pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0052132**
Facility Type	**Municipal**	APS ID	**622617**
Major / Minor	**Minor**	Authorization ID	**1244875**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Parkland School District**	Facility Name	**Orefield Middle School STP**
Applicant Address	2219 N Cedar Crest Boulevard	Facility Address	2675 Pa Route 309
	Allentown, PA 18104-9665		Orefield, PA 18069-9701
Applicant Contact	David Keppel	Facility Contact	David Keppel
Applicant Phone	(610) 351-5660	Facility Phone	(610) 351-5660
Client ID	51892	Site ID	249436
Ch 94 Load Status	Not Overloaded	Municipality	South Whitehall Township
Connection Status	-	County	Lehigh
Date Application Received	August 29, 2018	EPA Waived?	Yes
Date Application Accepted	September 26, 2018	If No, Reason	-

Purpose of Application: RENEWAL OF EXISTING NPDES PERMIT..

Summary of Review

The applicant is requesting the renewal of their minor sewage NPDES permit to discharge up to 0.0336 MGD of treated sewage effluent into Jordan Creek, a TSF receiving stream (stream code # 3424). ADF flows were 0.0052 MGD (2015), 0.0031 MGD flow (2016), and 0.0049 MGD flow (2017). The highest monthly average 2017 flow was 0.0078 MGD (November).

40 CFR 122.44(l) Antibacksliding Exception Request (TDS only) with requests for relief on several other monitoring requirements: **The Application contains an antibacksliding exception request to delete an existing TDS Limit. They have been intermittently exceeding the TDS permit limit.**

- **STP Derating: The 7/20/2017 WQM Permit derated the STP from 0.033 MGD to 0.0093 MGD Hydraulic Capacity. The NPDES Permit Application noted that derating was done for several reasons including:**
  - **Age of plant (~50 years old, not meeting current design standards with operational problems encountered when treating design flows)**
  - **Changes in plant treatment process from original STP resulted in several units (aeration unit and clarifier) converted to waste sludge digestion and storage (i.e. not available to meet original treatment plan design loadings)**
- **Lower Hydraulic Loadings: Per applicant request, NPDES Permit basis discharge flow will be reduced to 0.0093 MGD (per derating WQM).**
  - **No increased TDS Mass loadings on the receiving stream will result. In practical terms, the existing 1,000 mg/l monthly average loading at 33,000 GPD would be equivalent to a 3,548 mg/l TDS loading at 9,300 GPD in terms of mass loadings. See EDMR data and Effluent Limits Sections below for TDS historical data.**
  - **Updated Water quality modeling will incorporate the decreased NPDES Permit basis flow.**

Approve	Deny	Signatures	Date
		James D. Berger, P.E. / Environmental Engineer	July 11, 2019
		Amy M. Bellanca, P.E. / Environmental Engineer Manager	

Summary of Review

  - **The School indicates lower loadings are due to change from high school to middle school (different loadings), i.e. lower loadings due to lower numbers, abandonment of a school swimming pool). School also indicated I&I rehabilitation work and use of water conserving fixtures.**
- **DRBC Docket: The DRBC Docket No. D2009-007 CP-2 (the source of the TDS Limit) has been terminated by the DRBC. No existing PA TDS WQC required a TDS limit in the prior NPDES Permit Renewal. A copy of the 9/7/2017 DRBC Termination Letter was included in the application.**
- **Site-specific Information: The School noted that part of the TDS concentration problem is due to School actions to reduce I&I, and the (good environmental stewardship) use of low flow plumbing fixtures and water savings devices that ironically results in higher concentration influent flows to the STP. The School has indicated that it has made a good-faith effort to reduce TDS loadings including identified actions:**
  - **Optimization of water softening equipment**
  - **Minimization of cleaning chemical consumption**
  - **Minimization of ice control salt "drag-in".**
  - **Site-specific investigation: Daily TDS measurements by operator and correlation to school operation functions under an agreement with DRBC (under the terminated docket).**
  - **The School is not aware of any existing TDS treatment technology that would not be prohibitively expensive for the small school district (i.e. they looked at available treatment options).**
- **Antibacksliding Analysis: See Effluent limits section for Antibacking exception analysis and Reasonable Potential Analysis.**
- **Other Requested Changes:**
  - **The School noted that nutrient monitoring was also from the DRBC Docket, and therefore might not be needed. The NPDES Permit will require annual nutrient monitoring under Chapter 92a.61.**
  - **The School asked for less than 7-days/week monitoring for pH, DO, and TRC due to increased labor operator costs. The NPDES Permit will require 5/week monitoring in this permit term.**

