0027

ACT/007/006
#3, #15 w/map

PLATEAU MINING COMPANY

A Subsidiary of Getty Oil Company
P.O. Drawer PMC Price, Utah 84501
Telephone (801) 637-2875

June 26, 1985

RECEIVED
JUN 28 1985
DIVISION OF OIL
GAS & MINING

Mr. Wayne Hedberg
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: SEDIMENT POND 8

Dear Wayne:

Enclosed please find responses to the Division concerns outlined in your letter dated May 22, 1985, concerning Sediment Pond No. 8.

Enclosed also is a revised drawing of the Drop Box-Pipe Spillway, which has been revised to reflect the changes outlined in the enclosed response.

If you need additional information, please let us know.

Respectfully,

Ben Grimes
Environmental Coordinator

lc

Enclosure

ACT/007/006 #3, 15 w/map

CONSULTANTS / ENGINEERS
VAUGHN HANSEN ASSOCIATES
WATERBURY PLAZA - SUITE A
5620 SOUTH 1475 EAST
SALT LAKE CITY, UTAH 84121
(801) 272-5263

RECEIVED
JUN 28 1985
DIVISION OF OIL
GAS & MINING

June 11, 1985

Mr. Ben Grimes
Plateau Mining Company
P. O. Drawer PMC
Price, UT 84107

Dear Ben:

We have completed our review of the Utah Division of Oil, Gas and Mining review comments dated May 22, 1985 as requested. Comments 1, 2 and 3 regarding the spillway sizing were answered in our letter to you dated May 23, 1985. Responses to the four comments regarding the proposed dual spillway are discussed below. In the following discussion, each comment is followed by the appropriate response.

Comment #1:

The location and size of the anti-seep collars proposed for the 24 inch CMP conduit must be provided. The Division needs this information to ensure that the flow length will be increased a minimum of 10 percent.

Response #1:

Only one anti-seep collar is needed for the spillway pipeline. The attached drawing (in the Appendix) shows the size and location of the 24 inch CMP anti-seep collar. Calculations are also included in the Appendix. By utilizing the collar, the flow length is increased 10 percent.

Comment #2:

The emergency spillway is not in accordance with UMC 817.46(i). UMC 817.46(i) requires the emergency spillway crest to be a minimum of one foot above the crest of the principal spillway. PMC must modify the proposed design accordingly.

Response #2:

It is not intended that the proposed spillway serve as an emergency spillway, but rather, as a dual outlet spillway. Both the existing and proposed spillways have the combined capacity of passing the 25 year-24 hour precipitation runoff as required by the regulations.

Comment #3:

The May 10, 1984 submittal does not provide documentation that the proposed design will be capable of handling the design flow. PMC must provide a spillway rating curve for pond #8 which addresses discharge from the dewatering orifice (if included), the principal spillway, and the emergency spillway. The calculations to determine the spillway rating curve must also be provided.

Response #3:

The dual spillway rating curve for pond #8 is shown in Figure 1. Included in this figure are the rating curves for the existing spillway, the proposed spillway, and the combination or summation of the two spillways. Calculations used in its determination are presented in the Appendix.

Comment #4:

The sizing of the energy dissipation basin must also be addressed. If the structure is part of a pre-designed dimensionless hydraulic structure please provide the design calculations and methodology. Also provide the outlet velocity calculations for the drop-box pipe spillway, which were used in the design of the energy dissipation structure.

Response #4:

In order to reduce construction costs, a more recent design methodology was used for the design of the energy dissipation structure. Calculations and design drawings for the energy dissipation structure are shown in the Appendix.

If we can be of further assistance, please call.

