pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

**Northeast Regional Office**
**CLEAN WATER PROGRAM**

# NPDES PERMIT FACT SHEET
# INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

| | | | |
|---|---|---|---|
| Application Type | **Renewal and Transfer** | Application No. | **PA0008231 and WQM# 54762013-T1** |
| Facility Type | **Industrial** | APS ID | **806927** |
| Major / Minor | **Major** | Authorization ID | **1111333** |

## Applicant and Facility Information

| | | | |
|---|---|---|---|
| Applicant Name | **Guilford Mills LLC (new permittee)**<br>**Guilford Mills Inc. (previous permittee)** | Facility Name | **Guilford Mills LLC**<br>**(FKA Penn Dye & Finishing Plant)** |
| Applicant Address | 1 Penn Dye Street<br>Pine Grove, PA 17963 | Facility Address | 1 Penn Dye Street<br>Pine Grove, PA 17963 |
| Applicant Contact | Sunil Hoskote | Facility Contact | Sunil Hoskote |
| Applicant Phone | (570) 345-2611 | Facility Phone | (570) 345-2611 |
| Client ID | 28200 | Site ID | 242947 |
| SIC Code | 2258 | Municipality | Pine Grove Borough |
| SIC Description | Manufacturing - Lace And Warp Knit Fabric Mills | County | Schuylkill |
| Date Application Received | March 2, 2016 | EPA Waived? | No |
| Date Application Accepted | March 31, 2016 | If No, Reason | Major Facility; Significant CB Discharge; Discharge to TMDL waters |

Purpose of Application: NPDES Permit Renewal & Transfer of NPDES and WQM Permit #5476203 to parent company.

## Summary of Review

**This 2.0 MGD Individual IW (<250 MGD Major with ELG) NPDES Permit Renewal Application has been merged with a prior NPDES/WQM Transfer application (APS# 806927, Auth# 968197 received in 2013). Significant changes include:**

- Substantial IWTP process changes (including lagoon closures) that impact existing IWTP design capacities, with additional existing process limitations set forth in an applicant-submitted HRG Inc. Engineering Report. See Treatment Section for details.
- New Greensands Filter Backwash (groundwater remediation) wastestream now being sent to the IWTP for treatment and disposal.
- Additional stormwater outfalls are being incorporated into this NPDES Permit (Outfalls Nos. 009 and 010).

**NOTE:** Applicant asked about potential tiered permit limits (not simple derating) at a meeting, but that is not a present option due to lack of applicant-identified/requested NPDES Permit-basis tiered flows; need for Rerating WQM Permit Application to establish existing IWTP design capacities (due to major process changes including treatment lagoon closures); and due to uncertain impact on existing Chesapeake Bay TMDL annual mass limits (based on NPDES Permit basis flows). Reduction in NPDES Permit basis flow will not change new Production-based ELG limits, new Fecal/TRC limits, new TMDL-based limits, etc.

**Background**:

- **Site Flows**: Facility discharges IW (non-sewage) wastewater and stormwater to Swatara Creek (Stream# 9361; CWF, impaired due to AMD metals and pathogens of unknown origin), with one stormwater outfall discharging to Wideawake Creek (UNT #10069 to Swatara Creek, CWF) prior to confluence with Swatara Creek.

| Approve | Deny | Signatures | Date |
|---|---|---|---|
| X | | James D. Berger, P.E. / Environmental Engineer | October 17, 2019 |
| X | | Amy M. Bellanca, P.E. / Environmental Engineer Manager | |

**Summary of Review**

- The Renewal Application indicated recent annual average wastewater flows/discharges in the range of 0.350 MGD – 0.480 MGD range (2011 – 2015; 0.431 MGD "average flow" during production and 1.499 MGD Max flow during production (24 hours per day, 7 days per week)
- February 1, 2018 to January 31, 2019 EDMR Outfall No. 001 Data indicated:
  - 0.423 – 0.518 MGD monthly average discharge flows.
  - 0.639 – 0.848 MGD daily max discharge flows.

- **Prior NPDES/WQM Permit Transfer Application**: Being merged with renewal action (APS# 806927; Client# 28200; Site# 242947; Auth# 968197; Account# 749373). NOTE: Permit Transfer was on EPA hold due to general Chesapeake Bay language objections until almost time for NPDES permit renewal application submittal.
- **Compliance Issues and Corrective Actions: Issues included fecal coliforms (unknown source); nonfunctional Treatment Plant units/equipment requiring repair/replacement; substantial modification of IWTP (reducing original design capacities by eliminating existing permitted treatment lagoons) without Part II WQM Permit; Discoloration of receiving stream, etc.**
  - See Compliance Section for compliance information.
  - See Treatment Plant Section for information pertaining to the treatment plant changes and issues.
  - Permittee blamed personnel changes and loss/misplacement of facility files for delays in addressing compliance issues in meetings.

**Facility Description**: This is a "textile finishing plant" that engages in the washing, dyeing, finishing (heating involved), and warehousing of knitted synthetic textiles with an Industrial Wastewater Treatment Plant (IWTP) that was permitted in 1977. The facility straddles Swatara Creek (main plant buildings & separate onsite LFG-to-Energy facility on one side of Swatara Creek; IWTP, water supply reservoir receiving remediated groundwater discharges, and electrical substation on other side of Swatara Creek).

- **Applicable SIC Codes**: The facility is covered under SIC# 2258 (Lace and Warp Knit Fabric Mills (finishing)), subject to 40 CFR 410 Subpart E (Knit Fabric Finishing Subcategory). Applicable SIC ELG (40 CFR 410.52 and 53. Subpart E –Knit Fabric Finishing Subcategory):
  - The term simple manufacturing operation shall mean all the following unit processes: desizing, fiber preparation and dyeing.
  - The term complex manufacturing operation shall mean "simple" unit processes (desizing, fiber preparation and dyeing) plus any additional manufacturing operations such as printing, water proofing, or applying stain resistance or other functional fabric finishes.
- **Applicable Stormwater Requirements tied to SIC Code**:
  - SIC Code # 4911: A separate onsite LFG-to-Energy Plant (SIC Code# 4911) contributes stormwater run-off to the site stormwater outfall #007 drainage area (including from a fuel oil tank area).
  - SIC Code# 2258: This Textile Plant's SIC Code is be subject to PAG-03 Appendix Q (Textile Mills, Apparel and Other Fabric Products) BMPs plus additional requirements for the stormwater outfall receiving the LFG-to-Energy Plant's stormwater, ELG Parameters of interest, plus any remaining requirements applicable to the existing IWTP (general Treatment Plant BMPs in Individual IW Permit).
- **IWTP Wastestreams (Outfall No. 001)**:
  - **Existing Approved Wastestreams**:
    - Process wastewater with ELG
    - Filter backwash
    - Boiler blowdown water

    NOTE: Sewage is being sent to the local POTW for disposal.
  - **New Greensands Filter Backwash flow Waste Stream**: The facility has installed a new Greensands Filter to treat metals in contaminated groundwater (process water supply), prior to RCRA-authorized groundwater treatment to remove VOCs, to remove metals. The treated well water is then treated by air spraying to water lagoon before usage as plant process water. The backwash filter flow will be directed to IWTP, including volatile organic chemicals (VOCs) and metals constituents. See below for additional information on Greensands Filter System and RCRA groundwater remediation onsite.
  - **Stormwater Associated with Industrial Activities**: Facility stormwater has been flowing into the plant's Octagonal Pump Station which pumps wastewater across Swatara Creek for treatment.
- **9/30/1992 EPA RCRA Final Administrative Order Docket RCRA-III-052-CA; EPA ID# PAD002377703:** The facility/plant area has been undergoing groundwater remediation. Groundwater wells (PW-1, PW-3, PW-4) is metered, passed through an aeration nozzle and discharged into the water reservoir to treat VOCs from groundwater. All groundwater is used in the plant process. Plant wastewater is sent to the IWTP. No groundwater discharge to Swatara Creek.

**Summary of Review**

- Per a 4/11/2013 EPA Guilford Mills Internet Document, the main groundwater contaminants at the facility are tetrachloroethene (PCE), trichloroethene (TCE), and 1,1,1-trichloroethane (1,1,1-TCA). The 4/11/2013 EPA Internet document indicates that the facility did a pilot study to determine if aeration treatment can replace carbon adsorption for groundwater treatment, but the previous NPDES Permit did not authorize any untreated groundwater/wastewater going to the WWTP.
- DEP Waste Management has been monitoring site groundwater conditions under the Residual Solid Waste Chapter 287.102 (Permit-by-rule) due to RSW aeration lagoons/impoundments at the WWTP, plus groundwater contamination elsewhere onsite.

- **New Onsite 313 GPM (0.450 MGD) Greensands Filter/Hypochlorite Unit & ~20,000 GPD Backwash discharge Wastestream to the IWTP**: During NPDES permitting, the facility installed a new "Greensands Filter" & Hypochlorite System to treat source water (i.e. VOC-contaminated groundwater) prior to VOC treatment (at the Reservoir) to remove metals, with contaminated backwash water being sent directly to the IWTP for treatment (without further VOC treatment and without prior use as process water at the plant). The new ~20,000 GPD waste stream will have expected VOC loadings (in addition to concentrated metals including Iron and Manganese). **The Greensands Filter system was described as an oxidation and precipitate system using a sodium hypochlorite chemical feed system and Greensands filter system. The Report noted that greensand is "manganese dioxide coated media". The 12% available chlorine solution is continuously dosed into the water line prior to the filter system. The free chlorine will continuously regenerate the greensand media while inducing oxidation-reduction reactions of Iron and Manganese. The Greensands filter is removing metals from process (non-potable) water supply wells that are being used to remediate groundwater contamination under RCRA Order (with VOC removal stage after Greensands Filter stage).** Relevant Dates:
  - 5/2/2017: "Notification of Water Treatment Improvements (Greensand Filter)" Letter received.
  - 6/9/2017: DEP Letter provided feedback on the proposal, including need to update NPDES Permit Application to account for the new waste stream via a Module 2 (Groundwater), need to evaluate impact on site sludges, updated process flow schematic, and need to contact the US EPA/DEP Waste Management Program due to their lead with existing VOC contamination groundwater remediation under the EPA RCRA Order (EPA ID# PAD002377703).
  - **8/11/2017: Guildford Mills submittal regarding Greensands Filter project including: the August 2, 2017 Herbert, Rowland & Grubic, Inc. (HRG Inc.) Design Engineer Report (Greensand Filter Water Treatment Improvements for Guilford Mills, LLC) which discussed impacts to the Existing Waste Stream due to metals only.**
    - The Design Engineer Report included manufacturer information indicating Greensand Filters are a proven technology for removal of assorted metals, but with no mention of removal of organic compounds and/or potential concentrations of organic compounds in the backwash. Raw groundwater well data indicated the presence of detectable concentrations of: 1,1,1-Trichlorethane, 1,2-Dichloroethane, Cis 1,2-Dichloroethylene, Tetrachloroethylene, Trichloroethylene, and 1,1-Dichloroethylene. Assorted reported non-detect organic concentrations were above the DEP Target Quantitation Limits (QLs) found in the NPDES IW Permit Application Instructions, i.e. not addressing the EPA Sufficient Sensitivity Rule, meaning the constituents must be assumed to be present at the insensitive non-detect concentrations).
    - There was no evaluation of the capability of the IWTP (permitted/built in the 1970s and subsequently modified without a Part II WQM Permit to eliminate treatment lagoons) to handle VOCs or concentrated metals-rich backwash "slugs".
    - The Report noted the facility has a WWTP reclaimed water line for use as process water.
    - The Report noted that chlorine (via sodium hypochlorite) is added to the well water in the plant utility building "to maintain a steady residual within the reservoir" "to control algae growth within the reservoir" "to aid in the backwashing of the plant's multimedia filter". The water is then pumped across Swatara Creek to the large outside reservoir prior to use as process water. There the water is remediated for groundwater VOCs via spray nozzle discharge to the reservoir. The Greensands backwash water will be directed to the existing Octagonal Pump Station for direction to the IWTP.
    - The Site Plan indicated that the IWTP's "former polymer and caustic overflow basin" is no longer used.
    - The Site Plan does not show the reclaimed water pipeline from the IWTP. The previous 6/9/2017 ERG "Process/Water Balance Schematic" estimates 300 GPD of sludge water (sludge going to land application). The schematic did not show any reuse of reclaimed WWTP water and showed backwash going directly to IWTP (not mixed with WWTP influent).
  - **8/21/2017:** DEP Approval with Conditions Letter authorizing installation and operation of Greensands Filter under conditions including: daily sampling for Iron, Manganese, Total Residual Chlorine (TRC); and

**Summary of Review**

groundwater constituents of interest i.e. 1,1,1-Trichlorethane; 1,2-Dichloroethane; Cis 1,2-Dichloroethylene; Tetrachloroethylene; Trichloroethylene; and 1,1-Dichloroethylene at the DEP Target Quantitation Limits (QLs); Thirty day reports with sampling data and Greensands filter flows/downtimes; updating NPDES Permit Application with updated application sampling data (1 influent sample and 3 effluent samples); and proof of notification of sludge disposal/beneficial use sites of change in sludge generation/composition.

- **2019:** Several 30-day reports subsequently submitted with initial analytical information incorporated into updated NPDES Permit Application Pollutant Tables (those parameters only updated). 12,500 GPD backwash discharges to the IWTP (via Octagonal Pump Station) per applicant. To summarize one 30-day Report (8/10/2019 – 9/6/2019) Outfall No. 001 Effluent Grab sampling Data for 12,000 GPD Filter Backwash Discharges (on alternate days):
  - Total Iron: 0.676 mg/l – 5.11 mg/l
  - Total Manganese: 0.154 mg/l – 0.606 mg/l
  - VOCs: Non-detect (<0.5 ug/l) for the six monitored VOCs (found in site groundwater being treated by Greensands Backwash Filter prior to separate RCRA remediation).
  - Total Residual Chlorine (TRC): 0.02 mg/l – 0.11 mg/l TRC. **NOTE**: The facility does not have a permitted chlorine disinfection system. TRC must originate in either water treatment chlorination, use of Ferric Chloride as wastewater treatment chemical, and/or Greensands chlorination prior to groundwater remediation under RCRA order and use as process water for plant).

- **Permittee Identity**: The 9/9/2016 GIF indicated that the permittee and new facility name was "Guilford Mills LLC" (EIN# 13-1995928; Dun & Bradstreet ID# 00-323-2428 per 1/30/2013 NPDES/WQM Permit Transfer Application "Proposed Permittee Section" and 3/18/2013 WQM Permit Transfer Application).
  - The NPDES transfer application permittee/current owner/operator (Guilford Mills, Inc., EIN# 13-19995928) indicated it was signing for the original permittees (Penn Dye & Finishing Co. a.k.a. Gold Mills, Inc.; Gold Mills LLC) due current owner/operator (Guilford Mills Inc.) declarations that it is the successor to any Penn Dye & Finishing Co. (a.k.a. Gold Mills, Inc.) and Gold Mills, LLC interests.
  - E-facts indicates that there is another Guilford Mills Inc. which is listed as an LLC, but with a different EIN# 13-5572386 (Client #256976). The GIF (Guilford Mills LLC name used) indicated the client ID# 256976 but that is with the EIN# 13-5572386.
  - The old NPDES permittee was Gold Mills LLC (Client ID# 256976; EIN# 13-5572386; Dun & Bradstreet ID# 03-993-5205 per 1/30/2013 NPDES/WQM Permit Transfer Application "Present Permittee Section". The 1/20/2013 NPDES permit transfer application included an applicant letter indicating that the former Gold Mills LLC was merged into its parent company (Guilford Mills, Inc.; FEIN# 13-5572386) on 12/31/2012. The 3/18/2013 WQM Permit Transfer Application included an applicant letter indicating that Penn Dye was merged with Gold Mills Inc. circa 1988, and that Gold Mills subsequently merged with Guilford Mills.
  - The PA Department of State "corporation search" website has one listed "Guilford Mills Inc.", Entity Number 4151158. It does not identify the EIN# or Dun & Bradstreet#.

Special Conditions: **Changes are bolded**

- Part C.I: **Updated** Chesapeake Bay Nutrient Requirements
- **Part C.II.A through D: New Standard IW permit conditions (Necessary property rights; Residual Management; Relation to WQM permits; BAT requirements) new to permit**
- **Part C.II.E: New Chlorine Minimization condition due to TRC residuals and additional chlorine sources.**
- **Part C.II.F: New O&M Plan requirement due to substantial site changes since prior permitting potentially affecting IWTP organic/hydraulic capacities and operational issues**
- **Part C.II.G: New Special condition requiring redirection of stormwater run-on away from Raw Wastewater Pump Station Octagonal Pit (IWTP influent monitor point) to eliminate potential source of fecal coliforms.**
- **Part C.II.H: New condition requiring certified operator and notification of responsible IWTP operator due to unpermitted site changes and compliance history.**
- **Part C.I.I: New clean-up WQM Permit condition to address unpermitted site changes.**
- **Part C.I.J: New groundwater monitoring report requirement due to lack of previous groundwater monitoring reporting under the 1/25/1977 WQM Permit No. 5476203 Special Condition F (which required groundwater monitoring during the entire time that unexpired permit is in effect from five groundwater monitoring wells).**
- **Part C.III: New Compliance Schedule (Ammonia-N, DO)**

**Summary of Review**

- **Part C.IV: New WQBEL for Toxic Pollutants (containing TRE language) to address new WQBELs**
- **Part C.V: New WQBEL Below Quantitative Limits (due to WQBELs below DEP Target QLs).**
- **Part C.VI**: **Updated** Chemical Additives conditions
- **Part C.VII**: **Updated** Stormwater Conditions **with special condition to require implementation of stormwater requirement for sheet flow drainage areas.**
- **Part C.VIII**: **New Basin cleaning condition (IWTP Lagoon and Water Supply Reservoir receiving remediated treated groundwater being discharged to process water system).**
- **Part C.IX**: **New Groundwater Remediation and Treated Well Water Reuse as Process Water to clarify NPDES permit requirements relating to groundwater remediation under the US EPA and DEP Waste Management. The WQM Permit ID# 5476203-T1 special condition requires submittal of geology/groundwater data gathered for EPA/DEP Waste Management Program to ensure information is available to the DEP Clean Water Program Geologist if needed.**
- **Part C.X: New Solids Management Condition to address management of any solids removed from Water Supply Reservoir (receiving contaminated groundwater) and/or IWTP Lagoons.**

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 (IWTP discharge)<br>002 (stormwater)<br>003 (stormwater)<br>004 (stormwater)<br>005 (stormwater)<br>006 (stormwater)<br>008 (stormwater)<br>**009 (stormwater) - New**<br>**010 (stormwater) - New** | Design Flow (MGD) | 2.0 (001: wastewater only)<br>0 (002: stormwater only)<br>0 (003: stormwater only)<br>0 (004: stormwater only)<br>0 (005: stormwater only)<br>0 (006: stormwater only)<br>0 (008: stormwater only)<br>**0 (009; stormwater only)**<br>**0 (010; stormwater only)** |
| Latitude | 40º 33' 22.30" (001)<br>40º 33' 25.81" (002)<br>40º 33' 25.81" (003)<br>40º 33' 24.96" (004)<br>40º 33' 23.55" (005)<br>40º 33' 22.31" (006)<br>40º 33' 29.01" (008)<br>**40º 33' 23.45" (009)**<br>**40º 33' 20.87" (010)** | Longitude | -76º 23' 15.16" (001)<br>-76º 23' 21.97" (002)<br>-76º 23' 21.97" (003)<br>-76º 23' 20.78" (004)<br>-76º 23' 17.17" (005)<br>-76º 23' 15.18" (006)<br>-76º 23' 23.78" (008)<br>**-76º 23' 16.81" (009)**<br>**-76º 23' 13.53" (010)** |
| Quad Name | Pine Grove | Quad Code | 1434 (6.18.3) |
| Wastewater Description: | **001**: IW Process Effluent with ELG, filter backwash, boiler blowdown, stormwater, **groundwater remediation wastestream (Greensands Filter Backwash**)<br>**002-006, 008 – 010**: Stormwater associated with industrial activities | | |

| | | | |
|---|---|---|---|
| Receiving Waters | Swatara Creek | Stream Code | 9361 |
| NHD Com ID | 56394849 | RMI | - |
| Drainage Area | 47.8 square miles (#001) from USGS | Yield (cfs/mi$^2$) | 0.1474 |
| $Q_{7-10}$ Flow (cfs) | 7.045 (#001) | $Q_{7-10}$ Basis | DFLOW per below |
| Elevation (ft) | ~520 Feet (from E-maps) | Slope (ft/ft) | - |
| Watershed No. | 7-D | Chapter 93 Class. | CWF |
| Existing Use | **-** | Existing Use Qualifier | - |
| Exceptions to Use | - | Exceptions to Criteria | - |
| Assessment Status | **Impaired (aquatic life; recreational)** | | |
| Cause(s) of Impairment | **Metals, Pathogens** | | |
| Source(s) of Impairment | **Abandoned Mine Drainage (metals), Source Unknown (pathogens)** | | |
| TMDL Status | Final | Name | Upper Swatara Creek Watershed |

| Background/Ambient Data: | | Data Source: |
|---|---|---|
| pH (SU) | ~6.9 field | Monitoring Point ID: 145843, Name: SWAT Ravine; 5 samples results taken in 2013-2015 time-frame to show variability (~0.95 miles upstream). More data available. |
| Temperature (°C) | Varied | See above |
| Hardness (mg/L) | 64 - 100 | 106 mg/l per Application stream sampling. Hardness varied at monitoring point from 64 – 100 in five samples. **Water quality modeling will assume 64 mg/l due to variability.** |
| TSS (mg/l) | <5 – 6 | Monitoring Point ID: 145843, Name: SWAT Ravine; 5 samples taken in 2013-2015 time-frame to show variability. More data available. |
| Aluminum (ug/l): | 15.3 - 155 | See above. |
| Manganese (ug/l) | 128 - 534 | See above. 1999 TMDL Table 15 (Swatara Creek: Upper Main Stem below Swat-15) indicated 0.81 mg/l. |

| | | |
|---|---|---|
| Iron (ug/l) | 111 - 746 | See above. 1999 TMDL Table indicated 0.39 mg/l. |
| Zinc (ug/l) | 14.4 - 31.0 | See above. 1999 TMDL Table indicated 0.48 mg/l. |

| | | | |
|---|---|---|---|
| Nearest Downstream Public Water Supply Intake | | LEBANON CITY WATER AUTH ID# 101738-001 | |
| PWS Waters | Swatara Creek | Flow at Intake (cfs) | Lebanon Water Authority |
| PWS RMI | - | Distance from Outfall (mi) | ~19.67 miles |

Changes Since Last Permit Issuance:

- **IWTP modified without WQM Permit by closure of WQM-permitted aerated treatment lagoons (reduced overall IWTP capacities due to lagoon closures).**
- **Two new stormwater outfalls (Outfall Nos. 009 and 010) being added to address distinct stormwater drainage areas. See Effluent Limits Section for background information.**
- **Facility groundwater remediation process has switched to spray nozzle aeration treatment of pumped (volatiles including TCE) contaminated groundwater (from carbon filtration) for use as process water per US EPA approval. The remediated groundwater is being sprayed to the non-potable water supply reservoir which is the primary source of process water onsite.**
- **New groundwater remediation (Greensands Filter Backwash) wastestream (with VOCs from contaminated groundwater plus AMD metals) now discharging to IWTP.**
- **Stream determined to be Pathogen Impaired. Effluent Fecal Coliform concentrations identified as requiring disinfection and treatment when discharging to pathogen-impaired stream. The source of the effluent fecal coliforms has not been identified by the facility.**

Other Comments:

Facility discharges to Swatara Creek upstream of the confluence with the Upper Little Schuylkill and the 1.5 MGD Pine Grove WWTP.