Background:

- Outfall No. 001 sampling point is located at school STP, prior to piped discharge to Jordan Creek (near Route 476 bridge). School consultant indicates it is difficult to access Jordan Creek outfall location (with inability to definitively state that the found outfall is the school's outfall pipe due to small school flows and underground piping).
- School District STP, so POTW per Chapter 92a definition (with need for Chapter 94 Report-only upon request condition)

Part C Special Conditions:

- Parts C.I.A, B, C, & D: Standard conditions (stormwater prohibition; necessary property rights; proper management of residuals; and Planning) per template.
- Part C.I.E: Existing Site-specific Condition (discharge/stream changes) retained.
- **Part C.I.F: New Chlorine Minimization Condition**
- **Part C.I.G: New Chapter 94 Report condition as POTW (reporting only upon request).**
- Part C.I.E: Existing Site-specific Condition (discharge/stream changes) retained.
- Part C.II: Existing Solids management condition

Communication Log:

9/17/2018: Incompleteness letter issued.

9/21/2018: Consultant (Fulford) called to discuss letter. The DRBC Docket was terminated and they will be requesting a lower NPDES Permit basis flow. Facility needs have changed, and old STP is partially unusable and not meeting current design standards. He will look at antibacksliding options and see if they meet an exception. They were looking at TDS limits with the DRBC prior to Docket termination, and will explain what they did to try to find out why the high TDS. Facility has high nitrate-N levels due to school population without any means to treat. The spiking TRC level was due to running out of dechlorination tablets, so facility can meet a more stringent limit (tech), and I will check modeling results. Will go to daily when discharging sampling for future Draft NPDES permit. He will confirm the facility discharge reaches Jordan Creek on the updated Topo Map.

Summary of Review
9/26/2018: Revised Application sections and additional information from Applicant. **6/18/2019: DEP M&C Compliance meeting with client. This reviewer briefly attended to discuss TDS-related issues.** **6/19/2019: Follow-up E-mail from School (Fulford) to further discuss TDS-related issues and antibacksliding exception justification.** 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.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	**0.0093 (now)**
Latitude	40º 37' 20.68"	Longitude	-75º 34' 39.06"
Quad Name	Cementon	Quad Code	1341 (6.21.1)
Wastewater Description:	Sewage Effluent		
Receiving Waters	Jordan Creek	Stream Code	3424
NHD Com ID	26295731	RMI	11.9900
Drainage Area	68.1 square miles	Yield (cfs/mi^2)	0.0330
Q_{7-10} Flow (cfs)	2.25	Q_{7-10} Basis	PAStreamstats
Elevation (ft)	~332 - 338 Feet (discharge pt. on Jordan Creek, with E-maps topo not clearly identifying elevation)	Slope (ft/ft)	-
Watershed No.	2-C	Chapter 93 Class.	TSF, MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired		
Cause(s) of Impairment	Siltation, Water/Flow Variability		
Source(s) of Impairment	Agriculture, Hydromodification, Road Runoff, Urban Runoff/Storm Sewers		
TMDL Status	-	Name	-

Background/Ambient Data: Not available		Data Source: Not available
pH (SU)	-	-
Temperature (°F)	-	-
Hardness (mg/L)	-	-
Other:	-	-

