pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0050776**
Facility Type	**Non-Municipal**	APS ID	**1082587**
Major / Minor	**Minor**	Authorization ID	**1429627**

Applicant and Facility Information

Applicant Name	**Coventry Terrace MHP, LLC**	Facility Name	**Coventry Terrace STP**
Applicant Address	524 Meadow Avenue Loop	Facility Address	151 Saylor Mill Road
	Banner Elk, NC 28604-9443		Parker Ford, PA 19457
Applicant Contact	Matthew Raynor	Facility Contact	Fred Walton
Applicant Phone	(919) 270-4831	Facility Phone	(484) 643-0024
Client ID	88038	Site ID	3775
Ch 94 Load Status	Not Overloaded	Municipality	East Coventry Township
Connection Status		County	Chester
Date Application Received	March 6, 2023	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Permit renewal.

Summary of Review

The permittee requests approval for the renewal of an NPDES permit to discharge treated sewage from Coventry Terrace STP to Pigeon Creek, which is designated as a High-Quality Trout Stocking stream under Chapter 93.

At the facility, collection system flows through bar screen, then to EQ, then pumped to aeration basin, to clarifier, to chlorine contact chamber, through de-chlorination then to the stream. Sodium hypochlorite is used for disinfection.
The other wastewater treatment chemicals listed in the application are Soda Ash (pH enhancement) Hydrated Lime (pH and settling agent) and Sodium bi-sulfite (de-chlorination).

No upgrades are proposed. Review of edmrs shows the discharge is in compliance with the effluent limitations in the existing permit. According to the 2021 inspection report the facility was operating fine and no violations were noted.

There are no changes in the flow, stream designation and influent quality. The current permit limits are recommended to continue in the draft permit. E. Coli monitoring is also included according to DEP SOP for “Establishing Effluent Limitations for Individual Sewage Permits.”

Influent monitoring for CBOD5 and TSS are continued in the draft permit to check compliance with the 85% removal requirement.

Sludge use and disposal description and location(s): Sewage Sludge is hauled to local POTW

Approve	Deny	Signatures	Date
X		*Sara Abraham* Sara Reji Abraham, E.I.T. / Project Manager	March 23, 2023
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	03/24/2023

Summary of Review

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.

Act 14 Notifications:

East Coventry Township - March 16, 2023
Chester County - February 21, 2023

Permit Conditions:

A. No Stormwater
B. Necessary Property Rights
C. Proper Sludge Disposal
D. Abandon STP
E. Chlorine Optimization
F. Small Stream Discharge
G. Responsible Operator
H. Fecal Coliform I-Max Reporting
I. Solids Management

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	.0315
Latitude	40º 12' 8.00"	Longitude	-75º 36' 4.35"
Quad Name	Phoenixville	Quad Code	1741
Wastewater Description:	Treated Sewage Effluent		
Receiving Waters	Pigeon Creek (HQ-TSF, MF)	Stream Code	01624
NHD Com ID	25989340	RMI	1.7
Drainage Area	13.2 mi^2	Yield (cfs/mi^2)	0.12
Q_{7-10} Flow (cfs)	1.6	Q_{7-10} Basis	Previous fact sheet
Elevation (ft)	345	Slope (ft/ft)	4.6
Watershed No.	3-D	Chapter 93 Class.	HQ-TSF, MF
Assessment Status	Attaining Use(s)		

Changes Since Last Permit Issuance: None

Treatment Facility Summary

Treatment Facility Name: Coventry Terrace STP

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Chlorine With Dechlorination	0.0315

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0315		Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: None

Compliance History

DMR Data for Outfall 001 (from February 1, 2022 to January 31, 2023)