**Fecal Coliform Issues: The receiving stream is impaired due to pathogens (unknown source). Sewage is not authorized for discharge via IWTP, but fecal coliforms have been consistently found in NPDES Permit Renewal Application sampling data (several permit cycles), source unidentified. Further investigation has not determined the source at this time, except from wildlife contributions as no cross-connection between sanitary facilities and wastewater facilities has been found by permittee. Facility has conducted internal dye testing and sampling, and has not found cross-connection between sewer lines and wastewater piping going to IWTP.**

- **IWTP discharge source not found.**
- **Stormwater outfall results are assumed to partly originate from wildlife.**

Facility Water Sources**:**

- Removed Surface Water Intake: Facility previously had a surface water intake structure. The application indicates surface water intake was removed ~20 years ago.
- Process & Potable Water Sources: Per application Line Drawing:
  - City Water: 7,164 GPD going to dye machines Nos. 11, 12, 13 (zero at present); Chemical Addition to Process; and domestic use in main plant. NOTE: 2011 Process/Water Balance estimated 46,000 GPD with the majority going to the dye machines.
  - Borough Water: 372,115 GPD flow directly into 0.77 acres reservoir
  - City Pool Well: Zero (0) GPD flow
  - **Remediated Groundwater Being Used as Process Water (non-potable) under RCRA remediation: Main contaminants per 4/11/2013 EPA "Penn Dye & Finishing Plant" Internet Document) were tetrachloroethylene (PCE), trichloroethene (TCE), and 1,1,1-trichlorethane (1,1,1-TCA). EPA allowed the use of an "aeration system" to remove volatiles prior to reuse as onsite process wastewater (dropping previous requirement for a carbon adsorption system). The remediated water then is stored in the existing reservoir prior to use as process water within the facility, and subsequently treated and discharged to Swatara Creek.**

- **Groundwater Process Water/Remediation Well #1 and #3 (EPA RCRA ID# PAD002377703): 81,978 GPD goes through aerated nozzle (groundwater treatment) prior to entering 0.77 acres Reservoir.**
- **Groundwater Process Water/Remediation Well #4 (EPA RCRA ID# PAD002377703): 126,060 GPD goes through aerated nozzle (groundwater treatment) prior to entering 0.77 acres Reservoir**

- Reclaimed water from Process: 22,616 GPD
- Reservoir: Assumed to lose 5,000 GPD via evaporation and 24,237 GPD "Adj. for Water Balance".

Low Flow:

- The USGS Gage #01572025 (Swatara Creek Near Pine Grove, PA), approximately 3 miles downstream (and downstream of the confluence with the Little Swatara Creek), was used in the 2011 WPC to calculate the Outfall #001 discharge (6.75 CFS/4.36 MGD) via the Low Flow Yield method (using DFLOW-estimated Q7-10 flow divided by gage drainage area (16.4 CFS/116 square miles), i.e. 0.141 CFS/square mile). The facility's permitted discharge (2.0 MGD) would be equivalent to 3.094 CFS flow received at the downstream USGS Gage. The 2.0 MGD permit basis flow is approximately 45% of the calculated Swatara Creek low flow at the Outfall #001 location.
- USGS PAStreamstats estimated 7.77 CFS (LFY of 0.1625 CFS/square mile) at Outfall #001 location interpolated to stream, but is less accurate than DFLOW when there is a receiving stream gage and when the stream is "regulated" (impacted by AMD outfalls, etc.).
- Discharge Point is ~ 1.6 miles upstream of the confluence with Upper Little Swatara Creek, and ~2.8 miles upstream of the Pine Grove WWTP discharge which has a total phenolics limit.
- BASINS DFLOW for USGS Gage #01572025 (Swatara Creek Near Pine Grove, PA) using available discharge data from 4/1989 to 4/2016: 17.1 CFS Q7-10 low flow for 116 square miles: **0.1474 CFS/square mile LFY (being used in facility water quality modeling)**

DFLOW Results

All available years of data are included in analysis.

| Gage | Period | Days in Record | Zero/Missing | 1B3 | Percentile | Excur per 3 yr | 7Q10 | Percentile | Excur per 3 yr |
|---|---|---|---|---|---|---|---|---|---|
| 7Qy Type | xQy | Percentile | Harmonic | Percentile | | | | | |
| 01572025 - Swatara Creek near Pine Grove, PA | 1989/04/01 - 2016/04/01 | | | | 9,862 | 0/242 | 17.0 | 0.16% | 1.00 |
| 17.1 | 0.32% | 1.11 | 7Q11 16.9 | 0.16% | 88.8 | 32.43% | | | |

**TMDL & Iron Loadings**: The 3/1/1999 Upper Swatara Creek TMDL was for AMD metals (aluminum, manganese, iron) with pH and Total Suspended Solids (TSS) being consideration (without water quality criteria) for the entire Upper Swatara Creek Watershed. **Application and EDMR data indicate high iron and manganese effluent concentrations requiring permit limits based upon water quality criterion**.

- **No waste load allocations (WLAs) were assigned to this facility. The TMDL focused on AMD discharges, and previously the facility was thought to be a non-significant discharger of AMD metals. The NPDES Permit Renewal Application metals concentration and 2016 Incident (stream color change) indicates the facility must be considered a significant contributor to metals loadings on the TMDEL stream.**
- The facility uses ferric chloride (no longer alum per 1977 IRR) to chemically treat wastewater. Ferric chloride is used as a coagulant and phosphorus removal in wastewater facilities (which is another site consideration per above) with the IRR noting an original WQM limit for total soluble phosphate and Ammonia-Nitrogen. The IWTP has a coagulation and precipitation stage (a.k.a. "flash mix tank" where ferric chloride/caustic is added per 9/19/2013 NPDES Compliance Report) prior to clarifier and discharge to Swatara Creek. **Well water quality varies in terms of AMD metal content per 2017 submittals.**
- NPDES Renewal Application data indicated high Iron effluent discharge concentrations. The facility blamed the problem on IWTP problems (IWTP using ferric chloride as a wastewater treatment chemical).
- **3/1/1999 Upper Swatara Watershed TMDL (AMD) WQS**:

| TMDL Parameter | Water Quality Criterion* (mg/l) | Duration | Recoverable/Dissolved |
|---|---|---|---|
| Aluminum (Al) | 0.75 | 1 hour | Total Recoverable |
| Total Iron (Fe) | 1.50 | 1 day average | Total Recoverable |
| Dissolved Iron (Fe) | 0.3 | maximum | Dissolved |
| Manganese (Mn) | 1.00 | maximum | Total Recoverable |
| Total Suspended Solids (TSS) | NA | NA | NA |

* TSS (no existing WQ criteria) stream issues were to be addressed by determining improvement after mining remediation (coal silt considered major source of TSS in the stream).

**Chesapeake Bay Requirements: This facility is a IW Significant CB Discharge with existing annual mass limits. They have been purchasing nutrient credits. See compliance section.**

The April 5, 2015 Phase 2 Watershed Implementation Plan:

- Table 7-5 (Significant IW Facilities That Have Received Final Cap Loads) indicates that the NPDES permit included:
  - TN Cap Load: 7,065 lbs/year
  - TP Cap Load: 271 lbs/year
  - TN Delivery Ratio: 0.961
  - TP Delivery Ratio: 0.436
- Application Data: Current Application and 2011 NPDES Permit Renewal Application for comparison:

| Constituent | Daily Max (mg/l) | Average (mg/l) |
|---|---|---|
| Ammonia-N | 15.7<br>3.3 (2011) | <4.7 of 107 samples<br>0.3 of 98 samples (2011) |
| TKN | 27<br>11 (2011) | 12.4 of 107 samples<br>5 of 98 samples 2011 |
| Nitrate-Nitrite as N | 1.81<br>6.22 (2011) | <1.09 of 107 samples<br>1.54 of 98 samples (2011) |
| Total Nitrogen (TKN + Nitrate-Nitrite as N) calculated | - | ~13.49 (see above) |
| Total Phosphorus | 1.99<br>1.97 (2011) | 0.80 of 107 samples<br>0.71 of 3 samples (2011) |

Stormwater Drainage Areas: See Stormwater Effluent Limits section for more information.

**Stream Impairment Considerations: Stream impairment from one known cause (AMD metals) can obscure the presence of contributing causes of impairment (and cumulative/synergistic impacts).**

- **Fecal Coliforms: See above. New limits will address issue.**
- **TMDL Metals: See above. New limits will address issue.**
- **Toxic WQBELs: The Reasonable Potential Analysis determined assorted constituents were above the PENTOXSD-calculated WQBELs and/or there was reasonable potential for the constituents to exceed the water quality standards. New permit limits and WQBEL permit conditions have been incorporated into this NPDES Permit.**
- **Dissolved Oxygen (DO): Due to ELG-authorized BOD5/COD loadings and elimination of IWTP lagoons where aeration previously occurred (without WQM permitting), there is now potential for excessive loadings to negatively impact aquatic life at discharge point. The NDPES permit will now incorporates a minimum DO limit to address this potential.**

- **<u>Ammonia-N</u>: Chesapeake Bay monitoring data and Water quality modeling indicates some potential for (variable) Ammonia-N concentrations to affect the receiving stream. A new limit has been incorporated into the NPDES permit.**

**Discharge, Receiving Waters and Water Supply Information**

| | | | |
|---|---|---|---|
| Outfall No. | 007 | Design Flow (MGD) | 0 (stormwater only) |
| Latitude | 40º 33' 15.22" | Longitude | -76º 23' 13.34" |
| Quad Name | Pine Grove | Quad Code | 1434 (6.18.3) |
| Wastewater Description: | Stormwater associated with industrial activities | | |
| Receiving Waters | Unnamed Tributary of Swatara Creek (a.k.a. Wideawake Creek) | Stream Code | 10069 |
| NHD Com ID | 56394865 | RMI | - |
| Drainage Area | ~0.60 square miles | Yield (cfs/mi$^2$) | 0.1 |
| $Q_{7-10}$ Flow (cfs) | **0.06** | $Q_{7-10}$ Basis | Statewide default in absence of any AMD outfalls increasing base flow. |
| Elevation (ft) | ~520 | Slope (ft/ft) | - |
| Watershed No. | 7-D | Chapter 93 Class. | CWF |
| Existing Use | **-** | Existing Use Qualifier | - |
| Exceptions to Use | - | Exceptions to Criteria | - |
| Assessment Status | Attaining Use(s) | | |
| Cause(s) of Impairment | **-** | | |
| Source(s) of Impairment | **-** | | |
| TMDL Status | Final | Name | Upper Swatara Creek Watershed |

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

| | | | |
|---|---|---|---|
| Nearest Downstream Public Water Supply Intake | See Outfall 001 information. | | |
| PWS Waters | - | Flow at Intake (cfs) | - |
| PWS RMI | - | Distance from Outfall (mi) | - |

Changes Since Last Permit Issuance: None known.

Other Comments: See stormwater effluent limits section for additional information.

**Treatment Facility Summary**

**Treatment Facility Name:** Guilford Mills LLC FKA Penn Dye & Finishing Plant

| WQM Permit No. | Issuance Date | Scope |
|---|---|---|
| 5476203 | 1/25/1977 | Permit for onsite IWTP |
| 5476203-T1 | **TBD** | Transfer of original IWTP permit to current operator will be concurrent with the Final NPDES permit action |

| Waste Type | Degree of Treatment | Process Type | Disinfection | Avg Annual Flow (MGD) |
|---|---|---|---|---|
| Industrial | Primary clarification; biological treatment; chemical metal precipitation & phosphorus reduction; pH adjustment | Aerated activated sludge lagoon; Ferric Chloride metal precipitation, clarification, sodium hydroxide pH adjustment. | No Disinfection at present | 2.0 (original WWTP design and NPDES Permit basis flow) |

| Hydraulic Capacity (MGD) | Organic Capacity (lbs/day) | Load Status | Biosolids Treatment | Biosolids Use/Disposal |
|---|---|---|---|---|
| **2.0 (original design) but reduced due to elimination of wastewater lagoons*.** | **Unknown – original WQM permit missing information on original design assumptions; old plant has been substantially modified in a manner reducing organic capacity*.** | Indeterminate | Centrifuge & sludge filter press | Offsite beneficial use or disposal |

***See HRG Design Engineer Report and related comments below**.

Changes Since Last Permit Issuance:

- **Two (2) ~1.0 million gallon-capacity aeration basins (Aeration Basin Nos. 2 and 3 formerly between remaining Aeration Basin No. 1 and 90 foot-diameter clarifier) were removed and closed under DEP Waste Management closure plans. No Part II WQM Permit Applications for lagoon removal were received.**
- **Ferric Chloride system added around 2006 per 11/3/2016 meeting. No WQM permit found for it or any other post-1970s site changes.**
- **8/14/2017 Greensand Filter Submittal (Design Engineer's Report Greensands Filter Water Treatment Improvements for Guilford Mills, LLC, NPDES Permit No. PA0008231) included Site Plan showing the IWTP with "Former Polymer and Caustic Tanks Overflow Basin (Not In Use)".**
- **New Greensands Filter Backwash (process water supply/groundwater remediation) waste stream now directed directly to IWTP per NPDES Permit Renewal Updated document. Estimated 20,000 GPD waste stream sent to IWTP. Actual 2019 reported flows have been ~12,000 GPD (on alternate days).**

Other Comments:

**IWTP Facility Description**:

- The 1/25/1977 WQM Permit ID# 5476203 IRR (IWTP) indicated that the WWTP would consist of three existing unlined lagoons which will be modified for in-series flow and to accommodate surface aerators. After aeration, the wastewater was to be chemically treated (alum and caustic) and clarified prior to discharge.
- The 2009 NPDES Permit Renewal Module 2 described the WWTP as including: Aerated Basins/Lagoons #1, #2, #3; Chemical precipitation and coagulation (Rapid Mix tank); Flocculation (Center Well of Clarifier); Sedimentation

by gravity thickening (sludge holding tank); Neutralization via chemical conditioning via polymer addition (Neutralization tank); Centrifugation via centrifuge; and pressure filtration via filter press.

- **As-built/Operated IWTP Design**: The following description of the original (2.0 MGD average and 2.5 MGD maximum) Industrial Wastewater Treatment Plant (IWTP) is based upon 1976 engineering drawings, 1/24/1977 IRR, 2/12/2019 WWTP Schematic, and the November 4-5, 1981 EPA Performance Audit Inspection Report (PA0008231) Flow Chart:
  - Influent Sampling Point prior to Octagonal Pit (Raw Waste Pump Station).
  - Raw Waste Pump Station (a.k.a. Octagonal Pump Station): Pumps wastewater from plant across Swatara Creek to the IWTP Equalization Lagoon. Original Ammonia feed for nutrient supply is not shown on present drawings.NOTE: Greensands Filter Backwash is presumed to go to the EQ Lagoon also, but WWTP Schematic is ambiguous as other Application information indicates backwash goes to IWTP directly, not through Octagonal Pump Station (and its associated influent sampling point). The Greensands Filter is part of the non-potable groundwater supply system but is located prior to the RCRA-authorized groundwater VOC removal system (air spraying into water supply reservoir to remove VOCs). Potential waste stream contaminants include intended metal removal constituents (iron and manganese), other incidental metal removal, TRC (filter system hypochlorite stage), and VOCs known to be in the raw groundwater.
  - Unlined Lagoon No. 1 (3,000,000-gallon Equalization and Aeration Lagoon): Most recent WWTP Schematic indicates the Lagoon is split into two 1.5 MG lagoons, with discharge now going directly to Mixed Liquor Sump pumps. NOTE: The November 4-5, 1981 EPA Performance Audit Inspection Report (PA0008231) Flow Chart indicated the 1,500,000-gallon Aeration Lagoon had 90 HP aeration capacity.
  - Unlined Aerated Lagoons Nos. 2 and 3 (now closed without WQM Permitting) previously discharged to Mixed Liquor Sumps. NOTE: The November 4-5, 1981 EPA Performance Audit Inspection Report (PA0008231) Flow Chart indicated one aerated lagoon had a 1,462,000 gallon capacity (30 HP aeration) and the other had a 1,053,000 gallon capacity (50 HP aeration).
  - Mixed Liquor Sump Pumps pumping to Rapid Mix Tank
  - Rapid Mix Tank ("coagulation and precipitation Ferric Chloride and Sodium Hydroxide Insertion Point" per 2019 WWTP schematic). Alum added originally added here, with separate neutralization tank.
  - 90-feet diameter Clarifier Tank discharging wastewater to Sampling Point (Parshall Flume) and Outfall No. 001, with sludge going to Thickener Tank.
  - Previous Neutralization Tank not shown on 2019 WWTP schematic.
  - Sludge is directed to Thickener tank, treated by polymer, then two centrifuges (run alternately), then filter press, with filtrate recycled to Thickener tank. RAS is sent to Aeration Lagoon No. 1.

**Guilford Mills Engineering Report: The DEP M&C requested an engineering evaluation of the IWTP for compliance reasons. The March 31, 2017 "Lear Corporation & Guilford Mills: Guilford Mills Wastewater Treatment Plant Engineering Evaluation, Pine Grove, Schuylkill County, Pennsylvania", prepared by HRG Inc.: HRG (Herbert, Rowland & Grubic) Inc. was submitted in response to the DEP M&C Request. The WWTP evaluation "to assess its operating capacity and its ability to handle present and future loads". Useful information has been summarized below.**

- **General Comments: This DEP M&C-required Report was looked at, but review ceased when it became clear that the Report was incomplete and contained substantial limitations rendering it useless in predicting future IWTP compliance:**
  - **No Applicant Commitments Provided: No commitment or tentative schedule for implementing the Report recommendations was provided, only a general Cover Letter comment that Lear Corporation is "committed to making continuous improvements to process and equipment to reduce the environmental impact from its operations".**
  - No PA PE Certification: The submitted Engineering Report was not signed and sealed by a PA Professional Engineer.
  - WQM Modules: While some DEP WQM Modules were partly completed (without PA Professional Engineer seal and signature) for informational purposes, additional WQM Modules/Forms/Certifications/Application Fee would be required for a Part II WQM Permit Application. PA Professional Engineer-signed and sealed Engineering design drawings are needed to show as-built/as-operated wastewater facilities and proposed site changes. Copies of the Report-referenced "existing record drawings" are also needed.
  - **Inaccurate Engineer Report Conclusion: The Engineering Report statement (that the facility could meet permit limits at 1.0 MGD flow (not the 2.0 MGD NPDES Permit Basis Flow)) was based upon assumption of previous NPDES Permit limits**:

- **Potential for Noncompliance with New Limits: Guilford Mills LLC was informed in the 2016 Compliance Meeting that new/revised limits were forthcoming due to production-based ELGs (more stringent BOD5, COD limits), new Water Quality-Based Effluent Limits (including Fecal Coliform limits, TMDL metals limits, etc.). Some pre-draft permit limits were shared after the 2016 Compliance Meeting. Therefore, the Evaluation did not address the requirements of the new NPDES Permit and did not clearly address other limiting factors. Elimination of permitted lagoons substantially reduced previous aeration of the discharge (i.e. combined BOD5/COD loading would have greater potential for negatively impacting the receiving stream's aquatic life).**
- **Limiting Hydraulic Component**: The Report indicated the Rapid Mix Tank/chemical additive systems would require upgrading to allow for >0.463 MGD facility flows (with recommendation of additional chemical additive for antimony treatment prior to Rapid Mix Tank, additional chemical additive provisions at the Rapid Mix Tank). The report calculated a 23.3-minute Hydraulic Retention Time at 0.463 MGD and 5.4 minutes at 2.0 MGD flow, referencing the DEP DWFM Manual Section 54.21 (Preaeration and Flocculation Coagulation detention time) for 20 minute/30 minute retention time (neglecting the consideration the IW has additional issues than domestic wastewater/sewage).
    - The Report failed to note that the 20-minute minimum residence time was the DWFM minimum recommended residence time for Peak Hourly Flow (higher flow than assumed), with a 30-minute recommendation overall. The Report also did not address the new TMDL AMD iron-based permit limits that might require plant upgrades to achieve compliance.
    - The Report failed to address the Report-identified 0.530 Maximum Monthly Average Flow (technical basis not provided), but only addressed the 2.0 MGD flow as the MMFA Flow (contrary to other Report assumptions, the Maximum Flow of 2.5 MGD was the original max flow assumption per DEP files), and peak hourly flow. **NOTE:** DEP files indicate an original designed 3 minute retention time for the Rapid Mix Tank (with subsequent clarification where chemical reactions could proceed), but with overall WWTP design including an additional caustic neutralization unit (after the Clarifier), with additional prior aeration capacity/lagoon residence time that would have reduced BOD/COD loadings prior to the clarifier, and apparently supplemental nutrient addition at Octagonal Pump Station to enhance biological treatment upfront.
    - The Report indicated that the Intermediate Pump Station (two existing 1,750 GPM pumps) pumping flow to the Rapid Mix Tank) will essentially mean that the Rapid Mix Tank is receiving intermittent short-term flows exceeding the 0.463 MGD (321 GPM) flow that does not meet current DWFM guidance (and helping to explain why high reported iron effluent concentrations & stream color change when the site clarifier was non-functional):
        - Report-assumed Influent flow of 694 GPM (0.999360 MGD)
        - Report-assumed Effluent flow (to Rapid Mix Tank) of 1,389 GPM (2 MGD)
        - Report Identified Pump capacity (one pump operating): 1750 GPM (2.52 MGD), about 2.5 MGD original WQM assumed max flow, ~5 MGD with both pumps.
        - No Module 22 provided and no minimum pumping capacity was identified. Overall "Minimum Monthly Average Flow" was identified at 0.410 MGD for the WWTP.
- Flow Assumptions: The Report-assumed 0.463 MGD current ADF flow (not substantiated by the Report) does not address the Report-identified 0.53 MGD Maximum Monthly Average Flow or the unidentified max daily flows, peak hourly flows, or peak instantaneous flows experienced at the Rapid Mix Tank:
    - Application NDPES form indicated 0.431 MGD average flow and 1.499 MGD Max Flow (not sure how calculated).
    - Application Line Drawing showed a 0.484758 MGD influent flow to WWTP and 0.478058 MGD effluent flow (lagoon precipitation/evaporation assumed minor net loss).
    - 2.0 MGD NPDES Permit Basis flow.
    - Original WQM Permit assumed 2.0 MGD average flow and 2.5 MGD maximum flow.
    - DMR data shows daily max flows >0.8 MGD

o **Missing Process Engineering**: The Report did not include basic process engineering for the substantially modified (elimination of two large treatment lagoons impacting overall IWTP capacity and treatment process, plus other apparent changes from original 1970s permitting). The Report was largely

limited to saying that the facility was in practice meeting existing NPDES permit limits at current flows (indicating problems would occur at higher flows). **NOTE**: DEP files appear to indicate the original WQM design was for a single 3 million gallon-capacity lagoon with 90 HP aeration capacity (no subdivided unaerated EQ basin section identified as such), plus the two (2) removed in-series aerated lagoons (where both BOD and COD loadings would have been treated).

- **Fecal Coliform Issues**: The Report did not address ongoing fecal coliform issues/requirements (in a non-sewage IWTP).
- **Lagoon Uncertainties**: The Report did not adequately evaluate the remaining onsite (unlined pre-1980) lagoons. The actual available operational volume capacity (i.e. when was the last time the basins were cleaned out in terms of lost operational capacity; freeboard requirements) was not identified. The integrity of the remaining lagoons (below the water surface) was not verified by either investigation or groundwater monitoring data analysis. NOTE: The facility has been monitoring groundwater conditions in the area under the DEP Waste Management Program/EPA RCRA groundwater remediation and RSW lagoon closure plans.
- **Chemical Treatment Issues**: The Report did not address previous apparent over-usage of chemical treatment chemicals (Ferric Chloride) with one incident where the receiving stream had a visible color change.
- **New Greensands Filter Backwash**: The Report did not address potential impacts of proposed new 20,000 GPD Greensands Filter/Sodium Hypochlorite backwash flow (concentrated metals, chlorine residue, and VOCs from well-water prior to ongoing RCRA groundwater remediation) on the Treatment Process.
- **Missing Information**: There was no apparent evaluation of lagoon BNR capacities. The 12/2/2016 Guilford Mills Compliance Response Attachment A (Lagoon Closure Correspondence) included the February 2009 (Revised April 2011) "Narrative for Lagoon Closure" (prepared by a separate consultant, ERG Inc.) was not included in the Report. narrative unidentified modifications to Basin 1 in order to "improve nitrogen and phosphorus removal and eliminate the need for Lagoons 2 and 3". Listed changes included an 18-inch 420 LF gravity fed pipe between sump pump and clarifier.

