

Application Type Renewal  
Facility Type Municipal  
Major / Minor Minor

**NPDES PERMIT FACT SHEET  
INDIVIDUAL SEWAGE**

Application No. PA0209147  
APS ID 1023760  
Authorization ID 1327928

**Applicant and Facility Information**

Applicant Name	<u>Centre Hall Potter Sewer Authority</u>	Facility Name	<u>Centre Hall Potter Sewer System</u>
Applicant Address	<u>2940 Penns Valley Pike</u> <u>Centre Hall, PA 16828-8404</u>	Facility Address	<u>2940 Penns Valley Pike</u> <u>Centre Hall, PA 16828-8404</u>
Applicant Contact	<u>Nancy Mitcheltree</u> <u>chpsa@comcast.net</u>	Facility Contact	<u>Nancy Mitcheltree</u>
Applicant Phone	<u>(814) 364-2710</u>	Facility Phone	<u>(814) 364-2710</u>
Client ID	<u>87415</u>	Site ID	<u>465400</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Potter Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Centre</u>
Date Application Received	<u>September 22, 2020</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>October 5, 2020</u>	If No, Reason	<u></u>
Purpose of Application	<u>Application for the renewal of the existing individual NPDES permit.</u>		

**Summary of Review**

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		<i>Jonathan P. Peterman</i> Jonathan P. Peterman / Project Manager	March 12, 2021
X		<i>Nicholas W. Hartranft</i> Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	March 17, 2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	<u>001</u>	Design Flow (MGD)	<u>0.28</u>
Latitude	<u>40° 48' 56.14"</u>	Longitude	<u>-77° 38' 30.03"</u>
Quad Name	<u>Centre Hall</u>	Quad Code	<u>1224</u>
Wastewater Description: <u>Sewage Effluent</u>			
-----Discharge Location-----			
Receiving Waters	<u>Unnamed Tributary to Sinking Creek (CWF)</u>	Stream Code	<u>18397</u>
NHD Com ID	<u>54969721</u>	RMI	<u>0.19</u>
Drainage Area	<u>0.45</u>	Yield (cfs/mi <sup>2</sup> )	<u>N/A</u>
Q <sub>7-10</sub> Flow (cfs)	<u>0</u>	Q <sub>7-10</sub> Basis	<u>N/A</u>
Elevation (ft)	<u>1177</u>	Slope (ft/ft)	<u>0.008</u>
Watershed No.	<u>6-A</u>	Chapter 93 Class.	<u>CWF</u>
Existing Use	<u>CWF</u>	Existing Use Qualifier	<u>N/A</u>
Exceptions to Use	<u>None</u>	Exceptions to Criteria	<u>None</u>
Assessment Status	<u>Attaining Use(s)</u>		
Cause(s) of Impairment	<u>N/A</u>		
Source(s) of Impairment	<u>N/A</u>		
TMDL Status	<u>N/A</u>	Name	<u>N/A</u>
Nearest Downstream Public Water Supply Intake	<u>Capital Region Water</u>		
PWS Waters	<u>Susquehanna River</u>	Flow at Intake (cfs)	<u>2610</u>
PWS RMI	<u>74</u>	Distance from Outfall (mi)	<u>75</u>
-----Point of First Use-----			
Receiving Waters	<u>Sinking Creek</u>	Stream Code	<u>18377</u>
NHD Com ID	<u>54969721</u>	RMI	<u>6.4</u>
Drainage Area	<u>19.6</u>	Yield (cfs/mi <sup>2</sup> )	<u>0.124</u>
Q <sub>7-10</sub> Flow (cfs)	<u>2.45</u>	Q <sub>7-10</sub> Basis	<u>Stream Gage No. 01555000</u>
Elevation (ft)	<u>1176</u>	Slope (ft/ft)	<u>0.003</u>
Watershed No.	<u>6-A</u>	Chapter 93 Class.	<u>CWF</u>
Existing Use	<u>N/A</u>	Existing Use Qualifier	<u>N/A</u>
Exceptions to Use	<u>None</u>	Exceptions to Criteria	<u>None</u>

Changes Since Last Permit Issuance: The Department's Geographical Information System indicates that the receiving stream (UNT to Sinking Creek) is an ephemeral stream. Accordingly, it was determined that Sinking Creek (0.19 miles downstream) would be the point of first use (POFU). A Q<sub>7-10</sub> analysis was conducted using downstream gage (01555000) to approximate the Q<sub>7-10</sub> stream flow at the point of first use. The updated Q<sub>7-10</sub> data was obtained from the updated stream gage information obtained from *Stuckey, M.H., and Roland, M.A., 2011, Selected Streamflow Statistics for Streamgage Locations In and Near Pennsylvania*. The Q<sub>7-10</sub> calculations, which are attached in Appendix A, indicate that the Q<sub>7-10</sub> is 2.45 cfs.

Other Comments: None.

Treatment Facility Summary				
<b>Treatment Facility Name:</b> Centre Hall Potter STP				
WQM Permit No.	Issuance Date	Notes:		
1495402	1/3/1996	Initial Construction.		
1404406	8/12/2004	Pump Station.		
WQG02140701	7/15/2007	Pump Station.		
Waste Type	Degree of Treatment	Process Type	Disinfection	Design Flow (MGD)
Sewage	Secondary	Sequencing Batch Reactor	Ultraviolet	0.28
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.34	825	Not Overloaded	Aerobic Digestion	Landfill

**Treatment System Components for Outfall 001:**

- One (1) Influent screw screen / bar screen.
- One (1) Influent flume.
- Two (2) Raw sewage pumps
- Two (2) SBRs.
- One (1) effluent EQ tank
- One (1) Effluent meter
- One (1) UV Disinfection System.
  - 2 Banks
  - 40 Bulbs per bank
- Two (2) Effluent pumps
- One (1) Outfall 001 to Unnamed Tributary to Sinking Creek.
- Two (2) Aerobic Digesters
- Two (2) Gravity drying beds

Changes Since Last Permit Issuance: None.