Sincerely,

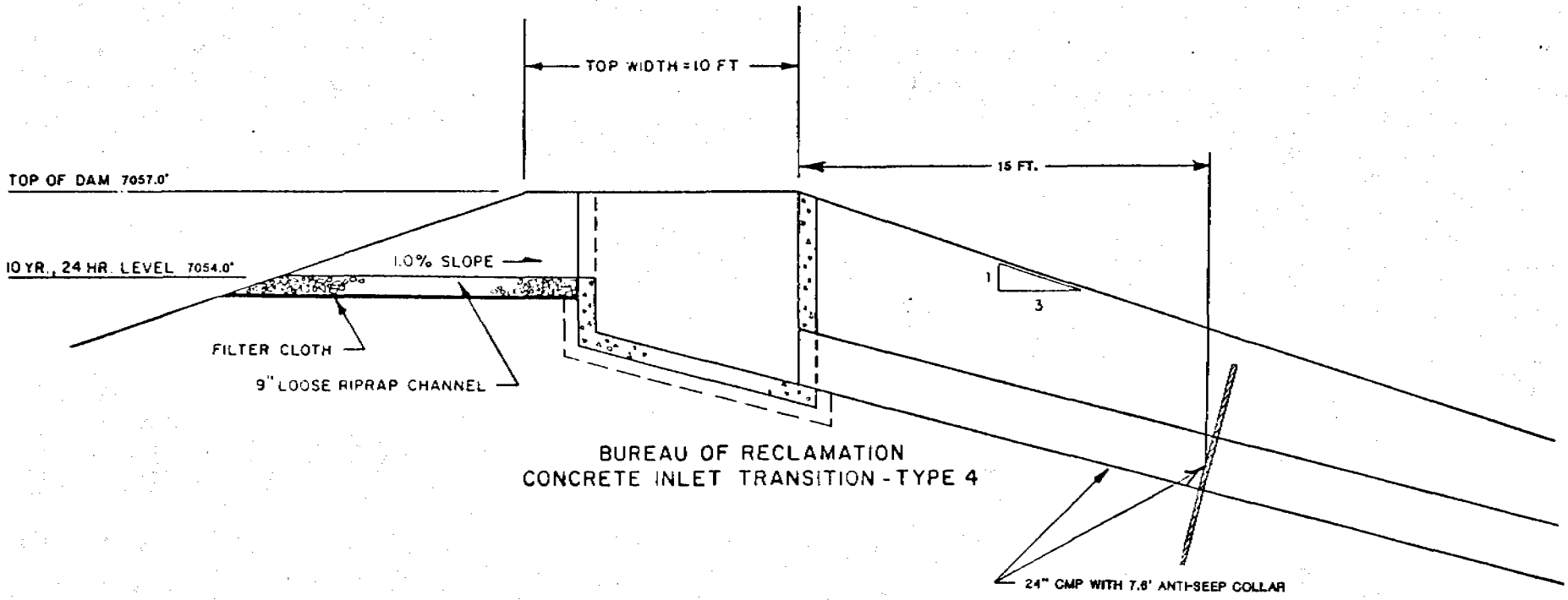
Marvin E. Allen

Marvin E. Allen, P. E.
Executive Vice President

MEA/lv

Attachments

APPENDIX



PROFILE SECTION

Dual Spillway and Anti-seep Collar

Sediment Pond No. 8

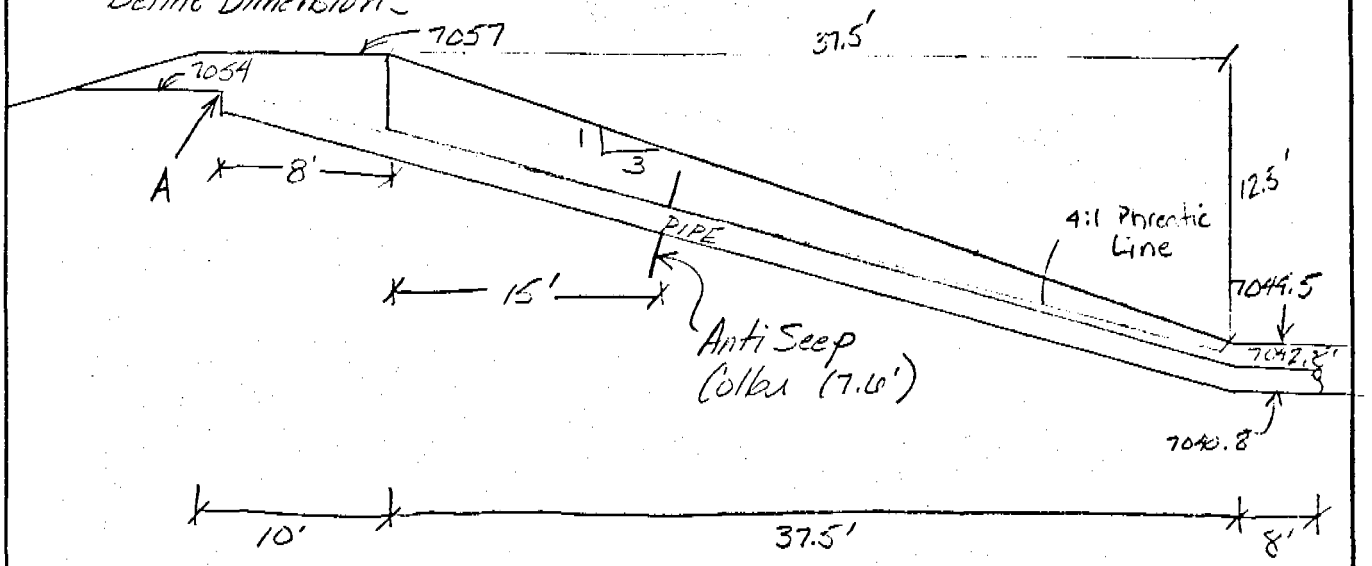
Getty Mining Co.

VAUGHN HANSEN ASSOCIATES
CONSULTANTS / ENGINEERS

COMPUTED DEI CLIENT Getty Oil
CHECKED _____ PROJECT 85-03-300
DATE 4 June 85 FEATURE Sed Pond #8

Anti-Seep Collar Design

Define Dimensions



Assume saturation point extends to drop in inlet shown as point A.

Also assume phreatic line is on a 4:1 slope from point A. Then intersection point on pipe is approximately at toe of pond.

$7054 - (8+37.5)/4 = 7042.63$ ~ Same elevation as top of pipe at toe.

Length of pipe affected (saturated) $= \sqrt{(7054-7040.8)^2+(45.5)^2} + 8$
$= 55$ ft

From "Erosion and Sediment Control Design" - Figure 1-27 EPA Technology Transfer Seminar Publication.
Anti-Seep collar size is 7.6' using 1 collar
or
4.8' using 2 collars

check using equation $\eta = \frac{0.65 L_s}{V}$

$V = (\text{Seep collar size} - 2)/2 = (7.6-2)/2 = 2.8'$

Use 1 Collar @ place collar 15' downstream from concrete structure

Check cover over collar: $54-2-(8+5)/4+2+2.8 < 57-15/2$

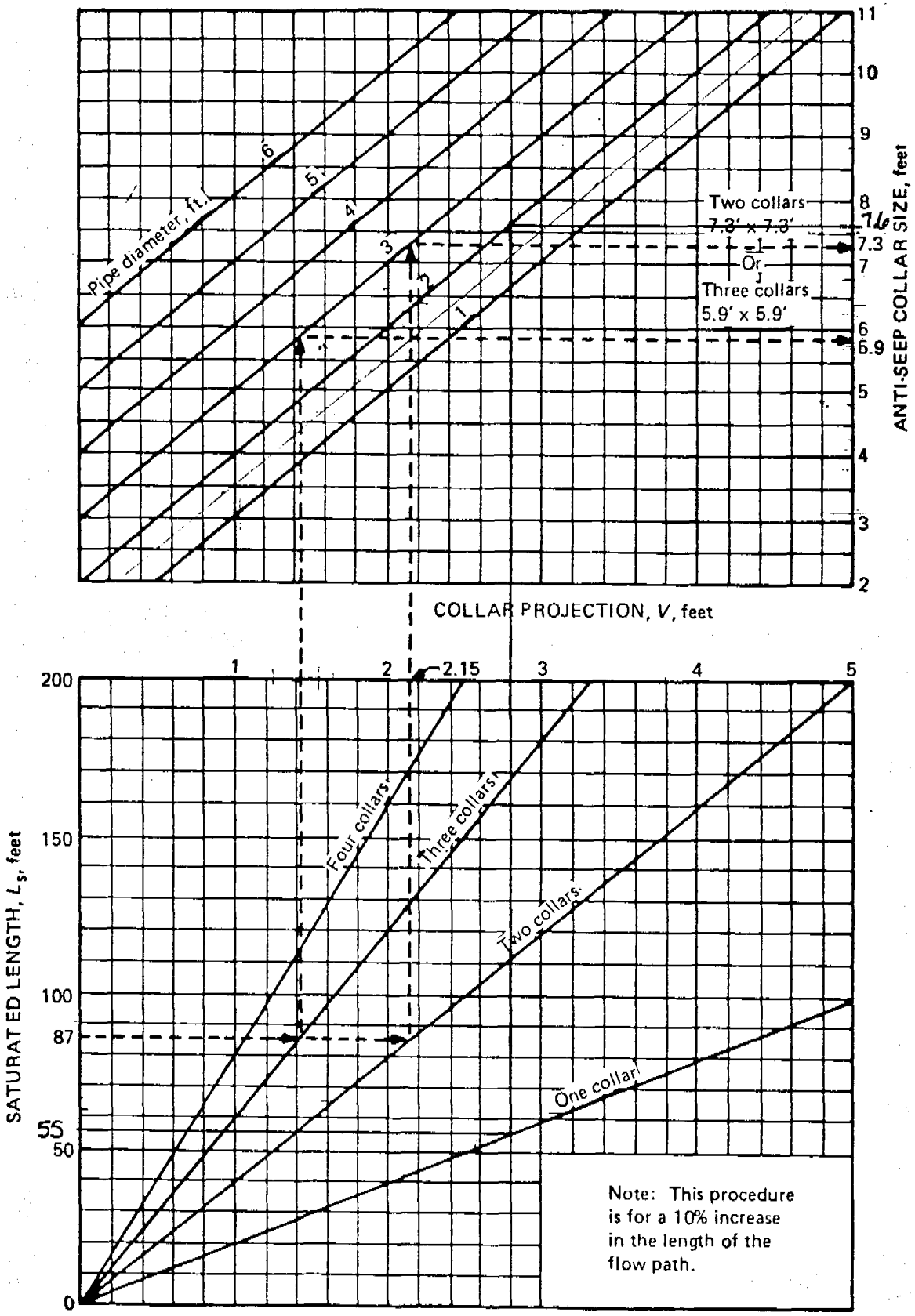


Figure I-27. Anti-seep collars – number and size.[1]

From "Erosion and Sediment Control Design" EPA Technology Transfer Seminar Publication.