- **Limited Scope of Engineering Evaluation Review**: The Report was explicitly based upon review of "existing record drawings", WWTP operational data provided by Guilford Mills, site visits, communications with Guilford Mills staff, and "other documents" provided by Guilford Mills (not identified). No mention of file review of DEP/EPA files on the site and project.
- **The Report's limited objectives were summarized to include**:
  - Visual assessment of WWTP major process and mechanical components, equipment and structural features in regard to their suitability for continued operation. NOTE: Report did not evaluate lagoon below the visible water surface.
  - Performance of hydraulic/organic design capacities for IWTP units/components
  - Preparation of WQM Application Modules for each major process component to summarize operational capacity.
  - Identification of WWTP improvements that might be required to meet NPDES permit limits and any increases in the expected flows and loadings including:
    - Preliminary investigation of biological treatment alternatives. NOTE: the BNR Evaluation (two options) was based on 1.0 MGD flow only. BNR Alternative 1 was a denitrification system. BNR Alternative 2 was to retrofit a SBR.
    - Identification of WWTP improvements that may be desired to increase operational performance, optimize chemical usage and solids dewatering, and improve the overall WWTP effluent quality.
    - Summarizing of WWTP Capacity (with anticipated submittal to support the NPDES Permit Renewal Application).
- **Report Section 2.0 (Conclusions and Recommendations)**:
  - Currently configured IWTP "possesses adequate hydraulic and organic treatment capacity to meet NPDES permit limits at the current Average Daily Flow (ADF) and Maximum Monthly Average Flow (MMAF) conditions" and at near 1.0 MGD flows based upon DMR records. **NOTE**: See above comments.
- **Report Referenced Section 5.0 flows and loadings were:**
  - **ADF: 0.463 MGD**
  - **MMAF: 0.530 MGD**
  - Minimum Monthly Average Flow: 0.410 MGD
  - Organic Loading (BOD5) Influent (1-day sampling): 318 lbs BOD5/day
  - Chemical Oxygen Demand (COD) Influent (1-day sampling): 1,500 mg/l
  - TSS Influent (1-day sampling): 154 mg/l
  - Ammonia-N Influent (1-day sampling): 5.1 mg/l

- Total Phosphorus Influent (1-day sampling): 4.4 mg/l
- Total Antimony Influent (1-day sampling): 0.18 mg/l

- **Other Report Conclusions**:
  - Guilford WWTP is currently capable of meeting its existing NPDES Permit Limits (i.e. new draft permit limits not addressed)
  - **The WWTP "does not possess adequate aeration capacity to accommodate a flow of 2.0 MGD based on standard design practice". Mixing equipment installation should be considered for the Equalization Lagoon.** NOTE: 2.0 MGD is the NPDES permit basis flow.
  - **Currently, Guilford Mills does not have the ability to meet TN and TP CB limits (purchasing nutrient credits).**
  - **"…chemical induction units should be considered to improve application and mixing of ferric chloride and sodium hydroxide at the rapid mix tank".** NOTE: The stream discoloration incident and NPDES permit application data indicated high iron concentrations being discharged to a AMD TMDL stream without a TMDL Waste Load Allocation.
  - **HRG recommended that Guilford Mill staff continue with plans to refine chemical application rates for improved settling and color, plus phosphorus/antimony removal. HRG noted that Guilford Mills had indicated plans to utilize their Hach 3900 Spectrophotometer to complete in-house testing and process control optimization to further refine chemical application rates.** Guilford Mill staff was reportedly reviewing additional test procedures which might be performed to optimize chemical application rates.
- **Report Sections 5 & 6 recommendations/comment included**:
  - Visual Structural Check: Aeration lagoons, concrete tanks, and buildings were visually assessed (lagoons could not be inspected below water line) and appeared in fair condition with no visible "significant" structural deficiencies. (Section 5.1). Guilford Mills was indicated to have inspected the concrete tank when they replaced clarifier equipment.
  - Receiving Stream Condition: No observed color change in stream during HRG site visit.
  - Octagonal Pit Pump Station (pumping wastewater across stream to IWTP): Three (3) submersible Flygt pumps in the octagonal wet well.
    - **Not enough information available to complete current DEP WQM Module**.
    - Appeared to have working volume to handle 2.0 MGD design flow.
    - No existing influent flow meter (**one Magnetic 10-inch capacity flow meter recommended for better WWTP operation**)
  - Equalization Basin (1,102,729-gallon normal operating capacity):
    - No influent/effluent BOD5 data to calculate removal efficiency during HRG site visit, estimated in report.
    - No existing aeration.
    - **One (1) automated influent sampler recommended to assess BOD removal parameter efficiency and other parameters**
    - **Four (4) floating 10 HP mixers recommended**.
    - Report Module 5 did not address the Equalization Basin/lagoon's aeration.
    - Influent flow was estimated based on effluent flow and 1.14 MGD multiplier (no influent flow meter).
    - Effluent pump station via three suction lift pumps (one 15 HP, 100 – 1000 GPM capacity pump and two 25 HP 260-1400 GPM pumps with VFDs.
  - Aerated lagoon No. 1 (1,286,552-gallon capacity):
    - Overall capacity limited to 1.0 MGD based on literature standards for an aerated lagoon.
    - **Two (2) 25 HP Aqua-Lator aerators** and four (4) floating mixers located in middle of lagoon (hard to maintain) **and noted to likely need replacement in future**.
    - Increased aeration capacity is recommended if influent flows increase beyond current ADF conditions (above 0.5 MGD to 1.0 MGD limit):
    - Two (2) Anti-Erosion Assemblies
  - Intermediate Pump Station (receiving flow from Aerated Lagoon):
    - Two (2) submersible pumps (1750 GPM using 14 HP motors)
    - **New chemical induction unit (sodium hydroxide) recommended to address conflict with ferric chloride reactions at Rapid Mix Tank**.
  - Rapid Mix Tank (a.k.a. coagulation basin):
    - 5 HP Chemineer Model 3HTD-5 mixer
    - **As flow increases beyond current ADF conditions, the Rapid Mix Tank will not be able to provide the minimum recommended HRT (residence time).**

- **Recommendations for improvements to the chemical feed and mixing equipment**:
  - **One (1) Chemical Induction Unit (5 HP, submersible) which is a motor-driven open titanium propeller that rotates at high speed, creating vacuum in the chamber directly behind the propeller to compensate for lack of HRT at higher flows and helps limit negative impact of corrosive chemical additives on piping.**
- Flocculation Clarifier (658,357-gallon capacity): Clarifier scraper mechanism recently replaced per Guilford Mills staff.
- Effluent Gravity Discharge Pipe: Constructed out of concrete, not corrugated metal pipe.
- Dewatering Centrifuge and Plate & Frame Evaluation: Operated 5 days per week, 24-hours per day. Estimated 870 lbs/hr (dry) WAS at ADF, and projected 3,750 lbs/hour (dry) at 2.0 MGD. Sludge is beneficially used in land application at Summit Anthracite per Report.
  - Two (2) Centrifuges
  - One (1) Plate & Frame press (PFP)
  - **Recommendations: For operational efficiency and O&M costs:**
    - **Future replacement equipment should aim at 18% dewatered cake solids rather than existing 8 – 10%.**
    - **Due to age, condition, and current performance, the existing dewater equipment was recommended to be replaced by two (2) centrifuges.**
- Chemical Addition Systems (Ferric Chloride and Sodium Hydroxide):
  - Ferric Chloride for enhanced settling and for removal of color, TP, and Antimony:
  - 5.2 mg/l needed per 1 mg/l TP.
  - Alkalinity Supplement (due to loss of alkalinity in Ferric Chloride chemical reactions):
  - **Sodium Hydroxide Feedline (Antimony removal and pH control and alkalinity supplement): Recommended to be relocated to the Intermediate Pump Station Tank to isolate two conflicting chemical reactions and increase removal efficiency of both processes. Chemical jar test, followed by pilot project recommended upfront to determine if additional alkalinity supplementation is needed downstream of Rapid Mix tank for pH control**.
- **Future BNR Options at 1.0 MGD flows: The Report assumed nutrient trading would be done, but evaluated two BNR options (project and O&M cost data available on request from HRG Inc., but not in report to allow for Department technical feedback):**
  - Denitrification Filter System
  - SBR System in retrofitted EQ Basin and Aerated Lagoon No. 1.

**WQM Permit Transfer Conditions**: The 1977 WQM Permit, being transferred, had special conditions of which several are no longer applicable or revised:

- Special Conditions A and B: Effluent limitations are now superseded by the NPDES Permit (which will incorporate new standard IW condition to that effect). No new WQM permit language needed.
- Special Condition C: Post-construction documentation requirement is obsolete. No new WQM Permit language needed.
- Special Condition D: Still applicable requirement for most effective chemical dosages and proper operational cycles.
- Special Condition E: Still applicable requirement for minimum 24-inches of freeboard and water-tight construction of aeration basins/lagoons/impoundments.
- Special Condition F: **This condition requires replacement by new Draft WQM Permit Special Condition A (deferring groundwater monitoring requirements to the DEP Waste Management Program) to void any unwanted reporting requirement. Special Condition F had required Quarterly and annual groundwater sampling data (from approved monitoring points #1 through #5) for the entire time that this permit is in effect**.
  - **Available Department Clean Water files do not include such groundwater monitoring submittals.**
  - **The applicant's consultant was uncertain which wells constituted the originally approved monitoring points (with various groundwater clean-up monitoring points due to previous EPA/Waste Management requirements). Since 1999, the DEP Waste Management Program has been overseeing groundwater monitoring under the RSW Permit-by-Rule Chapter 287.102 for existing site RSW lagoons/basins/impoundments (#1, #2, and #3) and per approved closure/post-closure plans for Lagoons #2 and 3.**

  **NOTE**: The (superseded) 2/14/2014 Draft NPDES Permit Transfer Application included a draft WQM Permit Transfer with a modified Condition F. The 3/12/2014 Guilford Mills (ERG, Inc.) Public Comment Letter Item 5 indicated Guilford Mills has operated the lagoons with the applicable regulations, and requested the condition be

modified to "provide for coordination between the Solid Waste and Clean Water programs with permit issuance to avoid redundant monitoring and reporting requirements.

**DEP Waste Management & RSW Lagoons History**:

- 8/30/1999 DEP Waste Management Letter regarding Chapter 287.102 (Permit-by-rule) for three (3) captive residual waste storage impoundments/lagoons. Specific Monitor wells were to be monitored with reporting requirements.
- 7/12/2011 DEP Waste Management Letter approving closure plans for Lagoons #2 and #3. The letter noted that closure could begin they "no longer need these lagoons to satisfy your NPDES requirements"
- 12/3/2012 DEP Waste Management Letter approving the closure certifications for Lagoons #2 and #3.
- NPDES/WQM Permit Transfer Review: The DEP Waste Management Program Geologist (Bharat Bham) was previously contacted and made aware of the 1977 WQM Permit language and transfer application documentation about existing monitored groundwater monitoring points. He indicated that the WWTP area is being monitored for DEP Waste Management Form 14R (RSW Disposal Impoundments Quarterly and Annual Water Quality Analysis) list of analytical parameters (priority pollutants, metals, and general chemistry). NOTE: Comparison with the current Module 19 (Supplemental Geology and Groundwater Information) form shows that the Form 14R addresses the major organic contaminants identified by the EPA, but not all current Module 19 parameters (temperature, MBAS, $BOD_5$ (but COD is monitored), aluminum, nickel, TKN, Phosphorus omitted & some differing solids parameters would require monitoring). Only $BOD_5$ was a missing ELG indicator chemical for this industry.

**Application-identified Chemical Additives: The Department approved new Chemical Additives per 11/3/2016 DEP Letter which noted the following.**

- **The proposed chemical additives are allowable at the maximum rates.**
- **Please note that Formula 2340 (GMF2340H) is approved on the basis of the Application information regarding product decay rate (60%) and application assurances that no organic compounds (other than the Pollutant Group Tables 3 through 6) were found as stated within the NPDES Application Form "Pollutant Identification and Analysis" Item 2.a (GC/MS "Five Peaks" Pollutants).**

| Chemical Additive or Product usage | Usage | Max Daily Usage (lbs/day unless indicated otherwise) | Comment |
|---|---|---|---|
| **Wastewater treatment chemical per application** | **-** | **-** | **-** |
| Caustic soda liquid (Oxychem), a.k.a. sodium hydroxide | Water conditioning | 90 gal/day | Injected into chemical coagulation and precipitation stage prior to clarifier. |
| Ferric Choride (Kemira PIX-311) | Water conditioning | 190 gal/day | 35 -45% Iron trichloride per MS-DS<br>Injected into chemical coagulation and precipitation stage prior to clarifier. |
| Celaform Perlite | filter aid/coagulant | 12.2 | Sodium potassium aluminum silicate |
| Perlite | filter aid/coagulant | Included above | See above |
| CSC-2343 | flocculant | 3.5 | **Not found on Chemical Additive List.** |
| CSC-1858 | defoamer | 5.2 | WQS: 0.70 mg/l |
| **CSC-2742** | **Flocculant** | **4.5 gal/day** | **Acrylamide-containing and not previously identified in application.**<br>**WQS: 0.00007 mg/l** |
| **Chemical Additive per application** | **-** | **-** | **-** |
| **Formula 2211F (sodium hydroxide)** | **Sulfite treatment for oxygen removal** | **8 (previously 15 requested)** | **Approved 2016, but indicating used in previous 2 years. Boiler chemical additive.**<br>**Application-calculated WQBEL: 0.373 mg/l**<br>**WQS: 0.3070 mg/l**<br>**Injected at Dyeing & Finishing Process (including boiler) via chemical feed pump.** |

| | | | |
|---|---|---|---|
| **Formula 2188F** | **pH and alkalinity adjustment for boiler feed water** | **15 (previously 10 requested)** | **Approved 2016, but indicating used in previous 2 years. Boiler chemical additive (condensate/Make up tank) Application-calculated WQBEL: 1.423 mg/l WQS: 1.17 mg/l (chronic) Injected at Dyeing & Finishing Process (including boiler) via chemical feed pump.** |
| **Formula 2340 (GMF2340H)** | **Neutralizing amine for steam condensate** | **8 (previously 24 requested)** | **Approved 2016, but indicating used in previous 2 years. Application-calculated WQBEL: 0.206 mg/l WQS: 0.17 mg/l Injected at Dyeing & Finishing Process (including boiler) via chemical feed pump to steam line. Chemical Additive Supporting Calculations provided with notification.** |
| **Polyplex 271** | **Molybdate scale inhibitor for boilers** | **18** | **Approved 2016, but indicating used in previous 2 years. Boiler treatment chemical Application-calculated WQBEL: 8.745 mg/l WQS: 7.19 mg/l Injected at Dyeing & Finishing Process (including boiler) via chemical feed pump to feed water lines to each boiler.** |
| **Formula 3534 (Sodium bisulfite)** | **Dechlorination of reservoir** | **12 (previously 3 requested)** | **Approved 2016, but indicating used in previous 2 years. Application-calculated WQBEL:1.824 mg/l WQS: 1.50 mg/l (chronic) Injected at reservoir (receiving flows from groundwater remediation wells, City water and City Pool water) via chemical feed pumps to Multimedia Filters Nos. 1 through 4.** |
| **Formula 3730** | **Sequestrant dispersant dyehouse process water additive** | **Not listed (previously 50 requested)** | **Chemical Additive request withdrawn on the basis that it is used for water treatment (for the production of goods) and not defined as a chemical additive per the DEP Chemical Additive Policy. Not listed in revised application and not shown on Figure 3 (Process & Water Balance Schematic).** |
| **Formula 3020-F** | **Defoamer** | **10 (new)** | **Approved 2016. Application-calculated WQBEL: 0.779 mg/l WQS: 0.6410 mg/l New to revised application. No listed notification submission date. Injected at WWTP effluent going to Outfall #001. Diluted 5:1 with water and fed to WWTP 100 feet before it reaches Swatara Creek** |

## Compliance History

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

| Parameter | AUG-19 | JUL-19 | JUN-19 | MAY-19 | APR-19 | MAR-19 | FEB-19 |
|---|---|---|---|---|---|---|---|
| **Flow (MGD) Average Monthly** | **0.397** | **0.454** | **0.450** | **0.450** | **0.378** | **0.408** | **0.448** |
| **Flow (MGD) Daily Maximum** | **0.531** | **0.587** | **0.567** | **0.709** | **0.532** | **0.634** | **0.733** |
| pH (S.U.) Minimum | 6.20 | 6.35 | 6.15 | 6.1 | 6.10 | 6.10 | 6.25 |
| pH (S.U.) Maximum | 6.95 | 7.05 | 6.85 | 7.5 | 6.70 | 6.75 | 6.85 |
| **BOD5 (lbs/day) Average Monthly** | **109** | **119** | **66** | **66** | **30** | **42** | **46** |
| **BOD5 (lbs/day) Daily Maximum** | **197** | **569** | **115** | **123** | **49** | **51** | **61** |
| **COD (lbs/day) Average Monthly** | **554** | **492** | **447** | **432** | **403** | **383** | **605** |
| **COD (lbs/day) Daily Maximum** | **791** | **858** | **530** | **622** | **537** | **486** | **1753** |
| TSS (lbs/day) Average Monthly | 62 | 32 | 17 | 25 | 49 | 27 | 38 |
| TSS (lbs/day) Daily Maximum | 136 | 76 | 29 | 63 | 207 | 49 | 62 |
| Oil and Grease (lbs/day) Average Monthly | 28 | 27 | 22 | 19 | 18 | 20 | 18 |
| Oil and Grease (lbs/day) Daily Maximum | 38 | 60 | 28 | 28 | 25 | 40 | 22 |
| Oil and Grease (mg/L) Average Monthly | 8.0 | 7.2 | 5.8 | 6.0 | 5.4 | 6.0 | 5.1 |
| Oil and Grease (mg/L) Daily Maximum | 10.0 | 15.0 | 7.0 | 8.0 | 7.0 | 12.0 | 6.0 |
| Nitrate-Nitrite (mg/L) Average Monthly | 1.1 | 1.1 | < 2.2 | < 2.2 | < 2.20 | < 2.20 | < 2.20 |
| Nitrate-Nitrite (lbs) Total Monthly | 118 | 130 | 123 | < 233 | < 219 | 226 | 221 |
| Total Nitrogen (mg/L) Average Monthly | 10.61 | 12.6 | 17.7 | < 19.9 | < 12.22 | < 9.77 | < 13.79 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Total Nitrogen (lbs) Effluent Net <br/> Total Monthly | 1144 | 1491 | 1917 | 2068 | < 1209 | 998 | 1380 |
| Total Nitrogen (lbs) Total Monthly | 1144 | 1491 | 1917 | < 2068 | < 1209 | 998 | 1380 |
| Total Nitrogen (lbs) Effluent Net <br/> Total Annual | | | | | | | |
| Total Nitrogen (lbs) Total Annual | | | | | | | |
| **Ammonia (mg/L) Average Monthly** | **1.97** | **4.5** | **9.48** | **10.08** | **3.30** | **1.29** | **2.83** |
| **Ammonia (lbs) Total Monthly** | **217** | **530** | **1074** | **1042** | **321** | **127** | **291** |
| Ammonia (lbs) Total Annual | | | | | | | |
| TKN (mg/L) Average Monthly | 9.51 | 11.5 | 16.6 | 17.7 | 10.02 | 7.57 | 11.59 |
| TKN (lbs) Total Monthly | 1026 | 1361 | 1794 | 1835 | 990 | 772 | 1159 |
| Total Phosphorus (mg/L) Average Monthly | 2.56 | 1.78 | 1.42 | 1.65 | 2.08 | 0.99 | 1.45 |
| Total Phosphorus (lbs) Effluent Net <br/> Total Monthly | 270 | 201 | 162 | 167 | 207 | 102 | 146 |
| Total Phosphorus (lbs) Total Monthly | 270 | 201 | 162 | 167 | 207 | 102 | 146 |
| Total Phosphorus (lbs) Effluent Net <br/> Total Annual | | | | | | | |
| Total Phosphorus (lbs) Total Annual | | | | | | | |
| Total Aluminum (mg/L) Average Quarterly | | | < 0.02 | | | < 0.02 | |
| **Total Antimony (lbs/day) Average Monthly** | **0.032** | **0.025** | **0.024** | **0.020** | **0.018** | **0.021** | **0.021** |
| **Total Antimony (lbs/day) Daily Maximum** | **0.042** | **0.053** | **0.029** | **0.032** | **0.025** | **0.026** | **0.027** |
| **Total Antimony (mg/L) Average Monthly** | **0.009** | **0.007** | **0.006** | **0.006** | **0.005** | **0.006** | **0.007** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Total Antimony (mg/L) Daily Maximum** | **0.010** | **0.011** | **0.007** | **0.007** | **0.006** | **0.007** | **0.008** |
| Total Chromium (lbs/day) Average Monthly | 0.007 | 0.008 | 0.009 | 0.009 | 0.007 | 0.010 | 0.009 |
| Total Chromium (lbs/day) Daily Maximum | 0.012 | 0.017 | 0.013 | 0.012 | 0.012 | 0.012 | 0.013 |
| **Total Iron (mg/L) Average Quarterly** | | | **2.10** | | | **3.61** | |
| **Total Manganese (mg/L) Average Quarterly** | | | **0.555** | | | **0.546** | |
| Total Sulfide (lbs/day) Average Monthly | 3.47 | 3.76 | 3.77 | 3.43 | 3.32 | 3.31 | 3.60 |
| Total Sulfide (lbs/day) Daily Maximum | 4.24 | 4.80 | 4.50 | 5.34 | 4.21 | 3.80 | 4.39 |
| Total Phenolics (lbs/day) Average Monthly | 0.12 | 0.10 | 0.08 | 0.14 | 0.07 | 0.11 | 0.12 |
| Total Phenolics (lbs/day) Daily Maximum | 0.49 | 0.20 | 0.15 | 0.49 | 0.14 | 0.21 | 0.20 |

