PURFRAC MINE
HYDROLOGY AND HYDRAULICS SUMMARY

FEBRUARY 24, 2016

PREPARED BY:

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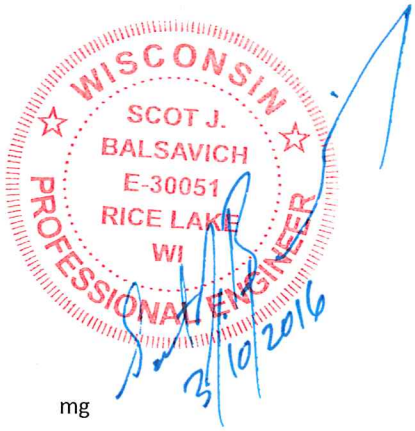

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CEC Project No. 15115178

Purfrac Mine

Hydrology and Hydraulics Summary

February 24, 2016

Project Background:

PurFrac is proposing a nonmetallic mine in Cooks Valley Township, Chippewa County, Wisconsin. The site consists of approximately 685 acres, and the area of proposed excavation is approximately 430 acres. Twenty-six phases of mining are planned, and mining operations will begin in Phase 1 once permitting is complete for Area I (see attached plan). The mine will utilize a conservative approach to disturbing the site, breaking ground only on those areas necessary for mining and/or wet sand treatment. Reclamation will occur immediately after mining areas have exhausted their sand supply, or when they reach their final plan elevations.

Currently, the mine site is made up of agriculture fields and forested land, and is located in the Pine Creek and Red Cedar Watershed of the Lower Chippewa River Basin. The phases represent smaller manageable parcels that will isolate site disturbance at any one time. Using this approach, stormwater controls have been designed in each "Subbasin" within the footprint of disturbance.

During initial construction of the wet plant area and entrance road, several stormwater treatment cells will be installed to treat construction runoff on-site. As construction ceases, and mining operations commence, these treatment areas will continue to perform sediment removal and flow reduction duties. As subbasins within the mine are disturbed, treatment cells will be created as shown on the attached exhibit. These treatment cells consist of a wet detention pond, followed by a sand infiltration cell. A concrete manhole-type outlet structure in the infiltration cell allows a small baseflow of treated water to continue to the downstream watershed, while retaining and infiltrating the rest of the runoff, from all but the largest storms. (>10 year).

The initial condition of the mine (when the wet plant is constructed, and the mine area has just begun) represents the most challenging runoff condition of the mine. In this case, runoff from large acreages is still traveling overland to be routed through the stormwater controls near the wet plant area. As mining commences, more and more topsoil will be stripped, and marketable sand removed. This creates natural watershed "cut offs" and infiltration areas, effectively removing acreages of drainage that the stormwater cells must treat.

Purfrac mining areas must adhere to strict runoff prohibitive excavation measures. As fresh ground is broken to be mined, the downhill edges of the native soil must remain higher than mining "pit" areas. This creates a natural "sump" area in the sandy soils that allows runoff from higher elevations and open mining areas to naturally infiltrate before it travels overland (Figure 1).

Additionally, Chippewa County has provided runoff calculations for the mine adjacent to the site (west side of proposed Purfrac property). According to this data, it appears runoff water may potentially leave their site and run through the Purfrac site. At this time, their plans indicate only 1.0 CFS will be discharged onto the property during a 100 year storm event. This quantity has been deemed insignificant and has not been incorporated in this model. However, this runoff will be dealt with directly during final design phases.