Parameter	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22
Flow (MGD) Average Monthly	0.0175	0.0180	0.0148	0.0156	0.0137	0.0138	0.0137	0.0132	0.0155	0.0181	0.0165	0.0179
Flow (MGD) Daily Maximum	0.0307	0.0393	0.0394	0.0251	0.0250	0.0212	0.0209	0.0200	0.0280	0.0385	0.0237	0.0417
pH (S.U.) Minimum	6.44	6.10	6.42	6.26	6.72	6.15	7.61	6.96	7.29	7.53	6.76	7.29
pH (S.U.) Maximum	8.03	8.10	8.60	8.45	8.89	8.89	8.64	8.40	8.40	8.33	8.45	8.26
DO (mg/L) Minimum	9.2	6.2	6.8	6.5	6.1	6.3	6.1	6.1	6.5	7.0	5.2	8.1
DO (mg/L) Average Monthly	10.1	10.1	8.8	8.1	7.2	7.1	6.7	7.5	7.5	8.0	8.3	9.2
TRC (mg/L) Average Monthly	0.02	0.01	0.02	0.01	0.01	0.02	0.01	0.02	0.02	0.01	0.01	0.01
CBOD5 (mg/L) Average Monthly	3.60	< 3.7	< 4.3	< 3.0	< 3.0	< 3.0	8.45	< 5.2	< 3.9	4.45	< 3.0	< 3.1
CBOD5 (mg/L) Raw Sewage Influent Average Monthly	200	167	252	217	232	398	305	307	403	367	215	363
TSS (mg/L) Average Monthly	< 5.1	< 5.1	< 5.6	< 5.0	< 5.0	8.0	< 5.8	< 5.0	< 5.3	< 3.2	< 6.2	< 5.0
TSS (mg/L) Raw Sewage Influent Average Monthly	124	192	76	148	172	252	166	202	124	206	36	162
Fecal Coliform (No./100 ml) Geometric Mean	< 9	< 14	< 1	< 4	< 3	19	< 3	42	< 1	< 1	< 7	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	80.9	195.6	< 1	13.5	7	34	6.3	46	< 1	< 1	44	< 1
Total Nitrogen (mg/L) Average Monthly	< 54.13	< 27.49	< 36.80	< 30.24	< 28.92	< 33.44	< 16.58	12.39	< 17.07	< 20.52	< 16.53	< 18.84

Ammonia (mg/L) Average Monthly	0.38	0.33	0.32	0.49	0.66	0.74	1.02	0.77	0.48	0.63	0.69	0.84
Total Phosphorus (mg/L) Average Monthly	2.55	2.78	2.55	2.88	3.13	3.03	1.21	1.94	1.17	3.61	1.47	2.31

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0315
Latitude 40º 12' 8.00" **Longitude** -75º 36' 6.00"
Wastewater Description: Treated 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)

The following limitations were determined:

Parameter	Limit (mg/l)	SBC	Model
CBOD5 (May 1 to Oct 31)	15	Average Monthly	Previous modeling*
CBOD5 (Nov 1 to Apr 30)	25	Average Monthly	Seasonal limit
DO	5.0	Inst. Min.	Existing/Chap. 93
TRC	0.1	Average Monthly	TRC spreadsheet*
TSS	30	Average Monthly	Existing/DRBC
NH3 as N (May 1 to Oct 31)	3.0	Average Monthly	Previous modeling*
NH3 as N (Nov 1 to Apr 30)	9.0	Average Monthly	Seasonal limit
Total N	Report	Average Monthly	Data Collection/SOP
Total Phosphorus	Report	Average Monthly	Data Collection/SOP
Fecal Coliform (No./100ml)	200/1000	Geo Mean/Inst. Max.	Chap. 92/DRBC
E. Coli	Report	Int. Max.	Data Collection/SOP
pH	6.0 to 9.0 Std. Units		Chap. 93

E. Coli is the only new parameter in the permit.
Discharge to High Quality stream – existing quality level of treatment must be maintained.

*See the below attached past Water Quality Protection Report and TRC spreadsheet.