| Parameter | JAN-19 | DEC-18 | NOV-18 | OCT-18 | SEP-18 | AUG-18 | JUL-18 | JUN-18 | MAY-18 | APR-18 | MAR-18 | FEB-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Flow (MGD) Average Monthly** | **0.451** | **0.423** | **0.484** | **0.484** | **0.471** | **0.482** | **0.448** | **0.515** | **0.518** | **0.450** | **0.489** | **0.500** |
| **Flow (MGD) Daily Maximum** | **0.702** | **0.743** | **0.639** | **0.848** | **0.664** | **0.695** | **0.664** | **0.691** | **0.736** | **0.648** | **0.661** | **0.721** |
| pH (S.U.) Minimum | 6.15 | 6.15 | 6.15 | 6.15 | 6.20 | 6.15 | 6.15 | 6.1 | 6.1 | 6.10 | 6.1 | 6.10 |
| pH (S.U.) Maximum | 6.80 | 6.70 | 6.75 | 6.70 | 6.85 | 6.80 | 6.8 | 6.6 | 6.7 | 6.90 | 7.2 | 6.80 |
| **BOD5 (lbs/day) Average Monthly** | **47** | **55** | **32** | **29** | **33** | **16** | **14** | **51** | **104** | **75** | **249** | **157** |
| **BOD5 (lbs/day) Daily Maximum** | **70** | **89** | **52** | **44** | **78** | **31** | **20** | **82** | **174** | **157** | **679** | **244** |
| **COD (lbs/day) Average Monthly** | **480** | **527** | **450** | **381** | **369** | **283** | **298** | **519** | **576** | **553** | **1034** | **834** |
| **COD (lbs/day) Daily Maximum** | **615** | **772** | **625** | **463** | **477** | **390** | **406** | **695** | **1028** | **933** | **1945** | **1157** |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TSS (lbs/day) Average Monthly | 82 | 89 | 46 | 28 | 22 | 18 | 9 | 29 | 55 | 58 | 118 | 74 |
| TSS (lbs/day) Daily Maximum | 142 | 132 | 85 | 60 | 39 | 30 | 25 | 77 | 212 | 162 | 335 | 102 |
| Oil and Grease (lbs/day) Average Monthly | 22 | 18 | 20 | 20 | 24 | 18 | 17 | 22 | 22 | 18 | 32 | 36 |
| Oil and Grease (lbs/day) Daily Maximum | 30 | 28 | 24 | 25 | 55 | 23 | 27 | 29 | 29 | 25 | 78 | 62 |
| Oil and Grease (mg/L) Average Monthly | 5.8 | < 5.0 | 5.0 | 5.0 | 6.25 | < 5.0 | < 5.0 | 5.25 | 5.3 | < 5.0 | 7.4 | 9.4 |
| Oil and Grease (mg/L) Daily Maximum | 9.0 | < 5.0 | 5.0 | 5.0 | 15.0 | < 5.0 | < 5.0 | 6.0 | 7.0 | < 5.0 | 15.0 | 18.0 |
| Nitrate-Nitrite (mg/L) Average Monthly | < 2.20 | < 2.2 | < 2.20 | < 2.2 | < 2.20 | < 2.20 | < 2.20 | < 2.20 | < 2.2 | < 2.2 | < 2.2 | < 2.2 |
| Nitrate-Nitrite (lbs) Total Monthly | 264 | 242 | 258 | 270 | < 248 | < 248 | 248 | < 279 | 279 | 243 | 276 | 241 |
| Total Nitrogen (mg/L) Average Monthly | 13.25 | < 19.6 | < 14.73 | < 18.7 | < 18.4 | < 16.36 | < 18.7 | < 21.9 | < 25.0 | 15.8 | < 26.2 | 30.8 |
| Total Nitrogen (lbs) Effluent Net <br/> Total Monthly | 1591 | < 2248 | 1722 | < 2245 | 2147 | 1866 | 1956 | 2751 | 3205 | 1689 | 3305 | < 3338 |
| Total Nitrogen (lbs) Total Monthly | 1591 | 2248 | 1722 | < 2245 | < 2147 | 1866 | 1956 | < 2751 | 3205 | 1689 | 3305 | < 3338 |
| **Total Nitrogen (lbs) Effluent Net <br/> Total Annual** | | | | | **24213** | | | | | | | |
| **Total Nitrogen (lbs) Total Annual** | | | | | **29446** | | | | | | | |
| **Ammonia (mg/L) Average Monthly** | **3.67** | **6.30** | **4.00** | **6.77** | **6.34** | **6.41** | **7.48** | **10.32** | **11.64** | **5.34** | **10.84** | **17.2** |
| **Ammonia (lbs) Total Monthly** | **453** | **753** | **483** | **815** | **758** | **729** | **763** | **1281** | **1476** | **561** | **1349** | **1845** |
| Ammonia (lbs) Total Annual | | | | | 12035 | | | | | | | |
| TKN (mg/L) Average Monthly | 11.05 | 17.4 | 12.53 | 16.5 | 16.2 | 14.16 | 16.5 | 19.7 | 22.8 | 13.6 | 24.0 | 28.6 |
| TKN (lbs) Total Monthly | 1327 | 2006 | 1464 | 1975 | 1899 | 1618 | 1708 | 2472 | 2926 | 1446 | 3079 | 3097 |
| Total Phosphorus (mg/L) Average Monthly | 1.22 | 1.53 | 1.39 | 1.19 | 1.49 | 0.80 | 0.94 | 0.96 | 0.87 | 1.68 | 1.55 | 1.12 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Phosphorus (lbs) Effluent Net <br/> Total Monthly | 146 | 174 | 165 | 143 | 147 | 93 | 99 | 123 | 112 | 183 | 195 | 120 |
| Total Phosphorus (lbs) Total Monthly | 146 | 174 | 165 | 143 | 147 | 93 | 99 | 123 | 112 | 183 | 195 | 120 |
| **Total Phosphorus (lbs) Effluent Net <br/> Total Annual** | | | | | **271** | | | | | | | |
| **Total Phosphorus (lbs) Total Annual** | | | | | **1687** | | | | | | | |
| Total Aluminum (mg/L) Average Quarterly | | < 0.02 | | | < 0.02 | | | 0.02 | | | < 0.02 | |
| **Total Antimony (lbs/day) Average Monthly** | **0.026** | **0.029** | **0.027** | **0.024** | **0.019** | **0.015** | **0.013** | **0.020** | **0.023** | **0.025** | **0.051** | **0.027** |
| **Total Antimony (lbs/day) Daily Maximum** | **0.035** | **0.039** | **0.038** | **0.031** | **0.030** | **0.023** | **0.019** | **0.029** | **0.067** | **0.054** | **0.146** | **0.034** |
| **Total Antimony (mg/L) Average Monthly** | **0.007** | **0.008** | **0.007** | **0.006** | **0.005** | **0.004** | **0.004** | **0.005** | **0.005** | **0.007** | **0.012** | **0.007** |
| **Total Antimony (mg/L) Daily Maximum** | **0.009** | **0.010** | **0.009** | **0.009** | **0.007** | **0.005** | **0.005** | **0.006** | **0.012** | **0.011** | **0.028** | **0.009** |
| Total Chromium (lbs/day) Average Monthly | 0.015 | 0.013 | 0.013 | 0.011 | 0.006 | 0.010 | 0.007 | 0.014 | 0.016 | 0.021 | 0.036 | 0.013 |
| Total Chromium (lbs/day) Daily Maximum | 0.022 | 0.019 | 0.020 | 0.018 | 0.011 | 0.019 | 0.021 | 0.023 | 0.056 | 0.054 | 0.107 | 0.019 |
| **Total Iron (mg/L) Average Quarterly** | | **2.54** | | | **1.47** | | | **3.37** | | | **8.58** | |
| **Total Manganese (mg/L) Average Quarterly** | | **0.617** | | | **0.646** | | | **1.41** | | | **0.837** | |
| Total Sulfide (lbs/day) Average Monthly | 3.87 | 3.56 | 3.92 | 3.93 | 3.34 | 3.66 | 3.48 | 4.22 | 4.09 | 3.62 | 4.05 | 4.46 |
| Total Sulfide (lbs/day) Daily Maximum | 5.86 | 5.55 | 4.74 | 5.08 | 4.42 | 4.53 | 5.43 | 5.16 | 5.59 | 4.91 | 5.51 | 6.75 |
| Total Phenolics (lbs/day) Average Monthly | 0.10 | 0.13 | 0.17 | 0.13 | 0.20 | 0.11 | 0.08 | 0.13 | 0.18 | 0.10 | 0.22 | 0.24 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Phenolics (lbs/day) Daily Maximum | 0.24 | 0.23 | 0.56 | 0.31 | 0.67 | 0.20 | 0.12 | 0.18 | 0.35 | 0.13 | 0.34 | 0.45 |

**DMR Data for Outfalls 002, 003, 004, 005, 007, 008 (from February 1, 2018 to August 31, 2019)**

| Parameter | JAN-19 | DEC-18 | NOV-18 | OCT-18 | SEP-18 | AUG-18 | JUL-18 | JUN-18 | MAY-18 | APR-18 | MAR-18 | FEB-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| pH (S.U.) Minimum | | GG | | | | | | | | | | |
| pH (S.U.) Maximum | | GG | | | | | | | | | | |
| BOD5 (mg/L) Daily Maximum | | GG | | | | | | | | | | |
| COD (mg/L) Daily Maximum | | GG | | | | | | | | | | |
| TSS (mg/L) Daily Maximum | | GG | | | | | | | | | | |
| Oil and Grease (mg/L) Daily Maximum | | GG | | | | | | | | | | |
| TKN (mg/L) Daily Maximum | | GG | | | | | | | | | | |
| Total Chromium (mg/L) Daily Maximum | | GG | | | | | | | | | | |
| Total Iron (mg/L) Daily Maximum | | GG | | | | | | | | | | |
| Total Sulfide (mg/L) Daily Maximum | | GG | | | | | | | | | | |
| Total Phenolics (mg/L) Daily Maximum | | GG | | | | | | | | | | |

**DMR Data for Outfall 006 (from February 1, 2018 to August 31, 2019 – unshown months blank)**

| Parameter | JAN-19 | DEC-18 | NOV-18 | OCT-18 | SEP-18 | AUG-18 | JUL-18 | JUN-18 | MAY-18 | APR-18 | MAR-18 | FEB-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| pH (S.U.) Minimum | | 8.25 | | | | | | | | | | |
| pH (S.U.) Maximum | | 8.25 | | | | | | | | | | |
| BOD5 (mg/L) Daily Maximum | | 3.3 | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COD (mg/L) Daily Maximum | | < 5 | | | | | | | | | | |
| TSS (mg/L) Daily Maximum | | 5.2 | | | | | | | | | | |
| Oil and Grease (mg/L) Daily Maximum | | < 5 | | | | | | | | | | |
| TKN (mg/L) Daily Maximum | | 2.33 | | | | | | | | | | |
| Total Chromium (mg/L) Daily Maximum | | < 0.01 | | | | | | | | | | |
| Total Iron (mg/L) Daily Maximum | | < 0.05 | | | | | | | | | | |
| Total Sulfide (mg/L) Daily Maximum | | 0.033 | | | | | | | | | | |
| Total Phenolics (mg/L) Daily Maximum | | < 0.05 | | | | | | | | | | |

## Compliance History

**Effluent Violations for Outfall 001, from: March 1, 2018 To: August 31, 2019**

| Parameter | Date | SBC | DMR Value | Units | Limit Value | Units |
|---|---|---|---|---|---|---|
| BOD5 | 03/31/18 | Avg Mo | 249 | lbs/day | 217 | lbs/day |
| Total Nitrogen | 09/30/18 | Total Annual | 24213 | lbs | 7065 | lbs |

**Summary of Inspections**: From 10/17/2019 WMS Inspection History Query:

| FACILITY NAME | INSP ID | INSPECTED DATE | INSP TYPE | INSPECTION RESULT DESC | # OF VIOLATIONS |
|---|---|---|---|---|---|
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2937013 | 09/25/2019 | Routine/Partial Inspection | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2891861 | 05/26/2019 | Administrative/File Review | Violation(s) Noted | 1 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2865010 | 03/05/2019 | Administrative/File Review | Violation(s) Noted | 1 |

| | | | | | |
|---|---|---|---|---|---|
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2839349 | 02/13/2019 | Routine/Partial Inspection | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2762333 | 07/24/2018 | Routine/Partial Inspection | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2745504 | 05/21/2018 | Routine/Partial Inspection | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2587023 | 04/24/2017 | Compliance Evaluation | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2556210 | 01/30/2017 | Routine/Partial Inspection | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2556214 | 01/30/2017 | Routine/Partial Inspection | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2556215 | 01/30/2017 | Routine/Partial Inspection | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2556216 | 01/30/2017 | Routine/Partial Inspection | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2556218 | 01/30/2017 | Routine/Partial Inspection | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2556219 | 01/30/2017 | Routine/Partial Inspection | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2556226 | 01/30/2017 | Routine/Partial Inspection | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2529321 | 10/19/2016 | Routine/Partial Inspection | **Repairs or Upgrade Required** | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2506950 | 07/27/2016 | Follow-up Inspection | **Repairs or Upgrade Required** | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2528837 | 07/14/2016 | Routine/Partial Inspection | **Violation(s) Noted** | 2 |

| | | | | | |
|---|---|---|---|---|---|
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2501902 | 06/21/2016 | Follow-up Inspection | **Repairs or Upgrade Required** | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2491527 | 04/27/2016 | Compliance Evaluation | **Violation(s) Noted*** | 3 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2440394 | 01/14/2016 | Routine/Partial Inspection | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2509891 | 12/22/2015 | Routine/Partial Inspection | **Violation(s) Noted** | 1 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2469064 | 02/26/2015 | Compliance Evaluation | **Violation(s) Noted** | 2 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2333669 | 09/30/2014 | Compliance Evaluation | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2285342 | 07/10/2014 | Routine/Partial/Aerial Inspection | No Violations Noted | 0 |
| GUILFORD MILLS LLC FKA PENN DYE & FINISHING PLANT | 2285339 | 07/10/2014 | Routine/Partial/Aerial Inspection | No Violations Noted | 0 |

*April 27, 2016 NPDES Compliance Inspection Report identified violations included:

- Inoperable Final Clarifier skimmer and subsurface sludge collection rake, with apparent short-circuiting, poor settling, and solids discharge to stream.
- Insufficient freeboard (< 2 feet minimum) in Lagoon
- Deleterious substances being discharged causing noticeable change in receiving stream color, with orange/brown staining along stream bank and directly downstream of Outfall. NOTE: The NPDES Permit Renewal Application Effluent Data indicated a 12.5 MGD Total Iron daily max discharge

Other Comments: The Department is working on a Consent Order & Agreement (CO&A) with this facility.

**Notices of Violation (NOVs):**

- **2/26/2015 NOV: Issued for missing annual stormwater inspection and two December 2014 TSS exceedences. Response included Reports, indicated retirement of previous corporate engineer, and indicated TSS was from maintenance activities that involved clarifier emptying/refilling.**
- **12/22/2015 NOV: For release from facility. 1/8/2016 Operator Response.**
- **3/5/2019 NOV: Issued for noncompliance with Chesapeake Bay annual mass permit limit for Total Nitrogen, without purchasing of nutrient credits. NOTE: DEP Files show that Compliance Assistance Letters have been issued (example 2013, 2014, 2015 letters in file) to warn facility that monitoring data indicated potential need for the facility to purchase nutrient credits to comply with the Chesapeake Bay annual mass limits.**

- **3/26/2019 NOV: NOV issued due to noncompliance with 8/21/2019 DEP Greensands Filter Approval with Conditions Letter requirements** .

**December 2018 EDMR Stormwater Sampling Data:**

- **The Department noted that waiting until December to obtain minimum annual stormwater outfall sampling results is not an acceptable stormwater monitoring practice at best, given both temperature considerations (snow cannot be monitored) and larger/frequent Spring storm events would likely have allowed for obtaining stormwater samples from the "dry outfalls" (002 – 005, 007 – 008). As 2018 was a record year of precipitation in PA, there would have been stormwater discharges throughout the year.**
- **New Stormwater Outfalls Nos. 009 and 010 are not yet in EDMR.**

**Late NPDES Permit Renewal Application: A complete and technically adequate application was due 3/4/2016 per 2011 NPDES Permit DMRs. The application was not made complete until 3/31/2016 (on the understanding that additional information would be submitted when available).**

**Failure to meet WQM Permit Conditions (WQM-permit required groundwater monitoring submittals found in available DEP Clean Water Files; substantial facility modifications (closure of permitted treatment lagoons/treatment process changes) without WQM permitting):** The January 25, 1977 WQM Permit No. 5476203 (IWTP) conditions included the following conditions with compliance implications:

- **WQM Permit Standard Industrial Conditions:**
  - **Condition 2**: All relevant and non-superseded condition … with the provisions of this permit shall apply to his successors, lessees, heirs and assigns.
  - **Condition 3:** The responsibility for carrying out of the conditions of this permit shall rest upon the owner, lessee, assignee or other party in responsible managerial control…
  - **Condition 11:** No radical changes shall be made in the works herein approved without approval of the Department, Revisions that do not increase the rate of flow or change the quality of the effluent, treatment processes or the point of discharge, may be approved by the Regional Sanitary Engineer upon submission of the plans. Other revisions must be approved by a permit. **NOTE:** Conditions 7, 8, & 15 address situations requiring IWTP upgrade. Condition 21 talks of cessation of discharge to prevent water pollution.
  - **Condition 14:** … Moreover, upon written notice by the Department, the permittee shall maintain one or more skilled operators regularly on duty for such daily periods as the Department may require.
  - **Condition 18:** Various structures and apparatus shall be maintained in proper condition with periodic inspections. **NOTE:** The HRG Inc. Report did not address existing lagoon conditions below water level. The DEP Waste Management Program lagoon closures would have focused on the closed lagoons, and RCRA groundwater clean-up monitoring on VOC-contaminated groundwater. Therefore, status of existing IWTP lagoons is unknown.
  - **Condition 19:** Condition requires removal of screenings and any settled or floated solids in sedimentation basins (i.e. lagoons). It is unknown to this reviewer when sludge was last removed from the existing lagoons.
- **Special Condition F:** Special Condition F required quarterly and annual samples from the approved monitoring points, with water level information for the entire time this permit is in effect. The available Department Clean Water Program files do not contain the required groundwater monitoring submittals. The DEP Clean Water Program Geologist did not have any groundwater submittals from this facility (asked during original NPDES/WQM permit transfer submittal review). When asked during previous NPDES Permit/WQM transfer discussions, the permittee indicated all groundwater monitoring information was going to the DEP Waste Management Program (involved with the RCRA Groundwater clean-up and separate RSW Lagoon Closures). Nothing was found in the Department Clean Water Files regarding any redirection of WQM-required groundwater submittals.

**General Facility Compliance Obligation Regarding Contaminated Groundwater at Plant: The facility is subject to the 9/30/1992 EPA "Final Administrative Order on Consent" Docket No. RCRA-III-052-CA due to previous site contamination issues.**

- **The EPA document noted that this site had a WWTP (with NPDES Permit), oil skimmer in drum storage area, contaminated soil from a 1988 release, etc.**
- **Corrective action included RCRA groundwater monitoring wells and groundwater pump & treat (identified groundwater contaminants included VOCs, lead, chromium, cadmium, barium and acetone).**

- **Failure to meet WQM Permit Conditions (groundwater monitoring data not being u; substantial facility changes without WQM permitting):** The January 25, 1977 WQM Permit No. 5476203 (IWTP) conditions included the following conditions with compliance implications:
  - **Standard Industrial Conditions:**
    - **Condition 2**: All relevant and non-superseded condition … with the provisions of this permit shall apply to his successors, lessees, heirs and assigns.
    - **Condition 3:** The responsibility for carrying out of the conditions of this permit shall rest upon the owner, lessee, assignee or other party in responsible managerial control…
    - **Condition 11:** No radical changes shall be made in the works herein approved without approval of the Department, Revisions that do not increase the rate of flow or change the quality of the effluent, treatment processes or the point of discharge, may be approved by the Regional Sanitary Engineer upon submission of the plans. Other revisions must be approved by a permit. **NOTE:** Conditions 7, 8, & 15 address situations requiring IWTP upgrade. Condition 21 talks of cessation of discharge to prevent water pollution.
    - **Condition 14:** … Moreover, upon written notice by the Department, the permittee shall maintain one or more skilled operators regularly on duty for such daily periods as the Department may require.
    - **Condition 18:** Various structures and apparatus shall be maintained in proper condition with periodic inspections. **NOTE:** The HRG Inc. Report did not address existing lagoon conditions below water level. The DEP Waste Management Program lagoon closures would have focused on the closed lagoons, and RCRA groundwater clean-up monitoring on VOC-contaminated groundwater. Therefore, status of existing IWTP lagoons is unknown.
    - **Condition 19:** Condition requires removal of screenings and any settled or floated solids in sedimentation basins (i.e. lagoons). It is unknown to this reviewer when sludge was last removed from the existing lagoons.
  - **Special Conditions:** Special Condition F required quarterly and annual samples from the approved monitoring points, with water level information are required for the entire time this permit is in effect. The available Department Clean Water Program files do not contain the required groundwater monitoring submittals. The DEP Clean Water Program Geologist did not have any groundwater submittals from this facility (asked during original NPDES/WQM permit transfer submittal review). When asked during previous NPDES Permit/WQM transfer discussions, the permittee indicated all groundwater monitoring information was going to the DEP Waste Management Program (involved with the RCRA Groundwater clean-up and separate RSW Lagoon Closures). Nothing was found in the Department Clean Water Files regarding any redirection of WQM-required groundwater submittals.

**10/17/2019 WMS Query (Open Violations by Client Number): No open violations**

**Permit: PA0008231**
**Client ID: 28200**
**Client: All**

**Open Violations: 0**

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

**Other Violations Noted In This Review:**

- **Failure to sample all stormwater outfalls in 2017 and 2018 (with low pH blamed on excessive holding times for previous Application stormwater sampling results). A pattern of failure to sample required stormwater outfall discharges is a significant noncompliance issue.**
- **Failure to obtain WQM Permitting prior to substantial IWTP modification (elimination of two Aerated Lagoons, reducing overall plant hydraulic and organic design capacity to unknown extents). DEP Waste Management Program RSW Lagoon Closure Plan approvals do not supersede existing NPDES/WQM Permit requirements.**
- **Failure to submit Greensands Filter Backwash Monitoring Data per 8/2017 DEP Greensands Filter Startup Approval with Conditions Letter (concern includes new groundwater remediation flow (VOCs), concentrated groundwater metals flow, Filter chlorination, etc.):**
    - **Second and third 30-day Monitoring Reports not received as of 3/18/2019 despite 12/2018 Greensands Filter start-up**
    - **Failure to submit new influent sampling/effluent sampling results on NPDES Pollutant Group tables. Resubmittal of old (partially superseded) Pollutant Group tables is not acceptable (especially when the resubmitted Tables do not conform to previous NPDES Permit Application updating, including use of insensitive QLs).**

**Fecal Coliform Investigation: Based on 2016 sampling, the NPDES Permit Renewal application estimated an influent Geometric Mean of 15,600/100 ml and an effluent Geometric Mean of 1,620/100 ml. The facility's investigatory sampling data indicates Outfall #001 effluent concentrations ranging from 8/100 ml to >6000/100 ml from sampling in the 2/9/2016 – 12/30/2016 time-frame without any installed disinfection system. The facility has not identified the source(s) of the fecal coliform showing up in the effluent. They have conducted limited dye-testing and sampling in the Plant building itself. Potential sources include:**

- **Undiscovered cross-connection of sewage piping to IWTP wastewater piping. They have conducted dye testing and in-plant sampling, but they have not shown that the fecal coliforms are of non-human origin. Therefore, an unapproved cross-connection of sewage flows to non-sewage wastewater flows is still possible.**
- **Potential Wildlife sources impacting: Water supply basin for process water supply system; onsite IWTP lagoons/open units; stormwater entering Octagonal Pump Station pit or other cross-connection of stormwater piping to IWTP wastewater piping).**
    - **Influent sampling data (sampling at Octagonal Pump Station) indicates source at plant itself.**
    - **They did not evaluate water supply treatment lagoon or IWTP lagoons as potential source (wildlife contribution).**
- **Presence of bacteria colonizing the IWTP treatment units containing textile-related organic materials (ITWP lagoons and treatment units). Not investigated.**
- **Process Water Supply Reservoir (receiving remediated groundwater and City Water before pumping to plant for use as non-potable process water): The plant reservoir is a potential source location for wildlife contributions. The previous NPDES permit renewal application did not allow for direction of remediated groundwater directly to the IWTP.**
- **Influent Monitoring Point (Octagonal Pit): Facility internal monitoring and investigation indicate that the Raw Wastewater Pump Station Octagonal Pit (directing flow to the IWTP across Swatara Creek) has intermittent high fecal coliform levels (1,600,000/100 ml on 12/1/2016), but the source remains unidentified by the applicant. The Pit receives general stormwater run-off from the Stormwater Outfall #007 drainage area, and secondary containment area(s).**
- **Secondary containment Areas at Plant: The IWTP receives stormwater flows from secondary containment areas in the plant, any stormwater run-on into the Octagonal Pit, and any wildlife contribution at the IWTP lagoons/units, in addition to any fecal coliforms from the process water system.**
- **Stormwater Outfalls:**
    - **Application Stormwater sampling results found fecal coliform stormwater discharges from Stormwater Outfalls #002 (>6000/100 ml), #003 (>6000/100 ml), #004 (39/100 ml), #006 (8,200/100 ml), #006 (640/100 ml), #007 (3/100 ml), and new #010 (7,800/100 ml) downstream of existing Outfall #006. Outfall #009 has been created to cover the stormwater discharge from the IWTP side of the stream, and no sampling has occurred yet. Existing Outfall #008 had no discharge during storm event.**
    - **EDMR data shows they sampled stormwater in December, during rain events when most of their outfalls apparently did not discharge. This indicates a failure to properly schedule and take**

**stormwater samples during normal rain events, given that 2018 was a record year of precipitation in PA.**

**<u>Excessive Usage of Ferric Chloride WWTP Treatment Chemical</u>: Aside from the incident involving a color-change in the receiving stream, effluent data shows high iron and chloride concentrations to a AMD TMDL stream (no Waste Load Allocations for this facility).**

- **<u>Potential O&M Issue</u>: Overuse of Ferric Chloride (used for several purposes) and inadequate settlement time in the clarifier are potential reasons for excessive concentrations in the effluent. Proper O&M should avoid excessive effluent concentrations of Ferric Chloride.**
- **<u>4/25/2017 Chloride Monitoring Data Report (compliance testing)</u>: This testing indicated effluent chloride concentration ranged up to 280 mg/l chlorides during 8/18/2016 - 4/6/2017 with daily variability between 66 – 270 mg/l. This chloride concentration variability might indicate overuse of ferric chloride, especially with documented effluent iron concentrations.**

## Development of Effluent Limitations

**Outfall No.** 001 **Design Flow (MGD)** 2
**Latitude** 40º 33' 22.00" **Longitude** -76º 23' 18.00"
**Wastewater Description:** IW Process Effluent with ELG; Filter backwash; boiler blowdown; Building sump/trenches drainage; new Greensands Filter Backwash (groundwater remediation); Stormwater associated with industrial activities. Process water source includes treated groundwater from EPA-regulated groundwater remediation.

**Permit Limits and Monitoring: Changes bolded**

| Parameter | Limit (mg/l unless otherwise specified) | SBC | Model/Basis |
|---|---|---|---|
| **TBELs including ELG-based limits (in effect upon PED)** | **-** | **-** | **-** |
| **BOD5** | **141.8 Lbs/d**<br>**283.6 Lbs/d**<br>**Report**<br>**Report** | Monthly Average<br>Daily Max<br>**Monthly Average**<br>**Daily Max** | **Recalculated ELG limits based on production rates (less than assumed in previous permit cycle). Concentration reporting will be required in this permit condition.** Previous ELG limits were 217 lbs/day Monthly Average and 433 lbs/day Daily Max.<br>Application sampling data indicated 27 mg/l (128 lbs/d) max and 21 mg/l (105 lb/d) LTA of 3 samples. **Application DMR summary indicated 180 mg/l (778 lb/d) max** and 19 mg/l (77 lb/d) LTA of 107 samples. |
| **COD** | **2269.0 Lbs/d**<br>**4538.0 Lbs/d**<br>**Report**<br>**Report** | Monthly Average<br>Daily Max<br>**Monthly Average**<br>**Daily Max** | **Recalculated ELG limits based on production rates (less than assumed in previous permit cycle). Concentration reporting will be required in this permit condition.** Previous ELG limits were 3470 lbs/d monthly average and 6930 lbs/day daily max.<br>Application data indicated 228 mg/l (1082 lbs/d) and 199 mg/l (994 lb/d) LTA of 3 samples). Application DMR summary indicated 611 mg/l (2640 lb/d) max and 151 mg/l (613 lb/d) LTA of 107 samples |
| TSS | 417.0 Lbs/d<br>834.0 Lbs/d<br>**Report**<br>**Report** | Monthly Average<br>Daily Max<br>**Monthly Average**<br>**Daily Max** | Existing Technology limit (40 CFR 410.52 ELG limit was superseded by previous WPC BPJ limit). Antibacksliding prohibition prevents less stringent limit.<br>Application sampling data indicated 47 mg/l (223 lb/d) Max, 43 mg/l (210 lb/day) LTA of 3 samples). Application DMR data indicated 59 mg/l (258 lb/d) max and 24 mg/l (97 lb/d) LTA of 107 samples.<br>NOTE: Daily Max Mass limits are equivalent to 50 mg/l at 2.0 MGD or 232.2 mg/l at 0.431 MGD. |
| pH | 6.0 – 9.0 SU | **Inst. Min** - IMAX | Existing ELT Technology limit (40 CFR 410.52(a) ELG BPT and Chapter 95.2). |

| | | | |
|---|---|---|---|
| | | | Application data indicated range of 6.43 – 7.19 SU (3 samples). Application DMR data indicated range of 6.43 – 7.19 SU pH. |
| **Sulfide** | **5.67 Lbs/d**<br>**11.34 Lbs/d**<br>**Report**<br>**Report**<br>**-** | Monthly Average<br>Daily Max<br>**Monthly Average**<br>**Daily Max** | **Recalculated ELG limits based on production rates (less than assumed in previous permit cycle). Concentration reporting will be required in this permit condition. Previous ELG limits were 8.67 lbs/day Monthly Average and 17.3 lbs/day Daily Max.**<br>Application sampling data indicated <1 mg/l (<5 lb/d) max/LTA of 3 samples. Application DMR data indicated 2 mg/l (9 lb/d) max and <1.1 mg/l (<4 lb/d) LTA of 107 samples. |
| **Total Phenolics (FKA phenols) for Years 1 through 3** | **2.83 Lbs/d**<br>**5.67 Lbs/d**<br>**Report**<br>**Report** | Monthly Average<br>Daily Max<br>**Monthly Average**<br>**Daily Max** | **Recalculated ELG limits based on production rates (less than assumed in previous permit cycle). Concentration reporting will be required in this permit condition.** Previous ELG limits were 4.33 lbs/day Monthly Average and 8.67 lb/d Daily Max.<br>Application sampling data was 53 ug/l max and 34 ug/l average of 3 samples.<br>Application DMR data indicated **0.159 mg/l** (0.491 lb/d) max and 0.049 mg/l (0.199 lb/d) LTA of 107 samples. |
| **Total Phenolics (FKA phenols) for 4th Year until PED** | **2.83 Lbs/d**<br>**5.67 Lbs/d**<br>**0.0490**<br>**0.0768**<br>**0.1230** | Monthly Average<br>Daily Max<br>**Monthly Average**<br>**Daily Max**<br>**IMAX** | **New WQBEL concentration limits being added to ELG limits. Previous ELG limits were 4.33 lbs/day Monthly Average and 8.67 mg/l Daily Max.**<br>See above for application data. |
| **Total Chromium** | **2.83 Lbs/d**<br>**5.67 Lbs/d**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **Recalculated ELG limits based on production rates (less than assumed in previous permit cycle). Concentration reporting will be required in this permit condition.** Previous ELG limits were 4.33 lbs/day Monthly Average and 8.67 mg/l Daily Max.<br>Application data included 0.012 mg/l (0.06 lb/d) max and 11 ug/l (0.05 lb/d) LTA out of three samples. |
| Oil & Grease | 250**.0** Lbs/d<br>500.0 Lbs/d<br>15.0<br>30.0 | Monthly Average<br>Daily Max<br>Monthly Average<br>**IMAX** | Existing Technology limit (Chapter 95.2). **Daily Max limit being converted to IMAX due to 25 Pa. Code § 92a.47(a)(7), § 95.2(2) and Part A.I Additional Requirements TBEL.** Application sampling data indicated 5 mg/l (26 lb/d) max and <5 mg/l (<25 lb/d) LTA of 3 samples.<br>Application DMR data indicated 18 mg/l (78 lb/d) max and 6 mg/l (24 lb/d) LTA of 107 samples. |
| **Existing WQBEL** | **-** | **-** | **-** |
| Total Antimony (Years 1 – 3) | 0.30 Lbs/d<br>**0.46** Lbs/d<br>**Report**<br>**Report** | Monthly Average<br>Daily Max<br>**Monthly Average**<br>**Daily Max** | Existing WQBEL load limits from previous permit retained **except as Daily Max mass limit was recalculated (**previous 0.47 limit). Application sampling data included 0.027 mg/l (0.10 lb/d) max and 0.0213 mg/l (0.07 lb/d) LTA of three samples **exceeding new WQBEL** (below). Application DMR data indicated 0.018 mg/l (0.08 lb/d) max and |

| | | | |
|---|---|---|---|
| | | | <0.017 mg/l (<0.03 lb/d) LTA of 107 samples |
| Total Antimony<br>(Years 4 – 5) | 0.30 Lbs/d<br>**0.46** Lbs/d<br>**0.018**<br>**0.028**<br>**0.045** | Monthly Average<br>Daily Max<br>**Monthly Average**<br>**Daily Max**<br>**IMAX** | Concentration limits from PENTOXSD added. requiring reduction from previous 0.47 limit.<br>See above for concentration information. |
| **New Limits in Effect on Permit Effective Date** | **-** | **-** | **-** |
| **Fecal Coliform<br>(5/1 – 9/30)** | **200/100 ml<br>1,000/100 ml** | **Geo Mean<br>IMAX** | **New limits required due to discharge of fecal coliforms (unidentified source) to pathogen impaired stream based on Chapter 92a.47 TBEL and Chapter 93.7 Bac1 Water Quality Criterion plus pathogen-impaired stream. See below for details. No fecal coliforms discharge was previously approved from this IWTP. Application and subsequent monitoring indicated concentration levels of 3200/100 ml (max) and 591/100 ml LTA of 12 samples). Application DMR data indicated far greater concentrations.** |
| **Fecal Coliform<br>(10/1 – 4/30)** | **2,000/100 ml<br>10,000 ml/100 ml** | **Geo Mean<br>IMAX** | **See above** |
| **Total Iron** | **Report (Lbs/d)<br>Report (Lbs/d)<br>Report<br>1.500<br>1.500** | **Monthly Average<br>Daily Max<br>Monthly Average<br>Daily Max<br>IMAX** | **WQBEL based on existing TMDL water quality criterion. Facility is a Major IW discharging significant loadings on the AMD-impaired stream, contributing to stream impairment, apparently from non-WQM permitted reduction is settling capacity (lagoon closure) and overusage of Ferric Chloride treatment chemicals (circa 2006 installation), plus use of AMD-contaminated groundwater as process water. Limit is based on TMDL Water Quality Criterion (exceedances would contribute to stream impairment). Application data indicated 12.5 mg/l (63/9 lb/d) max and 9.940 mg/l LTA of 3 samples), exceeding WQBELs.** |
| **Dissolved Iron** | **Report (Lbs/d)<br>Report (Lbs/d)<br>Report<br>0.300<br>0.300** | **Monthly Average<br>Daily Max<br>Monthly Average<br>Daily Max<br>IMAX** | **WQBEL based on existing TMDL water quality criterion. See above regarding potential sources.<br>Application data indicated 0.980 mg/l (4.65 lb/d) max and 0.860 mg/l (4.30 lb/d) LTA of 3 samples).** |
| **Total Manganese** | **Report (Lbs/d)<br>Report (Lbs/d)<br>Report<br>1.000<br>1.000** | **Monthly Average<br>Daily Max<br>Monthly Average<br>Daily Max<br>IMAX** | **WQBEL based on existing TMDL water quality criterion. Facility is a Major IW discharging significant loadings on the AMD-impaired stream, contributing to stream impairment, apparently from non-WQM permitted reduction is settling capacity (lagoon closure).**<br>Application data indicated 0.449 ug/l (2.30 lb/d) max of 3 samples but is adding a Greensands Filter (using manganese |

| | | | |
|---|---|---|---|
| | | | dioxide coated sand and potential permanganate chemical usage) |
| **Total Aluminum** | **Report (Lbs/d)**<br>**Report (Lbs/d)**<br>**Report**<br>**0.750**<br>**0.750** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max**<br>**IMAX** | **WQBEL based on existing TMDL water quality criterion. Facility is a Major IW discharging significant loadings on the AMD-impaired stream. This aluminum limit is being added to allow for operational flexibility to switch from iron-based treatment chemicals to aluminum-based treatment chemical.**<br>Application data indicated 180 ug/l (0.08 lb/d) max. |
| **Total Residual Chlorine (TRC)** | **0.23**<br>**0.76** | **Average Monthly**<br>**IMAX** | **New WQBELs (TRC Spreadsheet incorporating 0.5 mg/l BAT limit) because TRC found in updated sampling results (0.12 mg/l out of three samples), known potential chloride source (ferric chlorides), potential disinfection requirement due to unknown source of fecal coliforms in discharge to pathogen-impaired stream, and Greensands Backwash Filter contribution. Limit also allows for operational flexibility in event they opt for chlorine disinfection. If they install chlorine disinfection, then they would need to also install dechlorination system if needed.**<br>**Application sampling did not address TRC, but TRC data from fecal coliform/chloride sampling, discussed above.** |
| **<u>WQBEL Limits in Effect in 3-years with interim monitoring requirements</u>** | **-** | **-** | **-** |
| **Acrylamide (ug/l)** | **Report (Lb/d)**<br>**Report Lbs/d**<br>**0.961**<br>**1.554**<br>**2.490** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max**<br>**IMAX** | **New WQBELs per Reasonable Potential Analysis (see below). IMAX determined by 2.5 industrial facility multiplier.**<br>Application concentration of <17 ug/l (<0.065 lb/d) maximum and <8.47 ug/l (<0.03 lb/d) of three samples). |
| **3,4-Benzofluroanthene (ug/l)** | **Report lbs/d**<br>**Report lbs/d**<br>**0.052**<br>**0.081**<br>**0.130** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max**<br>**IMAX** | **New WQBELs per Reasonable Potential Analysis (see below). IMAX determined by 2.5 industrial facility multiplier. Application concentration of 0.12 ug/l (0.0004 lb/d) maximum and <0.05 ug/l (<0.00017 lb/d) LTA of three samples), above WQBEL.** |
| **Benzo(k)Fluoranthene (ug/l)** | **Report lbs/d**<br>**Report lbs/d**<br>**0.052**<br>**0.081**<br>**0.130** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max**<br>**IMAX** | **New WQBELs per Reasonable Potential Analysis (see below). IMAX determined by 2.5 industrial facility multiplier. Application concentration of 0.089 ug/l (0.0003 lb/d) maximum and <0.07 ug/l (<00021 lb/d) LTA of three samples), above WQBEL.** |
| **Bis (2-Chloroethyl)Ether (ug/l)** | **Report lbs/d**<br>**Report lbs/d**<br>**0.412**<br>**0.642**<br>**1.030** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max**<br>**IMAX** | **New WQBELs per Reasonable Potential Analysis (see below). IMAX determined by 2.5 industrial facility multiplier. <u>Application concentration of <25 ug/l above WQBEL</u>.** |

| | | | |
|---|---|---|---|
| **Total Copper (mg/l)** | **Report (Lbs/d)**<br>**Report (Lbs/d)**<br>**0.013**<br>**0.021**<br>**0.042** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max**<br>**IMAX** | **New WQBELs per Reasonable Potential Analysis (see below). IMAX determined by 2.5 industrial facility multiplier.** Application concentration of 0.017 mg/l (0.065 lb/d) maximum and <10.4 ug/l (<0.035 lb/d) LTA of three samples. |
| **Dibenzo(a,h) Anthracene (ug/l)** | **0.90 (Lbs/d)**<br>**1.40 (Lbs/d)**<br>**0.000054**<br>**0.000084**<br>**0.000135** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max**<br>**IMAX** | **New WQBELs per Reasonable Potential Analysis (see below). IMAX determined by 2.5 industrial facility multiplier. Application concentration of 0.13 ug/l (0.00044 lb/d) maximum and <0.05 ug/l (<0.00018 lb/d) LTA of three samples) above the WQBEL.** |
| **Zinc (mg/l)** | **Report (Lbs/d)**<br>**Report (Lbs/d)**<br>**0.122**<br>**0.190**<br>**0.305** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max**<br>**IMAX** | **New WQBELs per Reasonable Potential Analysis (see below). IMAX determined by 2.5 industrial facility multiplier. Application data indicated 0.450 mg/l (1.178 lb/d) max and 0.290 mg/l (0.908 lb/d) of 3 samples) exceeding WQBELs.** |
| **Ammonia-N (May 1 – October 31)** | **Report (Lb/d)**<br>**Report (Lb/d)**<br>**6.77**<br>**13.54**<br>**17.0** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max**<br>**IMAX** | **WQBELs from WQM Model 7.0 and due to CB data indicating potential for exceedances. Additional CB monitoring addressed below.** Application data indicated 2.4 mg/l (6.28 lb/d) max and 0.96 mg/l (2.62 lb/d) LTA of 3 samples). Application DMR data indicated 15.7 mg/l (68 lb/d) max and <4.7 mg/l (<19 lb/d) LTA of 107 samples. |
| **Ammonia-N (Nov 1 – April 30)** | **Report (Lb/d)**<br>**Report (Lb/d)**<br>**20.3**<br>**25.0** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **See above, with winter multiplier for monthly average, and 25.0 mg/l daily max limit, based on sewage treatment plant with biological treatment BPJ. See above application data.** |
| **Dissolved Oxygen** | **3.0** | **Inst. Minimum** | **WQBEL from WQM Model 7.0 due to high combined BOD5/COD ELG limits creating potential for impact on receiving stream. NOTE: Pollutant Group 1 does not require DO reporting. COD loadings make a DO limit needed here.** |
| **Chesapeake Bay** | **-** | **-** | **Existing** Chesapeake Bay TMDL requirements for a Significant IW Chesapeake Bay discharger. **Facility has been purchasing nutrient credits**. |
| Net Total Phosphorus | 271.0 (Lbs)<br>Report (Lbs) | Annual Mass Load<br>Monthly Average | See above. |
| Net Total Nitrogen | 7065.0 (Lbs)<br>Report (Lbs) | Annual Mass Load<br>Monthly Average | See above |
| Total Phosphorus | Report (Lbs)<br>Report (Lbs)<br>Report<br>Report | Annual Mass Load<br>Monthly Average<br>Monthly Average<br>Daily Max | See above.<br>Application data indicated 0.76 mg/l max and 0.66 mg/l average (3 samples). |
| Total Nitrogen | Report (Lbs)<br>Report (Lbs)<br>Report<br>Report | Annual Mass Load<br>Monthly Average<br>Monthly Average<br>Daily Max | See above<br>Application data indicated <10.9 mg/l (TKN plus nitrate-nitrite as N) and 10.66 mg/l average (3 samples). |
| Total Kjehldahl Nitrogen | Report<br>Report<br>Report | Monthly Average<br>Monthly Average<br>Daily Max | See above<br>Application data indicated 9.8 mg/l max and 9.5 mg/l average (3) samples. |
| Nitrate-Nitrite as N | Report<br>Report | Monthly Average<br>Monthly Average | See above |

| | | | |
|---|---|---|---|
| | Report | Daily Max | Application data indicated <1.1 mg/l max and average (3 samples). |
| Ammonia-Nitrogen | Report (Lbs)<br>See above | Annual Total<br>See above | See above |
| **New Monitoring** | **-** | **-** | **-** |
| **Chloride** | **Report (Lb/d)**<br>**Report (Lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **Monitoring per Reasonable Potential Analysis.** Application data was 160 mg/l max and 143 mg/l average (3 samples). |
| **Bromide** | **Report (Lb/d)**<br>**Report (Lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **Monitoring per Reasonable Potential Analysis.** Application data was 1.6 mg/l max and 1.13 mg/l average (3 samples). |
| **Arsenic** | **Report (Lb/d)**<br>**Report (Lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **Monitoring per Reasonable Potential Analysis.** Application data was 6 ug/l max and 5 ug/l average (3 samples). |
| **Nickel** | **Report (Lb/d)**<br>**Report (Lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **Monitoring per Reasonable Potential Analysis.** Application data was 18 ug/l max and 16.4 ug/l average (3 samples) |
| **Total Dissolved Solids (TDS)** | **Report (Lb/d)**<br>**Report (Lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **Old IWTP has been substantially modified (reducing lagoon capacity) with ongoing operational issues (including stream discoloration) from unpermitted changes (2006 Ferric Chloride system; closure of permitted lagoons). Monitoring is appropriate in this permit cycle.** Application data: 392 mg/l TDS max |
| **Chlorine Residuals/Byproducts being monitored upon request** | **-** | **-** | **Due to new Greensands Filter Backwash with hypochlorite stage (new chlorine loadings not accounted for in Pollutant Group Tables) in addition to high Chloride levels in wastewater, presence of bromide in wastewater, and new disinfection requirements (that might be addressed by chlorination), the Department will require sampling upon request for the following constituents.** |
| **Bromoform (ug/l)** | **Report (Lb/d)**<br>**Report (Lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **For informational purposes, the monthly average WQBEL would be 0.058024 mg/l.** Application data was <0.5 ug/l (max and average of 3 samples) |
| **Chloroform (ug/l)** | **Report (Lb/d)**<br>**Report (Lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **For informational purposes, the monthly average WQBEL would be 0.078241 mg/l.** Application data was <0.5 ug/l (max and average of 3 samples) |
| **Chlorodibromomethane (ug/l)** | **Report (Lb/d)**<br>**Report (Lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **For informational purposes, the monthly average WQBEL would be 0.005491 mg/l.** Application data was <0.5 ug/l (max and average of 3 samples) |
| **Dichlorobromomethane (ug/l)** | **Report (Lb/d)**<br>**Report (Lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **For informational purposes, the monthly average WQBEL would be 0.00755 mg/l.** Application data was <0.5 ug/l (max and average of 3 samples) |

Comments:

Updated Monitoring Requirements:

- EDMR: Assorted updates in EDMR formatting (Instantaneous Minimum and IMAX reporting for grab samples), etc.
- Minimum Reporting Requirements: The Department is requiring additional reporting for mass loadings and daily maximum concentrations. No additional sampling is required.
- Daily pH, DO, and TRC Monitoring: This is the standard monitoring frequency.
- Weekly Toxics Monitoring: Weekly monitoring is the standard frequency for toxics with Reasonable Potential for causing exceedances of the applicable water quality criterion
- 24-hour Composite Sampling: This is the standard Chesapeake Bay minimum requirement, and all other required composite sampling has been adjusted for consistency.
- 2/week Chesapeake Bay Monitoring: This is the standard Chesapeake Bay minimum requirement.

Outfall #001 Wastestream Clarifications: The NPDES Permit Application indicated additional wastewater sources:

- Stormwater Associated with Industrial Activities: Site PPC Plan indicates that stormwater is directed to the IWTP from the Octagonal Pit area (which would receive any release from Waste Oil Tank #011A per PPC Plan), portions of Loading Docks #6 and #7 (dye and chemical loading docks), plus any precipitation received by IWTP lagoons, clarifier, etc. Any spill reaching from the #013A fuel oil tanks would go to the building sump and then onto the IWTP. PPC Plan notes that the building lies within the Swatara Creek floodplain (with flood planning including sand bags and pumps).
- Building Floor drains/sump/trenches: Site PPC Plan indicates spills/leaks/releases inside building will be directed to the Octagonal Pit and then to IWTP for treatment. Potential spills/leaks/releases include dyes, fuels, etc.

**CBOD5, Ammonia-N, and DO: A WQM Model 7.0 was used to determine if limits are needed. See EDMR data.**

- **CBOD5: The BOD5 ELG limits apply, and the sewage secondary limit does not. Therefore, the WQM Model 7.0 results cannot be used to set limits for CBOD5. Given combined BOD5 and COD mass limits, the model run was used to verify that more stringent BOD5/COD limits are not required at the present time.**
  - **Given the 170.1 lbs/day monthly average and 340.2 lbs/day daily max BOD5 mass caps, this translates into a loading of ~10.19 mg/l monthly average for a 2.0 MGD discharge. At the ~0.5 MGD monthly average discharge of 2015, the concentrations would increase to ~40.79 mg/l and ~81.58 mg/l BOD5 for the same level of production.**
  - **Given the COD limits (2721.6 lbs/day daily mass loading over month, i.e. ~163.165 mg/l daily) at 2.0 MGD, WQM Model 7.0 was run at 174 mg/l CBOD5 effluent to determine if more stringent limits would apply. Model output limits were not more stringent.**
- **Ammonia-N: New WQBELs have been incorporated into the permit to ensure protection of the waters of the Commonwealth.**
  - **DMR reported concentration levels and the Department's water quality modeling indicate that concentration-based permit limits are needed. Site DMRs indicate potential for exceedances of the calculated limits.**
  - **The monthly average limits were in the 6.77 mg/l – 7.19 mg/l range, with at least one DMR-reported monthly average effluent concentration at 6.5 mg/l Ammonia-N. Limits are needed.**
- **Dissolved Oxygen (DO): New WQBELs have been incorporated into the permit to ensure protection of the waters of the Commonwealth.**
  - **The facility is authorized to discharge significant loadings of BOD5 (Biochemical Oxygen Demand) and Chemical Oxygen Demand (COD) to the receiving stream. With the removal of two treatment lagoons and site operational problems, the Department is concerned that the modified IWTP process might result in localized in-stream impairment of the DO water quality criteria (Chapter 93.7). The Department is therefore imposing a minimum DO effluent limit.**
  - **New BPJ WQBEL (3.0 mg/l minimum DO) has been added to permit to ensure protection of the waters of the Commonwealth due to combined BOD5/COD potential to impact water quality criterion unless adequately treated/oxygenated prior to discharge.**

**New Limits/Monitoring Requirements Effective on Permit Effective Date:**

- **Fecal Coliform:** Phasing in the new fecal coliform limits could not be granted because the PA water quality criteria for fecal coliform had been adopted prior to July 1, 1977. The current criteria for fecal coliform were in place prior to July 1, 1977.

- There is no authorized source for fecal coliform discharges from this facility. All sewage is directed to offsite disposal via the local POTW.
- The Facility has failed to identify the source of the fecal coliforms (apparently also in stormwater so local wildlife is likely source that can be addressed by keeping wildlife and stormwater out of wastewater treatment system and otherwise treating any reservoir process water prior to use – outside the scope of the NPDES permit) but has ruled out sanitary cross-connections. Swatara Creek is impaired for recreational use due to pathogens (unknown source) but apparently including this facility as a source (per application data summarized below). The facility directs all plant sewage to the Pine Brove Borough municipal sewer system (end destination being Pine Grove Township WWTP). The source of the fecal coliforms has not been determined by the operator, but might be from wildlife using water supply lagoon. Due to high levels and ongoing stream impairment, fecal coliform limits are being added to the permit per BPJ (Chapter 92a.47 secondary treatment limits).
- Application data: See Compliance History and table for more fecal coliform data.
  - Influent Concentration: 600,000/100 ml single sample result (280,000/100 ml in 2011); revised application estimated a >100,000/100 ml as the long-term average based on available data.
  - Effluent Max Daily: 3200/100 ml (17,000/100 ml in 2011)
  - Effluent Average Concentration: 2130/100 mL of 3 samples (10,381/100 ml average of 3 samples in 2011).

- **TMDL Metals (Total and Dissolved Iron; Aluminum; and Manganese):** This Major IW Facility discharges to the Upper Swatara Creek Watershed subject to a watershed Total Maximum Daily Load (TMDL) for Acid Mine Drainage (AMD) metals including Iron. Previously, this facility was not considered a potential significant source of iron, and was not addressed by any site-specific TMDL Waste Load Allocations (WLA) in terms of allowed loadings to the stream. As the Upper Swatara Creek TMDL did not include any WLA for this facility, all discharges are limited to the water quality criteria incorporated into the TMDL and expressed in the new permit limits. Total Iron, Dissolved Iron and Manganese require limits per Reasonable Potential Analysis, with aluminum limits being added to allow for operational flexibility to switch from iron-based to aluminum-based treatment chemicals.
- **Total Residual Chlorine (TRC)**: No disinfection system at the IWTP. Other than possible process water disinfection prior to use (not identified on line drawing), the only potential source is excessive use of chlorides or unidentified process water disinfection. Your sampling indicated TRC in the site effluent, despite no approved wastewater disinfection system at your Industrial Wastewater Treatment Plant (IWTP). The only known sources of chlorine would be either from the source water (City water and/or any incidental onsite treatment of well water prior to use as process water) or use of Ferric Chloride as a wastewater treatment chemical. The Department is imposing the new TRC WQBELs to protect the waters of the Commonwealth. In addition, the new limit applies in event that you decide to upgrade your IWTP with a chlorine-based disinfection system. Also, the Department has added a new Part C.II.E chlorine minimization condition to clarify your obligations regarding use of chlorine at your IWTP facility & related wastewater management structures/units.
- **Technology-Based Limitations (ELG) Limits (in effect immediately)**: **ELG Limits have been changed due to application production data being substantially below that used to estimate ELG limits in the last permit cycle. Per the September 2010 US EPA "NPDES Permit Writers' Manual" Section 5.2.2.4 (page 5-30), Mass-based TBELs from Production-Normalized Effluent Guidelines use a reasonable measure of the permittee's actual long-term daily production, not the design production rate**. **The ELG TBELs were recalculated based upon the projected 5-year annual production rate (7% average growth over 2015 production rate which was 25% greater than 2014 annual average production).** Application-estimated Average Annual Production Rates for ELG limits (40 CFR 410.52 Subpart E): Application indicated that the facility is not considered a "new source" and provided the following information:
  - Design production capacity: 2,600,000 lbs/month (~86,667 lbs/day). NOTE: This figure was used to derive ELG limits in previous NPDES permit.
  - Previous 5-years Annual Average Production Rate: 14,304,852 lbs/year. NOTE: 2015 production rate had a substantial increase to 17,484,226 lbs/year (~25% increase from previous year). 25-days/month production rate in 2015. The maximum month production (November) of 1,700,637 lbs is equivalent to 68,025 lbs/day or an annual rate of 2,050,746 lbs/year (exceeding the Application-projected 17,604,382 lbs/year for next 5-years).
  - Next 5-years Projected:
    - 5-year Annual Average Production Rate: 17,604,382 lbs/year (anticipated 7% annual growth over 2015 production rates)
    - Monthly Average: 1,467,032 lb/month
  - Maximum Monthly Production Rate/Annual Rate Ratio (using average 25 days of production/month per 2015):
    - 2011: 119%
    - 2012: 115%

- 2013: 117.8%
- 2014: 111.9%
- 2015: 116.7%
- 5-year average: 116%

- **Max Monthly Average (incorporating ratio for max month of production): 1,701,757 lbs/month (1,701.78 K).**
- **30-day Daily Average: 56.725 K**
- Flows:
  - NPDES Permit Basis Flow: 2.0 MGD
  - Application-estimated Average Flow during Production: 0.431 MGD (2015 flow was estimated at 0.480 MGD Average Annual flow).
  - Application-estimated Max Flow during Production/operation: 1.499 MGD
- DMR-reported flow ranges (10/2013 – 3/2016):
  - Monthly Average Flow Range: 0.300 MGD – 0.531 MGD
  - Daily Max Flow Range: 0.442 MGD – 0.831 MGD

**40 CFR 410.52(a) BPT/40 CFR 410.52(b) BAT ELG Limit and 40 CFR 122.45(b)(2) IBR Chapter 92a.45 Table: Using 56.725K lbs/month production rate:**

| Parameter and Basis | Average Monthly ELG (Lbs per 1000 Lbs Product or pH SU) for 30-day period | Average Monthly (30-day) Mass Loading (Lb/d) | Maximum Daily ELG (Lbs per 1000 Lbs Product or pH SU) | Maximum Daily ELG (Lbs/d) |
|---|---|---|---|---|
| **40 CFR 410.52(a) ELG BPT** | **-** | **-** | **-** | **-** |
| BOD5 | 2.5 | **141.81** (217 previously) | 5.0 | **283.63** (433 previously) |
| TSS* **(superseded)** | 10.9 | 618.30* (944 previously) | 21.8 | 1236.60* (1890 previously) |
| pH | 6.0 – 9.0 SU | - | 6.0 – 9.0 SU | - |
| COD (see below) | 30.0 | 1701.75 **(see below)** | 60.0 | 3403.5 **(see below)** |
| Sulfide | 0.10 | **5.67** (8.67 previously) | 0.20 | **11.34** (17.3 previously) |
| Total Phenols (a.k.a. Phenolics) | 0.05 | **2.83** (4.33 previously) | 0.10 | **5.67** (8.67 previously) |
| Total Chromium | 0.05 | **2.83** (4.33 previously) | 0.10 | **5.67** (8.67 previously) |
| **40 CFR 410.52(b) ELG BAT** | **-** | **-** | **-** | **-** |
| COD** | 10.0 (additional allowance for commission finishing operations) | 567.25 (see below) | 20.0 (additional allowance for commission finishing operations) | 1134.5 (see below) |
| **Total COD allowance** | 40 (30 + 10) | **2269** (previously 3470) | 80 (60 + 20) | **4538** (previously 6930) |

***TSS: The 2011 WPC derived a more stringent TSS limit via BPT/BPJ based on an average 25.0 mg/l (417 lb/day) monthly average and 50.0 mg/l (834 lb/day) daily max for a 2.0 MGD flow.** Antibacksliding would prohibit a less stringent limit.
**The facility does finishing per Application, with allowance included in previous ELG limits.

**TSS BPT/BPJ Limits**: Previously calculated based upon 25.0 mg/l TSS monthly average and 50.0 mg/l daily maximum (at 2.0 MGD): 417 lbs monthly average and 834 lbs/day daily maximum, retained per antibacksliding in previous NPDES permit renewal.

**Reasonable Potential Analysis: See attached Toxic Screening Spreadsheet and PENTOXSD water quality modeling. The Reasonable Potential Analysis used the highest detected concentration and lowest non-detect concentrations. See above for WQBELs due to Reasonable Potential Analysis.**

- **Additional Reasonable Potential Analysis Considerations:**
  - **General: The March 2019 Pollutant Group Tables (updated to address Greensands Filter-related sampling) included obsolete analytical data (original insensitive non-detect levels superseded by later submittals) and other submittals' analytical data. The Toxic Screening Spreadsheet used the best effluent data available from assorted submittals.**
  - **Influent-related considerations:**
    - **Influent sampling location at Octagonal Pump Station (before pumping across Swatara Creek to IWTP). Therefore, high influent fecal coliforms (600,000/100 ml) in influent wastewater samples indicate source at the plant, prior to IWTP lagoons.**
    - **Bromide was 6.0 mg/l in single influent sample and 3.0 mg/l in max effluent sample. Therefore, bromium is available to form chlorine disinfection byproducts containing bromium.**
    - **No Influent TRC data provided to quantify TRC residuals from non-potable water supply treatment system (now modified to include Greensands Filter with hypochlorite stage).**
    - **Influent Metals included detectable concentrations of Pollutant Group Metals (except for <0.5 ug/l Beryllium, <0.25 ug/l Hexavalent Chromium, <1 ug/l lead, <0.2 ug/l Mercury, <0.5 ug/l Silver, and <1 ug/l Thallium).**
    - **Single influent sample 20 mg/l Chlorides, 0.330 mg/l Total Iron, 0.210 mg/l Dissolved Iron concentrations indicates primary source of effluent chlorides and iron is potentially due to excessive use of ferric chloride in the IWTP.**
    - **Insensitive non-detect concentrations (not meeting DEP Target QLs) impact usefulness of other influent sampling data.**
  - **Total Dissolved Solids (TDS): TDS monitoring will be required to detect potential over-usage of wastewater treatment chemicals (ferric chloride) or chemical additives (containing salts).**
  - **Chlorine Residuals/Byproducts: Excessive chlorination, high chlorides discharge concentrations, available bromide onsite and potential disinfection system loads have led to inclusion of Chlorine Residual monitoring (upon request) for bromoform, chloroform, Chlorodibromomethane, and dichlorobromomethane. The Department retains broad authority to impose limits if monitoring indicates concentration levels requiring permit limits.**

**Water Quality Modeling Assumptions:**

| Modeling Assumption | Chemical Additive Notification Form | NPDES Permit Application Review Modeling | Comment |
|---|---|---|---|
| Design Flow | 2.0 MGD | 2.0 MGD (NPDES permit basis flow) and used for Chesapeake Bay limits | The facility has a potential derating option, which would affect Chesapeake Bay mass limits and water quality modeling. The Application indicated a 0.431 MGD Average Flow During Production and a 1.499 MGD Max Flow During Production. Actual max flows per EDMR data. |
| Q7-10 Flow | 6.75 CFS | 7.045 CFS (DFLOW) | - |
| LFY | 0.0141 CFSM | 0.1474 CFSM | - |
| Stream pH | 7 SU | 6.9 SU (default) | - |
| Stream Hardness | 100 mg/l | 64 mg/l used (stream quality appears to vary so needed to model at low range for WQC dependent on hardness. | - |

| | | | |
|---|---|---|---|
| Discharge Hardness | 100 mg/l | 53 mg/l (application) | - |
| Discharge pH | 7 SU | 6.9 SU | - |
| Outfall #001 (point 1) | 59.91 RMI<br>Elevation 512.50 Feet<br>Drainage Area: 47.48 square miles | Used downstream PWS as reference for 19.67 Miles.<br>Elevation: 520 Feet<br>Drainage Area: 47.80 | - |
| Point 2 | 59.34 RMI<br>Elevation 506.50 Feet<br>Drainage Area: 72.50 | 18.51 miles, 500 Feet elevation, 72.60 square mile drainage area. | - |
| Point 3 (PWS Water Intake) | - | Lebanon Water System ~19.67 miles downstream of Outfall #001. | - |
| Discharge Concentration Additives | CSC 3020F: 0.59952 mg/l<br>Formula 2188F: 0.89928 mg/l<br>Formula 2211F: 0.479616 mg/l<br>Formula 3534: 0.71942 mg/l<br>GMF2340H: 0.6235 mg/l<br>Polyplex 271: 0.959233 mg/l | | |

**<u>Color in Reasonable Potential Analysis</u>: The facility caused discoloration of the receiving stream in one incident. Color in water may be caused by the presence of minerals such as iron and manganese or by substances of vegetable origin such as algae and weeds. Colour tests indicate the efficacy of the water treatment system. The Platinum-Cobalt Scale (Pt/Co scale or Apha-Hazen Scale ) is a color scale that was introduced in 1892 by chemist Allen Hazen (1869-1930). The index was developed as a way to evaluate pollution levels in waste water. It has since expanded to a common method of comparison of the intensity of yellow-tinted samples. It is specific to the color yellow and is based on dilutions of a 500 ppm platinum cobalt solution. The ASTM has detailed description and procedures in ASTM Designation D1209, "Standard Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)." (Wikipedia). APHA/Pt-Co/Hazen Color ranges from zero for distilled water to 500 for waste water discolored by undesirable impurities and organic materials. 500 depicted as yellow wastewater. (Wikipedia cited source).**

- **Chapter 93.7 indicates a maximum 75 PT-Co, to protect PWS waters with no other colors perceptible to the human eye.**
- **Monitoring is being required due to stream discoloration incident.**

| Constituent | PENTOXSD Limit (ug/l) | Application Influent Concentration (Octagonal Pit sampling location) (ug/l) | Application Effluent Concentrations (ug/l) | 2011 Application Effluent Concentrations (ug/l) | Monthly Average Limit (PENTOXSD) | Daily Max Limit (PENTOXSD) |
|---|---|---|---|---|---|---|
| Color* | NA | 50 Pt-Co<br>200 (2011) | 70 Pt-Co max<br>55 Pt-Co avg. of 3 | 60 Pt-Co max<br>53 Pt-Co avg. of 3 | NA | NA |

**<u>Greensands Filter Backwash Flow (Groundwater Remediation) and Reasonable Potential</u>: Due to Guilford Mill's failure to provide required new influent/effluent sampling results (Pollution Groups 1 through 6), and failure to submit additional required 30-day reports per the August 2017 DEP Approval with Conditions Letter for Greensands Filter Start-up, the Department lacks the data to adequately account for the impact of the Greensands Filter Backwash (concentrated metals being removed from process water from groundwater wells; potentially concentrated organics from contaminated groundwater source (being remediated after Greensands filtration under RCRA Order); and potential for chlorine and chlorine byproducts from the Greensands Filter Unit being sent directly to the IWTP, in addition from chloride byproducts from existing Ferric Chloride chemical treatment), the Department has not been able to conduct a Reasonable Potential Analysis to screen out potential**

**monitoring requirements. Rather than requiring a separate new Application for Major NPDES Permit Modification to account for this new waste-stream, the Department has decided to incorporate monitoring for the potential constituents of interest and potential chlorine by-products into this permit. The Department has broad authority to impose new limits if future monitoring data indicates potential for impact on the waters of the Commonwealth. New applicable permit limits and monitoring requirements include:**

- **Chlorides Monitoring: Being imposed due to high chloride levels in effluent prior to Greensands Filter Start-up, likely from use of Ferric Chloride in the IWTP. Monthly monitoring will be required.**
- **Total Residual Chlorine (TRC) Limits: Being imposed due to detection of effluent TRC prior to Greensands Filter start-up and any wastewater disinfection. Potential sources include Ferric Chloride usage in the IWTP and residuals from separate potable water supply, in addition to Greensands Filter Backwash Flows. Daily monitoring will be required.**
- **Additional Potential Chlorine Byproducts Monitoring: The Facility effluent showed high chloride levels and Total Residual Chlorine in the effluent (in the absence of any disinfection due to non-sewage IWTP flows). Presumably, the chlorine is coming from potable water supply, any previous chlorination of the process water supply, and use of Ferric Chloride chemical treatment at the IWTP. The Greensands Filter incorporates a new chlorination process water supply stage, and will be directing backwash flows directly to the IWTP (increasing chlorine and chlorine byproducts loadings on the IWTP). In addition, the facility will be required to disinfect the effluent due to high fecal coliform levels in the non-sewage IWTP (discharging to a pathogen-impaired stream) with chlorination as a potential disinfection option. Bromide is present in the effluent, with potential to form several chlorination byproducts. Therefore, the Department will require additional monitoring for potential chlorine byproducts "upon request" (starting with a weekly monitoring requirement). If the concentration levels are determined to be low (compared to the constituent WQBEL), the Department would be open to reducing the monitoring frequency. If the concentration levels proved to be 25% or greater of the applicable WQBEL (see PENTOXSD printout), the Department retains broad authority to impose permit limits to protect the waters of the Commonwealth. The constituents being monitored include:**
  - **Chloroform**
  - **Dichlorobromomethane**
  - **Chlorodibromomethane**
  - **Bromoform**
- **Metals: Metals are present in the groundwater (with removal being the primary purpose for the Greensands Filter installation). This Permit already requires monitoring/limits of AMD metals (Aluminum, Total Iron, Dissolved Iron, Manganese) plus Antimony, Arsenic, Copper, Nickel, Selenium, Zinc. Therefore, the monitoring would address any potential impacts from the (concentrated) Greensands Filter Backwash priority pollutant metals loadings (going directly to the IWTP) on the waters of the Commonwealth.**
- **Organics From Groundwater: The First 30-day Report indicated no detection of these groundwater constituents of interest in the site effluent during the first 30-days of (intermittent) Greensands Filter Backwash Flows. This data is of limited value in the absence of the required subsequent 30-day reports and new Influent/Effluent Sampling & Analysis reported by new Pollutant Group Tables. Therefore, the Department will require additional monitoring for these known groundwater constituents (under RCRA remediation) "upon request" (starting with a weekly monitoring requirement). If the concentration levels are determined to be low (compared to the constituent WQBEL), the Department would be open to reducing the monitoring frequency in writing. See PENTOSXD printout for WQBELs. The Department retains broad authority to impose permit limits to protect the waters of the Commonwealth. The groundwater constituents include:**
  - **1,2-Dichloroethane**
  - **1,1-Dichloroethylene**
  - **Cis-1,2-dichloroethylene**
  - **Tetrachloroethylene**
  - **1,1,1-Trichloroethane**
  - **Trichloroethylene**
- **Available Effluent Data (application and from first 30-day Greensands Filter Time-frame):**

| Constituent | Resubmitted Original Application Influent Data prior to Greensands | Resubmitted Original Application Effluent Data prior to Greensands | Effluent Data from 1st 30 days of Greensands Operation Max Concentration per Tables only showing the | DEP Target QL (ug/l) |
|---|---|---|---|---|

| | **Filter Max Concentration (ug/l)** | **Filter Max Concentration And revised Table if different in parentheses (ug/l)** | **following parameters* (ug/l)** | |
|---|---|---|---|---|
| Tetrachloroethene (PCE) | <5 | <5 (<0.5) | <0.5 | <0.5 |
| Trichloroethene (TCE) | <5 | <5 (<0.5) | <0.5 | <0.5 |
| 1,1,1-trichloroethane (1,1,1-TCA) | <5 | <5 (<0.5) | <0.5 | <0.5 |
| 1,1,2-Trichloroethane | <5 | <5 (<0.5) | <0.5 | <0.5 |
| 1,1-Dichloroethane | <5 | <5 (<0.5) | <0.5 | <0.5 |
| 1,2-Dichloroethane | <5 | <5 (<0.5) | <0.5 | <0.5 |
| Total Iron | 330 | 12,500 | 8,330 | 20 |
| Dissolved Iron | 210 | 980 | - | 20 |
| Manganese | 181 | 974 (449) | 1070 | 2.0 |
| Aluminum | 26 | 180 (18) | - | 10 |
| Total Residual Chlorine (TRC) | - | - | 0.13 | 0.02 |
| Chlorides | 20,000 | 160,000 | - | 1,000 |
| Chloroform | <5 | <0.5 | - | <0.5 |
| Chlorodibromomethane | <5 | <0.5 | - | <0.5 |
| Dichlorobromomethane | <5 | <0.5 | - | <0.5 |
| Bromoform | <5 | <0.5 | - | <0.5 |
| Hardness | 56,000 | 53,000 | - | - |

**Development of Effluent Limitations**

| | | | |
|---|---|---|---|
| **Outfall No.** | 002 **- 010** | **Design Flow (MGD)** | 0 (stormwater only) |
| | 40º 33' 25.81" (002) | | -76º 23' 21.97" (002) |
| | 40º 33' 25.81" (003) | | -76º 23' 21.97" (003) |
| | 40º 33' 24.96" (004) | | -76º 23' 20.78" (004) |
| | 40º 33' 23.55" (005) | | -76º 23' 17.17" (005) |
| | 40º 33' 22.31" (006) | | -76º 23' 15.18" (006) |
| | 40º 33' 11.00" (007) | | -76º 23' 16.00" (007) |
| | 40º 33' 29.01" (008) | | -76º 23' 23.78" (008) |
| | **40º 33' 29.01" (009) – New** | | **-76º 23' 23.78" (009) – New** |
| **Latitude** | **40º 33' 22.00" (010) – New** | **Longitude** | **-76º 23' 16.00" (010) – New** |

**Wastewater Description:** Stormwater associated with industrial activities

**Permit Limits and Monitoring:**

| Parameter | Limit (mg/l unless otherwise specified) | SBC | Model/Basis |
|---|---|---|---|
| **All Stormwater Outfalls** | **-** | **-** | - |
| pH | **6.0 – 9.0 SU** | **Inst.** Min - **IMAX** | Retained as both ELG parameter and General Permit PAG-03 Appendix Q (Textile Mills, Apparel and Other Fabric Products) BPJ constituent. **Chapter 95.2 permit limits incorporated.** |
| BOD5 | **30.0** | **IMAX** | Retained as ELG parameter. **Limit based on PAG-03 statewide BPJ Benchmark.** |
| Chemical Oxygen Demand (COD) | **120.0** | **IMAX** | Retained as ELG parameter and due to detection in Outfall #002 monitoring. **Limit based on PAG-03 statewide BPJ Benchmark.** |
| TSS | **100.0** | **IMAX** | Retained as both ELG parameter and General Permit PAG-03 Appendix Q (Textile Mills, Apparel and Other Fabric Products) BPJ constituent. **Limit based on PAG-03 statewide BPJ Benchmark.** |
| Oil & Grease | **30.0** | **IMAX** | Retained because facility has waste oil storage and handling onsite, in addition to truck traffic with leakage potential. **Limit based Chapter 95.2.** |
| Total Phenolics | **Report** | **Report** | Retained as ELG parameter. |
| Total Iron | **1.500** | **IMAX** | Retained as TMDL Metal. **Limit based on TMDL water quality criterion.** |
| Total Aluminum | **0.750** | **IMAX** | Added due to TMDL. Limit based on TMDL water quality criterion. |
| Total Manganese | **1.000** | **IMAX** | See above. |
| Total Chromium | Report | **IMAX** | Retained ELG parameter |
| Total Sulfide | Report | **IMAX** | See above |
| **Fecal Coliforms** | **Report (#/100 ml)** | **IMAX** | **Requirement due to pathogen-impaired receiving stream and unidentified sources of fecal coliforms being discharged from this site.** |
| **Constituents No longer Require Monitoring** | **-** | **-** | **-** |
| TKN | - | - | No longer needed for this SIC Code per PA Statewide BPJ set forth in the General Permit |

| | | | |
|---|---|---|---|
| | | | PAG-03 (Stormwater associated with industrial activities) |

Comments:

- **Stormwater Drainage Area Information: See Table 1 (below) for stormwater drainage area information and application stormwater data. See EDMR section for most recently available stormwater data. No previous stormwater monitoring data available.**
- **Outfall No. 008: Monitoring upon request only. Area might become subject to a spill, leak or other release but no obvious source of contamination in the area.**
- **New Stormwater Outfalls/drainage Areas: New Outfalls #009 (IWTP and other industrial activities/material handling areas across Swatara Creek from main plant) and new Outfall #010 (downstream of Outfall #006) have been added to this permit.**
- **No representative Stormwater Outfalls: Application requested that Stormwater Outfall #006 be considered representative of all stormwater sampling. However, per table below, only Stormwater Outfall #008 does not appear to contain drainage area-specific potential sources with spill/leak potential warranting monitoring in this permit cycle, and there is evidence of potential contamination in the Outfall #002 area (high COD compared to Outfall #006). The Department will reconsider the case for representative sampling during the next NDPES permit renewal cycle.**
- **Other Former Site Stormwater Outfalls: The 11/2011 Stormwater Annual Inspection Report (2012 Report only addressed Plugged Stormwater Outfall #001 among these other outfalls) listed additional stormwater outfalls not in E-facts or previous NPDES Permit Applications/permits). The Department is relying on the NPDES Permit Application to have identified all active stormwater drainage areas/outfalls. Report information noted:**
  - **Former Stormwater Outfall #001 (permanently plugged)**
  - **Outfall #009 (26,789 square foot, 100% paved area, 22-inch corrugated metal pipe); NOT addressing IWTP side of Swatara Creek. Outfalls $007, 008 and 009 were indicated to be adjacent pipes that discharge to the seasonal creek in back of the Mill. NOTE: Outfall #008 is now shown on opposite side of plant building discharging to Swatara Creek.**
  - **Outfall #010 (25,308 square foot, 100% paved area, 16-inch corrugated metal pipe, roof drains)**
  - **Outfall #011 (4,704 square foot, 100% paved area including roof drains, 4-inch PVC pipe)**
  - **Outfall #012 (39,113 square foot, 36% paved area, 24-inch reinforced concrete pipe receiving flows from roof drains, 25,000 square foot grassed area between north wall of plant and normally dry creek bed, fire pump house and outdoor fuel tank and loading/unloading areas for oil tanks)**
  - **Outfall #015 (13,113 square foot, 100% paved area, 22-inch corrugated metal pipe) receiving flows from roof drains, asphalt parking lot areas, street gutters along both sides of Wideawake Street in front of Mill. The end of the pipe discharges into creek bank behind the Mill just upstream of a stream crossing which consists of two (2) 48-inch concrete pipes laid in the streambed aligned parallel with the stream flow)**
  - **Outfall #016 (1,263 square foot, 100% paved area 20-foot wide swale and 4-inch corrugated metal pipe) receiving drainage from lower asphalt parking area with plastic pipe receiving drainage French drains into the Creek at the drainage area of the swale.**
  - **Outfall #017 (0 square foot formerly 3290 square foot, 100% paved area, former terra cotta pipe) including runoff from "small loading dock area" that "now soaks into the porous ground).**

**Development of Effluent Limitations**

**Outfall No.** 101 (Internal Monitor Point) **Design Flow (MGD)** 0.020 MGD to IWTP ONLY.
**Latitude** 40º 33' 26.09" **Longitude** -76º 23' 17.80"
**Wastewater Description:** **Internal Monitor Point flow (Greensands Filter Backwash Flow from treatment of VOC-contaminated groundwater for removal of metals) being directed to the IWTP lagoons.**

**Technology-Based Limitations**

| Parameter | Limit (mg/l unless otherwise specified) | SBC | Model/Basis |
|---|---|---|---|
| **Flow** | **Report (MGD)**<br>**Report (MGD)** | **Monthly Average**<br>**Daily Max** | **Flow reporting is required to estimate loadings.** |
| **Filter Backwash Discharges/day** | **Report (occur/month**<br>**Report (occur/month** | **Minimum Monthly Average**<br>**Average Monthly** | **Reporting requirement to address number of backwash filter flow occurrences.** |
| **TSS** | **Report (lb/d)**<br>**Report lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **Reporting upon request to determine loadings on IWTP.** |
| **TDS** | **Report (lb/d)**<br>**Report lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **See above** |
| **pH** | **Report** | **Inst. Min - IMAX** | **See above** |
| **TRC** | **Report**<br>**Report** | **Monthly Average**<br>**IMAX** | **See above** |
| **Aluminum** | **Report (lb/d)**<br>**Report lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **See above** |
| **Antimony** | **Report (lb/d)**<br>**Report lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **See above** |
| **Arsenic** | **Report (lb/d)**<br>**Report lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **See above** |
| **Chromium, Total** | **Report (lb/d)**<br>**Report lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **See above** |
| **Copper, Total** | **Report (lb/d)**<br>**Report lb/d)**<br>**Report**<br>**Report** | **Monthly Average**<br>**Daily Max**<br>**Monthly Average**<br>**Daily Max** | **See above** |
| **Iron, Dissolved** | **Report (lb/d)** | **Monthly Average** | **See above** |

| | | | |
|---|---|---|---|
| | Report lb/d)<br>Report<br>Report | Daily Max<br>Monthly Average<br>Daily Max | |
| Iron, Total | Report (lb/d)<br>Report lb/d)<br>Report<br>Report | Monthly Average<br>Daily Max<br>Monthly Average<br>Daily Max | See above |
| Lead, Total | Report (lb/d)<br>Report lb/d)<br>Report<br>Report | Monthly Average<br>Daily Max<br>Monthly Average<br>Daily Max | See above |
| Manganese, Total | Report (lb/d)<br>Report lb/d)<br>Report<br>Report | Monthly Average<br>Daily Max<br>Monthly Average<br>Daily Max | See above |
| Nickel, Total | Report (lb/d)<br>Report lb/d)<br>Report<br>Report | Monthly Average<br>Daily Max<br>Monthly Average<br>Daily Max | See above |
| Selenium, Total | Report (lb/d)<br>Report lb/d)<br>Report<br>Report | Monthly Average<br>Daily Max<br>Monthly Average<br>Daily Max | See above |
| Zinc, Total | Report (lb/d)<br>Report lb/d)<br>Report<br>Report | Monthly Average<br>Daily Max<br>Monthly Average<br>Daily Max | See above |
| 1,1,1-Trichloroethane | Report (lb/d)<br>Report lb/d)<br>Report<br>Report | Monthly Average<br>Daily Max<br>Monthly Average<br>Daily Max | See above |
| 1,1-Dichlorethane | Report (lb/d)<br>Report lb/d)<br>Report<br>Report | Monthly Average<br>Daily Max<br>Monthly Average<br>Daily Max | See above |
| Cis-1, 2-Dichloroethylene | Report (lb/d)<br>Report lb/d)<br>Report<br>Report | Monthly Average<br>Daily Max<br>Monthly Average<br>Daily Max | See above |
| Tetrachloroethylene | Report (lb/d)<br>Report lb/d)<br>Report<br>Report | Monthly Average<br>Daily Max<br>Monthly Average<br>Daily Max | See above |
| Trichloroethylene | Report (lb/d)<br>Report lb/d)<br>Report<br>Report | Monthly Average<br>Daily Max<br>Monthly Average<br>Daily Max | See above |

Comments: **This is an internal monitor point for Greensands Filter Backwash (groundwater remediation) flows going to the IWTP. Monitoring is needed to determine impacts on IWTP and failure of permittee to supply previously requested information (8/21/2017 Greensands Filter Approval with Conditions Letter). Constituent monitoring will be upon request (weekly at first).**

- **Flow and Backwash Filter Discharges per Month: Needed to track loadings on IWTP.**
- **TSS and TDS: Monitored to determine loadings on the IWTP.**
- **Metals: The groundwater monitoring does indicate detected metals (arsenic, barium, total chromium, copper, zinc) with insensitive non-detect levels for other priority pollutant metals. However, most of the groundwater metals loadings have already been directed to the IWTP, except for settlement within the**

**Water Supply Reservoir. Therefore, metal loadings is not likely to change except in terms of concentration at the IWTP itself (possibly impacting IWTP lagoon biology near influent point). The NPDES Permit Application-identified metals with Reasonable Potential will be monitored upon request. Lead will also be monitored upon request to determine if concentrated plugs might have potential for pass-through (groundwater ND level of 10 ug/l is too insensitive to determine if lead might be an issue).**

- **Organics: The groundwater monitoring does indicate non-detect concentrations for assorted organics in various site wells. The organics identified in the NPDES Permit Application update (Greensands Filter) will be monitored upon request (as the RCRA Treatment System would remove the VOCs prior to process wastewater reaching plant) in the absence of updated influent sampling data (all Pollutant Groups) to determine if the Greensand Filter Backwash has elevated VOC levels.**
- **Total Residual Chlorine: Will be monitored due to Greensands Filter Hypochlorite usage and detected TRC in plant effluent (without any IWTP disinfection stage). Other chlorine byproducts will be monitored in the No. 001 effluent only.**

**Table 1 (Stormwater Drainage Area Information)**

| Outfall # | Drainage Area | % Paved | Description from Module 1 and Stormwater Annual Inspections |
|---|---|---|---|
| 002 | 55,300 square feet | 100% (per Annual Stormwater Inspection Report) | Module 1 Description: Fuel Oil tanks (in containment area), parts, old equipment, scrap metals, and waste containers. Revised Site Drawing: On Tulpehocken Street side 2014 Annual Stormwater Inspection: Paved driveway and loading dock area off front of manufacturing building facing Tulpehocken Street (Route 125) drains through pipe under building. 2013 Annual Stormwater Inspection Report: Noted only surplus machinery and material handling equipment without potential for stormwater contamination will be stored outdoors and will be covered whenever practical 2011 Annual Stormwater Inspection: Indicated Docks 3 & 4 plus portion of asphalt-paved employee parking within this drainage area drains via 15-inch corrugated plastic pipe. Module 1 Sampling data included: 106 mg/l COD; 0.089 mg/l Al; 0.17 mg/l Total Iron; 0.014 mg/l Total Phenols, and 6000/100 ml Fecal Coliforms. |
| 003 | 61,700 square feet | 100% (per Annual Stormwater Inspection Report) | Module 1 Description: Same as above. Revised Site Drawing: Includes Warehouse area, propane tank, propane rack, porta-john, roll-off dumpster. 2014 Annual Stormwater Inspection: Roof drains noted. 2013 Inspection noted outfall pipe was partially submerged during the inspection. 2011 Annual Stormwater Inspection: Indicated 18-inch corrugated metal pipe discharge. Module 1 Sampling data included: 0.12 mg/l Aluminum; 0.36 mg/l Total Iron; 0.019 mg/l Manganese; 0.019 Total Phenols; >6000/100 ml Fecal Coliforms. |
| 004 | 113,900 square feet | 100% (per prior Module 1 version) | Module 1 Description: Same as above. Revised Site Drawings: Includes Finishing Plant area, HVAC (with cyclones and baghouse), and roll-off dumpster for inte collection system. 2014 Annual Stormwater Inspection: Roof drains noted. 2011 Annual Stormwater Inspection: Indicated 40-inch diameter manhole from Warehouse plus roof drains drains to 24-inch corrugated metal pipe. Module 1 Sampling data included: 0.03 mg/l Aluminum; 0.18 mg/l Total Iron; and 39/100 ml Fecal Coliform. |
| 005 | 112,300 square feet | 100% (Annual Stormwater Inspection Report) | Module 1 Description: Same as above. Revised Site Drawing: Including dyehouse 2014 Annual Stormwater Inspection: Paved driveway and loading dock area off front of manufacturing building facing Tulpehocken Street (Route 125) drains through pipe under building. 2011 Annual Stormwater Inspection: Indicates 24-inch wide by 24-inch long manhole in the grass outside the building wall adjacent to Finished Goods Loading Dock drains to this outfall. This manhole collects drainage from several roof areas and directs flow to 18-inch corrugated plastic pipe. Module 1 Sampling data included: 0.03 mg/l Aluminum; 0.10 mg/l Total Iron; 0.006 mg/l Manganese; and 8,200/100 ml Fecal Coliform. |
| 006 | 112,600 square feet | 100% (Annual Stormwater Inspection Report) | Module 1 Description: Same as above. Revised Site Drawing: Includes dye/chemical storage and apparently dye/chemical unloading area (if not discharging to Outfall #010). |

| | | | |
|---|---|---|---|
| | | | 2014 Annual Stormwater Inspection: Roof areas<br>2011 Annual Stormwater Inspection: Discharge to 16-inch corrugated metal pipe.<br>Module 1 Sampling data included: 0.06 mg/l Aluminum; 0.13 mg/l Total Iron; 0.016 mg/l Manganese; and 640/100 ml Fecal Coliform. |
| 007 | 282,800 square feet | 100% (Annual Stormwater Inspection Report) | Module 1 Description: Same as above. **NOTE: Outfall to Wideawake Creek, but some potential for discharge to Swatara Creek that will be addressed via NPDES Permit Application-defined new outfall #010 (alternately identified as Outfall #009 or #007I in NPDES Permit Application).** Plus a fuel oil unloading area. Drain covers are used in this area during unloading operations.<br>Revised Site Drawings: Includes Tulpehocken Street side drainage, warehouse, roof run-off, fuel oil unloading area, fuel oil tank, wastewater pump Station (**a.k.a. Octagonal Pit that was noted to be within the Swatara floodplain and location of high fecal coliform concentrations**), Waste oil storage and loading area, and receiving run-on from Ingenco Landfill Gas-to-Energy (LFG) Facility within property boundaries discharging either to Outfall #007 (Wideawake Creek).<br>2014 Annual Stormwater Inspection: Paved driveway in along front of the building (parallel to Tulpehocken Street) and unloading areas for fuel oil. Outfall pipe extends beyond perimeter fence to discharge to Wideawake Creek. The end of the 43-inch diameter pipe is guarded with bars to prevent unauthorized access to the property. Catch basins drain to main pipe. 2013 Inspection noted concrete headwall.<br>2011 Annual Stormwater Inspection: Discharge to 10-inch corrugated metal pipe.<br>Module 1 Sampling Data included: <5 SU pH (sample out of hold time); 0.02 mg/l Total Iron; 0.018 mg/l Total Phenols; 3/100 ml Fecal Coliforms. |
| 008 | 39,100 square feet | 50% paved;<br>50% unpaved (per Annual Stormwater Inspection Report) | Module 1 Description: Discharge from grass lined swale, with no activity/material storage area within drainage area.<br>Revised Site Drawing: Propane tank extends into this drainage area.<br>2014 Annual Stormwater Inspection: Outfall #008 is grassy swale that drains a small portion between the north end of the building and the fence at the property line. **Will only be monitored upon request.**<br>2011 Annual Stormwater Inspection: Indicated 8-inch PVC pipe discharge, said to be adjacent to #007 outfall pipe.<br>Module 1 Sampling Data: Not available – no discharge during single sampling event. |
| **009 (NEW)** | **~11.8 acres ~513,300 square feet (visual estimate for property area/visible clearing containing industrial activities & material handling areas bounded by woods and/or apparent access road)** | **Unknown (estimated as ~10% paved from E-maps, discounting reservoirs/lagoons)** | **Module 1 Description: Not addressed in Module 1. Revised Site Plan drawing indicates sheet flow to Swatara Creek (with no identified stormwater outfall). This area (on the opposite side of Swatara Creek from main plant) contains industrial activities/material handling areas including: Electrical substation, Facility water reservoir/pumphouse (with reservoir receiving treated groundwater per EPA corrective action involving groundwater remediation), IWTP including existing lagoons, chemical treatment, clarifiers. Stormwater run-off would drain to Swatara Creek. NOTE: Application indicates no stormwater discharge from IWTP Outfall #001.**<br>**Area and coordinates (clarifier) guestimated from E-maps.**<br>**Revised Site Drawing: Includes WWTP fuel tank, Ferric Chloride tank, Sodium hydroxide tank,** |

| | | | |
|---|---|---|---|
| | | | **Annual Stormwater Inspection: DEP files are unclear whether they specifically inspected this area as it was not identified as a stormwater drainage area in previous permiting.**<br>**Module 1 Sampling Data: Not available – no sampling was done.** |
| **010 (NEW)** | **14,100 square feet plus whatever Outfall #007 drainage area runoff goes directly to Swatara Creek** | **Unknown – assumed 100% for conservatism and consistency with prior stormwater inspection reports for Outfalls #006 and #007.** | **Module 1 Description: Fuel Oil tanks (in containment area), parts, old equipment, scrap metals, and waste containers. January 20, 2017 NPDES Application Letter indicated that the outfall consisted of a 4-inch PVC pipe receiving roof drainage. NOTE: NPDES Renewal Application identified this outfall as #007P or #009, but redesignated #010 due to previously created Outfall #009 for ITWP side of Swatara Creek. For purposes of this permit, the Outfall #010 is assumed to be representative of any Outfall #007 drainage area flow that goes to Swatara Creek (as opposed to Wideawake Creek).**<br>**Revised Site Drawing:**<br>**Annual Stormwater Inspection: DEP files are unclear whether they specifically inspected this area as it was not identified as a stormwater drainage area in previous permiting.**<br>**Module 1 Sampling Data Included: 0.112 mg/l Aluminum, 0.03 mg/l Total Iron, 0.015 mg/l Manganese, and 7,800/100 ml Fecal Coliforms.** |

# Reasonable Potential Analysis/Modeling

## TOXICS SCREENING ANALYSIS
## WATER QUALITY POLLUTANTS OF CONCERN
## VERSION 2.7

Facility: Guilford Mills LLC
NPDES Permit No.: PA0008321
Outfall: 001
Analysis Hardness (mg/L): 59.549
Discharge Flow (MGD): 2
Analysis pH (SU): 6.9
Stream Flow, $Q_{7-10}$ (cfs): 7.045