Nearest Downstream Public Water Supply Intake	FOREST PARK WTP (102283-001, Plumstead Borough, Bucks County)		
PWS Waters	Delaware River	Flow at Intake (cfs)	-
PWS RMI	-	Distance from Outfall (mi)	>50 miles

Changes Since Last Permit Issuance: **Reduction of NDPES Permit basis flow from .0336 MGD to 0.0093 MGD by STP derating (i.e. lower mass loadings on receiving stream).**

Other Comments:

- **Jordan Creek Discharge Point:**
  - **Point of Compliance for Permitting: Facility samples at the STP (Outfall No. 001 monitoring point for compliance).**
  - **Jordan Creek Discharge Point:**
    - **Application Coordinates (consultant determination): 40/37/21.68; -75/34/39.94**
    - **Per the Facility files, the discharge pipeline route is about 180 feet of the (PA-476) Turnpike Right-of-Way, and therefore the Jordan Creek discharge point (within the impaired stream segment) is approximately same distance from Turnpike bridge over Jordan Creek (upstream side). The discharge point is located between the Route 309 and Turnpike bridges (~0.18 miles apart).**

- **Impairment Causes: Stream impairment begins upstream of the Route 309 bridge (at confluence with Trib 03426 To Jordan Creek, HQ-CWF, unimpaired) and continues downstream to the (impaired) Little Lehigh River and (impaired) Lehigh River. Developed Route 309 corridor seen on topo maps.**
  - **School:**
    - **Known Causes of Impairment: The small school STP is not expected to contribute to known stream impairment issues (known siltation, urban/road run-off, or hydromodification).**
    - **Nutrients: Nutrients are not a known cause of impairment for Jordan Creek, but the effluent Nitrate-N and TP concentrations are relatively high. Monitoring will continue in this permit cycle.**
      - **The small size of the discharge and lack of potable water PWS surface water intake (until Delaware River) means no known negative impacts. The NPDES Permit basis flow (9,300 GPD, 0.01438 CFS) is ~0.06% of the Q7-10 low flow (156:1 dilution at low flow conditions).**
      - **Recommend the DEP Biologist look at this segment of Jordan Creek during the new NPDES Permit term to determine if there are any nutrient-related impacts on the receiving stream that might trigger eventual future limits.**
  - **Other Impairment Sources:**
    - **Other NPDES Permits:**
      - **Any contribution will be addressed by separate individual NPDES permitting. NOTE: Nestle Purina (NPDES No. PA0014681) discharges to the HQ UNT per E-facts, but E-maps did not indicate any UNT impairment.**
      - **South Whitehall Township has a MS4 NPDES Permit No. PAI132221, which is expected to separately address urban runoff/stormsewer issues.**
    - **Agricultural Siltation Sources: The Department of Agriculture is the lead for addressing agricultural sources.**
    - **Hydromodification: The downstream Jordan Creek has a "losing stream" reach that periodically dries out near the (downstream) GEO Specialty Chemicals plant (which uses groundwater sources but discharges to the Jordan Creek). Previous permitting PAStreamstats indicated increase in carbonate bedrock percentage going downstream (from 2.1% to 4.5%, meaning that the reach is a carbonate bedrock area) along the ~1.6 mile modeled reach (going from 68.13 to 70.56 square miles drainage area).**

Treatment Facility Summary

Treatment Facility Name: Parkland School District Orefield Mid School

WQM Permit No.	Issuance Date	
3915401	7/20/2017	Facility derated from 0.033 MGD to 0.0093 MGD hydraulic capacity from an 0.032 MGD Annual Average Daily Flow.
662S3	7/30/1962	STP permit issued to "Parkland Union School District", with subsequent 10/24/1972 Letter notification that the facility would need to meet updated water quality standards (including 4 mg/l limit for ammonia-N)

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Hypochlorite with dechlorination	0.0093

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0093	46.5	Not Overloaded	None	Offsite disposal

Changes Since Last Permit Issuance: Facility capacity derated per WQM Permit. See above.