Other Comments: None.

**TMDL Impairment**

The Department's Geographical Information System indicates that there are no associated TMDLs for this segment of Unnamed Tributary to Sinking Creek. No further TMDL analysis is required.

**Anti-Backsliding**

In accordance with 40 CFR 122.44(l)(1) and (2), this permit does not contain effluent limitations, standards, or conditions that are less stringent than the previous permit.

**Chesapeake Bay Requirements**

Since this facility's design flow is 0.34 MGD, the permittee will be required to monitor and report TN and TP throughout the permit term at a frequency no less than annually in accordance with the Phase II WIP Chesapeake Bay Strategy for Phase IV facilities ( $\geq 0.2$  MGD to  $< 0.4$  MGD). Therefore, the existing monthly monitoring requirements for nutrients will remain.

Existing Effluent Limitations and Monitoring Requirements

Existing Limits – Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	47	70	XXX	20.0	30.0	40	1/week	8-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	58	93	XXX	25.0	40.0	50	1/week	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	70	105	XXX	30.0	45.0	60	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Oct 31	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Fecal Coliform (No./100 ml) Nov 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Ultraviolet light intensity (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Ammonia-Nitrogen May 1 - Oct 31	14	21	XXX	6.0	9.0	12	1/week	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	42	63	XXX	18.0	27.0	36	1/week	8-Hr Composite
Total Nitrogen	Report	Report Total Annual	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Phosphorus	Report	Report Total Annual	XXX	Report	XXX	XXX	1/month	8-Hr Composite

\*The existing effluent limits for Outfall 001 were based on a design flow of 0.28 MGD.

**Development of Effluent Limitations**

Outfall No. 001 Design Flow (MGD) 0.28  
 Latitude 40° 48' 56.14" Longitude -77° 38' 30.03"  
 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 <sub>5</sub>	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**

To establish whether or not water-quality based effluent limitations (WQBELs) are required, the Department models in-stream conditions. In order to determine limitations for CBOD<sub>5</sub>, ammonia-N and dissolved oxygen, the Department utilizes the WQM 7.0 v1.0b model and in order to determine limitations for toxics, the Department utilizes the Toxics Management Spreadsheet.

**WQM 7.0 for Windows, Version 1.0b, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen**

The model was previously run using the latest information on Q7-10 stream flow, background water quality, average annual design flow, and other discharge characteristics. The existing water quality-based effluent limit for CBOD<sub>5</sub> (20 mg/l) was used as inputs for the modeling as well as the existing water-quality based effluent limit for NH<sub>3</sub>-N (6.0 mg/l). The DO minimum daily average criterion from §93.7 (5.0 mg/L for CWF) was used for the in-stream objective for the model. There have been no changes to the watershed or discharge. The summary of the output is as follows:

Parameter	Effluent Limit		
	30 Day Average	Maximum	Minimum
CBOD <sub>5</sub>	20	N/A	N/A
Ammonia-N	6.0	12	N/A
Dissolved Oxygen	N/A	N/A	3

The model indicates that the effluent limits for ammonia-nitrogen and CBOD<sub>5</sub> as shown above are still protective of water quality. The model does not recommend water-quality based effluent limitations with regards to dissolved oxygen. Refer to the Appendix B for the WQM 7.0 inputs and results.

Comments: None.

**Best Professional Judgment (BPJ) Limitations**

See Dissolved Oxygen section below.

Comments: None.

**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 the abovementioned 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) and/or BPJ.

**Proposed Limits - Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date**

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	47	70	XXX	20.0	30.0	40	1/week	8-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	58	93	XXX	25.0	40.0	50	1/week	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	70	105	XXX	30.0	45.0	60	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Oct 31	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Fecal Coliform (No./100 ml) Nov 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Ultraviolet light intensity (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Ammonia-Nitrogen May 1 - Oct 31	14	21	XXX	6.0	9.0	12	1/week	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	42	63	XXX	18.0	27.0	36	1/week	8-Hr Composite
Total Nitrogen	Report	Report Total Annual	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Phosphorus	Report	Report Total Annual	XXX	Report	XXX	XXX	1/month	8-Hr Composite

\*The proposed effluent limits for Outfall 001 were based on a design flow of 0.28 MGD.

**Effluent Limit Determination for Outfall 001**

**General Information**

The associated mass-based limits (lbs/day) for all parameters were based on the formula: design flow (average annual) (MGD) x concentration limit (mg/L) at design flow x conversion factor (8.34). All effluent limits were then rounded down in accordance with the rounding rules established in the *Technical Guidance for the Development and Specification of Effluent Limitations* (362-0400-001), Chapter 5 - Specifying Effluent Limitations in NPDES Permits. The existing monitoring frequencies and sample types for these parameters generally correspond with the *Technical Guidance for the Development and Specification of Effluent Limitations* (362-0400-001) Table 6-3 and will remain.

**Flow**

Reporting of the daily maximum flow is consistent with monitoring requirements for other treatment plants and will remain.

**Carbonaceous Biochemical Oxygen Demand (CBOD<sub>5</sub>)**

The results of the WQM 7.0 model show that the previously applied water quality-based effluent limits for CBOD<sub>5</sub> are protective of water quality.

**Total Suspended Solids (TSS)**

The previously applied technology based secondary treatment standards (25 PA Code §92a.47 (a) (1&2)) for TSS will remain.

**pH**

CFR Title 40 §133.102(c) and 25 PA Code §95.2(1) provide the basis of effluent limitations for pH.

**Fecal Coliforms**

The existing fecal coliform limits with I-max limits were previously updated from the previous Chapter 92 code to correspond with what is specified in the updated 25 PA Code § 92a.47 (a)(4)&(5). The existing effluent limits will remain.

**Ammonia-Nitrogen (NH<sub>3</sub>-N)**

The results of the WQM 7.0 model show that the existing water quality-based effluent limits for ammonia-nitrogen are appropriate.

**Dissolved Oxygen (DO)**

25 PA Code §93.7 provides specific water quality criteria for DO and monitoring for this parameter will ensure that the facility is not creating or contributing to an in-stream excursion below these water quality standards

**Influent BOD<sub>5</sub> and TSS**

The Department requires the reporting of raw sewage influent monitoring for BOD<sub>5</sub> and TSS in all POTW permits. This provides the Department with the ability to monitor the percent removal of each parameter as stipulated in section 2 of the Part A conditions and maintain records of the BOD<sub>5</sub> loading as required by 25 Pa. Code Chapter 94. The monitoring frequencies and sample types are identical to the effluent sampling.

**UV Intensity (%)**

The existing monitoring frequency (Daily) for UV corresponds with the TRC (disinfection) requirements found in the *Technical Guidance for the Development and Specification of Effluent Limitations* (362-0400-001) Table 6-3 and will remain. The units have been previously verified for this facility.

**Compliance History**

**Summary of Inspections** -The most recent Clean Water Program onsite inspections for this facility were a Compliance Evaluation Inspection on 1/27/20. No issues were noted in the inspection.

**WMS Query Summary** - A WMS Query was run at *Reports - Violations & Enforcements – Open Violations for Client Report* to determine whether there are any unresolved violations associated with the client that will affect issuance of the permit (per CSL Section 609). This query revealed no open violations.

**Summary eDMR Data** -The facility has generally been in compliance with the effluent limits. No violations are noted below.

Compliance History

DMR Data for Outfall 001 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Flow (MGD) Average Monthly	0.119	0.123	0.114	0.112	0.117	0.117	0.116	0.115	0.121	0.122	0.130	0.128
Flow (MGD) Daily Maximum	0.176	0.254	0.150	0.141	0.153	0.152	0.162	0.168	0.164	0.201	0.170	0.174
pH (S.U.) Minimum	7.25	7.07	7.3	6.94	7.09	7.18	7.1	7.19	7.01	7.03	7.06	6.87
pH (S.U.) Maximum	7.98	7.72	7.83	8.22	8.04	7.86	7.78	7.68	7.74	7.64	7.71	7.76
DO (mg/L) Minimum	5.8	7.01	5.36	5.22	3.85	3.06	5.39	4.54	5.44	5.63	6.33	6.6
CBOD5 (lbs/day) Average Monthly	< 3.0	< 4.0	< 3	< 3.0	< 3	< 3	< 3	< 3	< 3.00	< 4	< 5	< 4
CBOD5 (lbs/day) Weekly Average	5.0	5.0	< 4	3.0	4	< 3	6	5	5	5	7	6.0
CBOD5 (mg/L) Average Monthly	< 3.6	< 4.04	< 3.0	< 3.2	< 3.46	< 3.01	< 3.57	< 3.76	3.57	< 4.51	< 4.78	< 4.08
CBOD5 (mg/L) Weekly Average	5.02	5.59	< 3.0	3.78	3.96	3.05	5.26	5.42	5.18	5.45	6.13	5.55
BOD5 (lbs/day) Raw Sewage Influent   Average Monthly	241	299	285	215	219	373	288	415	296	233	322	307
BOD5 (lbs/day) Raw Sewage Influent   Weekly Average	297	430	360	234	248	558	355	510	370	295	358	398
BOD5 (mg/L) Raw Sewage Influent   Average Monthly	243	292	294	225	231	384	295	425	302	245	301	285
TSS (lbs/day) Average Monthly	3.0	5.0	3	4.0	5	5	4.0	6	5	< 6	5	3
TSS (lbs/day) Raw Sewage Influent   Average Monthly	222	270	175	191	241	2.72	292	355	322	< 285	261	259
TSS (lbs/day) Raw Sewage Influent   Weekly Average	316	363	266	284	301	3.41	340	431	350	349	324	284
TSS (lbs/day) Weekly Average	5.0	10	4	6.0	8	10	5.0	8	7	10	7	5



**NPDES Permit Fact Sheet  
Centre Hall Potter Sewer System**

**NPDES Permit No. PA0209147**

TSS (mg/L) Average Monthly	3.5	4.9	3.4	4.9	4.9	5.8	4.0	6.0	5.9	6.6	5.4	3.5
TSS (mg/L) Raw Sewage Influent   Average Monthly	224	265	185	201	254	281	297	354	330	300	243	240
TSS (mg/L) Weekly Average	5.2	10.0	4.0	6.6	8.4	11.0	6.0	8.8	8.0	12.0	7.2	4.8
Fecal Coliform (No./100 ml) Geometric Mean	< 1.0	< 1.0	< 1	< 1.0	< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	2	1.0	2	1.0	< 1	5.2	1	1.1	3.4	1	3.1	3.1
UV Transmittance (%) Minimum	100	100	100	100	100	100	100	100	100	100	100	50
Total Nitrogen (lbs/day) Average Monthly	11.0	< 6.0	7	4.0	5	11.0	5	5	4	9	9	5
Total Nitrogen (mg/L) Average Monthly	11.225	< 6.441	7.52	4.792	5.157	11.24	4.29	5.71	4.204	11.285	9.078	5.155
Total Nitrogen (lbs) Total Annual					< 2485							
Ammonia (lbs/day) Average Monthly	< 0.09	< 0.2	< 0.1	< 1.0	< 0.09	< 0.09	< 0.2	< 0.09	< 0.2	< 0.4	< 0.6	< 0.1
Ammonia (lbs/day) Weekly Average	< 0.1	< 0.5	< 0.1	< 1.0	< 0.1	< 0.1	< 0.5	< 0.1	< 0.5	2	2	< 0.1
Ammonia (mg/L) Average Monthly	< 0.1	< 0.2	< 0.1	< 1.0	< 0.1	< 0.1	< 0.2	< 0.1	< 0.2	< 0.455	< 0.684	0.1
Ammonia (mg/L) Weekly Average	< 0.1	< 0.5	< 0.1	1.0	< 0.1	< 0.1	< 0.5	< 0.1	< 0.5	1.877	2.435	0.1
Total Phosphorus (lbs/day) Average Monthly	30	0.8	2	2.0	1	3.0	1	2	0.7	1	1	1
Total Phosphorus (mg/L) Average Monthly	1.02	0.84	2.07	1.69	1.48	2.89	1.16	1.98	0.782	1.35	1.4	1.38
Total Phosphorus (lbs) Total Annual					600							

Tools and References Used to Develop Permit	
<input checked="" type="checkbox"/>	WQM for Windows Model (see Attachment B)
<input type="checkbox"/>	PENTOXSD for Windows Model (see Attachment [redacted])
<input type="checkbox"/>	TRC Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Toxics Screening Analysis Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input checked="" type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
<input checked="" type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 385-2000-011, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
<input checked="" type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
<input type="checkbox"/>	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
<input checked="" type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
<input checked="" type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
<input type="checkbox"/>	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
<input type="checkbox"/>	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
<input checked="" type="checkbox"/>	Design Stream Flows, 391-2000-023, 9/98.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
<input checked="" type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input type="checkbox"/>	SOP: [redacted]
<input type="checkbox"/>	Other: [redacted]

# **APPENDIX A**

## **Q7-10 ANALYSIS AND STREAM DATA**

## Q<sub>7-10</sub> Analysis (POFU)

Facility: Centre Hall Potter Sewer Authority  
Outfall: 001

NPDES Permit No.: PA0209147  
RMI at POFU: 6.4 1176

### Reference Stream Gage Information

Stream Name	Penns Creek
Reference Gage	1555000
Station Name	Penns Creek at Penns Creek, PA
Gage Drainage Area (sq. mi.)	301
Q <sub>7-10</sub> at gage (cfs)	37.6
Yield Ratio (cfs/mi <sup>2</sup> )	0.1249

Was Ecoflows Used?	No
Correlation From Ecoflows	N/A

### Check Dilution Ratio

Discharge at Outfall (wf) (mgd)	0.28	
	sf (cfs)	wf (cfs)
Dilution Ratio = sf/wf	2.4484	0.43322405
Dilution Ratio =	5.651514708 to 1	

### Q<sub>7-10</sub> at Outfall

Drainage Area at site (sq. mi.)	19.6
Q <sub>7-10</sub> at discharge site (cfs)	2.4484
Q <sub>7-10</sub> at discharge site (mgd)	1.5824
Low Flow Yield Ratio of 0.1 cfs/mi <sup>2</sup> (For Approx. Comparison Only)	
Q <sub>7-10</sub> at discharge site (cfs)	1.9600
Q <sub>7-10</sub> at discharge site (mgd)	1.2668

### Q<sub>7-10</sub> at Downstream Reach #1

Drainage Area at Reach (sq. mi.)	28.1
RMI	5.36
Q <sub>7-10</sub> at reach (cfs)	3.5102
Q <sub>7-10</sub> at reach (mgd)	2.2687
Elev. 1166	

### Q<sub>7-10</sub> at Downstream Reach #2

Drainage Area at Reach (sq. mi.)	61.2
RMI	0
Q <sub>7-10</sub> at reach (cfs)	7.6449
Q <sub>7-10</sub> at reach (mgd)	4.9410
Elev. 1079	

### Q<sub>7-10</sub> at Downstream Reach #3

Drainage Area at Reach (sq. mi.)	[Drainage Area @ Reach #3]
RMI	[RMI @ Reach #3]
Q <sub>7-10</sub> at reach (cfs)	#VALUE!
Q <sub>7-10</sub> at reach (mgd)	#VALUE!

### Basin Characteristics Report at [Site / Reach]

Date: Wed Jan 20, 2016 2:40:45 PM GMT-5  
Study Area: Pennsylvania  
NAD 1983 Latitude: 40.8149 (40 48 54)  
NAD 1983 Longitude: -77.6391 (-77 38 21)

Label	Value
DRNAREA	19.6
STRMTOT	30.91
STRDEN	1.58
BSLOPD	9.1
CENTROIDX	26153
CENTROIDY	196371.6
OUTLETX	30435
OUTLETY	201565
LONG_OUT	-77.63921
BSLOPDRAW	9.34
FOREST	65
PRECIP	41
URBAN	0
GLACIATED	0
ROCKDEP	4.5
CARBON	17
STORAGE	3
ELEV	1562.8
MAXTEMP	56
DRN	3.1
IMPNLCD01	1
LC01DEV	7
LC11IMP	0.59
LC11DEV	6.56

### Basin Map at Outfall



26 Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft<sup>3</sup>/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis <sup>1</sup>	Number of years used in analysis	1-day, 10-year (ft <sup>3</sup> /s)	7-day, 10-year (ft <sup>3</sup> /s)	7-day, 2-year (ft <sup>3</sup> /s)	30-day, 10-year (ft <sup>3</sup> /s)	30-day, 2-year (ft <sup>3</sup> /s)	90-day, 10-year (ft <sup>3</sup> /s)
01546000	1912–1934	17	1.8	2.2	6.8	3.7	12.1	11.2
01546400	1986–2008	23	13.5	14.0	19.6	15.4	22.3	18.7
01546500	1942–2008	67	26.8	29.0	41.3	31.2	44.2	33.7
01547100	1969–2008	40	102	105	128	111	133	117
01547200	1957–2008	52	99.4	101	132	106	142	115
01547500	<sup>2</sup> 1971–2008	38	28.2	109	151	131	172	153
01547500	<sup>3</sup> 1956–1969	14	90.0	94.9	123	98.1	131	105
01547700	1957–2008	52	.5	.6	2.7	1.1	3.9	2.2
01547800	1971–1981	11	1.6	1.8	2.4	2.1	2.9	3.5
01547950	1970–2008	39	12.1	13.6	28.2	17.3	36.4	23.8
01548005	<sup>2</sup> 1971–2000	25	142	151	206	178	241	223
01548005	<sup>3</sup> 1912–1969	58	105	114	147	125	165	140
01548500	1920–2008	89	21.2	24.2	50.1	33.6	68.6	49.3
01549000	1910–1920	11	26.0	32.9	78.0	46.4	106	89.8
01549500	1942–2008	67	.6	.8	2.5	1.4	3.9	2.6
01549700	1959–2008	50	33.3	37.2	83.8	51.2	117	78.4
01550000	1915–2008	94	6.6	7.6	16.8	11.2	24.6	18.6
01551500	<sup>2</sup> 1963–2008	46	520	578	1,020	678	1,330	919
01551500	<sup>3</sup> 1901–1961	61	400	439	742	523	943	752
01552000	1927–2008	80	20.5	22.2	49.5	29.2	69.8	49.6
01552500	1942–2008	67	.9	1.2	3.1	1.7	4.4	3.3
01553130	1969–1981	13	1.0	1.1	1.5	1.3	1.8	1.7
01553500	<sup>2</sup> 1968–2008	41	760	838	1,440	1,000	1,850	1,470
01553500	<sup>3</sup> 1941–1966	26	562	619	880	690	1,090	881
01553700	1981–2008	28	9.1	10.9	15.0	12.6	17.1	15.2
01554000	<sup>2</sup> 1981–2008	28	1,830	1,990	3,270	2,320	4,210	3,160
01554000	<sup>3</sup> 1939–1979	41	1,560	1,630	2,870	1,880	3,620	2,570
01554500	1941–1993	53	16.2	22.0	31.2	25.9	35.7	31.4
01555000	1931–2008	78	33.5	37.6	58.8	43.4	69.6	54.6
01555500	1931–2008	78	4.9	6.5	18.0	9.4	24.3	16.6
01556000	1918–2008	91	43.3	47.8	66.0	55.1	75.0	63.7
01557500	1946–2008	63	2.8	3.2	6.3	4.2	8.1	5.8
01558000	1940–2008	69	56.3	59.0	79.8	65.7	86.2	73.7
01559000	1943–2008	66	104	177	249	198	279	227
01559500	1931–1958	28	9.3	10.5	15.0	12.4	17.8	15.8
01559700	1963–1978	16	.1	.1	.2	.1	.3	.2
01560000	1941–2008	68	8.5	9.4	15.6	12.0	20.2	16.2
01561000	1932–1958	27	.4	.5	1.6	.8	2.5	1.7
01562000	1913–2008	96	64.1	67.1	106	77.4	122	94.5
01562500	1931–1957	27	1.1	1.6	3.8	2.3	5.4	3.7
01563200	<sup>2</sup> 1974–2008	35	—	—	—	112	266	129
01563200	<sup>3</sup> 1948–1972	25	10.3	28.2	86.1	64.5	113	95.5
01563500	<sup>2</sup> 1974–2008	35	384	415	519	441	580	493
01563500	<sup>3</sup> 1939–1972	34	153	242	343	278	399	333
01564500	1940–2008	69	3.6	4.2	10.0	6.2	14.4	10.6

Table 1 13

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi<sup>2</sup>, square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi <sup>2</sup> )	Regulated <sup>1</sup>
01541303	West Branch Susquehanna River at Hyde, Pa.	41.005	-78.457	474	Y
01541308	Bradley Run near Ashville, Pa.	40.509	-78.584	6.77	N
01541500	Clearfield Creek at Dimeling, Pa.	40.972	-78.406	371	Y
01542000	Moshannon Creek at Osceola Mills, Pa.	40.850	-78.268	68.8	N
01542500	WB Susquehanna River at Karthaus, Pa.	41.118	-78.109	1,462	Y
01542810	Waldy Run near Emporium, Pa.	41.579	-78.293	5.24	N
01543000	Driftwood Branch Sinnemahoning Creek at Sterling Run, Pa.	41.413	-78.197	272	N
01543500	Sinnemahoning Creek at Sinnemahoning, Pa.	41.317	-78.103	685	N
01544000	First Fork Sinnemahoning Creek near Sinnemahoning, Pa.	41.402	-78.024	245	Y
01544500	Kettle Creek at Cross Fork, Pa.	41.476	-77.826	136	N
01545000	Kettle Creek near Westport, Pa.	41.320	-77.874	233	Y
01545500	West Branch Susquehanna River at Renovo, Pa.	41.325	-77.751	2,975	Y
01545600	Young Womans Creek near Renovo, Pa.	41.390	-77.691	46.2	N
01546000	North Bald Eagle Creek at Milesburg, Pa.	40.942	-77.794	119	N
01546400	Spring Creek at Houserville, Pa.	40.834	-77.828	58.5	N
01546500	Spring Creek near Axemann, Pa.	40.890	-77.794	87.2	N
01547100	Spring Creek at Milesburg, Pa.	40.932	-77.786	142	N
01547200	Bald Eagle Creek below Spring Creek at Milesburg, Pa.	40.943	-77.786	265	N
01547500	Bald Eagle Creek at Blanchard, Pa.	41.052	-77.604	339	Y
01547700	Marsh Creek at Blanchard, Pa.	41.060	-77.606	44.1	N
01547800	South Fork Beech Creek near Snow Shoe, Pa.	41.024	-77.904	12.2	N
01547950	Beech Creek at Monument, Pa.	41.112	-77.702	152	N
01548005	Bald Eagle Creek near Beech Creek Station, Pa.	41.081	-77.549	562	Y
01548500	Pine Creek at Cedar Run, Pa.	41.522	-77.447	604	N
01549000	Pine Creek near Waterville, Pa.	41.313	-77.379	750	N
01549500	Blockhouse Creek near English Center, Pa.	41.474	-77.231	37.7	N
01549700	Pine Creek below Little Pine Creek near Waterville, Pa.	41.274	-77.324	944	Y
01550000	Lycoming Creek near Trout Run, Pa.	41.418	-77.033	173	N
01551500	WB Susquehanna River at Williamsport, Pa.	41.236	-76.997	5,682	Y
01552000	Loyalsock Creek at Loyalsockville, Pa.	41.325	-76.912	435	N
01552500	Muncy Creek near Sonestown, Pa.	41.357	-76.535	23.8	N
01553130	Sand Spring Run near White Deer, Pa.	41.059	-77.077	4.93	N
01553500	West Branch Susquehanna River at Lewisburg, Pa.	40.968	-76.876	6,847	Y
01553700	Chillisquaque Creek at Washingtonville, Pa.	41.062	-76.680	51.3	N
01554000	Susquehanna River at Sunbury, Pa.	40.835	-76.827	18,300	Y
01554500	Shamokin Creek near Shamokin, Pa.	40.810	-76.584	54.2	N
01555000	Penns Creek at Penns Creek, Pa.	40.867	-77.048	301	N
01555500	East Mahantango Creek near Dalmatia, Pa.	40.611	-76.912	162	N
01556000	Frankstown Branch Juniata River at Williamsburg, Pa.	40.463	-78.200	291	N
01557500	Bald Eagle Creek at Tyrone, Pa.	40.684	-78.234	44.1	N
01558000	Little Juniata River at Spruce Creek, Pa.	40.613	-78.141	220	N
01559000	Juniata River at Huntingdon, Pa.	40.485	-78.019	816	LF
01559500	Standing Stone Creek near Huntingdon, Pa.	40.524	-77.971	128	N
01559700	Sulphur Springs Creek near Manns Choice, Pa.	39.978	-78.619	5.28	N
01560000	Dunning Creek at Belden, Pa.	40.072	-78.493	172	N

# **APPENDIX B**

## WQM 7.0 MODEL RESULTS

**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
06A	18377	SINKING CREEK	6.400	1176.00	19.60	0.00000	0.00	<input checked="" type="checkbox"/>

**Stream Data**

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.100	0.00	2.44	0.000	0.000	0.0	0.00	0.00	20.00	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
Centre Hall SA	PA0209147	0.0000	0.2800	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	20.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	6.00	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
06A	18377	SINKING CREEK	0.000	1079.00	61.20	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.100	0.00	7.64	0.000	0.000	0.0	0.00	0.00	20.00	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**

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>								
06A		18377		SINKING CREEK								
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
<b>Q7-10 Flow</b>												
6.400	2.44	0.00	2.44	.4332	0.00182	.62	25.56	41.22	0.18	0.351	20.75	7.00
5.360	3.50	0.00	3.50	.4332	0.00307	.646	29.19	45.18	0.21	1.571	20.55	7.00
<b>Q1-10 Flow</b>												
6.400	2.17	0.00	2.17	.4332	0.00182	NA	NA	NA	0.17	0.370	20.83	7.00
5.360	3.12	0.00	3.12	.4332	0.00307	NA	NA	NA	0.20	1.664	20.61	7.00
<b>Q30-10 Flow</b>												
6.400	2.81	0.00	2.81	.4332	0.00182	NA	NA	NA	0.19	0.328	20.67	7.00
5.360	4.03	0.00	4.03	.4332	0.00307	NA	NA	NA	0.22	1.464	20.49	7.00

### WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.89	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.15	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

### WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
06A	18377	SINKING CREEK

**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
6.400	Centre Hall SA	9.11	12	9.11	12	0	0
5.360		NA	NA	9.25	NA	NA	NA

**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
6.400	Centre Hall SA	1.83	6	1.83	6	0	0
5.360		NA	NA	1.85	NA	NA	NA

**Dissolved Oxygen Allocations**

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
6.40	Centre Hall SA	20	20	6	6	3	3	0	0
5.36		NA	NA	NA	NA	NA	NA	NA	NA

### WQM 7.0 D.O. Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>			
06A	18377	SINKING CREEK			
<hr/>					
<u>RMl</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
6.400	0.280	20.754		7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
25.557	0.620	41.215		0.181	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>	
4.71	0.862	0.90		0.742	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
7.453	3.194	Tsivoglou		5	
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>				
0.351	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>	
	0.035	4.57	0.88	7.31	
	0.070	4.43	0.86	7.20	
	0.105	4.29	0.84	7.10	
	0.140	4.16	0.82	7.03	
	0.175	4.03	0.79	6.97	
	0.210	3.91	0.77	6.92	
	0.245	3.79	0.75	6.89	
	0.280	3.67	0.73	6.87	
	0.316	3.56	0.72	6.85	
	0.351	3.45	0.70	6.85	
<hr/>					
<u>RMl</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
5.360	0.280	20.551		7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
29.189	0.646	45.177		0.209	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>	
3.06	0.264	0.51		0.730	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
7.226	6.172	Tsivoglou		5	
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>				
1.571	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>	
	0.157	2.93	0.45	8.09	
	0.314	2.81	0.41	8.16	
	0.471	2.69	0.36	8.16	
	0.628	2.58	0.32	8.16	
	0.785	2.47	0.29	8.16	
	0.942	2.37	0.26	8.16	
	1.099	2.27	0.23	8.16	
	1.256	2.18	0.20	8.16	
	1.414	2.09	0.18	8.16	
	1.571	2.00	0.16	8.16	

### WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
06A	18377	SINKING CREEK

**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
6.400	Centre Hall SA	9.11	12	9.11	12	0	0
5.360		NA	NA	9.25	NA	NA	NA

**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
6.400	Centre Hall SA	1.83	6	1.83	6	0	0
5.360		NA	NA	1.85	NA	NA	NA

**Dissolved Oxygen Allocations**

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
6.40	Centre Hall SA	20	20	6	6	3	3	0	0
5.36		NA	NA	NA	NA	NA	NA	NA	NA

**WQM 7.0 Effluent Limits**

SWP Basin      Stream Code                      Stream Name  
 06A                      18377                                      SINKING CREEK

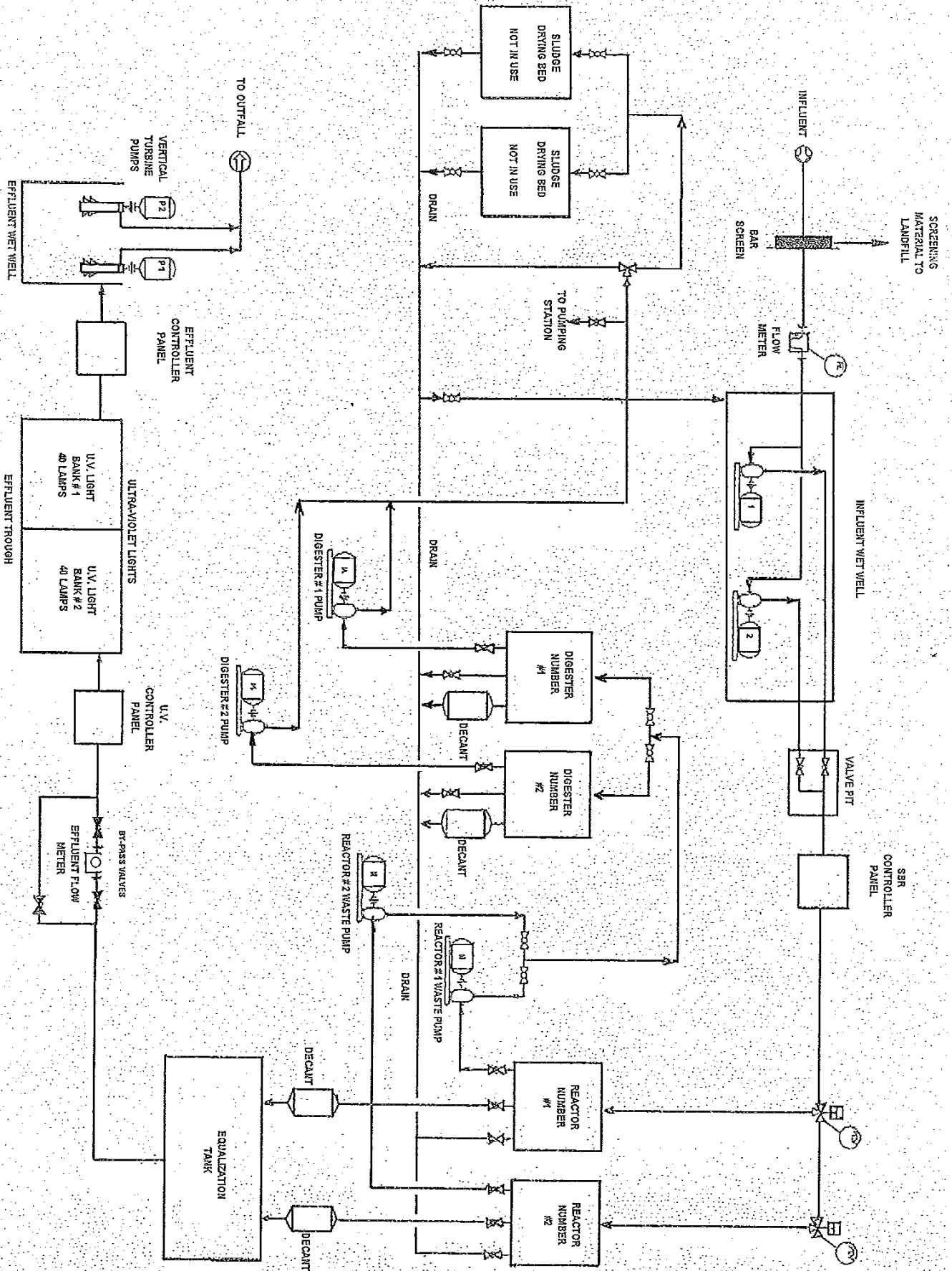
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
6.400	Centre Hall SA	PA0209147	0.000	CBOD5	20		
				NH3-N	6	12	
				Dissolved Oxygen			3

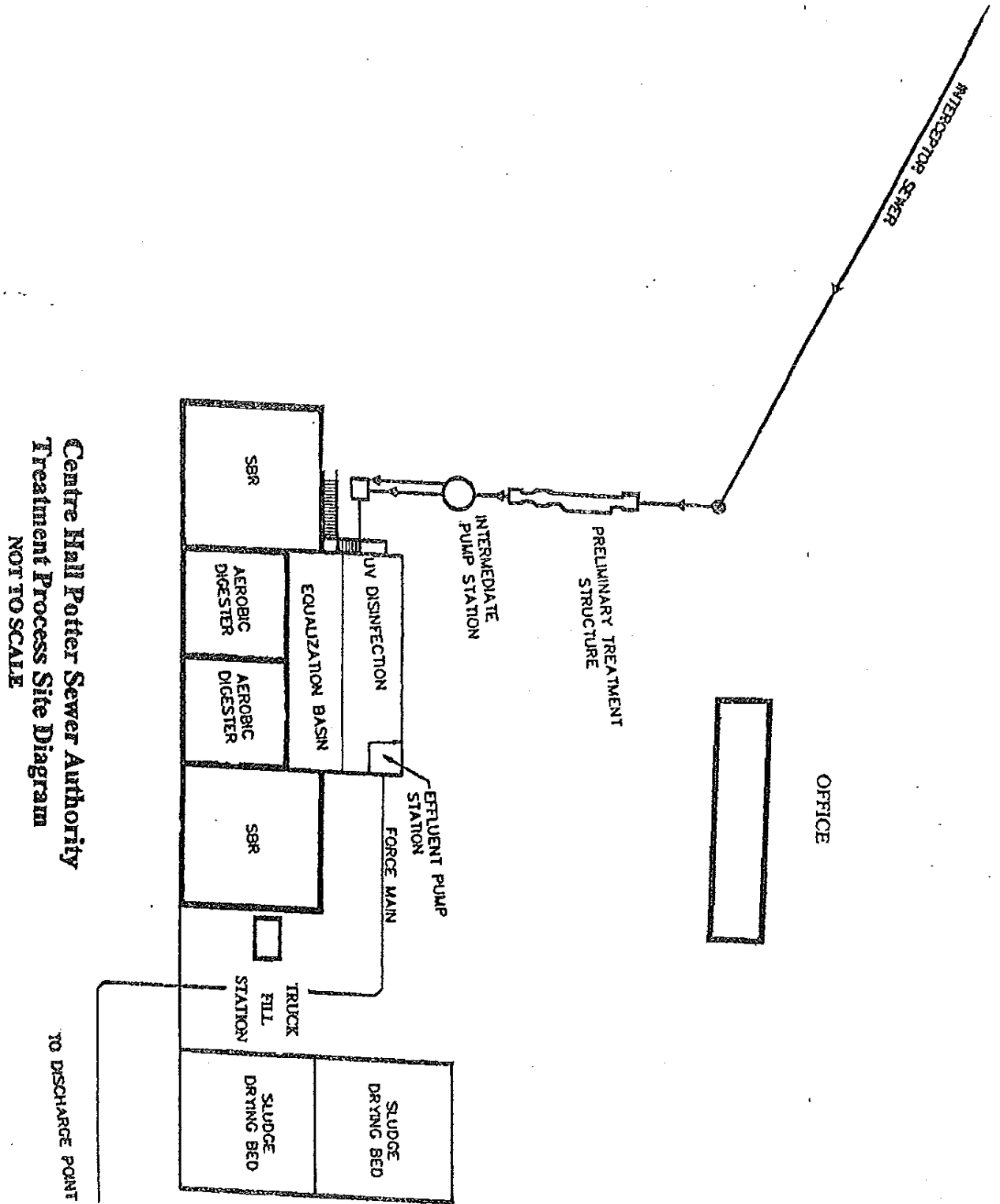
# **APPENDIX C**

## **FACILITY MAP AND SCHEMATIC**

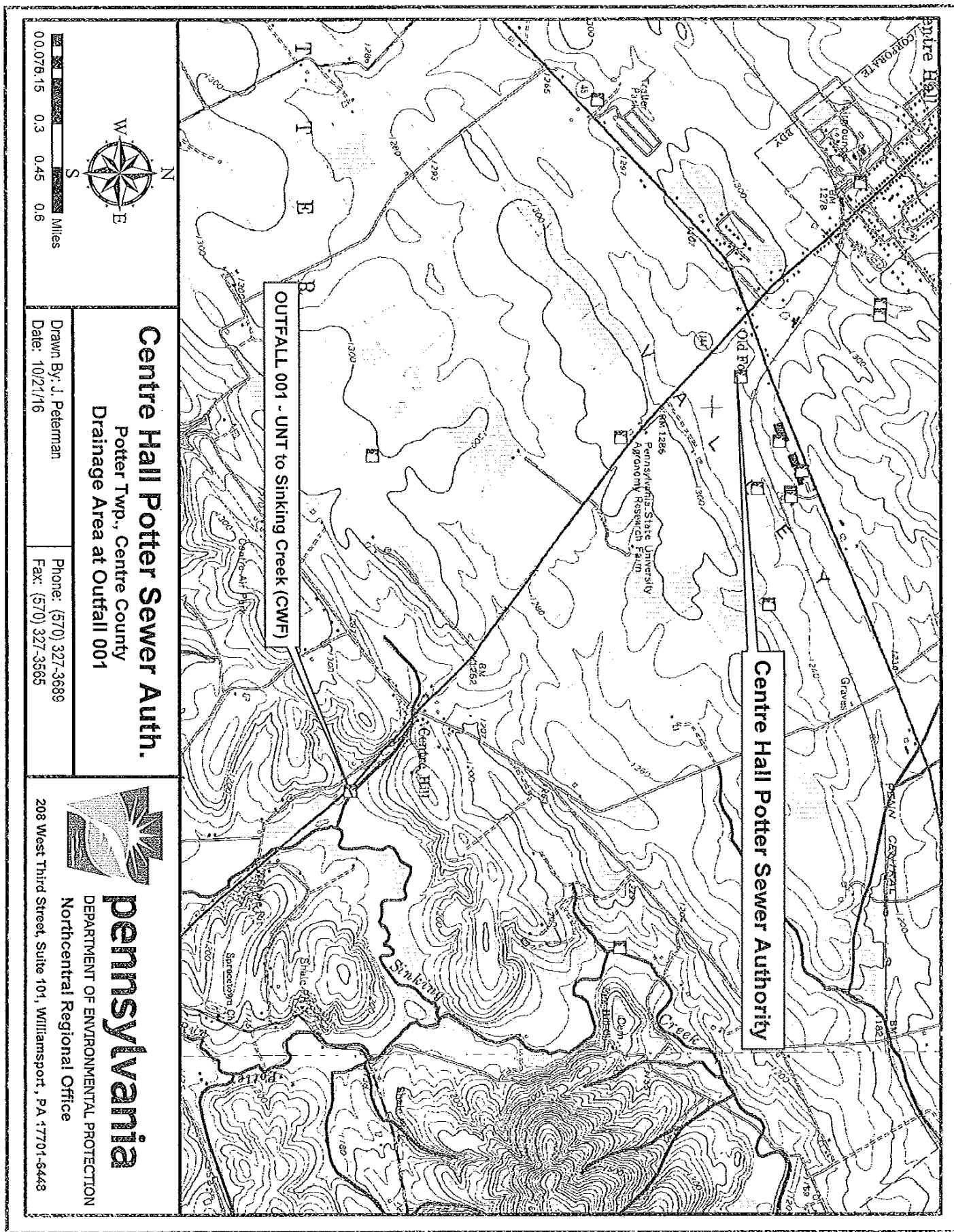


CENTRE HALL POTTER SEWER AUTHORITY - PROCESS FLOW DIAGRAM SCHEMATIC





Centre Hall Potter Sewer Authority  
Treatment Process Site Diagram  
NOT TO SCALE



**Centre Hall Potter Sewer Auth.**  
 Potter Twp., Centre County  
 Drainage Area at Outfall 001

Drawn By: J. Peterman  
 Date: 10/21/16  
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 DEPARTMENT OF ENVIRONMENTAL PROTECTION

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