The following appendices and drawing are attached and complete this design report.

- Appendix A - Hydrology, Hydraulic, and Sedimentation Calculations
- Appendix B - SEDCAD+ (Input and Output) 10-Year, 24-Hour Storm Event
- Appendix C - SEDCAD+ (Input and Output) 100-Year, 6-Hour Storm Event

EXHIBIT 1 - TPF-A Pond (As-Built)



APPENDIX A
Hydrology, Hydraulic, and Sedimentation Calculations



**PEABODY WESTERN COAL COMPANY
CALCULATED HYDROLOGIC DATA**

PROJECT: TPF-A Pond

TIME OF CONCENTRATION:

Start Elevation (ft) = 7165
 End Elevation (ft) = 6570
 Elevation Difference, E (ft) = 595

Watercourse Length (ft) = 5870
 Watercourse Length, L (mi) = 1.112

$T_c = (11.9L^3/E)^{0.385} = \underline{\underline{0.251 \text{ hours}}}$

ROUTING PARAMETERS:

Between structure routing parameters were calculated using the SCS Upland Method in SEDCAD+. Input and output parameters are shown on the SEDCAD+ printouts in Appendices B and C.

SCS CURVE NUMBER:

Cover Type	Soil Group	Curve Number	Area (acres)	CN*Area
Pinyon & Juniper (poor cover)	D	89	130.43	11608.09
Pinyon & Juniper (fair cover)	D	80	86.95	6956.16
Disturbed (conveyor)	D	89	1.72	153.26
TOTAL:			219.10	18717.51

Weighted CN = Total CN*Area / Total Area = 85

DRAINAGE BASIN AREA:

219.10 Acres



**PEABODY WESTERN COAL COMPANY
CALCULATED SEDIMENTOLOGY DATA**

PROJECT: TPF-A Pond

SOIL ERODIBILITY FACTOR:

Soil Type	Erodibility Factor, K	Area (acres)	K*Area
EH #30	0.18	219.11	39.44
TOTAL:		219.11	39.44

Weighted K = Total K*Area/ Total Area = 0.18

SLOPE FACTOR:

Length (ft)	Elevation Change (ft)	Slope (%)	m	Slope Angle (deg)	LS Factor
470	230	48.9%	0.6	26.1	21.11
710	230	32.4%	0.6	17.9	18.37
320	100	31.3%	0.6	17.4	10.99
590	210	35.6%	0.6	19.6	18.05
480	150	31.3%	0.6	17.4	14.01
400	130	32.5%	0.6	18.0	13.06
360	140	38.9%	0.6	21.3	14.61
410	70	17.1%	0.6	9.7	6.58
580	170	29.3%	0.6	16.3	14.70
500	210	42.0%	0.6	22.8	19.11
210	60	28.6%	0.6	15.9	7.78

Average LS = 14.40

The LS Factor was calculated by:

$LS = (Slope\ Length/72.6)^m * (10.8 * \sin(slope\ angle) + 0.03)$ for Slopes < 9%

$LS = (Slope\ Length/72.6)^m * (16.8 * \sin(slope\ angle) - 0.5)$ for Slopes ≥ 9%

Where:

- Slope ≤ 3% m = 0.3
- Slope = 4% m = 0.4
- 5% ≥ Slope < 10% m = 0.5
- Slope > 10% m = 0.6



**PEABODY WESTERN COAL COMPANY
CALCULATED SEDIMENTOLOGY DATA**

PROJECT: TPF-A Pond

COVER AND PRACTICE FACTORS:

Cover Type	Cover (%)	Canopy (%)	Area (acres)	Cover Factor, C	C*Area	Practice Factor, P	P*Area
Pinyon & Juniper	20%	25%	130.43	0.22	28.69	1.00	130.43
Pinyon & Juniper	40%	25%	86.95	0.14	12.17	1.00	86.95
Disturbed (conveyor)	0%	0%	1.72	1.00	1.72	1.00	1.72
TOTAL:			219.10		42.59		219.10

Weighted C = Total C*Area/ Total Area = 0.19

Weighted P = Total P*Area/ Total Area = 1.00

RAINFALL FACTOR:

R = 40

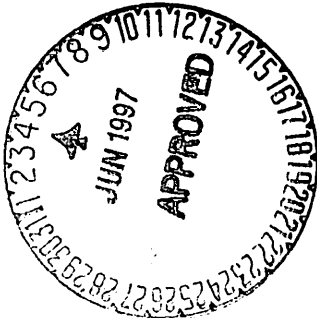


PEABODY WESTERN COAL COMPANY
CALCULATED SEDIMENT YIELD

PROJECT: TPF-A Pond

The following spreadsheet calculates the predicted sediment yield for the project area. The gross sediment yield is determined according to the Revised Universal Soil Loss Equation.

PARAMETER DESCRIPTION	VALUE
Annual Rainfall Factor	40.00
Soil Erodibility Factor	0.18
Length Slope Factor	14.40
Cover Factor	0.19
Practice Factor	1.00
Gross Annual Sediment Yield	20.15 tons/acre/year
Sediment Density	94.00 pcf
Gross Annual Sediment Yield	0.0098 acre-feet/acre/year
Sediment Delivery Ratio	90%
Estimated Annual Sediment Yield	0.0089 acre-feet/acre/year
Watershed Area	219.10 acres
Watershed Annual Sediment Yield	1.94 acre-feet/year
Number of years	1 years
Calculated Sediment Volume	1.94 acre-feet



Peabody Western Coal Company
Worksheet for Trapezoidal Channel

Project Description

Project File	c:\808\808.fm2
Worksheet	TPF-A Spillway - Critical Velocity
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data

Mannings Coefficient	0.035
Channel Slope	0.015139 ft/ft
Left Side Slope	3.500000 H : V
Right Side Slope	1.700000 H : V
Bottom Width	25.00 ft
Discharge	496.40 cfs

Results

Depth	2.13	ft
Flow Area	65.14	ft ²
Wetted Perimeter	36.97	ft
Top Width	36.09	ft
Critical Depth	2.13	ft
Critical Slope	0.015139	ft/ft
Velocity	7.62	ft/s
Velocity Head	0.90	ft
Specific Energy	3.04	ft
Froude Number	1.00	

Flow is subcritical.

Notes:

Slope of Channel set at critical slope to determine critical velocity.



SEDCAD+ RIPRAP CHANNEL DESIGN

TPF-A Outslope Channel

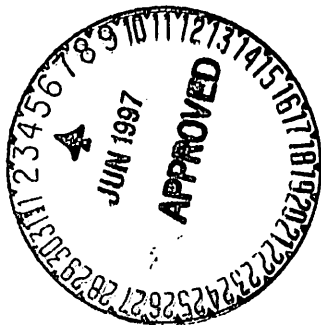
INPUT VALUES:

Shape	TRAPEZOIDAL
Discharge	496.40 cfs
Slope	13.80 %
Sideslopes (L and R)	1.70:1 3.50:1
Bottom Width	25.00 feet
Freeboard	1 ft

RESULTS:

Steep Slope Design - PADER Method

Depth	1.49 ft
with Freeboard	2.49 ft
Top Width	32.76 ft
with Freeboard	37.96 ft
Velocity	11.53 fps
Cross Sectional Area	43.07 sq ft
Hydraulic Radius	1.29 ft
Manning's n	0.057
Froude Number	1.77
Dmax	1.250 ft (15.00 in)
D50	1.000 ft (12.00 in)
D10	0.333 ft (4.00 in)



APPENDIX B
SEDCAD+ (Input and Output) 10-Year, 24-Hour Storm Event



CIVIL SOFTWARE DESIGN

SEDCAD+ Version 3

SEDIMENTATION PONDS TPF-D, TPF-A, AND TPF-E

by

Name: K. Kammerzell

Company Name: ACZ, INC.
File Name: C:\808\TPF-E\TPF-E

Date: 12-17-1996



Company Name: ACZ, INC.

Filename: C:\808\TPF-E\TPF-E User: K. Kammerzell

Date: 12-17-1996 Time: 14:42:16

Sedimentation Ponds TPF-D, TPF-A, and TPF-E

Storm: 2.10 inches, 10 year-24 hour, SCS Type II

Hydrograph Convolution Interval: 0.1 hr

=====
 GENERAL INPUT TABLE
 =====

Detailed Between Structure Routing:

J	B	S	To Seg. #	Land Flow Condition	Distance (ft)	Slope (%)	Velocity (fps)	Segment Time (hr)	Muskingum K (hr)	X
1	1	2	1	8	2954.12	5.29	6.90	0.12	0.118	0.401
1	1	3	1	8	1301.88	5.38	6.96	0.05	0.051	0.401



Company Name: ACZ, INC.

Filename: C:\808\TPF-E\TPF-E User: K. Kammerzell

Date: 12-17-1996 Time: 14:42:16

Sedimentation Ponds TPF-D, TPF-A, and TPF-E

Storm: 2.10 inches, 10 year-24 hour, SCS Type II

Hydrograph Convolution Interval: 0.1 hr

=====
 SUBWATERSHED/STRUCTURE INPUT/OUTPUT TABLE
 =====

-Hydrology-

JBS	SWS	Area (ac)	CN	UHS	Tc (hrs)	K (hrs)	X	Base- Flow (cfs)	Runoff Volume (ac-ft)	Peak Discharge (cfs)	
111	1	259.61	85	F	0.216	0.000	0.000	0.0	18.80	206.08	
					Type: Pond		Label: TPF-D				
111	Structure	259.61								18.80	

111	Total IN	259.61								18.80	206.08
111	Total OUT								18.80	180.75	
=====											
112	1	219.11	85	F	0.251	0.000	0.000	0.0	15.87	167.76	
					Type: Pond		Label: TPF-A				
112	Structure	219.11								34.67	

112	Total IN	478.72								34.67	297.79
112	Total OUT								34.67	260.58	
=====											
111 to 112 Routing					0.118		0.401				
=====											
113	1	38.85	81	F	0.101	0.000	0.000	0.0	2.17	28.67	
					Type: Pond		Label: TPF-E				
113	Structure	38.85								36.84	

113	Total IN	517.57								36.84	262.72
113	Total OUT								36.84	242.56	
=====											
112 to 113 Routing					0.051		0.401				
=====											



APPENDIX C
SEDCAD+ (Input and Output) 100-Year, 6-Hour Storm Event





CIVIL SOFTWARE DESIGN

SEDCAD+ Version 3

SEDIMENTATION PONDS TPF-D, TPF-A, AND TPF-E

by

Name: K. Kammerzell

Company Name: ACZ, INC.
File Name: C:\808\TPF-E\TPF-E

Date: 12-17-1996



Company Name: ACZ, INC.

Filename: C:\808\TPF-E\TPF-E User: K. Kammerzell

Date: 12-17-1996 Time: 14:42:30

Sedimentation Ponds TPF-D, TPF-A, and TPF-E

Storm: 2.40 inches, 100 year- 6 hour, SCS Type II

Hydrograph Convolution Interval: 0.1 hr

=====
 GENERAL INPUT TABLE
 =====

Detailed Between Structure Routing:

J	B	S	To Seg. #	Land Flow Condition	Distance (ft)	Slope (%)	Velocity (fps)	Segment Time (hr)	Muskingum K	Muskingum X
1	1	2	1	8	2954.12	5.29	6.90	0.12	0.118	0.401
1	1	3	1	8	1301.88	5.38	6.96	0.05	0.051	0.401



Company Name: ACZ, INC.

Filename: C:\808\TPF-E\TPF-E User: K. Kammerzell

Date: 12-17-1996 Time: 14:42:30

Sedimentation Ponds TPF-D, TPF-A, and TPF-E

Storm: 2.40 inches, 100 year- 6 hour, SCS Type II

Hydrograph Convolution Interval: 0.1 hr

=====
 SUBWATERSHED/STRUCTURE INPUT/OUTPUT TABLE
 =====

-Hydrology-

JBS	SWS	Area (ac)	CN	UHS	Tc (hrs)	K (hrs)	X	Base- Flow (cfs)	Runoff Volume (ac-ft)	Peak Discharge (cfs)
111	1	259.61	85	F	0.216	0.000	0.000	0.0	23.78	370.47
					Type: Pond	Label: TPF-D				
111	Structure	259.61							23.78	

111	Total IN	259.61							23.78	370.47
111	Total OUT								23.78	334.61
=====										
112	1	219.11	85	F	0.251	0.000	0.000	0.0	20.07	300.85
					Type: Pond	Label: TPF-A				
112	Structure	219.11							43.86	

112	Total IN	478.72							43.86	542.94
112	Total OUT								43.86	496.44
=====										
111 to 112 Routing					0.118		0.401			
=====										
113	1	38.85	81	F	0.101	0.000	0.000	0.0	2.82	55.59
					Type: Pond	Label: TPF-E				
113	Structure	38.85							46.68	

113	Total IN	517.57							46.68	491.88
113	Total OUT								46.68	460.07
=====										
112 to 113 Routing					0.051		0.401			
=====										



Company Name: ACZ, INC.

Filename: C:\808\TPF-E\TPF-E User: K. Kammerzell

Date: 12-17-1996 Time: 14:42:30

Sedimentation Ponds TPF-D, TPF-A, and TPF-E

Storm: 2.40 inches, 100 year- 6 hour, SCS Type II

Hydrograph Convolution Interval: 0.1 hr

=====
 POND INPUT/OUTPUT TABLE
 =====

J1, B1, S1
 TPF-D

Drainage Area from J1, B1, S1, SWS(s)1: 259.6 acres
 Total Contributing Drainage Area: 259.6 acres

DISCHARGE OPTIONS:

Emergency
 Spillway

 Riser Diameter (in) ----
 Riser Height (ft) ----
 Barrel Diameter (in) ----
 Barrel Length (ft) ----
 Barrel Slope (%) ----
 Manning's n of Pipe ----
 Spillway Elevation ----

Lowest Elevation of Holes ----
 # of Holes/Elevation ----

Entrance Loss Coefficient ----
 Tailwater Depth (ft) ----

Notch Angle (degrees) ----
 Weir Width (ft) ----

Siphon Crest Elevation ----
 Siphon Tube Diameter (in) ----
 Siphon Tube Length (ft) ----
 Manning's n of Siphon ----
 Siphon Inlet Elevation ----
 Siphon Outlet Elevation ----

Emergency Spillway Elevation 6719.3
 Crest Length (ft) 78.0
 Z:1 (Left and Right) 3 4
 Bottom Width (ft) 32.0

POND RESULTS:

Permanent
 Pool
 (ac-ft)
 =====
 19.8



	Runoff Volume (ac-ft)	Peak Discharge (cfs)
IN	23.78	370.47
OUT	23.78	334.61

Peak Elevation	Hydrograph Detention Time (hrs)
6721.9	0.09

J1, B1, S2
TPF-A

Drainage Area from J1, B1, S2, SWS(s)1: 219.1 acres
Total Contributing Drainage Area: 478.7 acres

DISCHARGE OPTIONS:

Emergency
Spillway

Riser Diameter (in)	----
Riser Height (ft)	----
Barrel Diameter (in)	----
Barrel Length (ft)	----
Barrel Slope (%)	----
Manning's n of Pipe	----
Spillway Elevation	----
Lowest Elevation of Holes	----
# of Holes/Elevation	----
Entrance Loss Coefficient	----
Tailwater Depth (ft)	----
Notch Angle (degrees)	----
Weir Width (ft)	----
Siphon Crest Elevation	----
Siphon Tube Diameter (in)	----
Siphon Tube Length (ft)	----
Manning's n of Siphon	----
Siphon Inlet Elevation	----
Siphon Outlet Elevation	----
Emergency Spillway Elevation	6596.1
Crest Length (ft)	53.0
Z:1 (Left and Right)	2 4
Bottom Width (ft)	25.0



POND RESULTS:

Permanent
Pool
(ac-ft)

=====

25.0

Runoff Peak
Volume Discharge
(ac-ft) (cfs)

=====

IN	43.86	542.94
OUT	43.86	496.44

Peak Hydrograph
Elevation Detention Time
(hrs)

=====

6599.5	0.15
--------	------

J1, B1, S3
TPF-E

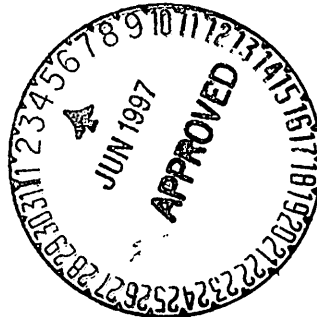
Drainage Area from J1, B1, S3, SWS(s)1: 38.8 acres
Total Contributing Drainage Area: 517.6 acres

DISCHARGE OPTIONS:

Emergency
Spillway

=====

Riser Diameter (in)	----
Riser Height (ft)	----
Barrel Diameter (in)	----
Barrel Length (ft)	----
Barrel Slope (%)	----
Manning's n of Pipe	----
Spillway Elevation	----
Lowest Elevation of Holes	----
# of Holes/Elevation	----
Entrance Loss Coefficient	----
Tailwater Depth (ft)	----
Notch Angle (degrees)	----
Weir Width (ft)	----
Siphon Crest Elevation	----
Siphon Tube Diameter (in)	----
Siphon Tube Length (ft)	----
Manning's n of Siphon	----
Siphon Inlet Elevation	----
Siphon Outlet Elevation	----
Emergency Spillway Elevation	6548.0
Crest Length (ft)	40.0
Z:1 (Left and Right)	3 3
Bottom Width (ft)	75.0



POND RESULTS:

Permanent

Pool
(ac-ft)
=====
19.6

	Runoff Volume (ac-ft)	Peak Discharge (cfs)
IN	46.68	491.88
OUT	46.68	460.07

Peak Elevation	Hydrograph Detention Time (hrs)
6549.8	0.16



Company Name: ACZ, INC.

Filename: C:\808\TPF-E\TPF-E User: K. Kammerzell

Date: 12-17-1996 Time: 14:42:30

Sedimentation Ponds TPF-D, TPF-A, and TPF-E

Storm: 2.40 inches, 100 year- 6 hour, SCS Type II

Hydrograph Convolution Interval: 0.1 hr

=====
 ELEVATION-AREA-CAPACITY-DISCHARGE TABLE
 =====

J1, B1, S1
 TPF-D

Drainage Area from J1, B1, S1, SWS(s)1: 259.6 acres
 Total Contributing Drainage Area: 259.6 acres

SW#1: Emergency Spillway

Elev	Stage (ft)	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	
6696.90	0.00	0.00	0.00	0.00	
6698.90	2.00	0.29	0.19	0.00	
6700.90	4.00	0.49	0.96	0.00	
6702.90	6.00	0.66	2.10	0.00	
6704.90	8.00	0.82	3.58	0.00	
6706.90	10.00	0.93	5.32	0.00	
6708.90	12.00	1.02	7.26	0.00	
6710.90	14.00	1.09	9.36	0.00	
6712.90	16.00	1.14	11.59	0.00	
6714.90	18.00	1.23	13.97	0.00	
6716.90	20.00	1.31	16.51	0.00	
6718.90	22.00	1.39	19.21	0.00	
6719.30	22.40	1.42	19.77	0.00	Stage of SW#1
6720.10	23.20	1.47	20.93	34.58	
6720.20	23.30	1.47	21.08	43.66	
6720.30	23.40	1.48	21.22	53.83	
6720.80	23.90	1.51	21.97	131.23	
6720.90	24.00	1.52	22.12	146.59	
6721.30	24.40	1.55	22.74	214.52	
6721.80	24.90	1.60	23.52	321.10	
6721.85	24.95	1.60	23.61	334.61	Peak Stage
6722.30	25.40	1.64	24.33	445.17	
6722.80	25.90	1.69	25.17	603.27	
6722.90	26.00	1.70	25.34	637.44	
6723.30	26.40	1.74	26.03	782.60	
6723.80	26.90	1.79	26.91	977.63	
6724.30	27.40	1.84	27.81	1205.44	
6724.90	28.00	1.90	28.93	1492.54	
6725.30	28.40	1.93	29.70	1700.68	
6726.30	29.40	2.03	31.68	2297.92	
6726.90	30.00	2.08	32.91	2700.45	
6727.30	30.40	2.12	33.75	2987.61	
6728.30	31.40	2.21	35.92	3742.24	
6728.90	32.00	2.27	37.26	4258.22	
6729.30	32.40	2.31	38.18	4622.21	



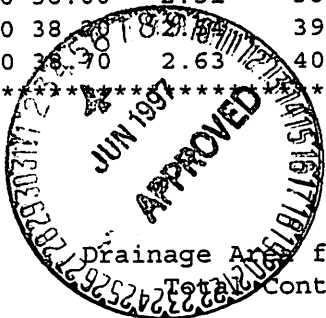
6730.90 34.00 2.49 42.02 6242.43
 6731.70 34.80 2.58 44.04 7153.78

J1, B1, S2
 TPF-A

Drainage Area from J1, B1, S2, SWS(s)1: 219.1 acres
 Total Contributing Drainage Area: 478.7 acres

SW#1: Emergency Spillway

Elev	Stage (ft)	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	
6564.90	0.00	0.00	0.00	0.00	
6566.90	2.00	0.14	0.09	0.00	
6568.90	4.00	0.28	0.51	0.00	
6570.90	6.00	0.40	1.19	0.00	
6572.90	8.00	0.47	2.05	0.00	
6574.90	10.00	0.56	3.08	0.00	
6576.90	12.00	0.65	4.29	0.00	
6578.90	14.00	0.75	5.70	0.00	
6580.90	16.00	0.84	7.28	0.00	
6582.90	18.00	0.92	9.03	0.00	
6584.90	20.00	0.99	10.94	0.00	
6586.90	22.00	1.07	12.99	0.00	
6588.90	24.00	1.15	15.21	0.00	
6590.90	26.00	1.25	17.61	0.00	
6592.90	28.00	1.38	20.24	0.00	
6594.90	30.00	1.53	23.14	0.00	
6596.10	31.20	1.63	25.04	0.00	Stage of SW#1
6596.90	32.00	1.71	26.38	31.43	
6597.00	32.10	1.72	26.55	38.99	
6597.10	32.20	1.73	26.72	47.14	
6597.60	32.70	1.80	27.60	112.43	
6598.10	33.20	1.86	28.52	184.31	
6598.60	33.70	1.92	29.46	277.44	
6598.90	34.00	1.96	30.05	342.40	
6599.10	34.20	1.99	30.44	389.10	
6599.50	34.60	2.04	31.24	496.44	Peak Stage
6599.60	34.70	2.06	31.45	524.87	
6600.10	35.20	2.12	32.50	679.65	
6600.60	35.70	2.19	33.57	853.75	
6600.90	36.00	2.23	34.24	967.62	
6601.10	36.20	2.25	34.68	1047.51	
6602.10	37.20	2.40	37.01	1495.62	
6602.90	38.00	2.51	38.97	1914.11	
6603.10	38.20	2.53	39.48	2027.29	
6603.60	38.90	2.63	40.77	2325.54	



J1, B1, S3
 TPF-E

Drainage Area from J1, B1, S3, SWS(s)1: 38.8 acres
 Total Contributing Drainage Area: 517.6 acres

SW#1: Emergency Spillway

Elev	Stage (ft)	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	
6535.00	0.00	0.88	0.00	0.00	
6537.00	2.00	1.03	1.91	0.00	
6539.00	4.00	1.19	4.13	0.00	
6541.00	6.00	1.36	6.67	0.00	
6543.00	8.00	1.56	9.59	0.00	
6545.00	10.00	1.77	12.92	0.00	
6547.00	12.00	2.39	17.06	0.00	
6548.00	13.00	2.75	19.63	0.00	Stage of SW#1
6548.70	13.70	3.00	21.64	75.58	
6548.80	13.80	3.04	21.95	98.53	
6548.90	13.90	3.07	22.25	123.51	
6549.00	14.00	3.11	22.56	150.39	
6549.50	14.50	3.24	24.15	326.44	
6549.82	14.82	3.33	25.20	460.07	Peak Stage
6550.00	15.00	3.38	25.80	536.92	
6550.50	15.50	3.51	27.52	772.55	
6551.00	16.00	3.64	29.31	1070.74	