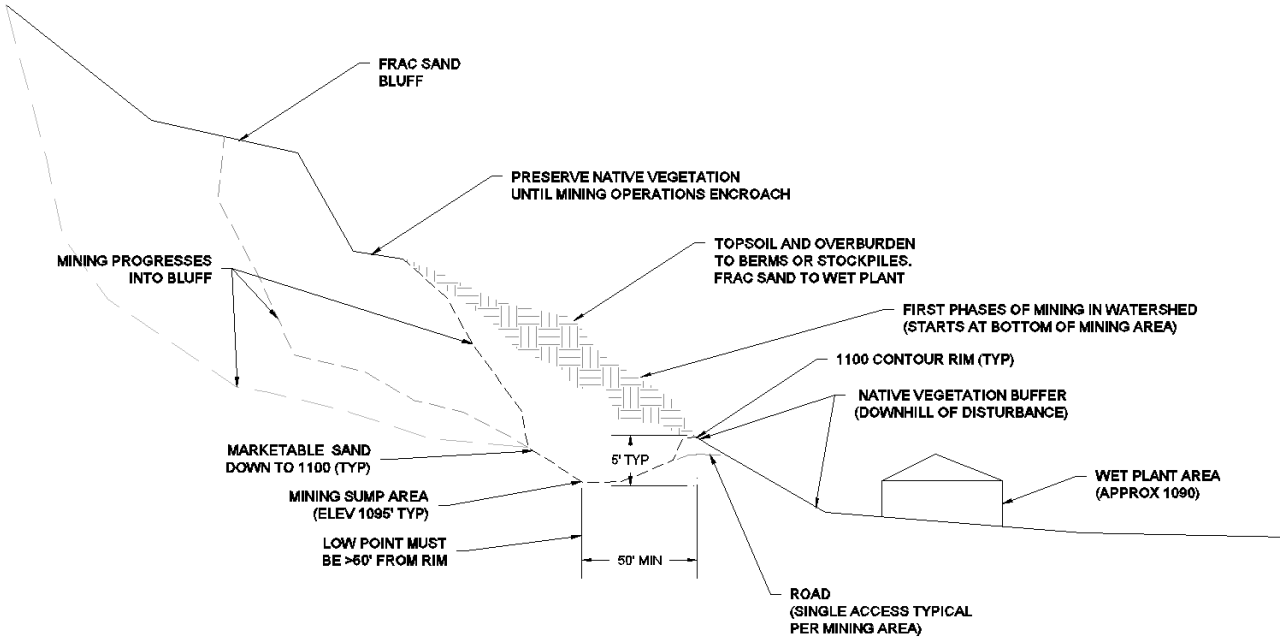
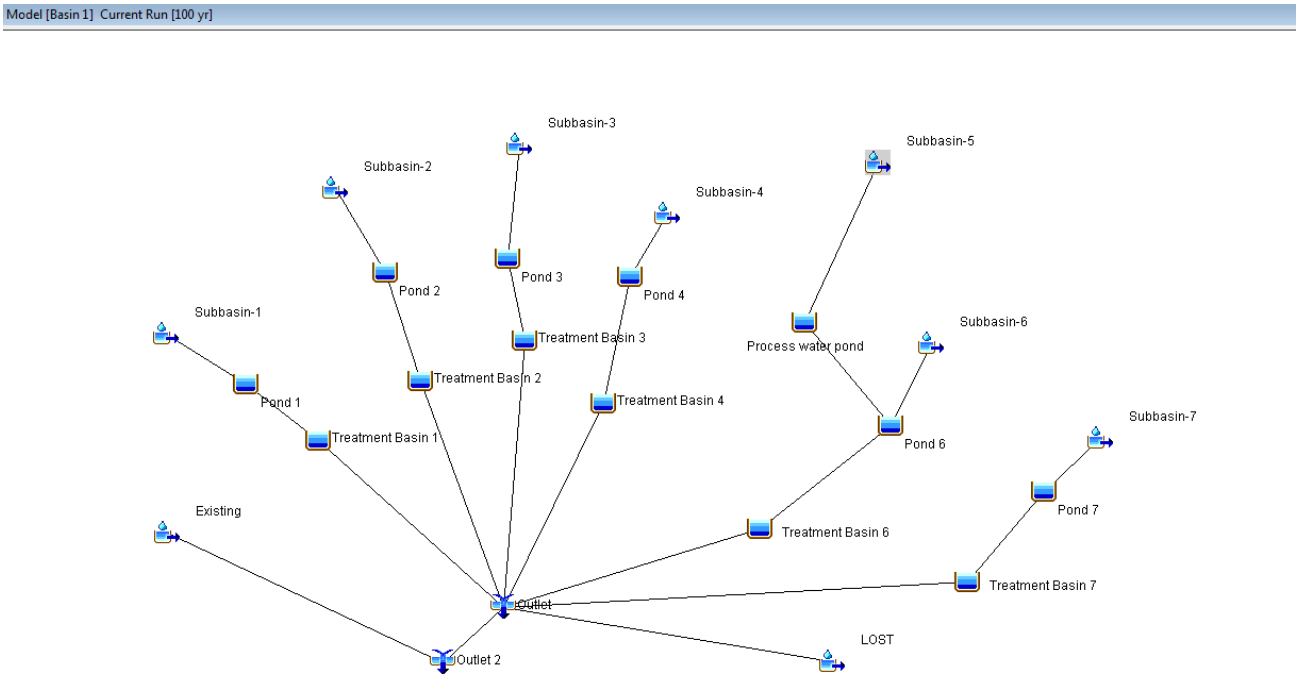


Figure 1
(Typical Mining Pattern)

This model illustrates that storms of 100-year intensity or less are adequately processed through the system, without overtopping the cells, or activating the emergency spillways. The recycle pond does not discharge, even during the 100-year event.

	Purfrac Mine	
Storm Event	Existing CFS	Proposed CFS
1-year	7.9	3.2
2-year	17.2	4.0
10-year	72.1	18.3
100-year	241.9	105.4

HEC-HMS Model



New NRCS Rainfall Distributions and 24-hour Duration Rainfall Depths for Each Wisconsin County

County	Applicable RCS Rainfall Distribution	NOAA Atlas 14 24-Hour Rainfall Depth (Inches) 1-year	2-year	5-year	10-year	25-year	50-year	100-year
Adams	MSE3	2.4	2.69	3.26	3.82	4.71	5.5	6.38
Ashland	MSE4	2.38	2.75	3.46	4.15	5.27	6.27	7.37
Barron	MSE3	2.47	2.88	3.57	4.17	5.03	5.72	6.44
Bayfield	MSE4	2.36	2.73	3.45	4.14	5.23	6.18	7.24
Brown	MSE4	2.05	2.37	2.94	3.45	4.22	4.87	5.56
Buffalo	MSE3	2.51	2.9	3.63	4.32	5.39	6.32	7.33
Burnett	MSE4	2.45	2.84	3.52	4.12	5.02	5.76	6.64
Calumet	MSE4	2.14	2.47	3.06	3.6	4.45	5.17	5.96
Chippewa	MSE3	2.4	2.76	3.41	4	4.87	5.6	6.38
Clark	MSE3	2.44	2.77	3.37	3.91	4.74	5.44	6.19
Columbia	MSE4	2.43	2.76	3.38	3.96	4.88	5.66	6.52
Crawford	MSE4	2.59	2.94	3.64	4.35	5.5	6.53	7.68
Dane	MSE4	2.49	2.84	3.49	4.09	5.01	5.8	6.66
Dodge	MSE3	2.38	2.68	3.26	3.81	4.67	5.42	6.24
Door	MSE4	2	2.31	2.86	3.37	4.14	4.79	5.5
Douglas	MSE4	2.44	2.83	3.52	4.15	5.1	5.9	6.75
Dunn	MSE3	2.44	2.83	3.52	4.15	5.09	5.88	6.73
Eau Claire	MSE3	2.46	2.83	3.49	4.1	5.03	5.81	6.65
Florence	MSE4	2.12	2.4	2.9	3.36	4.05	4.62	5.24
Fond du Lac	MSE4	2.23	2.55	3.13	3.69	4.57	5.33	6.16
Forest	MSE4	2.08	2.38	2.91	3.41	4.17	4.81	5.51
Grant	MSE4	2.68	3.02	3.69	4.38	5.52	6.54	7.69
Green	MSE4	2.58	2.97	3.68	4.34	5.36	6.23	7.18
Green Lake	MSE3	2.29	2.6	3.19	3.74	4.61	5.36	6.18
Iowa	MSE4	2.64	3.03	3.77	4.48	5.58	6.53	7.58
Iron	MSE4	2.37	2.71	3.38	4.05	5.14	6.12	7.21
Jackson	MSE3	2.52	2.86	3.49	4.08	5.02	5.83	6.71
Jefferson	MSE3	2.46	2.79	3.39	3.93	4.75	5.46	6.19
Juneau	MSE3	2.47	2.77	3.38	3.96	4.91	5.74	6.67
Kenosha	MSE3	2.39	2.72	3.3	3.83	4.61	5.26	5.95
Kewaunee	MSE4	2.03	2.37	2.96	3.5	4.3	4.98	5.7
La Crosse	MSE4	2.57	2.94	3.64	4.32	5.37	6.3	7.31
Lafayette	MSE4	2.69	3.06	3.79	4.5	5.64	6.66	7.78
Langlade	MSE4	2.15	2.47	3.03	3.54	4.3	4.94	5.63
Lincoln	MSE4	2.25	2.6	3.22	3.78	4.62	5.33	6.08
Manitowoc	MSE4	2.11	2.44	3.05	3.62	4.49	5.24	6.06
Marathon	MSE3	2.27	2.61	3.2	3.73	4.51	5.16	5.85
Marinette	MSE4	2.09	2.38	2.88	3.34	4.03	4.61	5.22
Marquette	MSE3	2.37	2.66	3.23	3.79	4.69	5.49	6.38