Other Comments:

Existing STP includes: Comminutor, bar screen, extended aeration, clarification, chlorine contact tank, dechlorination tank, waste holding tank (Extended Aration Unit No. 2 being used for waste holding). Sodium bisulfite is used for dechlorination via tablets in a small tank. Trichloro-s-traizinetrione is used for chlorine disinfection. Soda ash is used for pH control. No upgrades proposed for next five (5) years.

During summer school closure, they add "whey" as a carbon source per 1/28/2019 DEP Inspection Report.

Sludge is directed to LCA Pretreatment Plant for processing/disposal.

Compliance History

DMR Data for Outfall 001 (from August 1, 2018 to May 31, 2019)

Parameter	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18	AUG-18
Flow (MGD) Average Monthly	**0.0065**	**0.0056**	**0.0068**	**0.0065**	**0.0086**	**0.0092**	**0.0107**	**0.008**	**0.0057**	**0.0079**
Flow (MGD) Daily Maximum	**0.0272**	**0.0114**	**0.0254**	**0.0153**	**0.0341**	**0.0285**	**0.0258**	**0.0146**	**0.0242**	**0.0513**
pH (S.U.) Minimum	7.26	6.60	6.79	6.52	6.80	7.04	6.92	6.53	6.64	7.28
pH (S.U.) Instantaneous Maximum	7.87	7.42	7.30	7.56	7.73	7.92	7.84	8.16	7.83	7.69
TRC (mg/L) Average Monthly	**0.05**	**0.04**	**0.04**	**0.04**	**0.01**	**0.38**	**0.09**	**0.01**	**0.01**	**0.08**
TRC (mg/L) Instantaneous Maximum	**0.11**	**0.13**	**0.10**	**0.15**	**0.08**	**1.00**	**0.63**	**0.05**	**0.06**	**0.48**
CBOD5 (mg/L) Average Monthly	3.2	2.1	3.5	5.0	2.0	7.5	2.9	2.0	3.8	2.0
TSS (mg/L) Average Monthly	4.0	4.0	4.4	4.4	4.0	4.0	4.0	4.0	4.0	4.0
Total Dissolved Solids (mg/L) Average Monthly	810	780	948	760	638	806	586	572	918	**1550**
Fecal Coliform (CFU/100 ml) Geometric Mean	1	1	1	4	1800	28	1	2	1	1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	1	1	1	4	1800	28	1	2	1	1
Total Nitrogen (mg/L) Average Monthly						60.2				
Ammonia (mg/L) Average Monthly	2.14	0.3	2.62	3.56	0.55	5.47	3.79	0.73	0.22	0.1
Nitrate (mg/L) Average Monthly	**64.0**	**73.3**	**45.7**	**66.4**	**10.2**	**95.6**	**38.3**	**70.2**	**71.2**	**33.8**
Nitrite (mg/L) Average Monthly						57.7				

TKN (mg/L) Average Monthly						2.5				
Total Phosphorus (mg/L) Average Monthly	**7.2**	**7.0**	**4.5**	**2.0**	**1.9**	**6.4**	**4.1**	**7.1**	**4.0**	**3.7**

DMR Data for Outfall 001 (from August 1, 2017 to July 31, 2018)