Anti-Backsliding

N/A

WATER QUALITY PROTECTION REPORT: SEWAGE ☒ INDUSTRIAL WASTE ☐

TO: ~~CHARLES REDY~~ Rob Ryan 7/25/96
Chief, WQ Assessment Section

DATE 7/25/96

TO FROM: Pravin Patel
Sanitary Engineer, Permits Section

THRU: JAMES NEWBOLD
Chief, Permits Section

APPLICATION #: PA0050776 FLOW: 31,500 GPD

APPLICANT: Coventry Terrace MHP PROJECT:

MUNICPALITY: East Coventry Twp STREAM: Pigeon Creek

COUNTY: Chester County SWP WATERSHED:

For the subject project, please find attached a protection report form and worksheet, and permit application / supporting data regarding:

☐ PROPOSED DISCHARGE ☒ EXIST. DISCH. - PERMIT RENEWAL
☐ EXIST. DISCH. NO PERMIT ☐ EXIST. DISCH. TO BE AMENDED
☐ MALFUNCTIONING SYSTEM

The subject project involves discharge of treated Sewage from 31500 GPD
Coventry Terrace MHP to Pigeon Creek. Application is for 35,000 GPD but only approved for 31,500 GPD

PRIORITY RATING: (A) #96

A Discretionary Priority
B Pollution/Enforcement/Compliance Problem
C Watershed Cases
D 106 Major Discharges
E Groundwater Clean-ups (GWCU)
F GWCU Temporary Discharge Request
G New/Increased Discharge Request
H TW Process/CCW/Blowdown/Misc. Wastewater
I Water Conditioning Additives Request
J Sewage Renewal
K NCCW Renewal
L SRSTP Renewal

The requirements for Technology based effluent limits for this discharge are noted on page 1 of the worksheet. Please develop and note on the worksheets the water quality based effluent limits (WQBELs), applicable effluent standards from PA Code Title 25 regulations, applicable DRBC Water Quality Regulations and relevant planning aspects for this discharge. Should you have any questions, please contact the engineer reviewing the application.

KD 6/94 WQ PROTECTION REPORT RETURNED JRW 7/29/96

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WATER QUALITY PROTECTION REPORT: SEWAGE ☒ INDUSTRIAL WASTE ☐

APPLICATION #: PA0050776 FLOW : 31,500 MGD

APPLICANT : Coventry Terrace Mobile Home Parks

MUNICIPALITY : East Coventry Twp. COUNTY : Chester

WATER USES & CRITERIA:

USGS Quad Name: Phoenixville Quad Code : 08-21-1

Inches North : 13.8 Latitude : 40°12'08"

Inches West : 14.2 Longitude : 75°36'06"