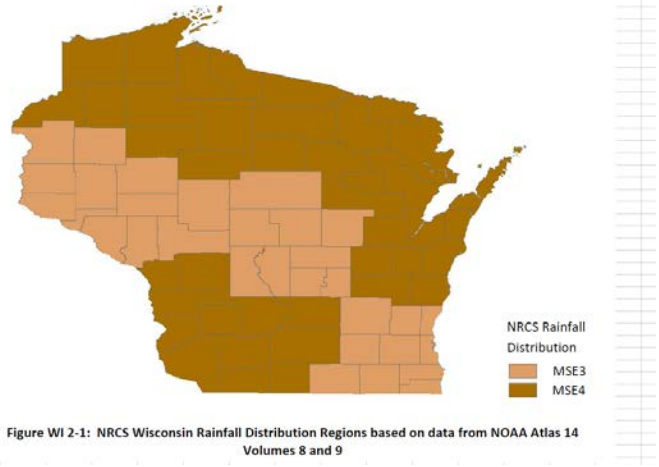
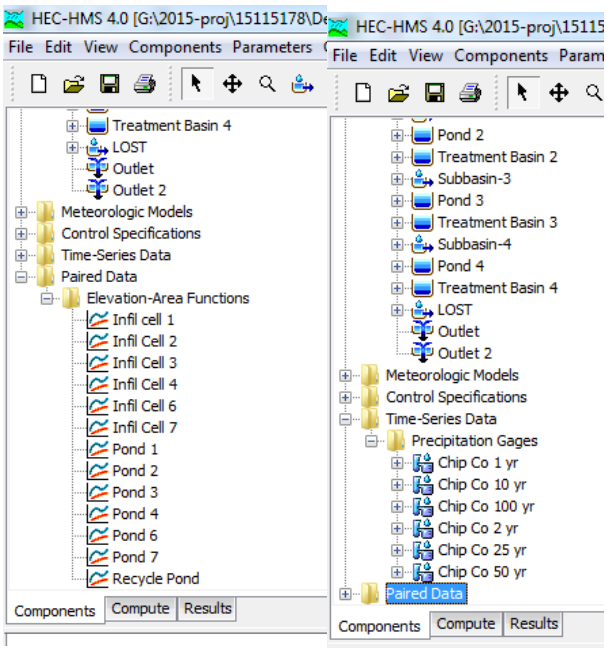
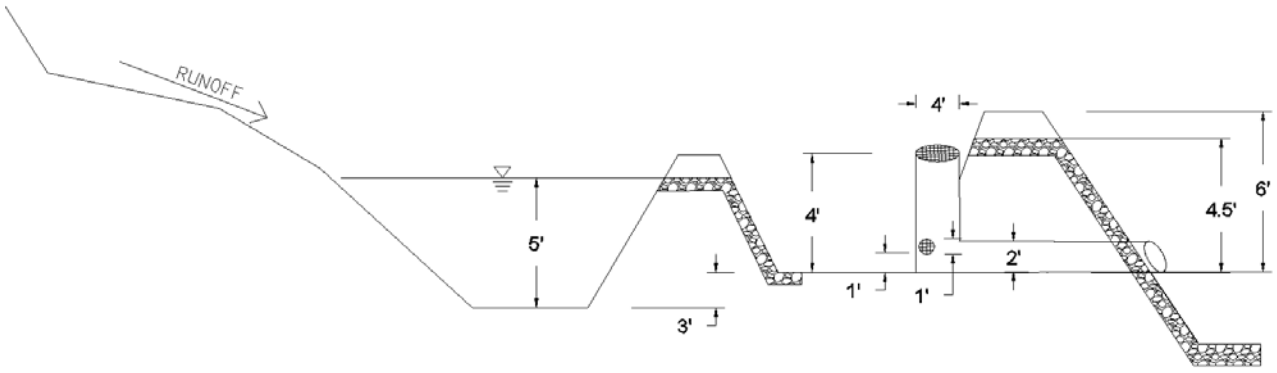


Figure WI 2-1: NRCS Wisconsin Rainfall Distribution Regions based on data from NOAA Atlas 14 Volumes 8 and 9





