

Coyote Dam
10-Year, 24-Hour Event
Principal Spillway at 6311
Permanent Pool at 6311
60% Sediment at 6307.44

Jim Mattern

General Information

Storm Information:

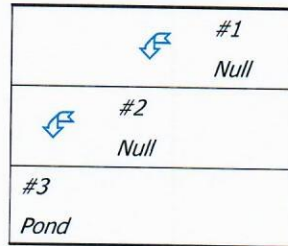
Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	1.400 inches

Particle Size Distribution:

Size (mm)	PDistribution
2.0000	100.000%
1.5100	92.000%
1.0300	84.000%
0.5400	75.000%
0.0500	66.000%
0.0404	60.000%
0.0308	54.000%
0.0212	47.000%
0.0116	40.000%
0.0020	34.000%
0.0016	28.000%
0.0012	20.000%
0.0008	14.000%
0.0004	7.000%
0.0001	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	#2	0.152	0.400	
Null	#2	==>	#3	0.340	0.290	
Pond	#3	==>	End	0.000	0.000	Coyote Dam



Structure Routing Details:

Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	8. Large gullies, diversions, and low flowing streams	5.11	190.00	3,720.01	6.77	0.152
#1	Muskingum K:					0.152
#2	6. Grassed waterway	2.44	70.00	2,865.09	2.34	0.340
#2	Muskingum K:					0.340

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	303.800	303.800	0.63	0.50	8.7	13,977	5.88	5.37
#2	237.500	541.300	11.22	2.67	123.1	66,372	13.14	6.61
#3 In	111.500	652.800	16.87	4.63	283.2	133,943	27.44	8.97
			4.43	4.63	8.3	2,104	0.00	0.00

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In/Out
2.0000	100.000%
1.5100	100.000%
1.0300	98.639%
0.5400	88.071%
0.0500	77.502%
0.0404	70.457%
0.0308	63.411%
0.0212	55.191%
0.0116	46.971%
0.0020	39.925%
0.0016	32.880%
0.0012	23.486%
0.0008	16.440%
0.0004	8.220%
0.0001	0.000%

Structure #2:

Size (mm)	In/Out
2.0000	100.000%
1.5100	100.000%
1.0300	100.000%
0.5400	99.283%
0.0500	98.534%
0.0404	95.663%
0.0308	91.763%
0.0212	87.214%
0.0116	74.751%
0.0020	63.539%
0.0016	52.326%
0.0012	37.376%
0.0008	26.163%

Size (mm)	In/Out
0.0004	13.082%
0.0001	0.000%

Structure #3:

Size (mm)	In	Out
2.0000	100.000%	100.000%
1.5100	100.000%	100.000%
1.0300	100.000%	100.000%
0.5400	100.000%	100.000%
0.0500	100.000%	100.000%
0.0404	97.506%	100.000%
0.0308	90.436%	100.000%
0.0212	82.187%	100.000%
0.0116	73.939%	100.000%
0.0020	66.868%	100.000%
0.0016	55.735%	100.000%
0.0012	39.811%	100.000%
0.0008	27.868%	100.000%
0.0004	13.934%	100.000%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Null)

Structure #2 (Null)

Structure #3 (Pond)

Coyote Dam

Pond Inputs:

Initial Pool Elev:	6,311.00 ft
Initial Pool:	30.00 ac-ft
*Sediment Storage:	44.89 ac-ft
Dead Space:	20.00 %

**Sediment capacity was entered by user*

Drop Inlet

Riser Diameter (in)	Riser Height (ft)	Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)
36.00	17.80	36.00	140.00	1.00	0.0240	6,311.00

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
6,313.00	215.00	1.50:1	1.50:1	50.00

Pond Results:

Peak Elevation:	6,311.15 ft
H'graph Detention Time:	4.15 hrs
Pond Model:	CSTRS
Dewater Time:	1.62 days
Trap Efficiency:	97.06 %

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)	
6,307.44	7.254	0.000	0.000		Top of Sed. Storage
6,308.00	7.550	4.127	0.000		
6,309.00	8.230	12.015	0.000		
6,310.00	9.040	20.647	0.000		
6,311.00	9.660	29.995	0.000		Spillway #1
6,311.15	9.852	31.519	4.430	34.65	Peak Stage
6,312.00	10.450	40.047	29.217		
6,313.00	11.310	50.925	48.133		Spillway #2
6,314.00	11.515	62.337	115.438		
6,315.00	11.721	73.955	298.841		
6,316.00	11.930	85.780	591.361		
6,317.00	12.140	97.815	952.202		
6,318.00	12.352	110.062	1,402.009		
6,319.00	12.566	122.521	1,940.948		
6,320.00	12.782	135.195	2,540.591		
6,321.00	13.000	148.086	3,229.518		

**Designates time(s) to dewater have been extrapolated beyond the 50 hour hydrograph limit.*

Detailed Discharge Table

Elevation (ft)	Drop Inlet (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
6,307.44	0.000	0.000	0.000
6,308.00	0.000	0.000	0.000
6,309.00	0.000	0.000	0.000
6,310.00	0.000	0.000	0.000
6,311.00	0.000	0.000	0.000
6,312.00	29.217	0.000	29.217
6,313.00	48.133	0.000	48.133
6,314.00	58.950	56.488	115.438
6,315.00	68.070	230.770	298.841
6,316.00	76.105	515.256	591.361
6,317.00	83.369	868.833	952.202
6,318.00	90.048	1,311.961	1,402.009
6,319.00	96.266	1,844.683	1,940.948
6,320.00	102.105	2,438.485	2,540.591
6,321.00	107.628	3,121.889	3,229.518

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	244.200	0.510	0.000	0.000	66.000	M	0.50	0.402
	2	59.600	0.312	0.000	0.000	66.000	M	0.12	0.098
	Σ	303.800						0.63	0.500
#2	1	183.900	0.356	0.000	0.000	73.000	M	4.12	1.226
	2	53.600	0.292	0.000	0.000	81.000	M	7.47	0.942
	Σ	541.300						11.22	2.668
#3	1	111.500	0.334	0.000	0.000	81.000	M	14.67	1.966
	Σ	652.800						16.87	4.634

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.250	690.00	13.00	0.1300	0.7300	1	6.7	13,414	5.63	5.14
	2	0.250	560.00	17.90	0.1600	0.6500	1	2.0	16,317	6.90	6.31
	Σ							8.7	13,977	5.88	5.37
#2	1	0.230	540.00	13.00	0.3100	0.6600	1	69.8	67,226	7.29	4.45
	2	0.190	700.00	4.30	0.6300	0.8200	1	44.8	67,544	20.07	10.20
	Σ							123.1	66,372	13.14	6.61
#3	1	0.190	560.00	8.90	0.5700	1.0000	1	207.3	142,819	40.07	20.93
	Σ							283.2	133,943	27.44	8.97

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	1. Forest with heavy ground litter	14.29	40.00	280.00	0.950	0.081
		6. Grassed waterway	1.43	25.00	1,750.00	1.790	0.271
		8. Large gullies, diversions, and low flowing streams	11.99	710.00	5,920.00	10.380	0.158
#1	1	Time of Concentration:					0.510
#1	2	1. Forest with heavy ground litter	12.73	70.00	550.00	0.900	0.169
		6. Grassed waterway	7.41	20.00	270.00	4.080	0.018

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
		8. Large gullies, diversions, and low flowing streams	8.23	320.00	3,886.04	8.600	0.125
#1	2	Time of Concentration:					0.312
#2	1	3. Short grass pasture	10.50	210.00	2,000.00	2.590	0.214
		8. Large gullies, diversions, and low flowing streams	5.00	110.00	2,200.00	6.700	0.091
		8. Large gullies, diversions, and low flowing streams	3.73	40.00	1,073.01	5.790	0.051
#2	1	Time of Concentration:					0.356
#2	2	3. Short grass pasture	8.00	80.00	1,000.00	2.260	0.122
		8. Large gullies, diversions, and low flowing streams	4.35	40.00	920.02	6.250	0.040
		8. Large gullies, diversions, and low flowing streams	0.80	10.00	1,257.07	2.670	0.130
#2	2	Time of Concentration:					0.292
#3	1	5. Nearly bare and untilled, and alluvial valley fans	8.00	20.00	250.00	2.820	0.024
		8. Large gullies, diversions, and low flowing streams	3.77	80.00	2,120.04	5.820	0.101
		6. Grassed waterway	1.47	20.00	1,362.02	1.810	0.209
#3	1	Time of Concentration:					0.334

Coyote Dam
25-Year, 24-Hour Event
Principal Spillway at 6311
Permanent Pool at 6311
60% Sediment at 6307.44

Jim Mattern

General Information

Storm Information:

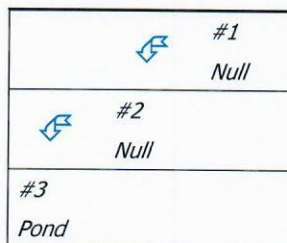
Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	1.800 inches

Particle Size Distribution:

Size (mm)	PDistribution
2.0000	100.000%
1.5100	92.000%
1.0300	84.000%
0.5400	75.000%
0.0500	66.000%
0.0404	60.000%
0.0308	54.000%
0.0212	47.000%
0.0116	40.000%
0.0020	34.000%
0.0016	28.000%
0.0012	20.000%
0.0008	14.000%
0.0004	7.000%
0.0001	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	#2	0.152	0.400	
Null	#2	==>	#3	0.340	0.290	
Pond	#3	==>	End	0.000	0.000	Coyote Dam



Structure Routing Details:

Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	8. Large gullies, diversions, and low flowing streams	5.11	190.00	3,720.01	6.77	0.152
#1	Muskingum K:					0.152
#2	6. Grassed waterway	2.44	70.00	2,865.09	2.34	0.340
#2	Muskingum K:					0.340

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	303.800	303.800	4.74	2.02	59.3	31,142	2.46	1.69
#2	237.500	541.300	32.63	6.63	398.1	96,114	20.88	9.38
#3	In Out	111.500	652.800	42.55	717.3	142,627	26.67	9.37
				10.73	74.4	7,667	0.00	0.00

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In/Out
2.0000	100.000%
1.5100	100.000%
1.0300	100.000%
0.5400	100.000%
0.0500	100.000%
0.0404	100.000%
0.0308	100.000%
0.0212	100.000%
0.0116	89.916%
0.0020	76.428%
0.0016	62.941%
0.0012	44.958%
0.0008	31.470%
0.0004	15.735%
0.0001	0.000%

Structure #2:

Size (mm)	In/Out
2.0000	100.000%
1.5100	100.000%
1.0300	100.000%
0.5400	100.000%
0.0500	99.368%
0.0404	97.321%
0.0308	93.119%
0.0212	82.791%
0.0116	72.416%
0.0020	61.554%
0.0016	50.691%
0.0012	36.208%
0.0008	25.346%

Size (mm)	In/Out
0.0004	12.673%
0.0001	0.000%

Structure #3:

Size (mm)	In	Out
2.0000	100.000%	100.000%
1.5100	100.000%	100.000%
1.0300	100.000%	100.000%
0.5400	100.000%	100.000%
0.0500	100.000%	100.000%
0.0404	94.578%	100.000%
0.0308	89.141%	100.000%
0.0212	82.799%	100.000%
0.0116	76.433%	100.000%
0.0020	64.968%	100.000%
0.0016	53.503%	100.000%
0.0012	38.217%	100.000%
0.0008	26.752%	100.000%
0.0004	13.376%	100.000%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Null)

Structure #2 (Null)

Structure #3 (Pond)

Coyote Dam

Pond Inputs:

Initial Pool Elev:	6,311.00 ft
Initial Pool:	30.00 ac-ft
*Sediment Storage:	44.89 ac-ft
Dead Space:	20.00 %

**Sediment capacity was entered by user*

Drop Inlet

Riser Diameter (in)	Riser Height (ft)	Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)
36.00	17.80	36.00	140.00	1.00	0.0240	6,311.00

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
6,313.00	215.00	1.50:1	1.50:1	50.00

Pond Results:

Peak Elevation:	6,311.37 ft
H'graph Detention Time:	4.15 hrs
Pond Model:	CSTRS
Dewater Time:	1.64 days
Trap Efficiency:	89.63 %

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)
6,307.44	7.254	0.000	0.000	Top of Sed. Storage
6,308.00	7.550	4.127	0.000	
6,309.00	8.230	12.015	0.000	
6,310.00	9.040	20.647	0.000	
6,311.00	9.660	29.995	0.000	Spillway #1
6,311.37	10.004	33.685	10.725	35.25 Peak Stage
6,312.00	10.450	40.047	29.217	
6,313.00	11.310	50.925	48.133	Spillway #2
6,314.00	11.515	62.337	115.438	
6,315.00	11.721	73.955	298.841	
6,316.00	11.930	85.780	591.361	
6,317.00	12.140	97.815	952.202	
6,318.00	12.352	110.062	1,402.009	
6,319.00	12.566	122.521	1,940.948	
6,320.00	12.782	135.195	2,540.591	
6,321.00	13.000	148.086	3,229.518	

**Designates time(s) to dewater have been extrapolated beyond the 50 hour hydrograph limit.*

Detailed Discharge Table

Elevation (ft)	Drop Inlet (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
6,307.44	0.000	0.000	0.000
6,308.00	0.000	0.000	0.000
6,309.00	0.000	0.000	0.000
6,310.00	0.000	0.000	0.000
6,311.00	0.000	0.000	0.000
6,312.00	29.217	0.000	29.217
6,313.00	48.133	0.000	48.133
6,314.00	58.950	56.488	115.438
6,315.00	68.070	230.770	298.841
6,316.00	76.105	515.256	591.361
6,317.00	83.369	868.833	952.202
6,318.00	90.048	1,311.961	1,402.009
6,319.00	96.266	1,844.683	1,940.948
6,320.00	102.105	2,438.485	2,540.591
6,321.00	107.628	3,121.889	3,229.518

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	244.200	0.510	0.000	0.000	66.000	M	3.74	1.624
	2	59.600	0.312	0.000	0.000	66.000	M	1.00	0.397
	Σ	303.800						4.74	2.021
#2	1	183.900	0.356	0.000	0.000	73.000	M	17.35	2.895
	2	53.600	0.292	0.000	0.000	81.000	M	14.90	1.716
	Σ	541.300						32.63	6.632
#3	1	111.500	0.334	0.000	0.000	81.000	M	29.48	3.582
	Σ	652.800						42.55	10.214

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.250	690.00	13.00	0.1300	0.7300	1	45.3	29,291	2.09	1.45
	2	0.250	560.00	17.90	0.1600	0.6500	1	14.1	38,069	3.96	2.68
	Σ							59.3	31,142	2.46	1.69
#2	1	0.230	540.00	13.00	0.3100	0.6600	1	252.4	117,308	26.19	13.89
	2	0.190	700.00	4.30	0.6300	0.8200	1	92.2	73,725	23.90	12.54
	Σ							398.1	96,114	20.88	9.38
#3	1	0.190	560.00	8.90	0.5700	1.0000	1	428.9	156,923	48.78	26.18
	Σ							717.3	142,627	26.67	9.37

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	1. Forest with heavy ground litter	14.29	40.00	280.00	0.950	0.081
		6. Grassed waterway	1.43	25.00	1,750.00	1.790	0.271
		8. Large gullies, diversions, and low flowing streams	11.99	710.00	5,920.00	10.380	0.158
#1	1	Time of Concentration:					0.510
#1	2	1. Forest with heavy ground litter	12.73	70.00	550.00	0.900	0.169
		6. Grassed waterway	7.41	20.00	270.00	4.080	0.018

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
		8. Large gullies, diversions, and low flowing streams	8.23	320.00	3,886.04	8.600	0.125
#1	2	Time of Concentration:					0.312
#2	1	3. Short grass pasture	10.50	210.00	2,000.00	2.590	0.214
		8. Large gullies, diversions, and low flowing streams	5.00	110.00	2,200.00	6.700	0.091
		8. Large gullies, diversions, and low flowing streams	3.73	40.00	1,073.01	5.790	0.051
#2	1	Time of Concentration:					0.356
#2	2	3. Short grass pasture	8.00	80.00	1,000.00	2.260	0.122
		8. Large gullies, diversions, and low flowing streams	4.35	40.00	920.02	6.250	0.040
		8. Large gullies, diversions, and low flowing streams	0.80	10.00	1,257.07	2.670	0.130
#2	2	Time of Concentration:					0.292
#3	1	5. Nearly bare and untilled, and alluvial valley fans	8.00	20.00	250.00	2.820	0.024
		8. Large gullies, diversions, and low flowing streams	3.77	80.00	2,120.04	5.820	0.101
		6. Grassed waterway	1.47	20.00	1,362.02	1.810	0.209
#3	1	Time of Concentration:					0.334