pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0216445**
Facility Type	**Non-Municipal**	APS ID	**1004333**
Major / Minor	**Minor**	Authorization ID	**1293088**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Paradigm Aviation Inc.**	Facility Name	**Paradigm Aviation Inc.**
Applicant Address	226 Airport Road	Facility Address	226 Airport Road
	Mount Pleasant, PA 15666-4902		Mount Pleasant, PA 15666-4902
Applicant Contact	Dayna Cortazzo	Facility Contact	Leo Gismondi
Applicant Phone	(724) 887-4413	Facility Phone	724-840-1012
Client ID	25272	Site ID	237703
Ch 94 Load Status	Not Overloaded	Municipality	Bullskin Township
Connection Status	No Limitations	County	Fayette
Date Application Received	October 22, 2019	EPA Waived?	Yes
Date Application Accepted	October 23, 2019	If No, Reason	

Purpose of Application: See below.

Summary of Review

The permittee has applied for a renewal of NPDES Permit No. PA0216445. NPDES Permit No. PA0216445 was previously issued by the PA Department of Environmental Protection (DEP) on April 14, 2015. That permit expired on April 30, 2020.

This draft permit is approved during the Coronavirus pandemic requiring DEP employees to telework. Electronic signatures are considered appropriate for the draft permit documents. An electronic copy of the communication that transmitted approval of the draft permit documents has been saved and is included with the file.

The draft permit cover letter asks the permittee to confirm if electronic submission of the final permit documents is acceptable should the office still be closed. If not, then DEP will arrange to mail the permit through the US Postal Service.

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		David R. Ponchione David R. Ponchione / Project Manager	July 21, 2020
x		Christopher Kriley Christopher Kriley, P.E. / Project Manager for Donald J. Leone, P.E. / Environmental Engineer Manager	July 22, 2020

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.002
Latitude	40º 6' 20"	Longitude	-79º 33' 06"
Quad Name	Connellsville	Quad Code	1809
Wastewater Description:	Sewage Effluent		

Receiving Waters	Unnamed Tributary of Jacobs Creek (WWF)	Stream Code	37940
NHD Com ID	69915117	RMI	0.57
Drainage Area	0.67	Yield (cfs/mi^2)	0.026
Q_{7-10} Flow (cfs)	0.0174	Q_{7-10} Basis	Bulletin #12, page 401, Station #0308300, Green Lick Run at Green Lick Reservoir
Elevation (ft)		Slope (ft/ft)	0.0100
Watershed No.	19-D	Chapter 93 Class.	WWF
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	Metals		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status	**Pending**		

Nearest Downstream Public Water Supply Intake Westmoreland Municipal Authority

Changes Since Last Permit Issuance: None

Treatment Facility Summary

Treatment Facility Name: Paradigm Aviation Inc. STP

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia Reduction	Extended Aeration	Chlorine With Dechlorination	0.0012

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.002	3.3	Not Overloaded	Dewatering	Other WWTP

This writer spoke with former plant operator Leo Gismondi on July 13, 2020. Mr. Gismondi confirmed that the plant is an extended aeration type plant that includes a clarifier, a sludge holding tank, and disinfection facilities. He stated that the plant had faulty blowers that have recently been replaced, and has installed a new control panel, and that the plant has been able to comply with the effluent limitations since this work was completed.

Other Comments: Monthly flows are recorded from a water meter and divided by the number of days in the month to obtain average daily flows. Average daily flows typically range between 400 and 500 gpd based on the meter results.