Pond Schematic (Typ)

Global Summary Results for Run "1 yr"

Project: Purfrac Mine Simulation Run: 1 yr

Start of Run: 01Mar2013, 00:00
End of Run: 02Mar2013, 03:00
Compute Time: 11Jan2016, 13:51:24

Basin Model: Basin 1
Meteorologic Model: 1 yr
Control Specifications: Control 1

Show Elements: All Elements

Volume Units: IN AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Existing	0.276100	7.9	01Mar2013, 12:54	0.15
LOST	0.006815	3.2	01Mar2013, 12:36	1.30
Outlet	0.272125	3.2	01Mar2013, 12:36	0.06
Outlet 2	0.548225	10.3	01Mar2013, 12:48	0.11
Pond 1	0.044030	2.0	01Mar2013, 12:54	0.20
Pond 2	0.024050	1.1	01Mar2013, 12:54	0.21
Pond 3	0.015440	1.9	01Mar2013, 12:48	0.39
Pond 4	0.009230	1.2	01Mar2013, 12:42	0.40
Pond 6	0.131710	2.7	01Mar2013, 12:42	0.10
Pond 7	0.040850	1.0	01Mar2013, 12:42	0.13
Process water pond	0.047810	0.0	01Mar2013, 00:00	0.00
Subbasin-1	0.044030	2.0	01Mar2013, 12:48	0.20
Subbasin-2	0.024050	1.2	01Mar2013, 12:48	0.21
Subbasin-3	0.015440	1.9	01Mar2013, 12:42	0.39
Subbasin-4	0.009230	1.2	01Mar2013, 12:42	0.40
Subbasin-5	0.047810	14.7	01Mar2013, 12:36	0.91
Subbasin-6	0.083900	2.8	01Mar2013, 12:36	0.15
Subbasin-7	0.040850	1.0	01Mar2013, 12:36	0.13
Treatment Basin 1	0.044030	0.2	01Mar2013, 19:42	0.08
Treatment Basin 2	0.024050	0.0	02Mar2013, 00:42	0.00
Treatment Basin 3	0.015440	0.3	01Mar2013, 15:24	0.20
Treatment Basin 4	0.009230	0.1	01Mar2013, 19:54	0.10
Treatment Basin 6	0.131710	0.1	02Mar2013, 00:30	0.00
Treatment Basin 7	0.040850	0.0	02Mar2013, 00:30	0.00

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--None Selected-- Run: 50 yr

Global Summary Results for Run "2 yr"

Project: Purfrac Mine Simulation Run: 2 yr

Start of Run: 01Mar2013, 00:00
End of Run: 02Mar2013, 03:00
Compute Time: 11Jan2016, 13:51:45

Basin Model: Basin 1
Meteorologic Model: 2 yr
Control Specifications: Control 1

Show Elements: All Elements

Volume Units: IN AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Existing	0.276100	17.2	01Mar2013, 12:48	0.25
LOST	0.006815	4.0	01Mar2013, 12:36	1.57
Outlet	0.272125	4.0	01Mar2013, 12:36	0.14
Outlet 2	0.548225	20.5	01Mar2013, 12:48	0.20
Pond 1	0.044030	3.8	01Mar2013, 12:48	0.32
Pond 2	0.024050	2.2	01Mar2013, 12:48	0.33
Pond 3	0.015440	3.0	01Mar2013, 12:42	0.56
Pond 4	0.009230	1.8	01Mar2013, 12:42	0.58
Pond 6	0.131710	4.2	01Mar2013, 12:48	0.15
Pond 7	0.040850	1.7	01Mar2013, 12:48	0.21
Process water pond	0.047810	0.0	01Mar2013, 00:00	0.00
Subbasin-1	0.044030	3.9	01Mar2013, 12:48	0.32
Subbasin-2	0.024050	2.2	01Mar2013, 12:42	0.33
Subbasin-3	0.015440	3.0	01Mar2013, 12:42	0.56
Subbasin-4	0.009230	1.8	01Mar2013, 12:42	0.58
Subbasin-5	0.047810	18.2	01Mar2013, 12:36	1.11
Subbasin-6	0.083900	4.3	01Mar2013, 12:42	0.23
Subbasin-7	0.040850	1.7	01Mar2013, 12:42	0.21
Treatment Basin 1	0.044030	0.8	01Mar2013, 15:30	0.19
Treatment Basin 2	0.024050	0.2	01Mar2013, 19:54	0.10
Treatment Basin 3	0.015440	0.8	01Mar2013, 14:06	0.37
Treatment Basin 4	0.009230	0.2	01Mar2013, 15:30	0.26
Treatment Basin 6	0.131710	0.4	01Mar2013, 20:30	0.04
Treatment Basin 7	0.040850	0.2	01Mar2013, 19:36	0.07

Project: Purfrac Mine Simulation Run: 10 yr

Start of Run: 01Mar2013, 00:00 Basin Model: Basin 1
End of Run: 02Mar2013, 03:00 Meteorologic Model: 10 yr
Compute Time: 11Jan2016, 13:51:31 Control Specifications: Control 1

Show Elements: All Elements Volume Units: IN AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Existing	0.276100	72.1	01Mar2013, 12:42	0.76
LOST	0.006815	6.7	01Mar2013, 12:36	2.58
Outlet	0.272125	18.3	01Mar2013, 13:36	0.56
Outlet 2	0.548225	80.2	01Mar2013, 12:42	0.66
Pond 1	0.044030	13.9	01Mar2013, 12:42	0.88
Pond 2	0.024050	7.6	01Mar2013, 12:42	0.89
Pond 3	0.015440	7.8	01Mar2013, 12:42	1.29
Pond 4	0.009230	4.7	01Mar2013, 12:42	1.30
Pond 6	0.131710	16.5	01Mar2013, 12:48	0.42
Pond 7	0.040850	7.6	01Mar2013, 12:48	0.62
Process water pond	0.047810	0.0	01Mar2013, 00:00	0.00
Subbasin-1	0.044030	13.8	01Mar2013, 12:42	0.88
Subbasin-2	0.024050	7.7	01Mar2013, 12:42	0.89
Subbasin-3	0.015440	7.9	01Mar2013, 12:36	1.29
Subbasin-4	0.009230	4.8	01Mar2013, 12:36	1.31
Subbasin-5	0.047810	32.6	01Mar2013, 12:36	1.89
Subbasin-6	0.083900	16.8	01Mar2013, 12:42	0.66
Subbasin-7	0.040850	7.7	01Mar2013, 12:42	0.62
Treatment Basin 1	0.044030	4.3	01Mar2013, 13:54	0.75
Treatment Basin 2	0.024050	2.1	01Mar2013, 14:00	0.66
Treatment Basin 3	0.015440	3.6	01Mar2013, 13:24	1.09
Treatment Basin 4	0.009230	1.8	01Mar2013, 13:30	0.99
Treatment Basin 6	0.131710	3.3	01Mar2013, 14:30	0.30
Treatment Basin 7	0.040850	2.5	01Mar2013, 14:00	0.48

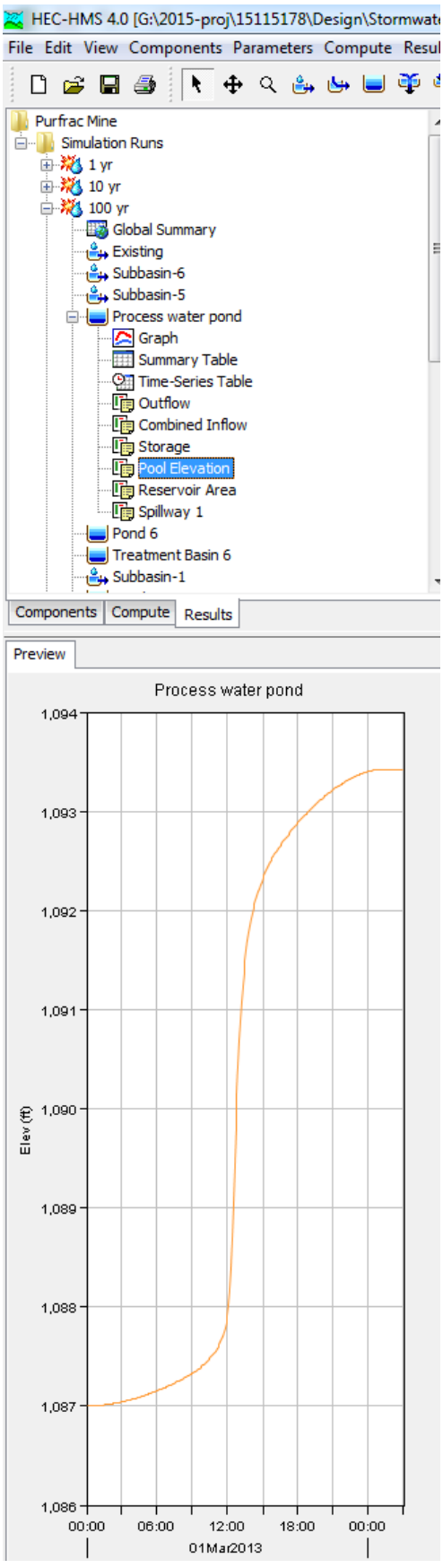
Global Summary Results for Run "100 yr"

Project: Purfrac Mine Simulation Run: 100 yr

Start of Run: 01Mar2013, 00:00 Basin Model: Basin 1
End of Run: 02Mar2013, 03:00 Meteorologic Model: 100 yr
Compute Time: 11Jan2016, 13:51:39 Control Specifications: Control 1

Show Elements: All Elements Volume Units: IN AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Existing	0.276100	241.9	01Mar2013, 12:36	2.17
LOST	0.006815	12.5	01Mar2013, 12:36	4.69
Outlet	0.272125	105.4	01Mar2013, 13:06	1.70
Outlet 2	0.548225	280.9	01Mar2013, 12:48	1.94
Pond 1	0.044030	42.1	01Mar2013, 12:42	2.37
Pond 2	0.024050	23.1	01Mar2013, 12:42	2.39
Pond 3	0.015440	19.4	01Mar2013, 12:36	3.03
Pond 4	0.009230	11.7	01Mar2013, 12:36	3.05
Pond 6	0.131710	60.7	01Mar2013, 12:42	1.22
Pond 7	0.040850	29.0	01Mar2013, 12:42	1.86
Process water pond	0.047810	0.0	01Mar2013, 00:00	0.00
Subbasin-1	0.044030	42.7	01Mar2013, 12:36	2.38
Subbasin-2	0.024050	23.5	01Mar2013, 12:36	2.39
Subbasin-3	0.015440	19.7	01Mar2013, 12:36	3.04
Subbasin-4	0.009230	11.8	01Mar2013, 12:36	3.06
Subbasin-5	0.047810	67.3	01Mar2013, 12:36	3.67
Subbasin-6	0.083900	60.9	01Mar2013, 12:36	1.91
Subbasin-7	0.040850	29.0	01Mar2013, 12:36	1.87
Treatment Basin 1	0.044030	32.9	01Mar2013, 12:54	2.23
Treatment Basin 2	0.024050	10.2	01Mar2013, 13:24	2.14
Treatment Basin 3	0.015440	16.2	01Mar2013, 12:54	2.84
Treatment Basin 4	0.009230	4.7	01Mar2013, 13:24	2.72
Treatment Basin 6	0.131710	30.4	01Mar2013, 13:18	1.07
Treatment Basin 7	0.040850	19.4	01Mar2013, 13:06	1.72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File Edit View Components Parameters Compute Resul
Purfrac Mine
Simulation Runs
1 yr
10 yr
100 yr
Global Summary
Existing
Subbasin-6
Subbasin-5
Process water pond
Graph
Summary Table
Time-Series Table
Outflow
Combined Inflow
Storage
Pool Elevation
Reservoir Area
Spillway 1
Pond 6
Treatment Basin 6
Subbasin-1
Components
Compute
Results
Preview
Process water pond
1,094
1,093
1,092
1,091
1,090
1,089
1,088
1,087
1,086
Elev (ft)
00:00
06:00
12:00
18:00
00:00
01Mar2013

```
Basin: Basin 1
     Last Modified Date: 11 January 2016
     Last Modified Time: 19:51:06
     Version: 4.0
     Filepath Separator: \
     Unit System: English
     Missing Flow To Zero: No
     Enable Flow Ratio: No
     Compute Local Flow At Junctions: No

     Enable Sediment Routing: No

     Enable Quality Routing: No
End:

Subbasin: Existing
     Area: 0.2761
     Downstream: Outlet 2

     Canopy: None
     Plant Uptake Method: None

     Surface: None

     LossRate: SCS
     Percent Impervious Area: 0
     Curve Number: 60

     Transform: SCS
     Lag: 30
     Unitgraph Type: STANDARD

     Baseflow: None
End:

Subbasin: Subbasin-6
     Area: 0.08390
     Downstream: Pond 6

     Canopy: None
     Plant Uptake Method: None

     Surface: None

     LossRate: SCS
     Percent Impervious Area: 3.7
     Curve Number: 55

     Transform: SCS
     Lag: 30
     Unitgraph Type: STANDARD
```

```
     Baseflow: None
End:

Subbasin: Subbasin-5

     Area: 0.04781
     Downstream: Process water pond

     Canopy: None
     Plant Uptake Method: None

     Surface: None

     LossRate: SCS
     Percent Impervious Area: 32.8
     Curve Number: 62

     Transform: SCS
     Lag: 30
     Unitgraph Type: STANDARD

     Baseflow: None
End:

Reservoir: Process water pond

     Downstream: Pond 6

     Route: Controlled Outflow
     Routing Curve: Elevation-Area
     Initial Elevation: 1087
     Elevation-Area Table: Recycle Pond
     Adaptive Control: On
     Main Tailwater Condition: None
     Auxiliary Tailwater Condition: None

     Spillway: Broad-Crested Spillway
     Spillway Outlet: Main
     Spillway Crest Length: 20
     Spillway Crest Elevation: 1094
     Spillway Coefficient: 2.5
     End Spillway:

     Evaporation Method: Zero Evaporation
     End Evaporation:
End:

Reservoir: Pond 6

     Downstream: Treatment Basin 6

     Route: Controlled Outflow
```

```
     Routing Curve: Elevation-Area
     Initial Elevation: 1096
     Elevation-Area Table: Pond 6
     Adaptive Control: On
     Main Tailwater Condition: None
     Auxiliary Tailwater Condition: None

     Spillway: Broad-Crested Spillway
     Spillway Outlet: Main
     Spillway Crest Length: 30
     Spillway Crest Elevation: 1096
     Spillway Coefficient: 2.5
     End Spillway:

     Evaporation Method: Zero Evaporation
     End Evaporation:
End:

Reservoir: Treatment Basin 6
     Downstream: Outlet

     Route: Controlled Outflow
     Routing Curve: Elevation-Area
     Initial Elevation: 1094
     Elevation-Area Table: Infil Cell 6
     Adaptive Control: On
     Main Tailwater Condition: None
     Auxiliary Tailwater Condition: None

     Conduit: Culvert
     Conduit Outlet: Main
     Culvert Shape: Circular
     Chart Number: 1
     Scale Number: 1
     Solution Control: Automatic
     Diameter: 1
     Number Barrels: 1
     Culvert Length: 100
     Entrance Loss Coefficient: 0.6
     Exit Loss Coefficient: 0.8
     Top Manning's n: 0.012
     Bottom Manning's n:
     Bottom Depth:
     Fill Depth:
     Inlet Invert Elevation: 1095
     Outlet Invert Elevation: 1094
     End Conduit:

     Conduit: Orifice
     Conduit Outlet: Main
     Orifice Coefficient: 0.8
     Orifice Area: 7.01
```

```
     Centerline Elevation: 1098
     Number Barrels: 1
     End Conduit:

     Spillway: Broad-Crested Spillway
     Spillway Outlet: Main
     Spillway Crest Length: 20
     Spillway Crest Elevation: 1098.5
     Spillway Coefficient: 2.5
     End Spillway:

     Evaporation Method: Zero Evaporation
     End Evaporation:
End:

Subbasin: Subbasin-1
     Area: 0.04403
     Downstream: Pond 1

     Canopy: None
     Plant Uptake Method: None

     Surface: None

     LossRate: SCS
     Percent Impervious Area: 0.53
     Curve Number: 62

     Transform: SCS
     Lag: 30
     Unitgraph Type: STANDARD

     Baseflow: None
End:

Reservoir: Pond 1

     Downstream: Treatment Basin 1

     Route: Controlled Outflow
     Routing Curve: Elevation-Area
     Initial Elevation: 1096
     Elevation-Area Table: Pond 1
     Adaptive Control: On
     Main Tailwater Condition: None
     Auxiliary Tailwater Condition: None

     Spillway: Broad-Crested Spillway
     Spillway Outlet: Main
     Spillway Crest Length: 20
     Spillway Crest Elevation: 1096
     Spillway Coefficient: 2.5
```

```
     End Spillway:

     Evaporation Method: Zero Evaporation
     End Evaporation:
End:

Reservoir: Treatment Basin 1
     Canvas X: -6227.786752827141

     Downstream: Outlet

     Route: Controlled Outflow
     Routing Curve: Elevation-Area
     Initial Elevation: 1094
     Elevation-Area Table: Infil cell 1
     Adaptive Control: On
     Main Tailwater Condition: None
     Auxiliary Tailwater Condition: None

     Conduit: Culvert
     Conduit Outlet: Main
     Culvert Shape: Circular
     Chart Number: 1
     Scale Number: 1
     Solution Control: Automatic
     Diameter: 1
     Number Barrels: 1
     Culvert Length: 100
     Entrance Loss Coefficient: 0.6
     Exit Loss Coefficient: 0.8
     Top Manning's n: 0.012
     Bottom Manning's n:
     Bottom Depth:
     Fill Depth:
     Inlet Invert Elevation: 1095
     Outlet Invert Elevation: 1094
     End Conduit:

     Conduit: Orifice
     Conduit Outlet: Main
     Orifice Coefficient: 0.8
     Orifice Area: 7.01
     Centerline Elevation: 1098
     Number Barrels: 1
     End Conduit:

     Spillway: Broad-Crested Spillway
     Spillway Outlet: Main
     Spillway Crest Length: 20
     Spillway Crest Elevation: 1098.5
     Spillway Coefficient: 2.5
     End Spillway:
```

```
     Evaporation Method: Zero Evaporation
     End Evaporation:
End:

Subbasin: Subbasin-7

     Area: 0.04085
     Downstream: Pond 7

     Canopy: None
     Plant Uptake Method: None

     Surface: None

     LossRate: SCS
     Percent Impervious Area: 2.68
     Curve Number: 55

     Transform: SCS
     Lag: 30
     Unitgraph Type: STANDARD

     Baseflow: None
End:

Reservoir: Pond 7
     Downstream: Treatment Basin 7

     Route: Controlled Outflow
     Routing Curve: Elevation-Area
     Initial Elevation: 1096
     Elevation-Area Table: Pond 7
     Adaptive Control: On
     Main Tailwater Condition: None
     Auxiliary Tailwater Condition: None

     Spillway: Broad-Crested Spillway
     Spillway Outlet: Main
     Spillway Crest Length: 30
     Spillway Crest Elevation: 1096
     Spillway Coefficient: 2.5
     End Spillway:

     Evaporation Method: Zero Evaporation
     End Evaporation:
End:

Reservoir: Treatment Basin 7
     Downstream: Outlet

     Route: Controlled Outflow
```

```
     Routing Curve: Elevation-Area
     Initial Elevation: 1094
     Elevation-Area Table: Infil Cell 7
     Adaptive Control: On
     Main Tailwater Condition: None
     Auxiliary Tailwater Condition: None

     Conduit: Culvert
     Conduit Outlet: Main
     Culvert Shape: Circular
     Chart Number: 1
     Scale Number: 1
     Solution Control: Automatic
     Diameter: 1
     Number Barrels: 1
     Culvert Length: 100
     Entrance Loss Coefficient: 0.6
     Exit Loss Coefficient: 0.8
     Top Manning's n: 0.012
     Bottom Manning's n:
     Bottom Depth:
     Fill Depth:
     Inlet Invert Elevation: 1095
     Outlet Invert Elevation: 1094
     End Conduit:

     Conduit: Orifice
     Conduit Outlet: Main
     Orifice Coefficient: 0.8
     Orifice Area: 7.01
     Centerline Elevation: 1098
     Number Barrels: 1
     End Conduit:

     Spillway: Broad-Crested Spillway
     Spillway Outlet: Main
     Spillway Crest Length: 20
     Spillway Crest Elevation: 1098.5
     Spillway Coefficient: 2.5
     End Spillway:

     Evaporation Method: Zero Evaporation
     End Evaporation:
End:

Subbasin: Subbasin-2

     Area: 0.02405
     Downstream: Pond 2

     Canopy: None
     Plant Uptake Method: None
```

```
     Surface: None

     LossRate: SCS
     Percent Impervious Area: 0.96
     Curve Number: 62

     Transform: SCS
     Lag: 30
     Unitgraph Type: STANDARD

     Baseflow: None
End:

Reservoir: Pond 2

     Downstream: Treatment Basin 2

     Route: Controlled Outflow
     Routing Curve: Elevation-Area
     Initial Elevation: 1096
     Elevation-Area Table: Pond 2
     Adaptive Control: On
     Main Tailwater Condition: None
     Auxiliary Tailwater Condition: None

     Spillway: Broad-Crested Spillway
     Spillway Outlet: Main
     Spillway Crest Length: 20
     Spillway Crest Elevation: 1096
     Spillway Coefficient: 2.5
     End Spillway:

     Evaporation Method: Zero Evaporation
     End Evaporation:
End:

Reservoir: Treatment Basin 2
     Downstream: Outlet

     Route: Controlled Outflow
     Routing Curve: Elevation-Area
     Initial Elevation: 1094
     Elevation-Area Table: Infil Cell 2
     Adaptive Control: On
     Main Tailwater Condition: None
     Auxiliary Tailwater Condition: None

     Conduit: Culvert
     Conduit Outlet: Main
     Culvert Shape: Circular
     Chart Number: 1
```

```
     Scale Number: 1
     Solution Control: Automatic
     Diameter: 1
     Number Barrels: 1
     Culvert Length: 100
     Entrance Loss Coefficient: 0.6
     Exit Loss Coefficient: 0.8
     Top Manning's n: 0.012
     Bottom Manning's n:
     Bottom Depth:
     Fill Depth:
     Inlet Invert Elevation: 1095
     Outlet Invert Elevation: 1094
     End Conduit:

     Conduit: Orifice
     Conduit Outlet: Main
     Orifice Coefficient: 0.8
     Orifice Area: 7.08
     Centerline Elevation: 1098
     Number Barrels: 1
     End Conduit:

     Spillway: Broad-Crested Spillway
     Spillway Outlet: Main
     Spillway Crest Length: 20
     Spillway Crest Elevation: 1098.5
     Spillway Coefficient: 2.5
     End Spillway:

     Evaporation Method: Zero Evaporation
     End Evaporation:
End:

Subbasin: Subbasin-3
     Area: 0.01544
     Downstream: Pond 3

     Canopy: None
     Plant Uptake Method: None

     Surface: None

     LossRate: SCS
     Percent Impervious Area: 0.85
     Curve Number: 69

     Transform: SCS
     Lag: 30
     Unitgraph Type: STANDARD

     Baseflow: None
```

```
End:

Reservoir: Pond 3
     Downstream: Treatment Basin 3

     Route: Controlled Outflow
     Routing Curve: Elevation-Area
     Initial Elevation: 1096
     Elevation-Area Table: Pond 3
     Adaptive Control: On
     Main Tailwater Condition: None
     Auxiliary Tailwater Condition: None

     Spillway: Broad-Crested Spillway
     Spillway Outlet: Main
     Spillway Crest Length: 20
     Spillway Crest Elevation: 1096
     Spillway Coefficient: 2.5
     End Spillway:

     Evaporation Method: Zero Evaporation
     End Evaporation:
End:

Reservoir: Treatment Basin 3
     Downstream: Outlet

     Route: Controlled Outflow
     Routing Curve: Elevation-Area
     Initial Elevation: 1094
     Elevation-Area Table: Infil Cell 3
     Adaptive Control: On
     Main Tailwater Condition: None
     Auxiliary Tailwater Condition: None

     Conduit: Culvert
     Conduit Outlet: Main
     Culvert Shape: Circular
     Chart Number: 1
     Scale Number: 1
     Solution Control: Automatic
     Diameter: 1
     Number Barrels: 1
     Culvert Length: 100
     Entrance Loss Coefficient: 0.6
     Exit Loss Coefficient: 0.8
     Top Manning's n: 0.012
     Bottom Manning's n:
     Bottom Depth:
     Fill Depth:
     Inlet Invert Elevation: 1095
     Outlet Invert Elevation: 1094
```

```
     End Conduit:

     Conduit: Orifice
     Conduit Outlet: Main
     Orifice Coefficient: 0.8
     Orifice Area: 7.01
     Centerline Elevation: 1098
     Number Barrels: 1
     End Conduit:

     Spillway: Broad-Crested Spillway
     Spillway Outlet: Main
     Spillway Crest Length: 20
     Spillway Crest Elevation: 1098.5
     Spillway Coefficient: 2.5
     End Spillway:

     Evaporation Method: Zero Evaporation
     End Evaporation:
End:

Subbasin: Subbasin-4
     Area: 0.00923
     Downstream: Pond 4

     Canopy: None
     Plant Uptake Method: None

     Surface: None

     LossRate: SCS
     Percent Impervious Area: 1.41
     Curve Number: 69

     Transform: SCS
     Lag: 30
     Unitgraph Type: STANDARD

     Baseflow: None
End:

Reservoir: Pond 4
     Downstream: Treatment Basin 4

     Route: Controlled Outflow
     Routing Curve: Elevation-Area
     Initial Elevation: 1096
     Elevation-Area Table: Pond 4
     Adaptive Control: On
     Main Tailwater Condition: None
     Auxiliary Tailwater Condition: None
```

```
     Spillway: Broad-Crested Spillway
     Spillway Outlet: Main
     Spillway Crest Length: 20
     Spillway Crest Elevation: 1096
     Spillway Coefficient: 2.5
     End Spillway:

     Evaporation Method: Zero Evaporation
     End Evaporation:
End:

Reservoir: Treatment Basin 4

     Downstream: Outlet

     Route: Controlled Outflow
     Routing Curve: Elevation-Area
     Initial Elevation: 1094
     Elevation-Area Table: Infil Cell 4
     Adaptive Control: On
     Main Tailwater Condition: None
     Auxiliary Tailwater Condition: None

     Conduit: Culvert
     Conduit Outlet: Main
     Culvert Shape: Circular
     Chart Number: 1
     Scale Number: 1
     Solution Control: Automatic
     Diameter: 1
     Number Barrels: 1
     Culvert Length: 100
     Entrance Loss Coefficient: 0.6
     Exit Loss Coefficient: 0.8
     Top Manning's n: 0.012
     Bottom Manning's n:
     Bottom Depth:
     Fill Depth:
     Inlet Invert Elevation: 1095
     Outlet Invert Elevation: 1094
     End Conduit:

     Conduit: Orifice
     Conduit Outlet: Main
     Orifice Coefficient: 0.8
     Orifice Area: 7.01
     Centerline Elevation: 1098
     Number Barrels: 1
     End Conduit:

     Spillway: Broad-Crested Spillway
     Spillway Outlet: Main
```

```
     Spillway Crest Length: 20
     Spillway Crest Elevation: 1098.5
     Spillway Coefficient: 2.5
     End Spillway:

     Evaporation Method: Zero Evaporation
     End Evaporation:
End:

Subbasin: LOST
     Label X: 14.0
     Label Y: 18.0
     Area: 0.006815
     Downstream: Outlet

     Canopy: None
     Plant Uptake Method: None

     Surface: None

     LossRate: SCS
     Percent Impervious Area: 38.95
     Curve Number: 75

     Transform: SCS
     Lag: 30
     Unitgraph Type: STANDARD

     Baseflow: None
End:

Junction: Outlet

     Downstream: Outlet 2
End:

Junction: Outlet 2

End:

Basin Schematic Properties:
     Extent Method: Elements
     Buffer: 0
     Draw Icons: Yes
     Draw Icon Labels: Name
     Draw Map Objects: No
     Draw Gridlines: No
     Draw Flow Direction: No
     Fix Element Locations: No
     Fix Hydrologic Order: No
End:
```