RECEIVING WATERS: Pigeon Creek

Drainage Area: 13.2 Stream Flow : 1.6 cfs

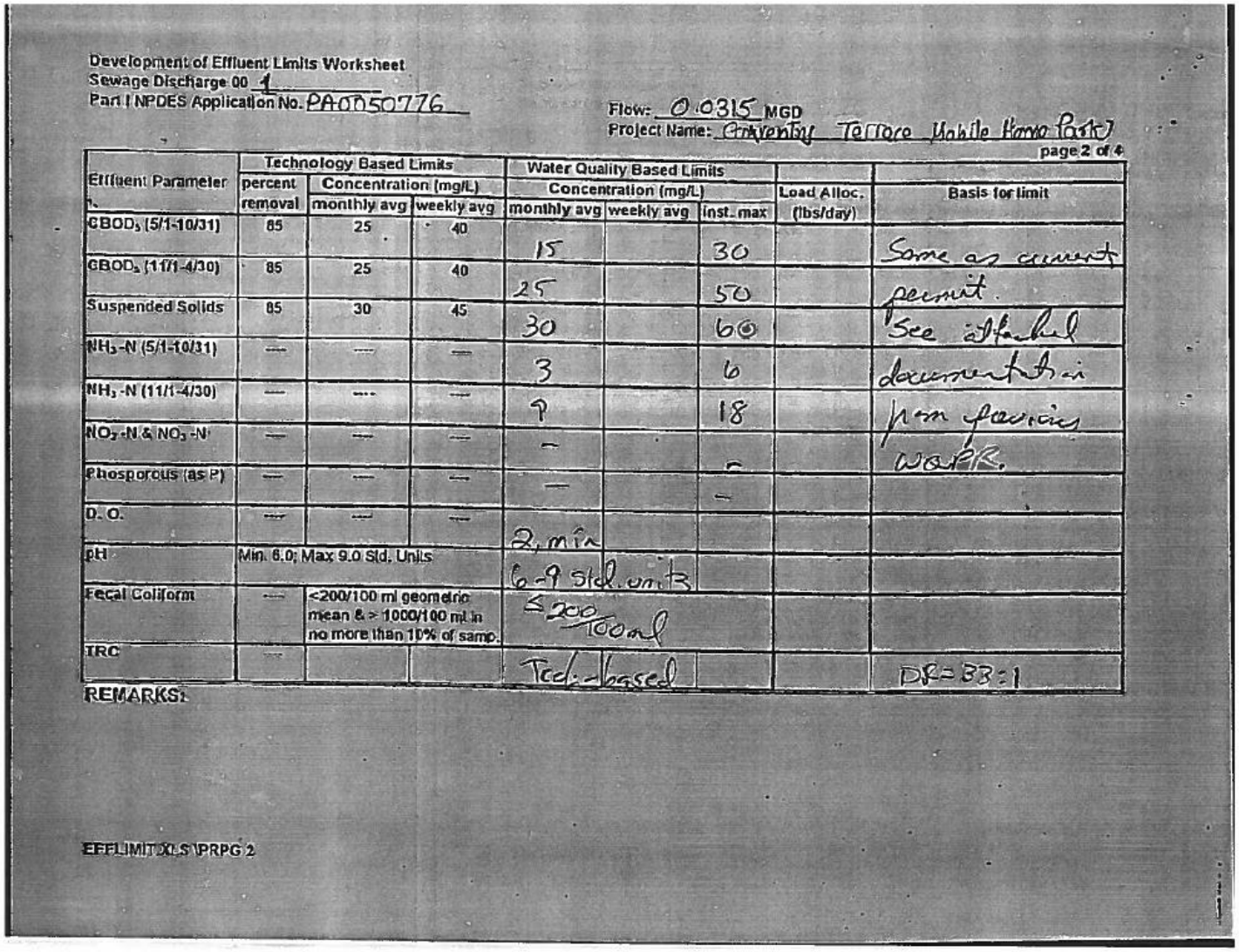
WATER USES	WATER QUALITY CRITERIA
☐ Dry Stream	☒ Statewide
☒ Statewide Use List	☒ Add EXISTING QUALITY
☒ Add HQ-TSF	☐ Delete
☐ Delete	

SECONDARY WATERS: Flow : cfs

WATER USES	WATER QUALITY CRITERIA
☐ Statewide Use List	☐ Statewide
☐ Add	☐ Add
☐ Delete	☐ Delete

REMARKS:

Sanitary Engineer: Date: 7/26/96



Development of Effluent Limits Worksheet
Sewage Discharge 00 1
Part I NPDES Application No. PA0050776