Organic Capacity determined by the following calculation: 0.002 mgd x 200 mg/l x 8.345 = 3.3 lbs./day where:
0.002 mgd = design flow
200 mg/l = influent BOD_5 concentration
8.345 = conversion factor

Compliance History

DMR Data for Outfall 001 (from June 1, 2019 to May 31, 2020)

Parameter	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19
Flow (MGD) Average Monthly	0.0006	0.0006	0.0006	0.0006	0.0006	0.00058	0.0006	0.00055	0.00047	0.0005	0.0005	0.0005
pH (S.U.) Minimum	7.36	6.28	6.70	7.2	7.42	7.11	6.46	7.71	7.47	7.37	7.12	7.05
pH (S.U.) Maximum	8.55	8.18	8.15	8.28	7.95	7.11	6.46	7.71	7.47	7.37	7.12	7.05
DO (mg/L) Minimum	4.0	6.97	6.1	6.5	7.7	6.76	6.11	6.02	5.9	5.62	6.02	6.17
TRC (mg/L) Average Monthly	0.02	0.14	0.16	0.13	0.49	0.4	0.4	0.5	0.3	0.3	0.4	0.3
TRC (mg/L) Instantaneous Maximum	0.04	0.17	0.44	0.21	0.62	0.43	0.4	0.5	0.25	0.3	0.41	0.29
CBOD5 (mg/L) Average Monthly	< 2	< 2.0	4.0	4.0	3.0	7.0	8.0	< 3.0	7.0	< 3.0	6.0	< 3.0
CBOD5 (mg/L) Instantaneous Maximum	< 2	< 2.0	4.0	4.0	3.0	6.67	8.0	< 3.0	7.46	< 3.0	6.2	< 3.0
TSS (mg/L) Average Monthly	< 2	< 2.0	4.0	5.0	10.0	12.0	22.0	9.0	18	8.0	92.0	8.0
TSS (mg/L) Instantaneous Maximum	< 2	< 2.0	4.0	5.0	10.0	12.0	22.0	9.0	18	8.0	92.0	8.0
Fecal Coliform (CFU/100 ml) Geometric Mean	3.1	< 1.0	387.3	290.9	1.0	3.0	> 1.0	< 1.0	1.0	5.0	29	4.0
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	3.1	< 1.0	387.3	290.9	1.0	3.0	> 1.0	< 1.0	1.0	5.0	29	4.0
Ammonia (mg/L) Average Monthly	< 0.10	0.1	1.5	0.17	< 0.10	< 0.8	1.0	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Ammonia (mg/L) Instantaneous Maximum	< 0.10	0.1	1.5	0.17	< 0.10	< 0.8	1.42	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8

Compliance History

Effluent Violations for Outfall 001, from: July 1, 2019 To: May 31, 2020

Parameter	Date	SBC	DMR Value	Units	Limit V
TSS	07/31/19	Avg Mo	92.0	mg/L	30
TSS	07/31/19	IMAX	92.0	mg/L	60

Operations Compliance Check Summary Report

Facility: Paradigm Aviation STP

NPDES Permit No.: PA0216445

Compliance Review Period: 7/2015 – 7/2020

Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
2945578	10/02/2019	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted
2682669	01/08/2018	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted
2603078	05/11/2017	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted
2451670	02/02/2016	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted

Violation Summary:

VIOL ID	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
865146	10/02/2019	92A.44	NPDES - Violation of effluent limits in Part A of permit	10/17/2019
787721	05/11/2017	92A.44	NPDES - Violation of effluent limits in Part A of permit	06/12/2017
746697	02/02/2016	92A.44	NPDES - Violation of effluent limits in Part A of permit	02/23/2016

Open Violations by Client ID: No open violations for Client ID 25272

Enforcement Summary:

ENF ID	ENF TYPE	ENF CREATION DATE	VIOLATIONS	PENALTY AMOUNT	ENF FINALSTATUS	ENF CLOSED DATE
380487	CACP	11/05/2019	92A.44	$8,000.00	Comply/Closed	10/25/2019
379774	NOV	10/17/2019	92A.44		Administrative Close Out	07/10/2020
354189	NOV	06/12/2017	92A.44		Comply/Closed	06/26/2017
343560	CACP	06/06/2016	92A.44	$5,600.00	Comply/Closed	06/02/2016
334744	NOV	02/23/2016	92A.44		Comply/Closed	06/02/2016

DMR Violation Summary:

MONITORING START DATE	MONITORING END DATE	NON COMPLIANCE CATEGORY	PARAMETER	SAMPLE VALUE	PERMIT VALUE	STATISTICAL BASE CODE
07/01/2019	07/31/2019	Concentration 2 Effluent Violation	Total Suspended Solids	92.0	30	Average Monthly
07/01/2019	07/31/2019	Concentration 3 Effluent Violation	Total Suspended Solids	92.0	60	Instantaneous Maximum
12/01/2018	12/31/2018	Concentration 2 Effluent Violation	Fecal Coliform	2420	2000	Geometric Mean
07/01/2018	07/31/2018	Concentration 2 Effluent Violation	Fecal Coliform	248	200	Geometric Mean
05/01/2018	05/31/2018	Concentration 2 Effluent Violation	Total Suspended Solids	35	30	Average Monthly
02/01/2018	02/28/2018	Concentration 2 Effluent Violation	Total Suspended Solids	37	30	Average Monthly
02/01/2018	02/28/2018	Concentration 3 Effluent Violation	Ammonia-Nitrogen	88.0	60.0	Instantaneous Maximum
02/01/2018	02/28/2018	Concentration 2 Effluent Violation	Fecal Coliform	2420	2000	Geometric Mean
02/01/2018	02/28/2018	Concentration 2 Effluent Violation	Ammonia-Nitrogen	88.0	30.0	Average Monthly
01/01/2018	01/31/2018	Concentration 2 Effluent Violation	Ammonia-Nitrogen	45.2	30.0	Average Monthly
01/01/2018	01/31/2018	Concentration 2 Effluent Violation	Total Suspended Solids	33	30	Average Monthly
01/01/2018	01/31/2018	Concentration 2 Effluent Violation	Fecal Coliform	> 2420	2000	Geometric Mean

12/01/2017	12/31/2017	Concentration 3 Effluent Violation	Ammonia-Nitrogen	86.6	60.0	Instantaneous Maximum
12/01/2017	12/31/2017	Concentration 2 Effluent Violation	Total Suspended Solids	38	30	Average Monthly
12/01/2017	12/31/2017	Concentration 2 Effluent Violation	Ammonia-Nitrogen	86.6	30.0	Average Monthly
11/01/2017	11/30/2017	Concentration 2 Effluent Violation	Fecal Coliform	2420	2000	Geometric Mean
06/01/2017	06/30/2017	Concentration 3 Effluent Violation	Fecal Coliform	2420	1000	Instantaneous Maximum
06/01/2017	06/30/2017	Concentration 2 Effluent Violation	Fecal Coliform	2420	200	Geometric Mean
10/01/2016	10/31/2016	Concentration 2 Effluent Violation	Total Residual Chlorine (TRC)	0.96	0.5	Average Monthly
02/01/2016	02/29/2016	Concentration 2 Effluent Violation	Fecal Coliform	> 2419.6	2000	Geometric Mean
01/01/2016	01/31/2016	Concentration 2 Effluent Violation	Fecal Coliform	< 2419.6	2000	Geometric Mean
01/01/2016	01/31/2016	Concentration 2 Effluent Violation	Ammonia-Nitrogen	85.5	30.0	Average Monthly
01/01/2016	01/31/2016	Concentration 3 Effluent Violation	Ammonia-Nitrogen	85.5	60.0	Instantaneous Maximum
12/01/2015	12/31/2015	Concentration 2 Effluent Violation	Total Suspended Solids	34	30	Average Monthly
10/01/2015	10/31/2015	Concentration 2 Effluent Violation	Total Suspended Solids	84	30	Average Monthly
10/01/2015	10/31/2015	Concentration 3 Effluent Violation	Total Suspended Solids	84	60	Instantaneous Maximum
09/01/2015	09/30/2015	Concentration 2 Effluent Violation	Fecal Coliform	7070	200	Geometric Mean
09/01/2015	09/30/2015	Concentration 2 Effluent Violation	Total Suspended Solids	140	30	Average Monthly
09/01/2015	09/30/2015	Concentration 3 Effluent Violation	Total Suspended Solids	140	60	Instantaneous Maximum
09/01/2015	09/30/2015	Concentration 3 Effluent Violation	Fecal Coliform	7070	1000	Instantaneous Maximum
07/01/2015	07/31/2015	Concentration 2 Effluent Violation	Total Suspended Solids	34	30	Average Monthly

Compliance Status: Permittee is in compliance.

Completed by: John Murphy

Completed date: 7/10/2020

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .002
Latitude 40º 6' 20.00" **Longitude** -79º 33' 6.00"
Wastewater Description: Sewage Effluent

The NPDES permit application was evaluated based on applicable regulations, policies, procedures and guidelines.

Because there have been no changes to the discharge, the receiving stream, or Department modeling procedures, the effluent limitations for $CBOD_5$, TSS, NH_3-N, Fecal Coliform and pH are based on the previously approved pollution report which is attached to this fact sheet.

Two other STP's were included in the WQM 6.3 modeling evaluation, namely the Laurelview Manor STP and Williamhouse STP. The results revealed the discharge loads from all three plants did not result in any NH_3-N or DO allocations.

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)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
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)

Comments: The above effluent limitations are consistent with the previous NPDES permit.

Water Quality-Based Limitations and Anti-backsliding

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

Parameter	Limit (mg/l)	SBC	Model
NH3-N	10	Average Monthly	WQM 6.3

Comments: The above limit is consistent with the previous NPDES permit.

PA0216445 Paradigm PR

Best Professional Judgment (BPJ) Limitations

- Comments: A Dissolved Oxygen minimum limitation of 4.0 mg/L will once again be implemented based on the standard in 25 PA Code Chapter 93 and best professional judgment. This is applied for an activated sludge system. This limit was imposed for the first time in the previous NPDES permit.

The following modifications have been made to be consistent with current DEP policy:

- Effluent limitations for pH and DO are to be reported as “Instantaneous Minimum” in lieu of “Minimum”.
- The units for Fecal Coliform are now “No./100 ml” in lieu of “CFU/100 ml”.

Additional Comments:

- Mass loading limits and influent monitoring are not applicable for non-publicly owned treatment works.
- The design flow of the sewage treatment plant is less than 0.1 mgd. For this reason, the permittee is not required to report influent and effluent concentrations for various parameters as listed in the NPDES application. Total Dissolved Solids and its major constituents are therefore not a concern at this time.
- Nutrient monitoring is not required to establish the nutrient load from the waste water treatment facility and the impacts that load may have on the quality of the receiving stream(s) because discharge flows are less than or equal to 2,000 gpd.

Monitoring Frequencies:

The monitoring frequencies for each parameter are consistent with the previous NPDES permit and consistent with the SOP - New and Reissuance Individual SFTF NPDES Permits Revised, May 17, 2019. SFTF’s according to the SOP are those with design flows of 2,000 gallons per day or less.

Although this STP is rated at 2,000 gpd, this writer is not issuing a SFTF NPDES permit, but instead a permit for a facility considered a non-municipal plant. The reason is because the plant is not a typical SFTF which typically are designed according to, or similar to, DEP’s Small Flow Treatment Design Manual. Instead it is a small package extended aeration plant that requires an operator to operate the plant, i.e. maintaining proper Food/Mass ratios, air requirements, sludge wasting, etc. The boiler plate language and Part C requirements for a non-municipal plant are more applicable for an extended aeration plant.

The existing CBOD5 and TSS limitations are less stringent that contained in the SOP for a SFTF. The SOP states application managers do not need to impose the BOD5 and TSS limitations of 10 mg/l Average Monthly and 20 mg/l I-max for existing SFTFs that were permitted prior to publication of the Small Flow Treatment Facilities Manual (362-0300-002) when such facilities are not capable of meeting tertiary treatment limits. This implies that facilities constructed according to the SFTF design manual, which require sand filters, etc. can meet the limits. Once again, this facility is not being considered a SFTF because it is an activated sludge process requiring operational management.

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)	0.002	XXX	XXX	XXX	XXX	XXX	1/month	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/month	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/month	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/month	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	1/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	1/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/month	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	30.0	XXX	60.0	1/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	10.0	XXX	20.0	1/month	Grab

Compliance Sampling Location: Outfall 001