Parameter	JUL-18	JUN-18	MAY-18	APR-18	MAR-18	FEB-18	JAN-18	DEC-17	NOV-17	OCT-17	SEP-17	AUG-17
Flow (MGD) Average Monthly	**0.0021**	**0.0035**	**0.0043**	**0.0070**	**0.0058**	**0.0072**	**0.0066**	**0.0048**	**0.0078**	**0.0056**	**0.0048**	**0.0029**
Flow (MGD) Daily Maximum	0.0107	0.0077	0.0125	0.0209	0.0312	0.0177	0.0155	0.0107	0.0172	0.0141	0.0145	0.0254
pH (S.U.) Minimum	7.38	7.06	6.08	6.60	6.52	6.50	6.54	6.15	6.86	6.79	6.42	7.52
pH (S.U.) Instantaneous Maximum	7.80	7.80	7.64	7.46	7.45	7.32	7.52	7.53	7.28	7.30	7.58	8.02
TRC (mg/L) Average Monthly	**0.00**	**0.08**	**0.58**	**0.62**	**0.45**	**0.07**	**0.10**	**0.05**	**0.05**	**0.05**	**0.01**	**0.01**
TRC (mg/L) Instantaneous Maximum	**0.00**	**0.26**	**2.16**	**1.98**	**2.01**	**0.39**	**0.86**	**0.36**	**0.18**	**0.27**	**0.09**	**0.07**
CBOD5 (mg/L) Average Monthly	2.0	4.4	2.7	4.1	3.9	2.0	2.7	2.6	8.5	2.0	2.0	2.0
TSS (mg/L) Average Monthly	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	12.0	4.0	4.0	4.0
Total Dissolved Solids (mg/L) Average Monthly	**1410**	**1190**	988	**1240**	408	570	**1270**	**1230**	400	972	514	868
Fecal Coliform (CFU/100 ml) Geometric Mean	1	1	1	1	1	1	1	15	228	1	1	1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	1	1	1	1	1	1	1	15	228	1	1	1
Ammonia (mg/L) Average Monthly	0.27	1.24	0.55	1.06	2.69	0.27	2.49	1.83	0.1	0.23	0.21	0.1
Nitrate (mg/L) Average Monthly	**21.4**	**39.4**	**91.5**	**72.8**	**34.9**	**34.7**	**88.9**	**76.0**	**68.2**	**99.4**	**34.3**	**12.6**

Total Phosphorus (mg/L) Average Monthly	6.5	6.8	10.3	8.64	3.3	3.3	7.7	8.0	8.3	7.6	2.6	1.3

Compliance History

Effluent Violations for Outfall 001, from: September 1, 2017 To: July 31, 2018

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Total Dissolved Solids	12/31/17	Avg Mo	1230	mg/L	1000	mg/L
Total Dissolved Solids	01/31/18	Avg Mo	1270	mg/L	1000	mg/L
Total Dissolved Solids	04/30/18	Avg Mo	1240	mg/L	1000	mg/L
Total Dissolved Solids	06/30/18	Avg Mo	1190	mg/L	1000	mg/L
Total Dissolved Solids	07/31/18	Avg Mo	1410	mg/L	1000	mg/L
Total Dissolved Solids	08/31/18	Avg Mo	1550	mg/L	1000	mg/L

Summary of Inspections:

FACILITY NAME	INSP PROGRAM	INSP ID	INSPECTED DATE	INSP TYPE	INSPECTION RESULT DESC	INSPECTOR ID	# OF VIOLATIONS
PARKLAND SCH DIST OREFIELD MID SCH	WPCNP	2871421	04/15/2019	Administrative/File Review	Violation(s) Noted	00613405	2
PARKLAND SCH DIST OREFIELD MID SCH	WPCNP	2834542	12/06/2018	Compliance Evaluation	No Violations Noted	00613405	0
PARKLAND SCH DIST OREFIELD MID SCH	WPCNP	2584687	02/28/2017	Administrative/File Review	Violation(s) Noted	00613405	1
PARKLAND SCH DIST OREFIELD MID SCH	WPCNP	2436246	11/09/2015	Routine/Partial Inspection	No Violations Noted	00531359	0
PARKLAND SCH DIST OREFIELD MID SCH	WPCNP	2505291	09/11/2015	Routine/Partial Inspection	Violation(s) Noted	00628030	1
PARKLAND SCH DIST OREFIELD MID SCH	WPCNP	2407032	03/09/2015	Compliance Evaluation	No Violations Noted	00628030	0