Flow: 0.0315 MGD
Project Name: Coventry Terrace Mobile Home Park

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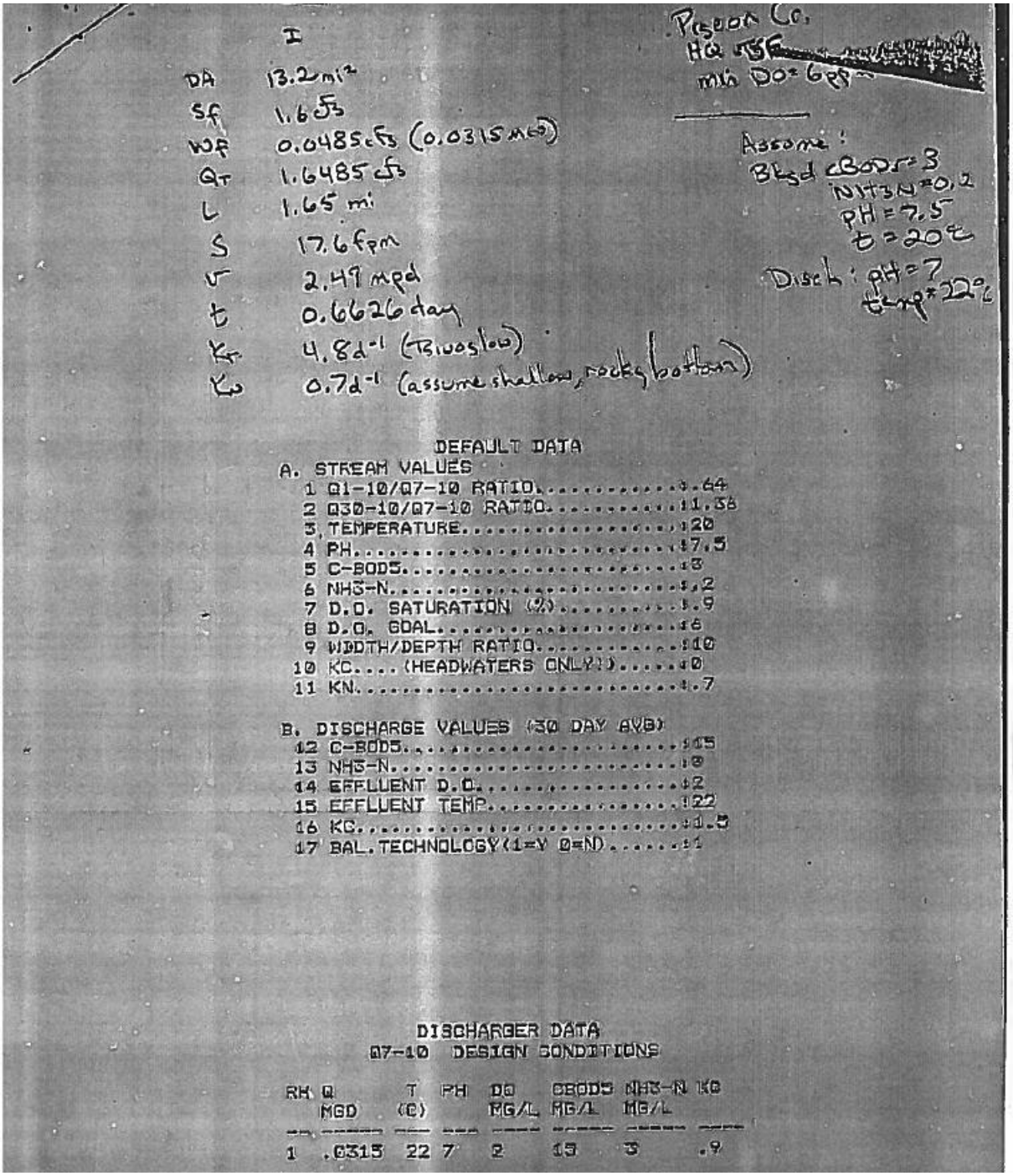
Effluent Parameter	Technology Based Limits			Water Quality Based Limits				
	percent removal	Concentration (mg/L) monthly avg	weekly avg	Concentration (mg/L) monthly avg	weekly avg	inst. max	Load Alloc. (lbs/day)	Basis for limit
$CBOD_5$ (5/1-10/31)	85	25	40	15		30		Same as current
$CBOD_5$ (11/1-4/30)	85	25	40	25		50		permit.
Suspended Solids	85	30	45	30		60		See attached
NH_3-N (5/1-10/31)	—	—	—	3		6		documentation
NH_3-N (11/1-4/30)	—	—	—	9		18		from previous
NO_2-N & NO_3-N	—	—	—	—		—		WQPR.
Phosporous (as P)	—	—	—	—		—		
D. O.	—	—	—	2, min				
pH	Min. 6.0; Max 9.0 Std. Units			6-9 Std. units				
Fecal Coliform	—	<200/100 ml geometric mean & > 1000/100 ml in no more than 10% of samp.		≤200/100ml				
TRC	—			Tech.-based				DF=33:1

