



**Westmoreland Beulah Mining - *Beulah Mine***  
A Subsidiary of Westmoreland Mining LLC

October 6, 2022

Zanna Brinkman  
Director Reclamation Division  
North Dakota Public Service Commission  
600 E Boulevard Ave, Dept. 408  
Bismarck, ND 58505-0480

Permit ID: KRSB-8603

Subject: NOV 2201 – Pond 113 Certified Completion Drawing – Supplemental Information for Certification

Dear Ms. Brinkman:

The following is in response to Notice of Violation #2201, dated May 25, 2022, and associated correspondence dated August 23, 2022, approving the extension of the timeline for completion of construction and certification of Pond 113.

Westmoreland Beulah Mining, LLC submitted the completion drawing for Pond 113 on September 30, 2022, in accordance with the granted extension timeline for Construction Completion Certification (extended to November 21, 2022). On October 6, 2022, the Public Service Commission (PSC) notified WBM that the Certified Completion notification required additional information. This correspondence is intended to supplement the Certified Completion drawing submitted on September 30, 2022, by providing the additional information requested.

**Inspections**

Per Policy Memorandum No. 12 and NDAC 69-05.2-16-09 routine inspections were conducted by field staff on a regular basis throughout the construction of Pond 113. Crews were in close proximity and/or working on pond construction Monday through Thursday, 24-hours a day. In the event of a large precipitation event, the pond was inspected for any damage or necessity for water/sediment removal. The pond has been added to WBM's quarterly inspections of impoundment areas and was included in 2022 third quarter inspection.

Additionally, as committed to by WBM with regards to Notice of Violation #2201, WBM recently contracted a qualified third-party impoundment inspector to perform inspections of all active ponds within the Beulah Mine permit boundaries (KRSB-8603 & KRSB-8802), which included the inspection of Pond 113 (inspected September 26, 2022). Only minor issues were noted and included minor rip-rap repair and installation of a staff gauge, both of which will be addressed by WBM.

**Design and Storage Capacity**

Field conditions encountered during construction required some modification to the pond design. The modification was the reduction in elevation of the principal and emergency spillways by approximately 5-feet. The pond yields a cumulative storage capacity of 18.74 acre-feet, which is sufficient to accommodate the capture of the 10-year, 24-hour storm event runoff volume of 14.5 acre-feet (see attached SEDCAD analysis for details).

13 RC-22-228 Filed 10/06/2022 Pages: 24  
Additional response to NOV-2201 re Pond 113 - electronic only  
Westmoreland Beulah Mining LLC  
Nettie Johnston Ore





**Westmoreland Beulah Mining - *Beulah Mine***  
A Subsidiary of Westmoreland Mining LLC

Please consider this correspondence a supplement to the as-built submitted on September 20, 2022 for completion of the Certified Completion Report for Pond 113.

Please let me know if you have any questions regarding this submittal or require additional information.

Sincerely,

Nettie Johnston Ore  
Manager, Environmental & Regulatory Affairs  
Westmoreland Mining LLC

Cc: Dave Traverso (email [dtraverso@westmoreland.com](mailto:dtraverso@westmoreland.com))  
Jesse Noel (email [jnoel@westmoreland.com](mailto:jnoel@westmoreland.com))  
Jonathan Emmer (email [jemmer@nd.gov](mailto:jemmer@nd.gov))

Encl\



# **Ponds 112 and 113**

***10 Year 24 Hour Event***

Tom Peterson

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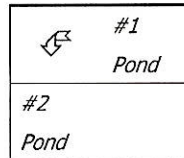
## ***General Information***

### ***Storm Information:***

Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	3.140 inches

***Structure Networking:***

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	#2	0.000	0.000	Pond 112
Pond	#2	==>	End	0.000	0.000	Pond 113 Pond 111



**Structure Summary:**

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In			106.08	17.24
	Out	236.470	236.470	0.00	0.00
#2	In	171.690	408.160	129.22	14.47
	Out			0.00	0.00

### ***Structure Detail:***

Structure #1 (Pond)

*Pond 112*

Pond Inputs:

Initial Pool Elev:	1,973.90 ft
Initial Pool:	13.38 ac-ft

#### Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,982.00	20.00	3.00:1	3.00:1	20.00

Pond Results:

Peak Elevation:	1,981.99 ft
Dewater Time:	0.00 days

*Dewatering time is calculated from peak stage to lowest spillway*

#### Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,965.00	0.600	0.000	0.000	
1,966.00	1.250	0.905	0.000	
1,967.00	1.338	2.199	0.000	
1,968.00	1.430	3.583	0.000	
1,969.00	1.519	5.057	0.000	
1,970.00	1.610	6.622	0.000	
1,971.00	1.674	8.264	0.000	
1,972.00	1.740	9.971	0.000	
1,973.00	1.800	11.740	0.000	
1,973.50	1.830	12.648	0.000	
1,973.80	1.848	13.199	0.000	
1,973.90	1.854	13.385	0.000	
1,974.00	1.860	13.570	0.000	
1,975.00	1.924	15.462	0.000	
1,976.00	1.990	17.419	0.000	
1,977.00	2.054	19.442	0.000	
1,978.00	2.120	21.529	0.000	
1,979.00	2.194	23.686	0.000	
1,980.00	2.270	25.918	0.000	

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,981.00	2.364	28.235	0.000	
1,981.99	2.459	30.619	0.000	0.00 Peak Stage
1,982.00	2.460	30.647	0.000	Spillway #1
1,983.00	2.634	33.193	49.679	
1,984.00	2.814	35.917	176.689	
1,985.00	3.000	38.824	373.219	

Detailed Discharge Table

Elevation (ft)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,965.00	0.000	0.000
1,966.00	0.000	0.000
1,967.00	0.000	0.000
1,968.00	0.000	0.000
1,969.00	0.000	0.000
1,970.00	0.000	0.000
1,971.00	0.000	0.000
1,972.00	0.000	0.000
1,973.00	0.000	0.000
1,973.50	0.000	0.000
1,973.80	0.000	0.000
1,973.90	0.000	0.000
1,974.00	0.000	0.000
1,975.00	0.000	0.000
1,976.00	0.000	0.000
1,977.00	0.000	0.000
1,978.00	0.000	0.000
1,979.00	0.000	0.000
1,980.00	0.000	0.000
1,981.00	0.000	0.000
1,982.00	0.000	0.000
1,983.00	49.679	49.679
1,984.00	176.689	176.689
1,985.00	373.219	373.219

Structure #2 (Pond)

*Pond 113*

*Pond 111*

Pond Inputs:

Initial Pool Elev:	1,951.60 ft
Initial Pool:	2.74 ac-ft

**Emergency Spillway**

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,957.75	20.00	3.00:1	3.00:1	20.00

**Drop Inlet**

Riser Diameter (in)	Riser Height (ft)	Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)
36.00	4.40	36.00	60.00	1.00	0.0240	1,957.00

**Pond Results:**

Peak Elevation:	1,956.97 ft
Dewater Time:	0.00 days

*Dewatering time is calculated from peak stage to lowest spillway*

**Elevation-Capacity-Discharge Table**

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,950.00	1.310	0.000	0.000	
1,950.25	1.430	0.342	0.000	
1,950.50	1.555	0.715	0.000	
1,950.75	1.685	1.120	0.000	
1,951.00	1.820	1.558	0.000	
1,951.25	1.951	2.029	0.000	
1,951.30	1.977	2.128	0.000	
1,951.50	2.085	2.534	0.000	
1,951.60	2.137	2.745	0.000	
1,951.70	2.190	2.961	0.000	
1,951.75	2.216	3.071	0.000	
1,951.80	2.242	3.183	0.000	
1,952.00	2.350	3.642	0.000	
1,952.25	2.390	4.234	0.000	
1,952.50	2.430	4.837	0.000	
1,952.75	2.470	5.449	0.000	
1,953.00	2.510	6.072	0.000	
1,953.25	2.564	6.706	0.000	
1,953.50	2.619	7.354	0.000	
1,953.75	2.674	8.015	0.000	

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,954.00	2.730	8.691	0.000	
1,954.25	2.750	9.376	0.000	
1,954.50	2.770	10.066	0.000	
1,954.75	2.790	10.761	0.000	
1,955.00	2.810	11.461	0.000	
1,955.25	2.837	12.167	0.000	
1,955.50	2.865	12.880	0.000	
1,955.75	2.892	13.599	0.000	
1,956.00	2.920	14.326	0.000	
1,956.25	2.942	15.059	0.000	
1,956.50	2.965	15.797	0.000	
1,956.75	2.987	16.541	0.000	
1,956.97	3.007	17.203	0.000	0.00 Peak Stage
1,957.00	3.010	17.291	0.000	Spillway #2
1,957.25	3.045	18.048	3.652	
1,957.50	3.080	18.813	10.330	
1,957.75	3.115	19.587	18.977	Spillway #1
1,958.00	3.150	20.371	31.038	
1,958.25	3.180	21.162	41.695	
1,958.50	3.209	21.960	66.794	
1,958.75	3.239	22.766	94.703	
1,959.00	3.269	23.580	117.484	
1,959.25	3.299	24.401	154.742	
1,959.50	3.329	25.230	184.682	
1,959.75	3.360	26.066	233.130	
1,960.00	3.390	26.909	269.543	
1,960.25	3.434	27.762	327.849	
1,960.50	3.478	28.626	370.811	
1,960.75	3.523	29.502	439.127	
1,961.00	3.568	30.388	488.782	
1,961.25	3.613	31.285	567.336	
1,961.50	3.658	32.194	623.860	
1,961.75	3.704	33.115	712.919	
1,962.00	3.750	34.046	776.505	

Detailed Discharge Table

Elevation (ft)	Emergency Spillway (cfs)	Drop Inlet (cfs)	Combined Total Discharge (cfs)
1,950.00	0.000	0.000	0.000
1,950.25	0.000	0.000	0.000
1,950.50	0.000	0.000	0.000
1,950.75	0.000	0.000	0.000
1,951.00	0.000	0.000	0.000
1,951.25	0.000	0.000	0.000
1,951.30	0.000	0.000	0.000
1,951.50	0.000	0.000	0.000
1,951.60	0.000	0.000	0.000
1,951.70	0.000	0.000	0.000
1,951.75	0.000	0.000	0.000
1,951.80	0.000	0.000	0.000
1,952.00	0.000	0.000	0.000
1,952.25	0.000	0.000	0.000
1,952.50	0.000	0.000	0.000
1,952.75	0.000	0.000	0.000
1,953.00	0.000	0.000	0.000
1,953.25	0.000	0.000	0.000
1,953.50	0.000	0.000	0.000
1,953.75	0.000	0.000	0.000
1,954.00	0.000	0.000	0.000
1,954.25	0.000	0.000	0.000
1,954.50	0.000	0.000	0.000
1,954.75	0.000	0.000	0.000
1,955.00	0.000	0.000	0.000
1,955.25	0.000	0.000	0.000
1,955.50	0.000	0.000	0.000
1,955.75	0.000	0.000	0.000
1,956.00	0.000	0.000	0.000
1,956.25	0.000	0.000	0.000
1,956.50	0.000	0.000	0.000
1,956.75	0.000	0.000	0.000
1,957.00	0.000	0.000	0.000
1,957.25	0.000	3.652	3.652
1,957.50	0.000	10.330	10.330
1,957.75	0.000	18.977	18.977
1,958.00	1.821	29.217	31.038
1,958.25	3.643	38.052	41.695
1,958.50	25.110	41.684	66.794
1,958.75	49.679	45.024	94.703
1,959.00	69.351	48.133	117.484

Elevation (ft)	Emergency Spillway (cfs)	Drop Inlet (cfs)	Combined Total Discharge (cfs)
1,959.25	103.690	51.053	154.742
1,959.50	130.868	53.814	184.682
1,959.75	176.689	56.441	233.130
1,960.00	210.592	58.950	269.543
1,960.25	266.492	61.358	327.849
1,960.50	307.138	63.674	370.811
1,960.75	373.219	65.909	439.127
1,961.00	420.712	68.070	488.782
1,961.25	497.171	70.165	567.336
1,961.50	551.661	72.199	623.860
1,961.75	638.741	74.178	712.919
1,962.00	700.400	76.105	776.505

***Subwatershed Hydrology Detail:***

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	98.450	0.616	0.000	0.000	83.000	M	71.04	10.195
	2	138.020	0.716	0.000	0.000	69.500	M	38.55	7.050
	<b>Σ</b>	<b>236.470</b>						<b>106.08</b>	<b>17.244</b>
#2	1	63.880	0.371	0.000	0.000	69.500	M	25.19	3.266
	2	107.810	0.301	0.000	0.000	83.000	M	104.09	11.200
	<b>Σ</b>	<b>408.160</b>						<b>129.22</b>	<b>14.467</b>

***Subwatershed Time of Concentration Details:***

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	5. Nearly bare and untilled, and alluvial valley fans	1.36	35.00	2,576.00	1.160	0.616
<b>#1</b>	<b>1</b>	<b>Time of Concentration:</b>					<b>0.616</b>
#1	2	3. Short grass pasture	1.43	35.00	2,452.00	0.950	0.716
<b>#1</b>	<b>2</b>	<b>Time of Concentration:</b>					<b>0.716</b>
#2	1	3. Short grass pasture	4.15	90.00	2,168.00	1.620	0.371
<b>#2</b>	<b>1</b>	<b>Time of Concentration:</b>					<b>0.371</b>
#2	2	5. Nearly bare and untilled, and alluvial valley fans	4.11	90.00	2,192.00	2.020	0.301
<b>#2</b>	<b>2</b>	<b>Time of Concentration:</b>					<b>0.301</b>

# **Ponds 112 and 113**

***25 Year 6 Hour Event***

Tom Peterson

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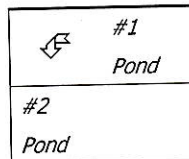
## ***General Information***

### ***Storm Information:***

Storm Type:	NRCS Type II
Design Storm:	25 yr - 6 hr
Rainfall Depth:	2.700 inches

***Structure Networking:***

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	#2	0.000	0.000	Pond 112
Pond	#2	==>	End	0.000	0.000	Pond 113 Pond 111



***Structure Summary:***

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In	236.470	236.470	105.42	12.80
	Out			73.46	12.80
#2	In	171.690	408.160	159.53	23.75
	Out			105.94	23.75

### Structure Detail:

Structure #1 (Pond)

Pond 112

Pond Inputs:

Initial Pool Elev:	1,982.00 ft
Initial Pool:	30.65 ac-ft

#### Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,982.00	20.00	3.00:1	3.00:1	20.00

Pond Results:

Peak Elevation:	1,983.19 ft
Dewater Time:	0.35 days

*Dewatering time is calculated from peak stage to lowest spillway*

#### Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,965.00	0.600	0.000	0.000	
1,966.00	1.250	0.905	0.000	
1,967.00	1.338	2.199	0.000	
1,968.00	1.430	3.583	0.000	
1,969.00	1.519	5.057	0.000	
1,970.00	1.610	6.622	0.000	
1,971.00	1.674	8.264	0.000	
1,972.00	1.740	9.971	0.000	
1,973.00	1.800	11.740	0.000	
1,973.50	1.830	12.648	0.000	
1,973.80	1.848	13.199	0.000	
1,973.90	1.854	13.385	0.000	
1,974.00	1.860	13.570	0.000	
1,975.00	1.924	15.462	0.000	
1,976.00	1.990	17.419	0.000	
1,977.00	2.054	19.442	0.000	
1,978.00	2.120	21.529	0.000	
1,979.00	2.194	23.686	0.000	
1,980.00	2.270	25.918	0.000	

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,981.00	2.364	28.235	0.000	
1,982.00	2.460	30.647	0.000	Spillway #1
1,983.00	2.634	33.193	49.679	7.85
1,983.19	2.670	33.703	73.463	0.55 Peak Stage
1,984.00	2.814	35.917	176.689	
1,985.00	3.000	38.824	373.219	

Detailed Discharge Table

Elevation (ft)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,965.00	0.000	0.000
1,966.00	0.000	0.000
1,967.00	0.000	0.000
1,968.00	0.000	0.000
1,969.00	0.000	0.000
1,970.00	0.000	0.000
1,971.00	0.000	0.000
1,972.00	0.000	0.000
1,973.00	0.000	0.000
1,973.50	0.000	0.000
1,973.80	0.000	0.000
1,973.90	0.000	0.000
1,974.00	0.000	0.000
1,975.00	0.000	0.000
1,976.00	0.000	0.000
1,977.00	0.000	0.000
1,978.00	0.000	0.000
1,979.00	0.000	0.000
1,980.00	0.000	0.000
1,981.00	0.000	0.000
1,982.00	0.000	0.000
1,983.00	49.679	49.679
1,984.00	176.689	176.689
1,985.00	373.219	373.219

Structure #2 (Pond)

Pond 113

Pond 111

Pond Inputs:

Initial Pool Elev:	1,957.00 ft
Initial Pool:	17.29 ac-ft

**Emergency Spillway**

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,957.75	20.00	3.00:1	3.00:1	20.00

**Drop Inlet**

Riser Diameter (in)	Riser Height (ft)	Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)
36.00	4.40	36.00	60.00	1.00	0.0240	1,957.00

**Pond Results:**

Peak Elevation:	1,958.87 ft
Dewater Time:	0.96 days

*Dewatering time is calculated from peak stage to lowest spillway*

**Elevation-Capacity-Discharge Table**

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,950.00	1.310	0.000	0.000	
1,950.25	1.430	0.342	0.000	
1,950.50	1.555	0.715	0.000	
1,950.75	1.685	1.120	0.000	
1,951.00	1.820	1.558	0.000	
1,951.25	1.950	2.029	0.000	
1,951.50	2.085	2.534	0.000	
1,951.75	2.216	3.071	0.000	
1,952.00	2.350	3.642	0.000	
1,952.25	2.390	4.234	0.000	
1,952.50	2.430	4.837	0.000	
1,952.75	2.470	5.449	0.000	
1,953.00	2.510	6.072	0.000	
1,953.25	2.564	6.706	0.000	
1,953.50	2.619	7.354	0.000	
1,953.75	2.674	8.015	0.000	
1,954.00	2.730	8.691	0.000	
1,954.25	2.750	9.376	0.000	
1,954.50	2.770	10.066	0.000	
1,954.75	2.790	10.761	0.000	

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,955.00	2.810	11.461	0.000	
1,955.25	2.837	12.167	0.000	
1,955.50	2.865	12.879	0.000	
1,955.75	2.892	13.599	0.000	
1,956.00	2.920	14.325	0.000	
1,956.25	2.942	15.058	0.000	
1,956.50	2.965	15.797	0.000	
1,956.75	2.987	16.541	0.000	
1,957.00	3.010	17.290	0.000	Spillway #2
1,957.25	3.045	18.047	3.652	16.95
1,957.50	3.080	18.813	10.330	1.65
1,957.75	3.115	19.587	18.977	0.90 Spillway #1
1,958.00	3.150	20.370	31.038	0.65
1,958.25	3.180	21.162	41.695	0.75
1,958.50	3.209	21.960	66.794	1.10
1,958.75	3.239	22.766	94.703	0.60
1,958.87	3.254	23.168	105.942	0.40 Peak Stage
1,959.00	3.269	23.580	117.484	
1,959.25	3.299	24.401	154.742	
1,959.50	3.329	25.229	184.682	
1,959.75	3.360	26.065	233.130	
1,960.00	3.390	26.909	269.543	
1,960.25	3.434	27.762	327.849	
1,960.50	3.478	28.626	370.811	
1,960.75	3.523	29.501	439.127	
1,961.00	3.568	30.388	488.782	
1,961.25	3.613	31.285	567.336	
1,961.50	3.658	32.194	623.860	
1,961.75	3.704	33.114	712.919	
1,962.00	3.750	34.046	776.505	

Detailed Discharge Table

Elevation (ft)	Emergency Spillway (cfs)	Drop Inlet (cfs)	Combined Total Discharge (cfs)
1,950.00	0.000	0.000	0.000
1,950.25	0.000	0.000	0.000
1,950.50	0.000	0.000	0.000
1,950.75	0.000	0.000	0.000
1,951.00	0.000	0.000	0.000

Elevation (ft)	Emergency Spillway (cfs)	Drop Inlet (cfs)	Combined Total Discharge (cfs)
1,951.25	0.000	0.000	0.000
1,951.50	0.000	0.000	0.000
1,951.75	0.000	0.000	0.000
1,952.00	0.000	0.000	0.000
1,952.25	0.000	0.000	0.000
1,952.50	0.000	0.000	0.000
1,952.75	0.000	0.000	0.000
1,953.00	0.000	0.000	0.000
1,953.25	0.000	0.000	0.000
1,953.50	0.000	0.000	0.000
1,953.75	0.000	0.000	0.000
1,954.00	0.000	0.000	0.000
1,954.25	0.000	0.000	0.000
1,954.50	0.000	0.000	0.000
1,954.75	0.000	0.000	0.000
1,955.00	0.000	0.000	0.000
1,955.25	0.000	0.000	0.000
1,955.50	0.000	0.000	0.000
1,955.75	0.000	0.000	0.000
1,956.00	0.000	0.000	0.000
1,956.25	0.000	0.000	0.000
1,956.50	0.000	0.000	0.000
1,956.75	0.000	0.000	0.000
1,957.00	0.000	0.000	0.000
1,957.25	0.000	3.652	3.652
1,957.50	0.000	10.330	10.330
1,957.75	0.000	18.977	18.977
1,958.00	1.821	29.217	31.038
1,958.25	3.643	38.052	41.695
1,958.50	25.110	41.684	66.794
1,958.75	49.679	45.024	94.703
1,959.00	69.351	48.133	117.484
1,959.25	103.690	51.053	154.742
1,959.50	130.868	53.814	184.682
1,959.75	176.689	56.441	233.130
1,960.00	210.592	58.950	269.543
1,960.25	266.492	61.358	327.849
1,960.50	307.138	63.674	370.811
1,960.75	373.219	65.909	439.127
1,961.00	420.712	68.070	488.782
1,961.25	497.171	70.165	567.336

Elevation (ft)	Emergency Spillway (cfs)	Drop Inlet (cfs)	Combined Total Discharge (cfs)
1,961.50	551.661	72.199	623.860
1,961.75	638.741	74.178	712.919
1,962.00	700.400	76.105	776.505

**Subwatershed Hydrology Detail:**

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	98.450	0.616	0.000	0.000	83.000	M	73.87	7.901
	2	138.020	0.716	0.000	0.000	69.500	M	36.15	4.898
<b>Σ</b>		<b>236.470</b>						<b>105.42</b>	<b>12.799</b>
#2	1	63.880	0.371	0.000	0.000	69.500	M	24.46	2.269
	2	107.810	0.301	0.000	0.000	83.000	M	112.70	8.681
<b>Σ</b>		<b>408.160</b>						<b>159.53</b>	<b>23.751</b>

**Subwatershed Time of Concentration Details:**

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)	
#1	1	5. Nearly bare and untilled, and alluvial valley fans	1.36	35.00	2,576.00	1.160	0.616	
<b>#1</b>	<b>1</b>	<b>Time of Concentration:</b>						<b>0.616</b>
#1	2	3. Short grass pasture	1.43	35.00	2,452.00	0.950	0.716	
<b>#1</b>	<b>2</b>	<b>Time of Concentration:</b>						<b>0.716</b>
#2	1	3. Short grass pasture	4.15	90.00	2,168.00	1.620	0.371	
<b>#2</b>	<b>1</b>	<b>Time of Concentration:</b>						<b>0.371</b>
#2	2	5. Nearly bare and untilled, and alluvial valley fans	4.11	90.00	2,192.00	2.020	0.301	
<b>#2</b>	<b>2</b>	<b>Time of Concentration:</b>						<b>0.301</b>