PARKLAND SCH DIST OREFIELD MID SCH	WPCNP	2342930	10/28/2014	Routine/Partial Inspection	Violation(s) Noted	00628030	1
PARKLAND SCH DIST OREFIELD MID SCH	WPCNP	2315116	07/26/2014	Compliance Evaluation	Violation(s) Noted	00628030	1
PARKLAND SCH DIST OREFIELD MID SCH	WPCNP	2227121	05/14/2013	Routine/Complete Inspection	No Violations Noted	00628030	0
PARKLAND SCH DIST OREFIELD MID SCH	WPCNP	2303183	02/16/2012	Compliance Evaluation	No Violations Noted	00628030	0

Other Comments:

4/15/2019: NOV issued due to late NPDES Permit Renewal Application (not technically complete in time to meet 180 day deadline).

TDS Violations: The facility has had difficulty meeting the previous DRBC Docket-based TDS permit limit. This Permit will drop the TDS limit, except for requiring annual monitoring.

- 2/28/2017 NOV (TDS) issued.
- 6/18/2019 Compliance meeting discussed TDS issues.

7/12/2019 Open Violations by Client WMS Query: No open violations.

Permit: PA0052132
Client ID: 51892
Client: All

Open Violations: 0

No data was found using the criteria entered. Please revise your choices and try again

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0336
Latitude 40º 37' 50.00" **Longitude** -75º 34' 48.00"
Wastewater Description: Sewage Effluent

Permit Limits/Monitoring (changes bolded):

Parameter	Limit (mg/l unless otherwise specified)	SBC	Model/Basis
$CBOD_5$ (Winter)	**Report (lbs/d)** 25.0 **Report** 50.0	**Monthly Average** Monthly Average **Daily Max** IMAX	Existing Technology limit (Chapter 92a.47) supported by water quality modeling. Application data indicated max of 10.9 mg/l and average of 4.1 mg/l (24 samples).
$CBOD_5$ (Summer)	**Report (lbs/d)** 20.0 **Repor**t 40.0	**Monthly Average** Monthly Average **Daily Max** IMAX	Existing WQ limit supported by water quality modeling.
TSS	**Report (lbs/d)** 30.0 **Report** 60.0	**Monthly Average** Monthly Average **Daily Max** IMAX	Existing Technology limit (Chapter 92a.47) Application data indicated max of 12.0 mg/l and average of 4.5 mg/l (24 samples).
pH	6.0 – 9.0 SU	**Inst. Min** - IMAX	Existing Technology limit (Chapter 92a.47) Application indicated 6.00 – 8.30 SU range (210 samples).
Fecal Coliform (5/1 – 9/30)	200/100 ml 1,000/100 ml	Geo Mean IMAX	Existing Technology limit (Chapter 92a.47) Application indicated max of 228/100 ml of 24 samples.
Fecal Coliform (10/1 – 4/30)	2,000/100 ml 10,000 ml/100 ml	Geo Mean IMAX	Existing Technology limit (Chapter 92a.47)
Total Residual Chlorine	**0.50** **1.58**	**Average Monthly** **IMAX**	**New permit limit superseding old BAT technology limits (1.2 mg/l monthly average, 2.3 mg/l IMAX) due to dechlorination provisions at site, and EDMR data indicating compliance with more stringent limits has been achieved for the last 12 months of EDMR data. Application data indicated max of 2.16 mg/l and average of 0.10 mg/l (210 samples).**
Ammonia-Nitrogen (May 1 - Oct 31)	**Report (lbs/d)** 4.0 **Report** 8.0	**Monthly Average** Monthly Average **Daily Max** IMAX	Existing WQ limit supported by WQM Model 7.0 & multiplier. NOTE: Additional WQ modeling at pH 7.4 also did not trigger need for limits. Application data indicated max of 6.77 mg/l with average of 1.09 mg/l (24 samples).
Ammonia-Nitrogen (Nov 1 - Apr 30)	**Report (lbs/d)** 12.0 **Report** 24.0	**Monthly Average** Monthly Average **Daily Max** IMAX	See above.
Dissolved Oxygen (DO)	**3.0**	**Inst. Minimum**	**New permit limit. WQ modeling showed 3.0 mg/l (achieved by secondary treatment) is adequate to protect the waters of the Commonwealth.**

			No DO Application data submitted (not required in previous permit).
Total Phosphorus	**Report (lbs/d)** **Report** **Report**	**Annual Average** **Annual Average** **Daily Max**	Annual monitoring requirement (Chapter 92a.61). DRBC monthly requirement eliminated. **Application data indicated max of 10.3 mg/l and average of 5.75 mg/l (24 samples).**
Total Nitrogen*	**Report (lbs/d)** **Report** **Report**	**Annual Average** **Annual Average** **Daily Max**	Existing Annual monitoring requirement (Chapter 92a.61). **Application data indicated max of 100.4 mg/l and average of 63.2 mg/l (24 samples).**
TKN	**Report (lbs/d)** **Report** **Report**	**Annual Average** **Annual Average** **Daily Max**	Annual monitoring requirement. Application data indicated max of 4.4 mg/l and average of 1.6 mg/l (24 samples).
Nitrate- Nitrite-N	**Report (lbs/d)** **Report** **Report**	**Annual Average** **Annual Average** **Daily Max**	**New annual monitoring requirement (Chapter 92a.61) <u>replacing</u> Nitrate-N monitoring (monthly DRBC monitoring requirement).** **Application data indicated Nitrate-Nitrite-N max of 99.4 mg/l and average of 61.5 mg/l (24 samples). See EDMR for additional Nitrate-N sampling data.**
TDS	**Report (lbs/d)** **Report** **Report**	**Annual Average** **Annual Average** **Daily Max**	**Former TDS Limits eliminated. New annual monitoring requirement (Chapter 92a.61) replacing dropped DRBC monthly average limits. Application data indicated max of 1590 mg/l and average of 1020 mg/l (24 samples).**

*Total Nitrogen = Nitrate-Nitrite-N + Total Kjeldahl Nitrogen, where measured in the same sample.

<u>Comments</u>:

<u>WQ Monitoring</u>: Same limits for range of possible Jordan Creek outfall discharge elevations.
Monitoring requirements have been updated for this 0.0093 MGD school discharge:

- **Flow-proportional 24-hour composite sampling will be required to avoid sampling biasing of 8-hour composite sampling, as application indicates facility sampler has this capacity, and to address both potential biasing of nutrient effluent concentrations and any potential afterhours school activities.**
- **pH, TRC (and now DO) monitoring converted to 5/week in this permit cycle per request (rather than daily when discharging).**
- **CBOD5, TSS, Fecal Coliform, Ammonia-N, and TP monitoring converted to 2/month per standard monitoring frequency.**
- **Daily Max and mass loading reporting is now required (no additional sampling required).**
- **Nutrient monitoring (TN, TP) modified to annual sampling frequency only due to cessation of DRBC-mandated monthly average permit limits and small size of facility relative to receiving stream.**

<u>Antibacksliding Exception Analysis (elimination of TDS limit)</u>: Per 40 CFR 122.41(l)(2)(i) criteria:

- **<u>Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation</u>: The derating occurred after previous NPDES Permit issuance and DRBC Docket issuance. Related information can be found in other Fact Sheet Sections above. No Reasonable Potential exists (see below)**
- **<u>Water Quality Criteria</u>: No applicable water quality criterion prohibits Department action:**
  - **<u>PA</u>: No PA water quality criterion prevents elimination of the TDS limit.**
    - **No Chapter 93 TDS water quality criterion appears to exist, with no potentially impacted PWS Surface Water Intake within 50 miles of the discharge point.**

- **Chapter 95 TDS criterion (new and expanded discharges) would only apply if the facility ever seeks expansion above 0.0093 MGD.**

- **DRBC TDS Basin Water Quality Criterion (Article 3: "Water Quality Standards for The Delaware River Basin" Section 3.10 Basinwide Surface Water Quality Standards): Pennsylvania has not incorporated DRBC Water quality Criteria into Chapter 93 (Water Quality Standards) or Chapter 95.10 (TDS standards for new or expanding TDS loads). Chapter 92a.12(b) only requires NPDES Permits to incorporate "applicable effluent limitations or standards" from interstate compacts (i.e. DRBC effluent limits when they exist and are more stringent that the Department), not water quality criteria. In the absence of any existing DRBC TDS limit, there is no barrier to the antibacksliding exception. DRBC WQC language (if the facility ever expands):**
  - **18 CFR 410 (3.10.3 Stream Quality Objectives) B.1.b states: "the concentration of total dissolved solids, except intermittent streams, shall not exceed 133 percent of background."**
  - **18 CFR 410 (DRBC Effluent Quality Requirement: Limits) Article 3.10.4 states: "Total dissolved solids shall not exceed 1000 mg/l, or a concentration established by the Commission which is compatible with designated water uses and stream quality objectives, and recognizes the need for reserve capacity to serve future dischargers." NOTE: This appears to be the source of the previous DRBC Docket TDS monthly average limit. The facility had intermittent exceedances (Application data indicated max of 1590 mg/l and average of 1020 mg/l (24 samples) with EDMR data indicating better compliance achieved in the last year.**
  - **18 CFR 410 (DRBC Effluent Quality Requirement Limit) Section 3.10.6.G (Definitions): "Background, Total Dissolved Solids": The observed concentration of total dissolved solids during low flow conditions or, in the absence thereof, an estimate acceptable to the Commission."**
  - **18 CFR 410 (DRBC Delaware River Zones) Sections 3.20.5 and 3.20.6 include Zone 1D (north of Lehigh River mouth) and 1E (south of Lehigh River Mouth), i.e. direct discharge to the Delaware River: This section does not pertain to the facility, but for informational purposes: "Total Dissolved Solids. Not to exceed": 133 percent of background, or 500 mg/l, whichever is less.**

Reasonable Potential Analysis for TDS: No reasonable potential. No impacted public drinking water PWS surface intake within 50 miles (on the Delaware River) to require any water quality modeling. See above discussion of PA WQC and TDS influent loadings.

- **The School does not accept non-school wastewater. Previously authorized TDS mass loadings reduced by derating.**
- **Any future expansion would require both new DRBC Docket and Major NPDES Permit Amendment which would address TDS limits at that time.**

TOXICS SCREENING ANALYSIS
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.6

CLEAR FORM

Facility: **Parkland Orfield Middle School** NPDES Permit No.: **PA0052132** Outfall: **001**
Analysis Hardness (mg/L): **100** Discharge Flow (MGD): **0.0093** Analysis pH (SU): **7**
Stream Flow, Q_{7-10} (cfs): **2.25**

Parameter	Maximum Concentration in Application or DMRs (µg/L)	Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
Total Dissolved Solids	1590000	500000	Yes		

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
02C	3424	JORDAN 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)
11.990	Orefield STP	PA0052132	0.009	CBOD5	20		
				NH3-N	4	8	
				Dissolved Oxygen			3

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9 — Parkland - Orefield Middle School STP

2.25	= Q stream (cfs)	0.5	= CV Daily
0.0093	= Q discharge (MGD)	0.5	= CV Hourly
22	= 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)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 49.907	1.3.2.iii	WLA cfc = 48.648
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 18.597	5.1d	LTA_cfc = 28.282

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.273	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.581	