REMARKS:

EFFLIMIT.XLS \PRPG 2



I

Pigeon Cr.
HQ TSF
min DO = 6 ppm

DA 13.2 mi²
Sf 1.6 cfs
WR 0.0485 cfs (0.0315 mgd)
Qt 1.6485 cfs
L 1.65 mi
S 17.6 fpm
V 2.49 mpd
t 0.6626 day
Kr 4.8 d⁻¹ (Tribs low)
Ko 0.7 d⁻¹ (assume shallow, rocky bottom)

Assume:
Bkgd CBOD5 = 3
NH3N = 0.2
PH = 7.5
t = 20°C

Discl: pH = 7
temp = 22°C

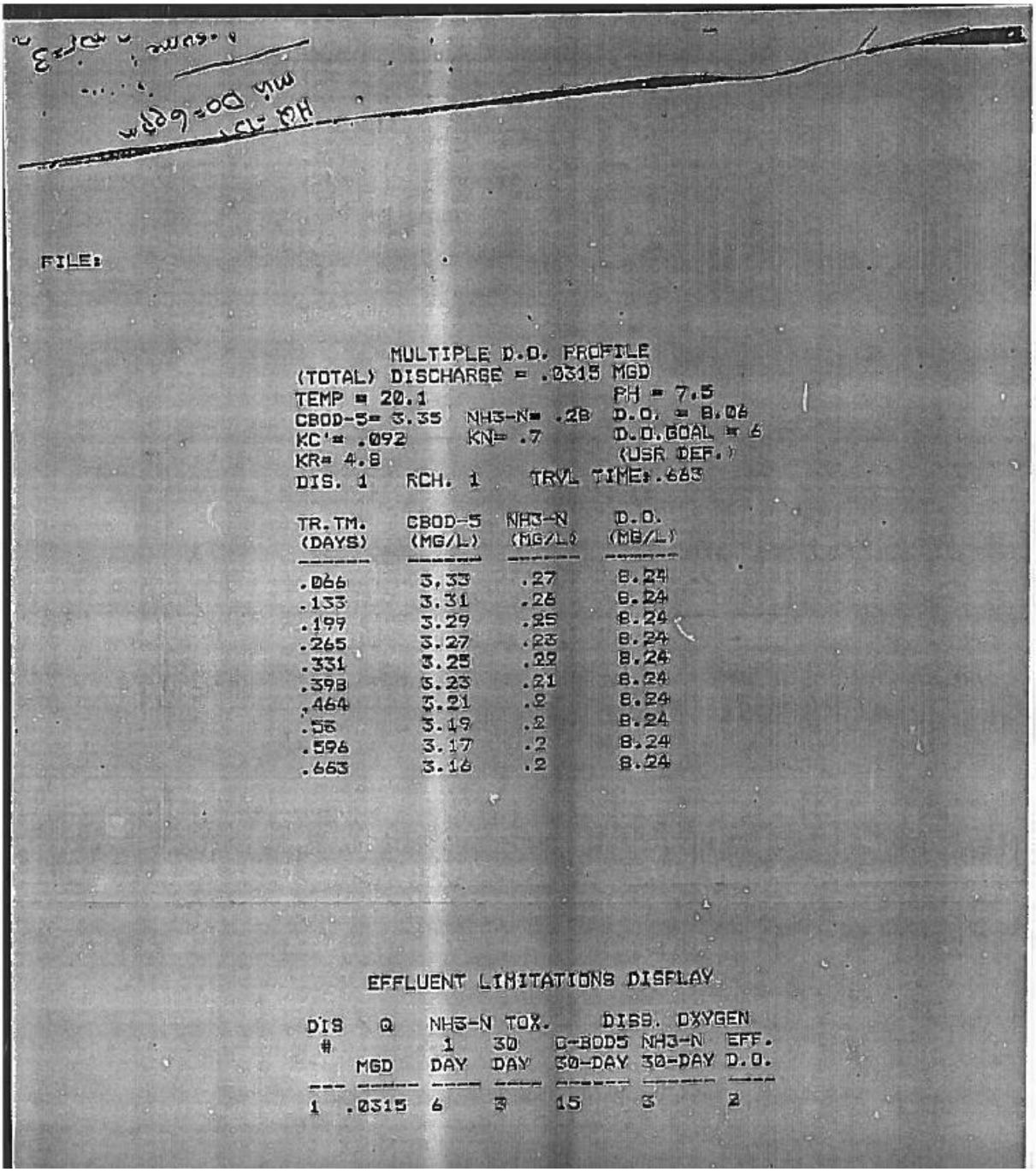
DEFAULT DATA

A. STREAM VALUES
1 Q1-10/Q7-10 RATIO.....:.64
2 Q30-10/Q7-10 RATIO.....:1.36
3 TEMPERATURE.....:20
4 PH.....:7.5
5 C-BOD5.....:3
6 NH3-N.....:.2
7 D.O. SATURATION (%).....:.9
8 D.O. GOAL.....:6
9 WIDTH/DEPTH RATIO.....:10
10 KC....(HEADWATERS ONLY!).....:0
11 KN.....:.7

B. DISCHARGE VALUES (30 DAY AVG)
12 C-BOD5.....:15
13 NH3-N.....:0
14 EFFLUENT D.O.....:2
15 EFFLUENT TEMP.....:22
16 KC.....:1.5
17 BAL.TECHNOLOGY(1=Y 0=N).....:1

DISCHARGER DATA
Q7-10 DESIGN CONDITIONS

RM	Q MGD	T (C)	PH	DO MG/L	CBOD5 MG/L	NH3-N MG/L	KC
1	.0315	22	7	2	15	3	.9



FILE:

MULTIPLE D.O. PROFILE
(TOTAL) DISCHARGE = .0315 MGD
TEMP = 20.1 PH = 7.5
CBOD-5= 3.35 NH3-N= .28 D.O. = 8.06
KC'= .092 KN= .7 D.O.GOAL = 6
KR= 4.8 (USR DEF.)
DIS. 1 RCH. 1 TRVL TIME=.663

TR.TM. (DAYS)	CBOD-5 (MG/L)	NH3-N (MG/L)	D.O. (MG/L)
.066	3.33	.27	8.24
.133	3.31	.26	8.24
.199	3.29	.25	8.24
.265	3.27	.23	8.24
.331	3.25	.22	8.24
.398	3.23	.21	8.24
.464	3.21	.2	8.24
.53	3.19	.2	8.24
.596	3.17	.2	8.24
.663	3.16	.2	8.24

EFFLUENT LIMITATIONS DISPLAY

DIS #	Q MGD	NH3-N TOX. 1 DAY	NH3-N TOX. 30 DAY	DISS. OXYGEN C-BOD5 30-DAY	DISS. OXYGEN NH3-N 30-DAY	EFF. D.O.
1	.0315	6	3	15	3	2

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.736	= Q stream (cfs)	0.5	= CV Daily
0.0315	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	0.046	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	0.324	= CFC_Partial Mix Factor
	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.241	1.3.2.iii	WLA cfc = 1.533
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.090	5.1d	LTA_cfc = 0.891

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.154	AFC
		INST MAX LIMIT (mg/l) = 0.361	

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)

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" (362-0400-001), 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	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
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	Report	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.1	XXX	0.3	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	XXX	XXX	XXX	25.0	XXX	50	2/month	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	XXX	XXX	XXX	15.0	XXX	30	2/month	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Suspended Solids	XXX	XXX	XXX	30.0	XXX	60	2/month	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab

Outfall 001, Continued (from 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	Maximum	Instant. Maximum		
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18	2/month	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6	2/month	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite