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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**New**	Application No.	**PA0285129**
Facility Type	**Non-Municipal**	APS ID	**1090314**
Major / Minor	**Minor**	Authorization ID	**1443065**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Consol PA Coal Co. LLC**	Facility Name	**Bailey Mine 6 South 3 Portal**
Applicant Address	275 Technology Drive Suite 101	Facility Address	Sr 3018 (Behm Rd)
	Canonsburg, PA 15317-9565		New Freeport, PA 15352
Applicant Contact	Jaculyn Duke	Facility Contact	Matthew Petrovich
Applicant Phone	724-416-8299	Facility Phone	(724) 146-8329
Client ID	259457	Site ID	865246
Ch 94 Load Status		Municipality	Aleppo Township
Connection Status		County	Greene
Date Application Received	June 5, 2023	EPA Waived?	Yes
Date Application Accepted	June 12, 2023	If No, Reason	

Purpose of Application: New NPDES permit application

Summary of Review

The applicant has proposed to construct a 0.015 MGD sewage treatment facility

The proposed treatment process will consist of extended aeration, screening/comminution, equalization, aeration, tertiary filtration, clarification, chlorination/De-chlorination tank, and sludge digestion.

The facility will discharge to South Fork Dunkard Fork through outfall 001. South Fork Dunkard Fork is classified as Trout Stock Fishes (TSF) per Chapter 93 Designated Uses.

Act 537 planning was approved on May 12, 2023.

The applicant has complied with Act 14 Notifications and no comments were received.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Approve	Deny	Signatures	Date
X		Jordan T Coldsmith Jordan Coldsmith / Environmental Engineering Specialist	August 8, 2023
x		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	August 29, 2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.015
Latitude	39º 50' 59.83"	Longitude	-80º 27' 36.33"
Quad Name	New Freeport	Quad Code	39080G4
Wastewater Description:	Sewage Effluent		

Receiving Waters	South Fork Dunkard Fork (TSF)	Stream Code	32536
NHD Com ID	73874908	RMI	4.71
Drainage Area	12.0	Yield (cfs/mi^2)	0.015
Q_{7-10} Flow (cfs)	0.184	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	992	Slope (ft/ft)	
Watershed No.	20-E	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	No Downstream PWS in PA		
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance: N/A. New Permit Issuance

Other Comments: none

Treatment Facility Summary

Treatment Facility Name: Bailey Mine 6 South 3 Portal

WQM Permit No.	Issuance Date
TBD	

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Extended Aeration	Chlorination	0.015

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.015				

Changes Since Last Permit Issuance: N/A. New permit Issuance

Other Comments: None

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .015
Latitude 39º 51' 0.53" **Longitude** -80º 27' 36.52"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

The proposed discharge was evaluated using WQM7.0 to determine the $CBOD_5$, ammonia nitrogen, and dissolved oxygen parameters. The Total Residual Chlorine Spreadsheet was used to determine TRC parameters in the permit.

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
$CBOD_5$	25	Average Monthly	WQM7.0
Dissolved Oxygen	4.0	Minimum	WQM7.0
Ammonia Nitrogen (Nov 1 – Apr 30)	49.5 99.0	Average Monthly IMAX	WQM7.0
Ammonia Nitrogen (May 1 – Oct 31)	16.5 33.1	Average Monthly IMAX	WQM7.0
Total Residual Chlorine	0.5 1.6	Average Monthly IMAX	TRC Spreadsheet

Additional Considerations

Sewage discharges will include monitoring, at a minimum, for *E. Coli*, in new and reissued permits, with a monitoring frequency of 1/year for facilities with design flows of 0.002 – 0.05 MGD.

An annual sampling frequency for total phosphorus and total nitrogen will be imposed per 25 PA Code §92a.61.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	16.5	XXX	33.1	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001

Other Comments: None

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Attachment 1
USGS Stream Stats

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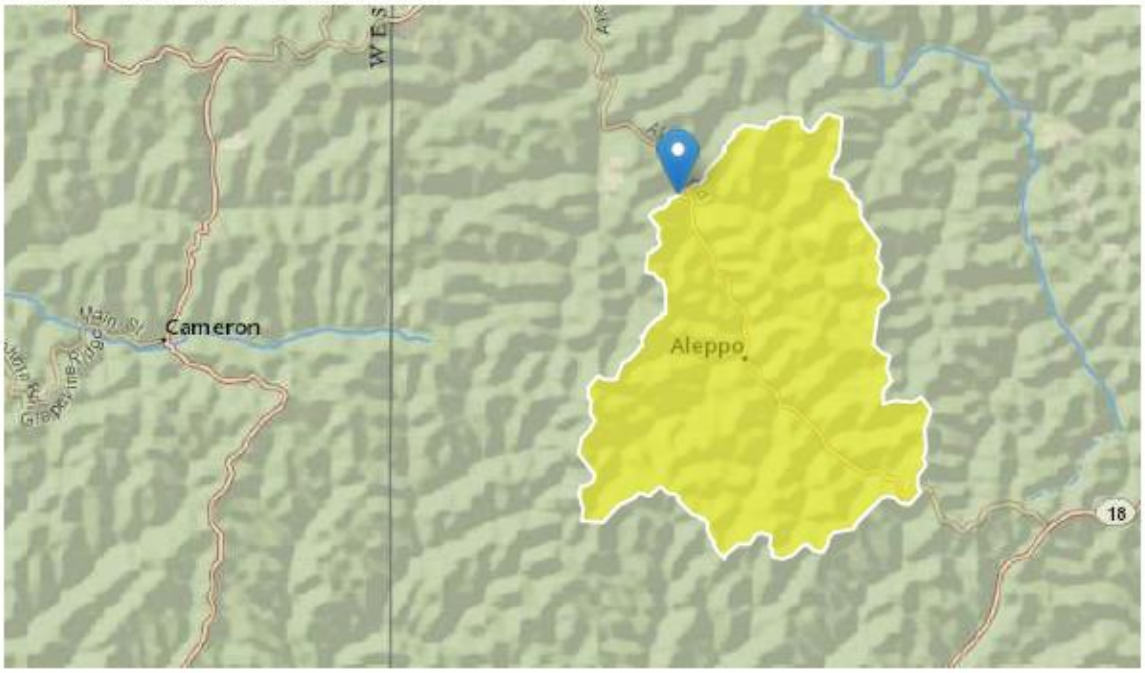
StreamStats Report - PEL - Consol's 6 South 3 Portal STP

Region ID: PA
Workspace ID: PA20221202155511911000
Clicked Point (Latitude, Longitude): 39.85014, -80.46024
Time: 2022-12-02 10:55:32 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	12	square miles
ELEV	Mean Basin Elevation	1302	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12	square miles	2.26	1400
ELEV	Mean Basin Elevation	1302	feet	1050	2580

Low-Flow Statistics Flow Report [Low Flow Region 4]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.51	ft^3/s	43	43
30 Day 2 Year Low Flow	0.88	ft^3/s	38	38
7 Day 10 Year Low Flow	0.184	ft^3/s	66	66
30 Day 10 Year Low Flow	0.33	ft^3/s	54	54
90 Day 10 Year Low Flow	0.609	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

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Application Version: 4.11.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

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Attachment 2
WQM Summer Results

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Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20E	32536	SOUTH FORK DUNKARD FORK	4.710	992.00	12.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.015	0.00	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
PELs Consol TP	PEL	0.0000	0.0150	0.0000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20E	32536	SOUTH FORK DUNKARD FORK	4.000	980.00	13.30	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.015	0.00	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20E	32536	SOUTH FORK DUNKARD FORK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
4.710	0.18	0.00	0.18	.0232	0.00320	.422	10.13	24.02	0.05	0.894	24.44	7.00
Q1-10 Flow												
4.710	0.12	0.00	0.12	.0232	0.00320	NA	NA	NA	0.04	1.109	24.18	7.00
Q30-10 Flow												
4.710	0.25	0.00	0.25	.0232	0.00320	NA	NA	NA	0.06	0.765	24.58	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20E	32536	SOUTH FORK DUNKARD FORK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
4.710	PELs Consol TP	11.86	50	11.86	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
4.710	PELs Consol TP	1.4	16.55	1.4	16.55	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
4.71	PELs Consol TP	25	25	16.55	16.55	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20E	32536	SOUTH FORK DUNKARD FORK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
4.710	0.015	24.440	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
10.125	0.422	24.020	0.049
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
4.58	0.621	1.85	0.985
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.768	15.699	Owens	6
Reach Travel Time (days)			
0.894			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.089	4.28	1.70	7.61
0.179	3.99	1.55	7.61
0.268	3.73	1.42	7.61
0.358	3.49	1.30	7.61
0.447	3.26	1.19	7.61
0.536	3.04	1.09	7.61
0.626	2.84	1.00	7.61
0.715	2.65	0.92	7.61
0.805	2.48	0.84	7.61
0.894	2.32	0.77	7.61

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20E	32536	SOUTH FORK DUNKARD FORK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
4.710	PELs Consol TP	PEL	0.000	CBOD5	25		
				NH3-N	16.55	33.1	
				Dissolved Oxygen			4

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Attachment 3
WQM Winter Results

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Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20E	32536	SOUTH FORK DUNKARD FORK	4.710	992.00	12.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.031	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
PELs Consol TP	PEL	0.0000	0.0150	0.0000	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	12.51	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20E	32536	SOUTH FORK DUNKARD FORK	4.000	980.00	13.30	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.031	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20E	32536	SOUTH FORK DUNKARD FORK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
4.710	0.37	0.00	0.37	.0232	0.00320	.46	12.27	26.66	0.07	0.626	5.59	7.00
Q1-10 Flow												
4.710	0.24	0.00	0.24	.0232	0.00320	NA	NA	NA	0.05	0.789	5.90	7.00
Q30-10 Flow												
4.710	0.50	0.00	0.50	.0232	0.00320	NA	NA	NA	0.08	0.532	5.44	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20E	32536	SOUTH FORK DUNKARD FORK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
4.710	PELs Consol TP	24.1	50	24.1	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
4.710	PELs Consol TP	4.36	25	4.36	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
4.71	PELs Consol TP	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20E	32536	SOUTH FORK DUNKARD FORK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
4.710	0.015	5.593	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
12.267	0.460	26.657	0.069
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.36	0.574	1.48	0.231
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
12.005	10.835	Owens	6
Reach Travel Time (days)			
0.626			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.063	3.30	1.46	11.28
0.125	3.24	1.44	11.28
0.188	3.18	1.42	11.28
0.251	3.12	1.40	11.28
0.313	3.07	1.38	11.28
0.376	3.01	1.36	11.28
0.438	2.95	1.34	11.28
0.501	2.90	1.32	11.28
0.564	2.85	1.30	11.28
0.626	2.79	1.28	11.28

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20E	32536	SOUTH FORK DUNKARD FORK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
4.710	PELs Consol TP	PEL	0.000	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

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Attachment 4
TRC Spreadsheet Results

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Copy of TRC_CALC_PELS_CONSOL

TRC EVALUATION

0.184	= Q stream (cfs)	0.5	= CV Daily
0.015	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 2.548	1.3.2.iii	WLA cfc = 2.477
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.950	5.1d	LTA_cfc = 1.440

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**