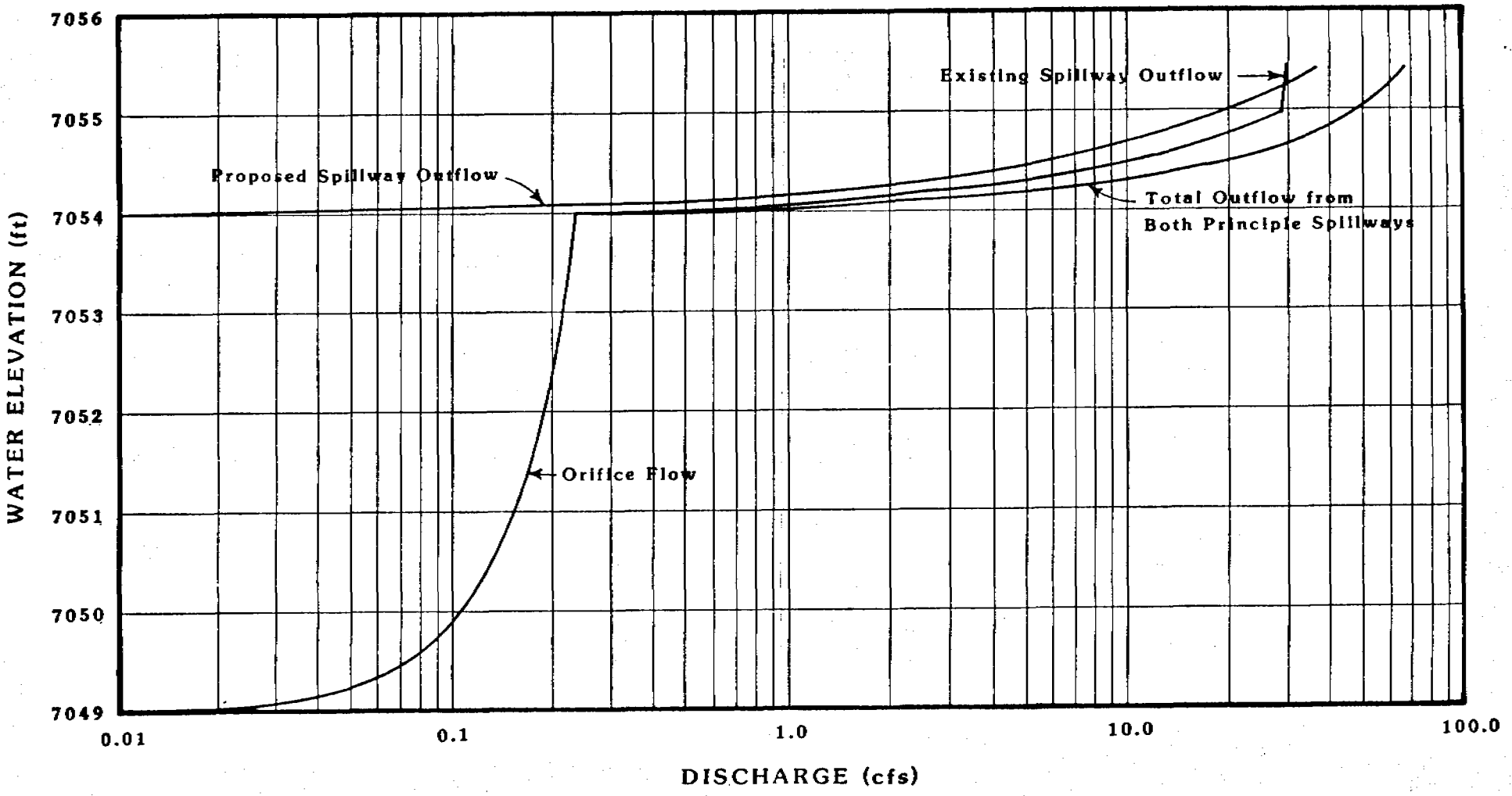


Figure 1. Dual Spillway Rating Curve

VAUGHN HANSEN ASSOCIATES
CONSULTANTS / ENGINEERS

COMPUTED DEH CLIENT Getty Oil
CHECKED PROJECT 85-03-300
DATE 6 June 85 FEATURE Sed Pond #8

Spillway Rating curve

Spillway 1 Information:

Orifice Controls until H= 5.1 ft (Orifice Elev= 7048.9)
Weir Flow Controls from H= 5.1 ft - 6.03ft (Elev = 7054.0) weir
Pipe flow controls thereafter.

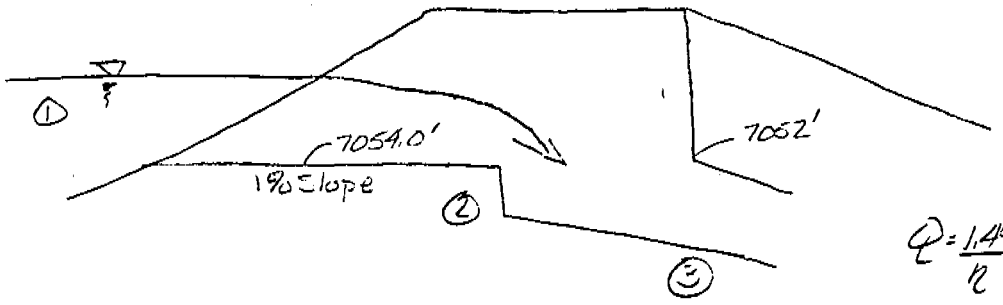
Develop flow table. Spillway 2 info. will be filled in using later calculations

ELEV. (ft)	SPILLWAY #1 ORIFICE	SPILLWAY #1 WEIR	SPILLWAY #1 PIPE (24in)	SPILLWAY #2 CHANNEL FLOW	TOTAL FLOW
7048.9	0	0	0	0	0
49.4	0.07	0	0	0	0.07
49.9	0.10	0	0	0	0.10
50.4	0.13	0	0	0	0.13
50.9	0.15	0	0	0	0.15
51.4	0.17	0	0	0	0.17
51.9	0.18	0	0	0	0.18
52.4	0.20	0	0	0	0.20
52.9	0.21	0	0	0	0.21
53.4	0.22	0	0	0	0.22
53.9	0.23	0	0	0	0.23
54.0	0.24	0	0	0	0.24
54.2	0.24	2.76	~~27.74~~	1.35	4.35
54.4	0.25	7.84	~~25.00~~	4.16	12.25
54.6	0.25	14.45	~~22.31~~	8.14	22.84
54.8	0.26	22.31	~~28.59~~	13.24	35.81
55.0	~~0.26~~	~~31.27~~	28.86	19.46	48.32
55.2	~~0.27~~	~~41.22~~	29.14	26.81	55.95
55.4	~~0.27~~	~~52.46~~	29.41	35.32	64.73
55.6	~~0.27~~	~~63.85~~	29.68		
55.8	0.28	~~76.41~~	29.94		
56.0	0.28	~~87.76~~	30.21		

VAUGHN HANSEN ASSOCIATES
CONSULTANTS / ENGINEERS

COMPUTED DEH CLIENT Getty Oil
CHECKED PROJECT 85-03-300
DATE 6 June 85 FEATURE Sed. Pond #8

Spillway #2 Flows



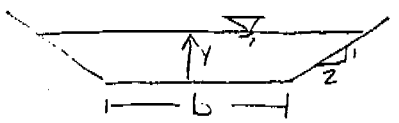
$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

for Required flow Rate of 26 cfs, system control will be at point 2 (in channel) if pipe inlet control allows flows in excess of 26 cfs.

for 24" CMP w/headwall (from Highway Charts for the Selection of Highway Culverts)

HW/D	Q (cfs)	WATER ELEV.
1.0	12.5	7052.0
1.1	14.5	7052.2
1.2	16.0	7052.4
1.3	17.5	7052.6
1.4	19.0	7052.8
1.5	20.0	7053.0
1.6	21.0	7053.2
1.7	22.5	7053.4
1.8	24.0	7053.6
1.9	25.0	7053.8
2.0	26.0	7054.0
2.2	27.0	7054.4
2.4	29.0	7054.8

Solve for Channel flow at pt 1 using Mannings and Energy



$$A_2 = by + my^2 = 5y + 2y^2$$

$$P_2 = b + 2y\sqrt{m^2+1} = 5 + 2y\sqrt{5}$$

$$n = 0.0395 D_{50}^{1/6}$$

$D_{50} \sim 3"$ $\therefore$ $n = 0.03$

$$Q = \frac{1.49}{.03}(5y + 2y^2)\left(\frac{5y+2y^2}{5+2y\sqrt{5}}\right)^{2/3}(0.01)^{1/2}$$

Depth Required for Q = 26 cfs is 0.95 ft (Water Elev = 7055')

Under inlet control flow will allow Q = 30 cfs > 26 cfs

Therefore control is at pt 2 (Inlet Channel) and not the pipe.

$E_1 = E_2 \qquad y_1 + \frac{V_1^2}{2g} + Z_1 = y_2 + \frac{V_2^2}{2g} + Z_2 + \Delta E$

for inlet $\Delta E \sim 0.25 \frac{V_2^2}{2g}$ (from pg 238 Henderson, "Open Channel Flow")

$V_1 \sim 0 \; ; \; Z_1 = Z_2 + 0.1$

$$0.1 + y_1 = y_2 + \frac{V_2^2}{2g} + 0.25\frac{V_2^2}{2g} = y_2 + 1.25\frac{V_2^2}{2g} \qquad \text{Eqn 1}$$

$$V_2 = \frac{1.49}{n} R^{2/3} S^{1/2} \qquad \text{Eqn 2}$$

Combining Eqns

$$y_1 = y_2 + \frac{1.25}{2g}\left[\frac{1.49}{.03}\left(\frac{5y_2 + 2y_2^2}{5+2y_2\sqrt{5}}\right)^{2/3}(.01)^{1/2}\right]^2 - 0.1$$

$$y_1 = y_2 + 0.4788\left(\frac{5y_2 + 2y_2^2}{5+2y_2\sqrt{5}}\right)^{4/3} - 0.1$$

where y_1 = Elevation of Water − 7054.0' = E_1 − 7054.0

E_1	y_2	V_2	Q	
7054	0	0	0	Channel Flow
7054.2	0.24	1.03	1.35	
7054.6	0.50	2.72	8.14	
7054.8	0.69	3.01	13.24	
7055.0	0.84	3.47	19.46	
7055.2	0.97	3.99	26.81	
7054.4	1.13	4.33	35.32	
7054.4	0.39	1.85	4.16	

∴ Inlet control not controlling factor.

7054.05 0.12 1.12

VAUGHN HANSEN ASSOCIATES
CONSULTANTS / ENGINEERS

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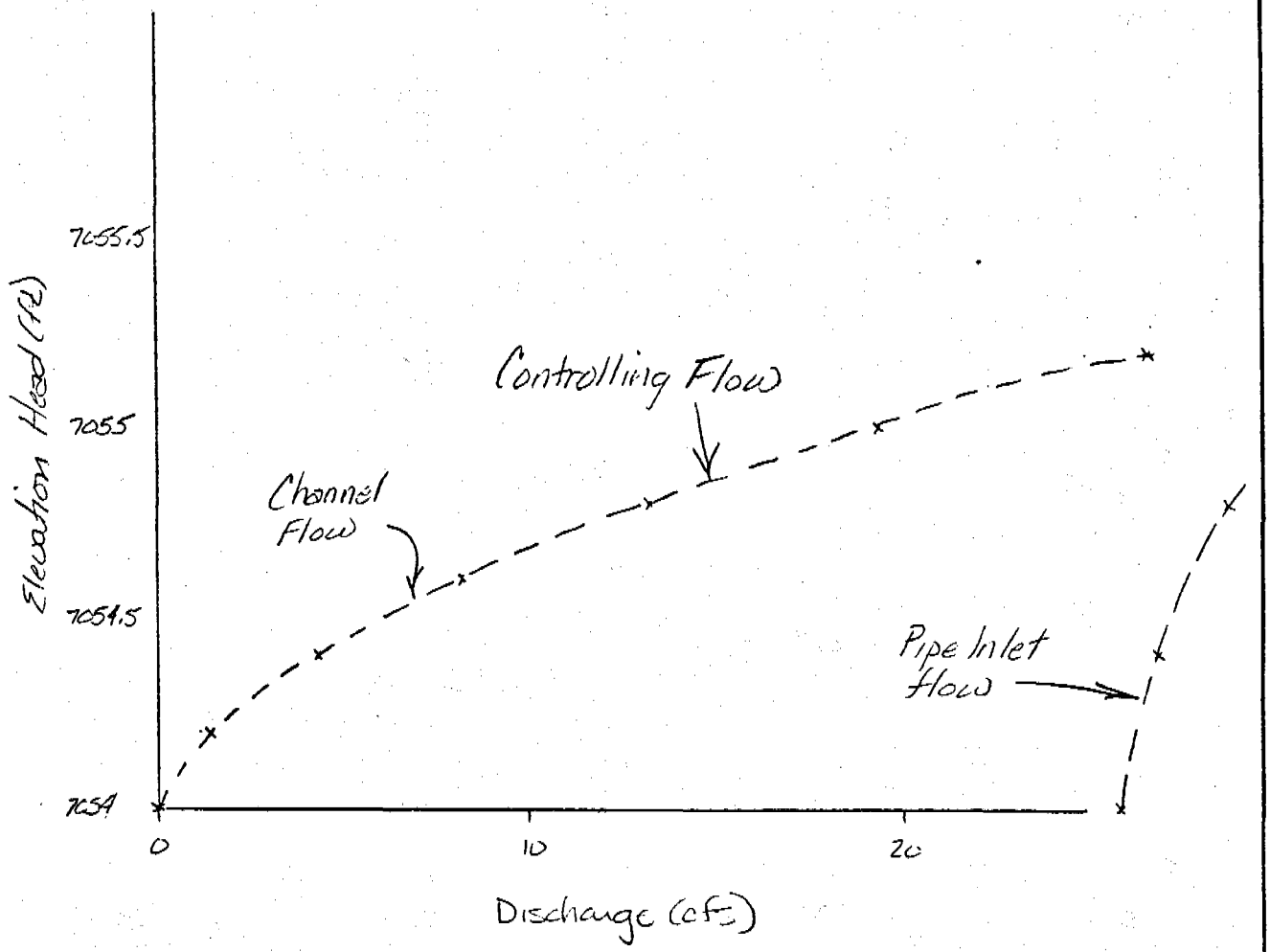
DATE 6 June 85 FEATURE Sed Pond #8



Check Pipe Flow for Control

$Q = a(2gH')^{1/2}/(1+K_e+K_c L)^{1/2}$

a = Pipe Area = $\pi(2)^2/4 = 3.14 ft^2$
H' = Total head on pipe
K_e = Entrance loss coeff. = 1.0
K_c = Friction Loss coeff = $5087 n^2/D^{4/3}$; $n = 0.027$, $K_c = 0.0536$
L = Pipe Length = 55 ft (inlet)

$$Q = \frac{3.14(64.4H')^{1/2}}{(1+1+.0536(55))^{1/2}} = 11.33 H'^{1/2}$$

Required at max Flow (Elev = 7055.2)

$H' = 7055.2 - 7049.5 = 10.7$ ft

$\therefore Q = 11.33(10.7)^{1/2} = 37.06$ cfs > 26 cfs OK

Pipe flow not restrictive

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CONSULTANTS / ENGINEERS

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CHECKED PROJECT 85-03-300
DATE 6 June 85 FEATURE Sed Pond #8

BASIN OUTLET DESIGN

from "Denver Criteria Manual - "Final Hydraulic Design of Storm Sewer Pipelines"

From fig III-3 $S = 0.25$, $n = 0.027$, $D = 24$ in

$Q_{full} = 53$ cfs

from fig IV-1 given $\frac{g}{Q} = \frac{26}{53} = 0.49$

$\frac{y_o}{D} = 0.55$ ∴ $y_o = 0.55(2) = 1.1'$

$A = 0.57(3.14) = 1.79 ft^2$

and $V_o = Q/A = 26/1.79 = 14.52$ fps

$y_c = (A/2)^{1/2} = (1.79/2)^{1/2} = 0.95$ ft

Check applicability of methodology presented in "Hydraulic Design of Energy Dissipaters for culverts and Channels" US Dept. of Trans., 1978. (Fig VI-2)

$$Fr = \frac{V_{avg}}{\sqrt{32.2\, y_c}} = \frac{14.52}{\sqrt{32.2(.95)}} = 2.63 < 3.0 \text{ ok}$$

find tailwater depth:

mild downstream slope $S = 0.8\%$
$z = z_i$
$n = 0.03$
try $b = 8.0$ ft
gives $y_o = 0.8$ ft

Check $TW/y_o = 0.8/1.1 = 0.73 < 0.75$ ok

Try $\frac{d_{50}}{y_c} = 0.53$ $d_{50} = 0.53(0.95) = 0.50$ ft

from figure VI-2 $\frac{h_2}{y_c} = 1.9$ ∴ $h_2 = 1.9(0.95) = 1.81'$

Check: $\frac{h_2}{d_{50}} = \frac{1.81}{0.5} = 3.61$ $2 < 3.61 < 4$ ok

$L_s = 10 h_2 = 18.1'$ or $3W_o = 3(2) = 6'$ use 20 ft

$L_R = 15 h_2 = 27.2'$ or $4W_o = 8'$ use 30 ft

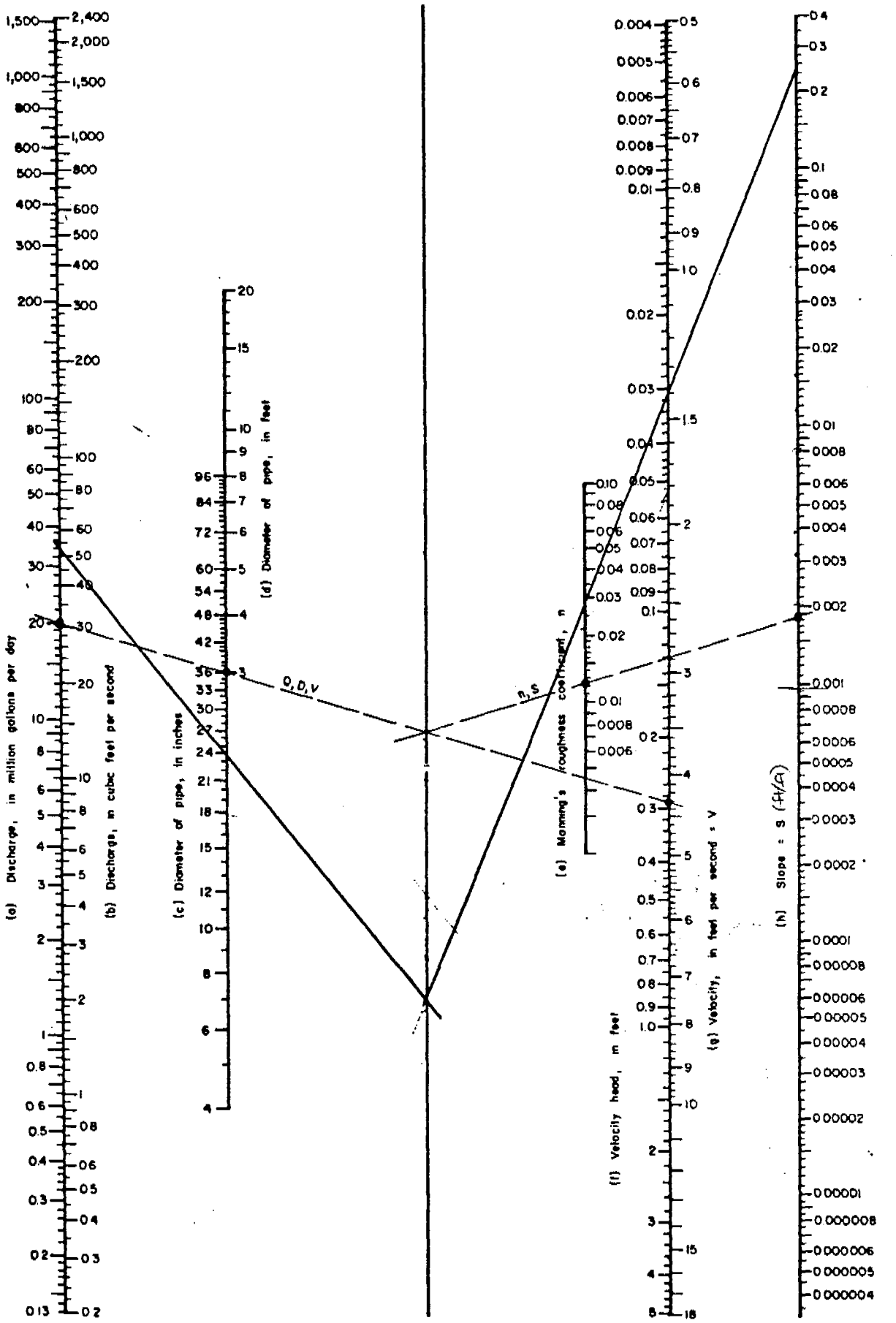
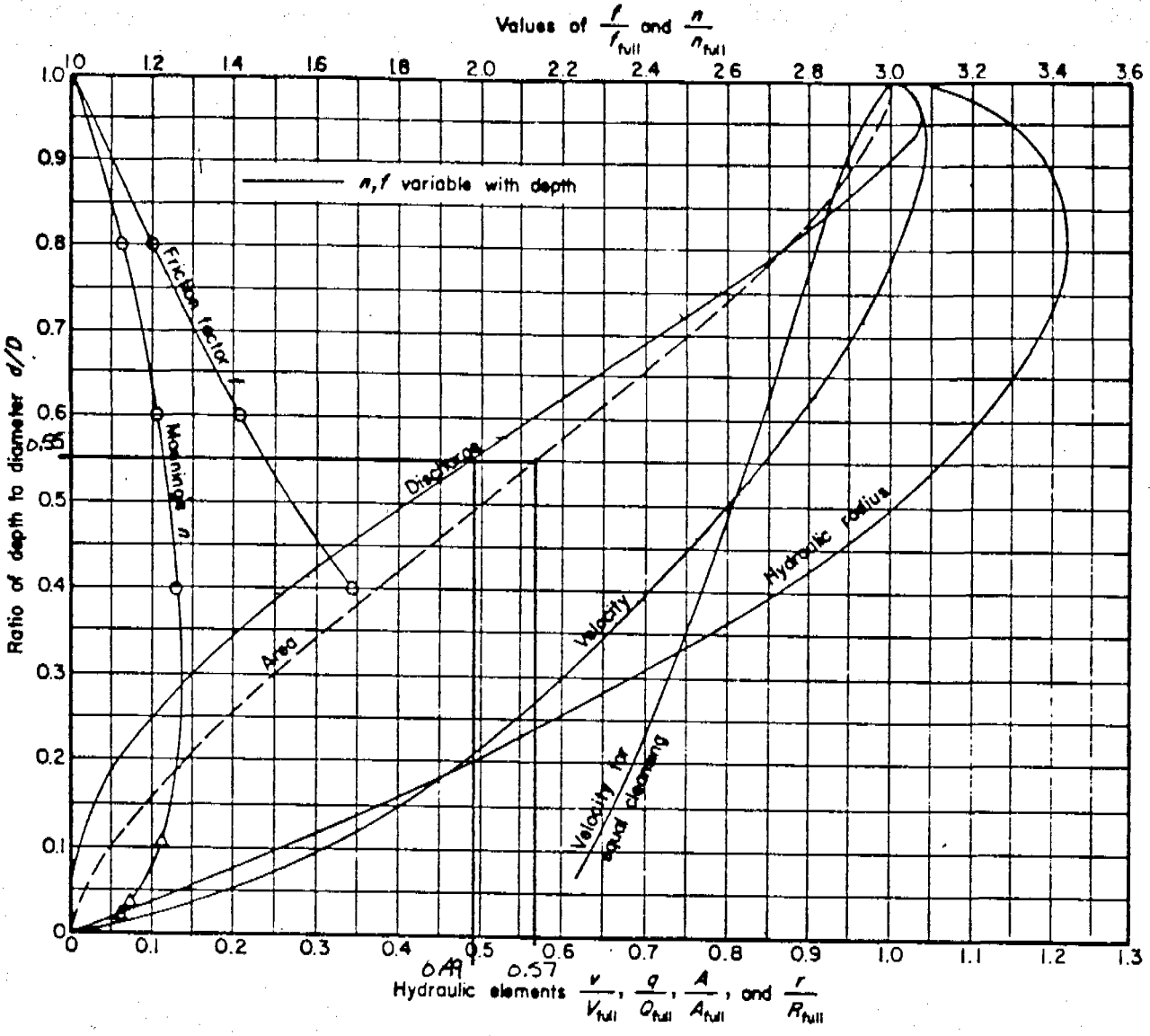


Figure IV-3 NOMOGRAPH for flow in round pipe - Manning's formula
(From 'Design and Construction of Concrete Sewers', Portland Cement Assoc.)

Presented (5/10.7



v = Actual velocity of flow (fps)

V_{full} = Velocity flowing full (fps)

q = Actual quanity of flow (cfs)

Q_{full} = Capacity flowing full (cfs)

A = Area occupied by flow (ft^2)

A_{full} = Area of pipe (ft^2)

r = Actual hydraulic radius (ft.)

R_{full} = Hydraulic radius of full pipe (ft.)

FIGURE IV-4 HYDRAULIC ELEMENTS OF CIRCULAR CONDUITS

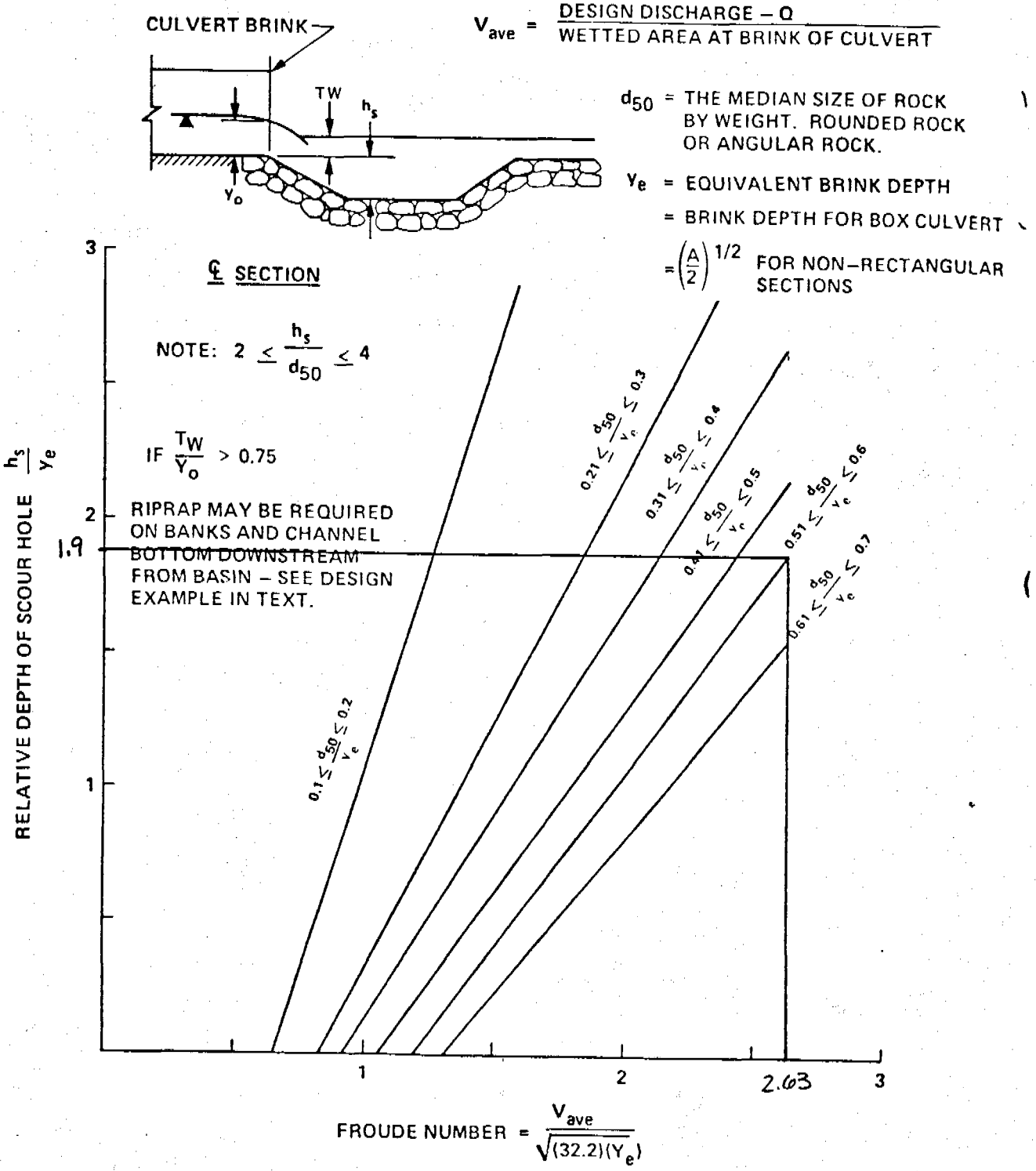


FIGURE X1–2. RELATIVE DEPTH OF SCOUR HOLE VERSUS FROUDE NUMBER AT BRINK OF CULVERT WITH RELATIVE SIZE OF RIPRAP AS A THIRD VARIABLE

VAUGHN HANSEN ASSOCIATES
CONSULTANTS / ENGINEERS

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E

Check scour depth using Shields criteria + Shear Stress

$\tau_c = 0.047(\gamma_s - \gamma)d_s \qquad \tau_o = \frac{1}{8} f \rho V^2$

where: γ_s = Unit wt. of rock, 165.4 pcf
γ = Unit wt. of water, 62.4 pcf
ρ = density of water, 1.936
f = darcy friction factor = $\frac{185 n^2}{(4R)^{1/3}}$

where n = mannings $n = 0.035$
$R = \frac{A}{P} = 1.06\left(\frac{3.14}{6.28}\right) = 0.53$

└ fig III-4 - Denver Manual / "Urban Storm Drainage Criteria Manual, Vol 2 March 1969"

$\therefore f = \frac{185(.035)^2}{(4(.53))^{1/3}} = 0.18$

let $\tau_c = \tau_o \qquad 0.047(\gamma_s - \gamma)d_s = \frac{1}{8} f \rho V_c^2$

Try $d_{50} = 0.5'$ using S.F. = 2.0 then $d_s = \frac{d_{50}}{SF} = 0.25'$

$V_c = \left[\frac{8(.047)(165.4-62.4).25}{1.936(.18)}\right]^{1/2} = 5.27 \text{ fps}$

approx. flow depth at incipient motion =

$\frac{Q/b}{V_c} = \frac{20/2}{5.27} = 2.47' \sim 2.5'$

scour depth = Incipient motion depth - basin drop depth
= 2.5' - 1.8 = 0.7 ft say 1.0'

provide $2D_{50}$ thick layer beneath scour depth

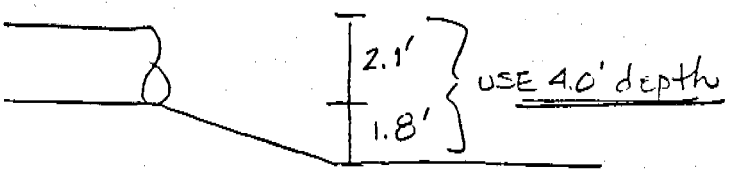
∴ place 2.0 ft thick riprap layer.

Riprap Gradation	% Smaller by Wt	Size, ft	Size, in
D_{70} - 100		1.0	12
D_{50} - 70		0.75	8
D_{35} - 50		0.5	6
D_{10} - 35		0.33	4
D_7 - D_{10}		0.17	2

TOP OF RIPRAP IN BASIN:

1.0' FREEBOARD ABOVE PIPE OUTFLOW DEPTH

$Y_o = 1.1'$ ∴ Riprap = 2.1' above pipe invert



FILTER BED GRADATION

FROM TABLE 5-4 "Urban Storm Drainage Criteria Manual"

RIPRAP DESIGNATION	MINIMUM BEDDING THICKNESS (Inches)		
	Fine Grained Soils *		Coarse Grained Soils**
	TYPE I	TYPE II	TYPE II
L, G, SM	4	4	6

* May substitute one 12 inch layer of type II bedding. Substitution of one layer of Type II bedding shall not be permitted at drop structures. Use of a combination of filter fabric and type II is acceptable at drop structures (Section 5.3.2)

** 50% or more by weight retained on #40 Sieve.

BEDDING GRADATION (TABLE 5-3)

U.S. Standard Sieve Size	% Passing by Weight Type I	Square Mesh Sieves Type II
3"	—	90-100
1-1/2"	—	—
3/4"	—	20-90
3/8"	100	—
#4	95-100	0-20
#16	45-80	—
#50	10-30	—
#100	2-10	—
#200	0-2	0-3

STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

May 22, 1985

Mr. Ben Grimes
Plateau Mining Company
P. O. Drawer PMC
Price, Utah 84501

Dear Mr. Grimes:

RE: Review Comments for Sediment Pond #8, Unit Train-Loadout, Star Point Mines, ACT/007/006, #2, Carbon County, Utah

The Division has reviewed the May 10, 1985 oversite response submittal from Plateau Mining Company regarding the spillway sizing for Sediment Pond #8. The following information is still deficient or missing as requested in the April 10, 1985 letter:

1. "Map #7, Sedimentation Pond #8 design drawings, shows conflicting information regarding the head on the spillway and the spillway rating curve. In the cross-section, the vertical separation between the 10-year, 24-hour level, (i.e., the top of the principal spillway and the two-inch dewatering hole elevation) is five feet. The spillway rating curve shows a vertical separation above the two inch dewatering hole of approximately 3.7 feet. This discrepancy must be corrected."

2. "Table 5, Sediment Pond #8 - Riser Pipe Rating Table, this table also shows 3.7 feet above the orifice for the dewatering hole to be the top of the riser. This is not consistent with the cross-section in Map #7 and must be corrected."

3. "The spillway rating curve shows that orifice and weir flow are controlling and notes that pipe flow is not limiting. This determination is also based on information presented in Table 5, Sediment Pond #8 - Riser Pipe Rating Table (on page 2 of the table), for a 36-inch riser pipe."

For the above three points requested April 10, 1985, PMC has not corrected or upgraded the information in the tables and figures referenced. This informaiton is needed for the Division to make a finding that the spillways are adequately sized and that the pond will function in accordance with the approved design plans.

The emergency spillway plans submitted May 10, 1985 are also deficient. The following information needs to be addressed:

1. The location and size of the anti-seep collars proposed for the 24 inch CMP conduit must be provided. The Division needs this information to ensure that the flow length will be increased a minimum of 10%.

2. The emergency spillway is not in accordance with UMC 817.46(i). UMC 817.46(i) requires the emergency spillway crest to be a minimum of 1 foot above the crest of the principal spillway. PMC must modify the proposed design accordingly.

3. The May 10, 1985 submittal does not provide documentation that the proposed design will be capable of handling the design flow. PMC must provide a spillway rating curve for pond #8 which addresses discharge from the dewatering orifice (if included), the principal spillway, and the emergency spillway. The calculations to determine the spillway rating curve must also be provided.

4. The sizing of the energy dissipation basin must also be addressed. If the structure is part of a pre-designed dimensionless hydraulic structure please provide the design specification and references. If the structure is not a pre-designed structure, please provde the design calculations and methodology. Also provide the outlet velocity calculations for the drop-box pipe spillway, which were used in the design of the energy dissipation structure.

Please provde a response to these remaining concerns by June 28, 1985. Upon approval, appropriate copies of the revised plans will need to be provided to update all approved MRP's on file.

If you should have any questions or concerns regarding these review comments, please call me or Tom Suchoski of the Division staff.

Sincerely,

D. Wayne Hedberg

D. Wayne Hedberg
Permit Supervisor/
Reclamation Hydrologist

TJS/jvb
cc: Allen Klein
Lowell Braxton
Joe Helfrich
Bart Kale
Sue Linner
Tom Suchoski
0031R-29

MRP REVISION/NOV TRACKING FORM
(Revised: 3/28/85)

Type of Proposal: X COAL ___ NONCOAL

___ Exploration
___ NOV/CO Abatement, NOV # _____, Abatement Deadline _____
___ MRP Revision
X MRP Amendment

Issuing Inspector _____

Title of Proposal: Sediment Pond #8 - Spillway Modification (Response to DOGM letter outlining OSM oversite design problem)

Company name: Plateau Mining Co. Project/ Mine Name: Cart Train Load Out Sed Pond

File # (PRO/ACT): 007/006 (CEP/EXP) Disturbed (Fed/State/Fee): ___/___/___ Acres

Assigned Reviewers:	Review Time (hrs):	OTHER AGENCIES: (# of copies & date)
(Hydrology) TJS		OSM
(Wildlife/Veg.)		USFS
(Engineering)		BLM
(Soils)		Health
(Geology)		History
		H2O Rts
	USFWS	Wildlife

DATES:

(a) Initial Plan Received 5/10/85
Tech Review Due 5/24/85
Tech Review Complete
DOGM Response Sent

(b) Operator Resubmission
Tech Review Due
Tech Review Complete
DOGM Response Sent

(c) Operator Resubmission
Tech Review Due
Tech Review Complete
DOGM Response Sent

(d) Optr. Resubmission
Tech Review Due
Tech Review Complete
DOGM Response Sent

(e) Bond Revised
Amount ($)

(f) Cond'l. Approval
Stipulations Due
Stips Received
Final Approval

(g) MR-9 Received
MR-9 Acknowledged

COMMENTS: _____

NOTE (INSPECTORS): Please attach a copy of the NOV issued to the abatement plan when received from the operator.

NOTE (REVIEWERS): Please prepare review comments in a format referencing the appropriate regulation or statute. State the deficiency as well as the minimum requirement necessary to demonstrate compliance. Fill in the # of hours spent in review by discipline. Return completed form to the Special Permits Supervisor when complete.

756oR

Work copy

PLATEAU MINING COMPANY

A Subsidiary of Getty Oil Company
P.O. Drawer PMC Price, Utah 84501
Telephone (801) 637-2875

May 8, 1985

Mr. Wayne Hedberg
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: SEDIMENT POND 8 - SPILLWAY MODIFICATION

Dear Wayne:

As per your letter dated April 10, 1985, we have reevaluated the spillway pipe at Pond 8 and have decided that the best way to bring the pond into compliance is to construct another outlet pipe.

The existing pipe structure will be left in place, with the new structure as additional spillway capacity.

Enclosed you will find three copies of the proposed structures. If you have additional questions, please let me know.

Respectfully,

PLATEAU MINING COMPANY

Ben Grimes
Environmental Coordinator

BG:sd

Enclosure

Tom S.

STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

April 10, 1985

Mr. Ben Grimes
Plateau Mining Company
P. O. Drawer PMC
Price, Utah 84501

Dear Mr. Grimes:

RE: Oversight Review Comments, Unit Train-Loadout, Star Point Mines, ACT/007/006, #2, Carbon County, Utah

The Office of Surface Mining (OSM) has performed an oversight review of the hydrologic designs for the approved Unit Train Loadout MRP Revision. Several items of concern have been brought to our attention which may not have been addressed previously. These areas consist of the sizing of the spillway for Sediment Pond #8 and the sizing of Sediment Pond #6.

The Division has rereviewed the spillway sizing for Sediment Pond #8 and offers the following comments:

1. Map #7, Sedimentation Pond #8 design drawings, shows conflicting information regarding the head on the spillway and the spillway rating curve. In the cross-section, the veritical separation between the 10-year, 24-hour level, i.e., the top of the principal spillway and the two-inch dewatering hole elevation, is five feet. The spillway rating curve shows a vertical separation above the two inch dewatering hole of approximately 3.7 feet. This discrepancy must be corrected.

2. Table 5, Sediment Pond #8 - Riser Pipe Rating Table, this table also shows 3.7 feet above the orifice for the dewatering hole to be the top of the riser. This is not consistent with the cross-section in Map #7 and must be corrected.

3. The spillway rating curve shows that orifice and weir flow are controlling and notes that pipe flow is not limiting. This determination is also based on information presented in Table 5, Sediment Pond #8 - Riser Pipe Rating Table (on page 2 of the table), for a 36-inch riser pipe.

This methodology is incorrect as a 36-inch riser pipe is not the controlling factor for the dewatering structure for Sediment Pond #8. Evaluation of the cross-section drawing and the structure as constructed in the field, shows the limiting factor to be the 24-inch outflow pipe through the embankment. When pipe flow is evaluated, using the 24-inch diameter, the spillway is found to be limited under pipe flow conditions at approximately 33 cfs. As the 25-year, 24-hour peak flow is estimated at 55.1 cfs, the principal spillway for Sediment Pond #8 cannot handle this required design flow. Plateau Mining Company must provide plans which comply with UMC 817.46(i). This requires that an appropriate combination of emergency and principal spillways be provided to handle the peak runoff from the 25-year, 24-hour event. Plateau Mining Company must submit the required plans to the Division no later than May 10, 1985.

The Division's evaluation of the sizing of Sediment Pond #6 shows that construction of the unit train conveyor will change some of the drainage patterns associated with lower portions of the Plateau minesite. The construction activities will cause the diversion ditch between the access road and the coal refuse pile to be culverted at the point where the conveyor cuts across the refuse pile. Drainage from the conveyor cut will be collected by Diversion Ditch #32 and conveyed to Downspout #7 and then conveyed to Sediment Pond #6 via the natural drainage channel. Downspout #7 will also pick up a portion of the drainage from Diversion Ditch #8.

All of these changes in drainage control will not cause an increase to the total drainage area routed to pond #6. However, the diversion of a portion of Ditch #8 and all of ditch #32, will convey runoff directly to pond #6 rather than routing it through a sediment trap first (which currently exists). This change will result in approximately 5.5 acres draining directly to the pond. This will not cause a problem as the pond is presently designed to handle the total area draining to the pond regardless of the pretreatment sediment trap (see second paragraph, page 7-66, Volume 3, Star Point Mines - Mining and Reclamation Plan, 1981).

Based on this evaluation, the Division finds that Sediment Pond #6 is adequately sized to handle runoff from the conveyor disturbance. No additional information is required to address this concern raised by OSM.

If you should have any questions or concerns regarding these oversight review comments, please call me or Tom Suchoski of the Division staff.

Sincerely,

D. Wayne Hedberg

D. Wayne Hedberg
Permit Supervisor/
Reclamation Hydrologist

TJS/btb
cc: Allen Klein
Lynn Shown
Lowell Braxton
Joe Helfrich
Bart Kale
Sue Linner
Tom Suchoski
0020R-15-17