| | 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 |
|---|---|---|---|---|---|---|---|
| Group 1 | Total Dissolved Solids | | 392000 | 500000 | Yes | 4920000 | No Limits/Monitoring |
| | Chloride | | 270000 | 250000 | Yes | 2460000 | Monitor |
| | Bromide | | 3000 | N/A | No | | Monitor |
| | Sulfate | | 40000 | 250000 | No | | |
| | Fluoride | < | 0.5 | 2000 | No (Value < QL) | | |
| Group 2 | Total Aluminum | | 180 | 750 | No | 810 | |
| | Total Antimony | | 42 | 5.6 | Yes | 17.799 | Establish Limits |
| | Total Arsenic | | 6 | 10 | Yes | 31.783 | Monitor |
| | Total Barium | | 19 | 2400 | No | | |
| | Total Beryllium | < | 1 | N/A | No | | |
| | Total Boron | < | 100 | 1600 | No (Value < QL) | | |
| | Total Cadmium | < | 0.2 | 0.184 | No (Value < QL) | | |
| | Total Chromium | | 18 | N/A | No | | |
| | Hexavalent Chromium | < | 0.25 | 10.4 | No (Value < QL) | | |
| | Total Cobalt | | 5 | 19 | No | | |
| | Total Copper | | 17 | 6.0 | Yes | 13.607 | Establish Limits |
| | Total Cyanide | | 7 | N/A | No | | |
| | Total Iron | | 12500 | 1500 | Yes | 4767.518 | Establish Limits |
| | Dissolved Iron | | 12000 | 300 | Yes | 953.504 | Establish Limits |
| | Total Lead | < | 1 | 1.6 | No (Value < QL) | | |
| | Total Manganese | | 974 | 1000 | Yes | 3178.345 | Monitor |
| | Total Mercury | < | 0.2 | 0.05 | No (Value < QL) | | |
| | Total Molybdenum | < | 4 | N/A | No | | |
| | Total Nickel | | 18 | 33.6 | Yes | 108.434 | Monitor |
| | Total Phenols (Phenolics) | | 120 | 5 | Yes | 49.249 | Establish Limits |
| | Total Selenium | | 19 | 5.0 | Yes | 15.857 | Establish Limits |
| | Total Silver | < | 0.4 | 1.6 | No (Value < QL) | | |
| | Total Thallium | < | 2 | 0.24 | No (Value < QL) | | |
| | Total Zinc | | 450 | 77.2 | Yes | 122 | Establish Limits |
| Group 3 | Acrolein | < | 2 | 3 | No (Value < QL) | | |
| | Acrylamide | < | 17 | 0.07 | Yes | 0.961 | Establish Limits |
| | Acrylonitrile | < | 0.5 | 0.051 | No (Value < QL) | | |
| | Benzene | < | 0.5 | 1.2 | No (Value < QL) | | |
| | Bromoform | < | 0.5 | 4.3 | No (Value < QL) | | |
| | Carbon Tetrachloride | < | 0.5 | 0.23 | No (Value < QL) | | |
| | Chlorobenzene | < | 0.5 | 130 | No (Value < QL) | | |
| | Chlorodibromomethane | < | 0.5 | 0.4 | No (Value < QL) | | |
| | Chloroethane | < | 0.5 | N/A | No | | |
| | 2-Chloroethyl Vinyl Ether | < | 5 | 3500 | No (Value < QL) | | |
| | Chloroform | < | 0.5 | 5.7 | No (Value < QL) | | |
| | Dichlorobromomethane | < | 0.5 | 0.55 | No (Value < QL) | | |
| | 1,1-Dichloroethane | < | 0.5 | N/A | No | | |
| | 1,2-Dichloroethane | < | 0.5 | 0.38 | No (Value < QL) | | |
| | 1,1-Dichloroethylene | < | 0.5 | 33 | No (Value < QL) | | |
| | 1,2-Dichloropropane | < | 0.5 | 2200 | No (Value < QL) | | |
| | 1,3-Dichloropropylene | < | 0.5 | 0.34 | No (Value < QL) | | |
| | Ethylbenzene | < | 0.5 | 530 | No (Value < QL) | | |
| | Methyl Bromide | < | 0.5 | 47 | No (Value < QL) | | |
| | Methyl Chloride | < | 0.5 | 5500 | No (Value < QL) | | |
| | Methylene Chloride | < | 0.5 | 4.6 | No (Value < QL) | | |
| | 1,1,2,2-Tetrachloroethane | < | 0.5 | 0.17 | No (Value < QL) | | |
| | Tetrachloroethylene | < | 0.5 | 0.69 | No (Value < QL) | | |
| | Toluene | | 1.8 | 330 | No | | |
| | 1,2-trans-Dichloroethylene | < | 0.5 | 140 | No (Value < QL) | | |
| | 1,1,1-Trichloroethane | < | 0.5 | 610 | No (Value < QL) | | |
| | 1,1,2-Trichloroethane | < | 0.5 | 0.59 | No (Value < QL) | | |
| | Trichloroethylene | < | 0.5 | 2.5 | No (Value < QL) | | |
| | Vinyl Chloride | < | 0.5 | 0.025 | No (Value < QL) | | |
| Group 4 | 2-Chlorophenol | < | 25 | 81 | No | | |
| | 2,4-Dichlorophenol | < | 25 | 77 | No | | |
| | 2,4-Dimethylphenol | < | 25 | 130 | No | | |
| | 4,6-Dinitro-o-Cresol | < | 10 | 13 | No (Value < QL) | | |
| | 2,4-Dinitrophenol | < | 50 | 69 | Yes | 219.306 | No Limits/Monitoring |
| | 2-Nitrophenol | < | 25 | 1600 | No | | |
| | 4-Nitrophenol | < | 50 | 470 | No | | |
| | p-Chloro-m-Cresol | < | 0.073 | 30 | No (Value < QL) | | |
| | Pentachlorophenol | < | 10 | 0.27 | No (Value < QL) | | |
| | Phenol | < | 50 | 10400 | No | | |
| | 2,4,6-Trichlorophenol | < | 10 | 1.4 | No (Value < QL) | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Group 5 | Acenaphthene | < | 0.014 | 17 | No (Value < QL) | | |
| | Acenaphthylene | < | 25 | N/A | No | | |
| | Anthracene | < | 25 | 8300 | No | | |
| | Benzidine | < | 3.3 | 0.000086 | No (Value < QL) | | |
| | Benzo(a)Anthracene | < | 0.014 | 0.0038 | No (Value < QL) | | |
| | Benzo(a)Pyrene | < | 0.013 | 0.0038 | No (Value < QL) | | |
| | 3,4-Benzofluoranthene | | 0.12 | 0.0038 | Yes | 0.052 | Establish Limits |
| | Benzo(ghi)Perylene | < | 25 | N/A | No | | |
| | Benzo(k)Fluoranthene | | 0.069 | 0.0038 | Yes | 0.052 | Establish Limits |
| | Bis(2-Chloroethoxy)Methane | < | 0.024 | N/A | No | | |
| | Bis(2-Chloroethyl)Ether | < | 25 | 0.03 | Yes | 0.412 | Establish Limits |
| | Bis(2-Chloroisopropyl)Ether | < | 25 | 1400 | No | | |
| | Bis(2-Ethylhexyl)Phthalate | | 3.8 | 1.2 | Yes | 16.472 | No Limits/Monitoring |
| | 4-Bromophenyl Phenyl Ether | < | 25 | 54 | No | | |
| | Butyl Benzyl Phthalate | < | 25 | 35 | Yes | 111.242 | No Limits/Monitoring |
| | 2-Chloronaphthalene | < | 25 | 1000 | No | | |
| | 4-Chlorophenyl Phenyl Ether | < | 25 | N/A | No | | |
| | Chrysene | < | 0.013 | 0.0038 | No (Value < QL) | | |
| | Dibenzo(a,h)Anthrancene | < | 0.013 | 0.0038 | No (Value < QL) | | |
| | 1,2-Dichlorobenzene | < | 0.5 | 160 | No (Value < QL) | | |
| | 1,3-Dichlorobenzene | < | 0.5 | 69 | No (Value < QL) | | |
| | 1,4-Dichlorobenzene | < | 0.5 | 150 | No (Value < QL) | | |
| | 3,3-Dichlorobenzidine | < | 0.11 | 0.021 | No (Value < QL) | | |
| | Diethyl Phthalate | < | 25 | 800 | No | | |
| | Dimethyl Phthalate | < | 25 | 500 | No | | |
| | Di-n-Butyl Phthalate | < | 0.84 | 21 | No (Value < QL) | | |
| | 2,4-Dinitrotoluene | < | 25 | 0.05 | Yes | 1017.07 | No Limits/Monitoring |
| | 2,6-Dinitrotoluene | < | 25 | 0.05 | Yes | 635.669 | No Limits/Monitoring |
| | 1,4-Dioxane | | 2.6 | N/A | No | | |
| | Di-n-Octyl Phthalate | < | 25 | N/A | No | | |
| | 1,2-Diphenylhydrazine | < | 0.063 | 0.036 | No (Value < QL) | | |
| | Fluoranthene | < | 25 | 40 | Yes | 127.134 | No Limits/Monitoring |
| | Fluorene | < | 25 | 1100 | No | | |
| | Hexachlorobenzene | < | 0.018 | 0.00028 | No (Value < QL) | | |
| | Hexachlorobutadiene | < | 0.5 | 0.44 | No (Value < QL) | | |
| | Hexachlorocyclopentadiene | < | 0.05 | 1 | No (Value < QL) | | |
| | Hexachloroethane | < | 0.06 | 1.4 | No (Value < QL) | | |
| | Indeno(1,2,3-cd)Pyrene | < | 0.14 | 0.0038 | No (Value < QL) | | |
| | Isophorone | < | 25 | 35 | Yes | 111.242 | No Limits/Monitoring |
| | Naphthalene | < | 0.5 | 43 | No (Value < QL) | | |
| | Nitrobenzene | < | 0.081 | 17 | No (Value < QL) | | |
| | n-Nitrosodimethylamine | < | 0.071 | 0.00069 | No (Value < QL) | | |
| | n-Nitrosodi-n-Propylamine | < | 0.03 | 0.005 | No (Value < QL) | | |
| | n-Nitrosodiphenylamine | < | 0.082 | 3.3 | No (Value < QL) | | |
| | Phenanthrene | < | 0.041 | 1 | No (Value < QL) | | |
| | Pyrene | < | 25 | 830 | No | | |
| | 1,2,4-Trichlorobenzene | < | 0.5 | 26 | No (Value < QL) | | |
| Group 6 | Aldrin | < | 0.02 | 0.000049 | No (Value < QL) | | |
| | alpha-BHC | < | 0.02 | 0.0026 | No (Value < QL) | | |
| | beta-BHC | < | 0.02 | 0.0091 | No (Value < QL) | | |
| | gamma-BHC | < | 0.02 | 0.098 | No (Value < QL) | | |
| | delta BHC | < | 0.02 | N/A | No | | |
| | Chlordane | < | 0.5 | 0.0008 | No (Value < QL) | | |
| | 4,4-DDT | < | 0.02 | 0.00022 | No (Value < QL) | | |
| | 4,4-DDE | < | 0.02 | 0.00022 | No (Value < QL) | | |
| | 4,4-DDD | < | 0.02 | 0.00031 | No (Value < QL) | | |
| | Dieldrin | < | 0.02 | 0.000052 | No (Value < QL) | | |
| | alpha-Endosulfan | < | 0.02 | 0.056 | No (Value < QL) | | |
| | beta-Endosulfan | < | 0.02 | 0.056 | No (Value < QL) | | |
| | Endosulfan Sulfate | < | 0.02 | N/A | No | | |
| | Endrin | < | 0.02 | 0.036 | No (Value < QL) | | |
| | Endrin Aldehyde | < | 0.02 | 0.29 | No (Value < QL) | | |
| | Heptachlor | < | 0.02 | 0.000079 | No (Value < QL) | | |
| | Heptachlor Epoxide | < | 0.02 | 0.000039 | No (Value < QL) | | |
| | PCB-1242 | < | 0.2 | N/A | No | | |
| | PCB-1254 | < | 0.2 | N/A | No | | |
| | PCB-1221 | < | 0.2 | N/A | No | | |
| | PCB-1232 | < | 0.2 | N/A | No | | |
| | PCB-1248 | < | 0.2 | N/A | No | | |
| | PCB-1260 | < | 0.2 | N/A | No | | |
| | PCB-1016 | < | 0.2 | N/A | No | | |
| | Toxaphene | < | 0.5 | 0.0002 | No (Value < QL) | | |
| | 2,3,7,8-TCDD | < | 5 | 0.000000005 | Yes | 0.000000005 | Establish Limits |
| Group 7 | Gross Alpha (pCi/L) | < | | N/A | | | |
| | Total Beta (pCi/L) | < | | N/A | | | |
| | Radium 226/228 (pCi/L) | < | | N/A | | | |
| | Total Strontium | < | | 4000 | | | |
| | Total Uranium | < | | N/A | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

## WQM 7.0 Effluent Limits

| SWP Basin | Stream Code | Stream Name |
|---|---|---|
| 07D | 9361 | SWATARA 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) |
|---|---|---|---|---|---|---|---|
| 19.670 | Guilford Millls | PA0008231 | 2.000 | CBOD5 | 19.59 | | |
| | | | | NH3-N | 6.77 | 13.54 | |
| | | | | Dissolved Oxygen | | | 3 |

## PENTOXSD Analysis Results

### Recommended Effluent Limitations

| SWP Basin | Stream Code: | Stream Name: |
|---|---|---|
| 07D | 9361 | SWATARA CREEK |

| RMI | Name | Permit Number | Disc Flow (mgd) |
|---|---|---|---|
| 19.67 | Guilford Mills | PA0008231 | 2.0000 |

| Parameter | Effluent Limit (µg/L) | Governing Criterion | Max. Daily Limit (µg/L) | Most Stringent WQBEL (µg/L) | Most Stringent WQBEL Criterion |
|---|---|---|---|---|---|
| 1,2-DIPHENYLHYDRAZINE | 0.494 | CRL | 0.771 | 0.494 | CRL |
| 2,3,7,8-TCDD | 0 | CRL | 0 | 0 | CRL |
| 2,4,6-TRICHLOROPHENOL | 19.217 | CRL | 29.982 | 19.217 | CRL |
| 2,4-DINITROPHENOL | 50 | INPUT | 78.008 | 219.306 | THH |
| 2,4-DINITROTOLUENE | 25 | INPUT | 39.004 | 1017.07 | CFC |
| 2,6-DINITROTOLUENE | 25 | INPUT | 39.004 | 635.669 | CFC |
| 3,3'-DICHLORO-BENZIDINE | 0.288 | CRL | 0.45 | 0.288 | CRL |
| 3,4-BENZOFLUORANTHENE | 0.052 | CRL | 0.081 | 0.052 | CRL |
| 4,6-DINITRO-o-CRESOL | 41.318 | THH | 64.463 | 41.318 | THH |
| ACRYLAMIDE | 0.961 | CRL | 1.499 | 0.961 | CRL |
| ALUMINUM | 810 | AFC - BKGR | 810 | NA | NA |
| ANTIMONY | 17.799 | THH | 27.769 | 17.799 | THH |
| ARSENIC | 6 | INPUT | 9.361 | 31.783 | THH |
| BENZIDINE | 0.001 | CRL | 0.002 | 0.001 | CRL |
| BENZO(a)ANTHRACENE | 0.052 | CRL | 0.081 | 0.052 | CRL |
| BENZO(a)PYRENE | 0.052 | CRL | 0.081 | 0.052 | CRL |
| BENZO(k)-FLUORANTHENE | 0.052 | CRL | 0.081 | 0.052 | CRL |
| BIS(2-CHLOROETHYL) ETHER | 0.412 | CRL | 0.642 | 0.412 | CRL |
| BIS(2-ETHYLHEXYL) PHTHALATE | 16.472 | CRL | 25.698 | 16.472 | CRL |
| BROMOFORM | 0.5 | INPUT | 0.78 | 59.024 | CRL |
| BUTYLBENZYL PHTHALATE | 25 | INPUT | 39.004 | 111.242 | CFC |
| CHLORIDE (PWS) | 160000 | INPUT | 249625.7 | 2460000 | THH |
| CHLORODIBROMOMETHANE | 0.5 | INPUT | 0.78 | 5.491 | CRL |
| CHLOROFORM | 0.5 | INPUT | 0.78 | 78.241 | CRL |
| CHRYSENE | 0.052 | CRL | 0.081 | 0.052 | CRL |
| Color (Pt-Co units) | 70 | INPUT | 109.211 | 238.376 | THH |
| COPPER | 9 | INPUT | 14.041 | 13.607 | AFC |
| DIBENZO(a,h) ANTHRACENE | 0.052 | CRL | 0.081 | 0.052 | CRL |
| DICHLOROBROMOMETHANE | 0.5 | INPUT | 0.78 | 7.55 | CRL |
| DI-N-BUTYL PHTHALATE | 25 | INPUT | 39.004 | 66.745 | CFC |
| DINITROTOLUENE, TOTAL | 0.686 | CRL | 1.071 | 0.686 | CRL |
| DISSOLVED IRON | 953.504 | THH | 1487.619 | 953.504 | THH |
| FLUORANTHENE | 25 | INPUT | 39.004 | 127.134 | CFC |
| FLUORIDE (PWS) | 0.5 | INPUT | 0.78 | 19699.42 | THH |
| HEXACHLOROBENZENE | 0.004 | CRL | 0.006 | 0.004 | CRL |
| HEXACHLOROCYCLO-PENTADIE | 3.178 | CFC | 4.959 | 3.178 | CFC |
| HEXACHLOROETHANE | 19.217 | CRL | 29.982 | 19.217 | CRL |
| INDENO(1,2,3-cd)PYRENE | 0.052 | CRL | 0.081 | 0.052 | CRL |

**PENTOXSD Analysis Results**

**Recommended Effluent Limitations**

| SWP Basin | Stream Code: | Stream Name: |
|---|---|---|
| 07D | 9361 | SWATARA CREEK |

| | | | | | |
|---|---|---|---|---|---|
| ISOPHORONE | 25 | INPUT | 39.004 | 111.242 | THH |
| MANGANESE | 974 | INPUT | 1519.597 | 2350.574 | THH |
| NICKEL | 18 | INPUT | 28.083 | 108.434 | CFC |
| NITROBENZENE | 25 | INPUT | 39.004 | 54.032 | THH |
| N-NITROSODI-METHYLAMINE | 0.009 | CRL | 0.015 | 0.009 | CRL |
| N-NITROSODI-N-PROPYLAMINE | 0.069 | CRL | 0.107 | 0.069 | CRL |
| N-NITROSODI-PHENYLAMINE | 25 | INPUT | 39.004 | 45.297 | CRL |
| NO2-NO3 (PWS) | 1100 | INPUT | 1716.177 | 98497.09 | THH |
| p-CHLORO-m-CRESOL | 50 | INPUT | 78.008 | 95.35 | CFC |
| PENTACHLOROPHENOL | 3.706 | CRL | 5.782 | 3.706 | CRL |
| PHENANTHRENE | 3.178 | CFC | 4.959 | 3.178 | CFC |
| PHENOLICS (PWS) | 49.249 | THH | 76.836 | 49.249 | THH |
| SELENIUM | 15.857 | CFC | 24.74 | 15.857 | CFC |
| SULFATE (PWS) | 40000 | INPUT | 62406.43 | 2460000 | THH |
| TOTAL DISSOLVED SOLIDS (PWS | 392000 | INPUT | 611583 | 4920000 | THH |
| TOTAL IRON | 3721.912 | CFC | 5806.781 | 3721.912 | CFC |
| ZINC | 122.336 | AFC | 190.864 | 122.336 | AFC |

**PENTOXSD Analysis Results**

**Recommended Effluent Limitations**

| SWP Basin | Stream Code: | Stream Name: |
|---|---|---|
| 07D | 9361 | SWATARA CREEK |

| RMI | Name | Permit Number | Disc Flow (mgd) |
|---|---|---|---|
| 19.67 | Guilford Millls | PA0008231 | 2.0000 |

| Parameter | Effluent Limit (µg/L) | Governing Criterion | Max. Daily Limit (µg/L) | Most Stringent WQBEL (µg/L) | Most Stringent WQBEL Criterion |
|---|---|---|---|---|---|
| 2,3,7,8-TCDD | 0 | CRL | 0 | 0 | CRL |
| ARSENIC | 31.783 | THH | 49.587 | 31.783 | THH |
| BROMOFORM | 59.024 | CRL | 92.086 | 59.024 | CRL |
| CHLORIDE (PWS) | 1000000 | INPUT | 1560000 | NA | NA |
| CHLORODIBROMOMETHANE | 5.491 | CRL | 8.566 | 5.491 | CRL |
| CHLOROFORM | 78.241 | CRL | 122.068 | 78.241 | CRL |
| COPPER | 13.869 | AFC | 21.637 | 13.869 | AFC |
| DICHLOROBROMOMETHANE | 7.55 | CRL | 11.778 | 7.55 | CRL |

Modeling using high effluent value to generate Max daily Limits.

| TRC EVALUATION | | | |
|---|---|---|---|
| Input appropriate values in A3:A9 and D3:D9 | | Guilford Mills LLC IWTP | |
| 7.045 | = Q stream (cfs) | 0.5 | = CV Daily |
| 2 | = Q discharge (MGD) | 0.5 | = CV Hourly |
| 30 | = no. samples | 0.675 | = 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 = 0.509 | 1.3.2.iii | WLA cfc = 0.719 |
| PENTOXSD TRG | 5.1a | LTAMULT afc = 0.373 | 5.1c | LTAMULT cfc = 0.581 |
| PENTOXSD TRG | 5.1b | LTA_afc= 0.190 | 5.1d | LTA_cfc = 0.418 |

| Source | | Effluent Limit Calculations | |
|---|---|---|---|
| PENTOXSD TRG | 5.1f | AML MULT = 1.231 | |
| PENTOXSD TRG | 5.1g | AVG MON LIMIT (mg/l) = 0.234 | AFC |
| | | INST MAX LIMIT (mg/l) = 0.764 | |

**Table 2 (Guilford Mills Fecal Coliform Self-Monitoring Data)***

| Date | WWTP Influent @ Octagonal Pit Pump Station a.k.a. Raw Waste Pit (CFU/100 ml) | WWTP Effluent (CFU/100 ml) |
|---|---|---|
| 2008 NPDES Renewal Application | 1,500,000 | 1,500<br>25 (average of 3) |
| 2011 NPDES Renewal Application | 280,000 | 17,000<br>10,381 (average of 3) |
| 2016 NPDES Renewal Application | >600,000 | 3200 max<br>2130 (average of 3) |
| 2/9/2016 | >600,000 | - |
| 2/10/2016 | - | 490 |
| 2/11/2016 | - | 3,200 |
| 2/12/2016 | - | 2,700 |
| 3/22/2016 | >6,000<br>NOTE: Lagoon Influent @ 7600 | 2 |
| 4/07/2016 | 1,100 | - |
| 4/19/2016 | 600 | - |
| 4/28/2016 | 710,000 | - |
| 5/12/2016 | 260,000 | - |
| 5/17/2016 | <200 | 0 |
| 6/14/2016 | 600 | 8 |
| 7/7/2016 | 200 | 40 |
| 7/12/2016 | <20 | 43 |
| 7/21/2016 | 200 | 80 |
| 7/28/2016 | 200 | 140 |
| 8/4/2016 | 30 | 66 |
| 8/11/2016 | 3,600 | 54 |
| 8/18/2016 | 800 | 2100 |

***Guilford Mills estimated a "geometric mean" of 1,522 CFU/100 ml (Raw Waste Pit) and 121 CFU/100 ml (Effluent) based on their evaluation of the results. Their statistical analysis was not provided to ascertain exactly how they**

**derived their estimate. In addition, current fecal coliform limits include IMAX limits in addition to a monthly-only geometric average limit.**

**NPDES Permit Renewal Application Communications Log:**

**3/2/2016**: NPDES Permit Renewal Application received.

**3/9/2016 Completeness Call to Consultant (Tom Pullar, ERG Inc. as application contact)**: Discussed missing information (including unfilled out form items/table columns) and some conflicts. He indicated missing information would be provided and conflicts clarified. Highlights:

Applicant: The GIF was completed for previous operator (Gold Mills LLC) rather than new transfer application operator (Guilford Mills Inc.) which has a different EIN#. HE IS SURE IT IS THE NEW PERMITTEE. APPLICATION AND CHECK WILL BE PROCESSED AS SUCH.

PPC Plan: Need PPC Plan for review to verify compliance with PPC Plan Guidelines Section A and Stormwater Addendum Section A requirements either. HE WILL PROVIDE

Process Flown (Groundwater Remediation Flows/Sewage Flows): Conflicting information on what happens to flow. HE WILL CHECK WITH PLANT TO MAKE SURE ALL REMEDIATED GW IS GOING INTO PLANT FOR USE AS PROCESS WATER (NOT TO WWTP) AND THAT THERE IS NO CROSS-CONNECTION OF SEWAGE INTO WWTP. ? HE HAS NOT YET TRACKED DOWN SOURCE OF FECALS, BUT DOES NOT THINK THAT THERE IS A CROSS-CONNECTION.

Chemical Additives: Where are the referenced Chemical Additive Notification forms? No forms at present. HE WILL DOUBLE-CHECK WILL CLIENT, BUT NO FORMS PART OF CURRENT APPLICATION.

E-maps shows a Guilford Mills surface water intake: HE WAS UNAWARE OF SURFACE WATER INTAKE AND WILL CHECK WITH CLIENT.

Module 1 (Stormwater):
Item 2 (page 1): Do not leave column blank. What % impervious? WILL FILL OUT.
Item 3 (page 2): No representative outfalls? Will default to sampling all stormwater outfalls if nothing is shown to be representative of others. No treatment or point source controls? WILL CHECK WITH CLIENT ON REPRESENTATIVE OUTFALLS.
Stormwater Sampling Results (pages 4 – 5): Provide stormwater sampling data for each permitted stormwater outfall, including ELG and TMDL constituents per application), along with storm data for sampling event. WILL PROVIDE. MIGHT PROVIDE SCHEDULE FOR SUBMITTAL OF STORMWATER RESULTS AND THEN FOLLOW-UP WITH ACTUAL SUBMITTAL TO CLEAR COMPLETENESS STAGE.

Any Chesapeake Bay nutrient credits or offsets? If possible, provide Chesapeake Bay data in table form: THEY SAID THEY HAVE NUTRIENT CREDITS/OFFSETS, AND WILL PROVIDE INFORMATION. MAY ALSO PROVIDE SUMMARY OF CB DATA.

**3/24/2016**: Supplemental application information received. (“Revision 1” application pages in yellow)

**3/25/2016 DEP (Berger) E-mail**: Allowed for submittal of supplemental application information by 5/31/2016 (chemical additive forms; updated PPC Plan; Fecal Coliform clarification (due to high influent/effluent concentrations) plus additional stormwater sampling data when available within the next month or two. Provided some feedback on these issues for their consideration.

**4/27/2016**: NPDES Compliance Inspection Report (Inspector Jared Sabitsky) identifying noncompliance (inoperable final clarifier; insufficient lagoon freeboard; noticeable change in receiving stream color)

**5/31/2016 (dated 5/27/2016)**: Supplemental Information received (narrative response to 3/9/2016 telephone conversation with this reviewer), including chemical notification forms and NPDES application chemical additive page (not colored). PPC Plan noted to be under separate cover.

**7/14/2016**: NOV issued (insufficient freeboard in lagoon; discoloration of receiving waters; out-of-service final clarifier subsurface sludge collection rake & surface skimmer since September 2014); use of unapproved chemical additives).

**7/29/2016**: DEP Letter regarding Chemical Additive notification requirements (based on deficient application information pertaining to chemical additives).

**8/10/2016**: DEP Technical Deficiency Letter

**8/29/2016**: Chemical Additive Notifications received.

**9/9/2016**: Response to 8/10/2016 DEP Letter received. Revised ("Revision 2") application pages in green.

**10/28/2016**: Supplemental application information received via e-mail. **Supplemental information was incorporated into November 14, 2016 Submittal.**

**11/3/2016**: DEP letter approving specific chemical additives

**11/3/2016 Meeting Notes**:

- Attendees: See sign-in sheet. New permittee personnel (plant and corporate) introduced at meeting.
- Chemical Additives: Authorization letter issued (copies given). Original will be mailed. The Department noted that the approval of the GMF2340H (a.k.a. Formula 2340) was based partly on NPDES Permit Renewal application that indicated no organic peaks in the GC/MS (other than identified pollutant group table constituents) for an additive already in use. Otherwise, the Department would have required additional information on the Chemical Additive Notification Form's manufacturer statements regarding a 60% decay rate (to explain how it applies – whether on day of usage, or otherwise).
- Possible Limits: The Department had evaluated the updated 10/28/2016 sampling and analysis data (with previously supplied application information) and let the permittee know that assorted new limits were coming: New ELG limits based on application-defined production rates, Reasonable Potential analysis for toxics, WQM Model 7.0 limits for DO/Ammonia-N, and fecal coliforms (present in three different permit renewal applications with pathogen-impaired receiving stream) & TRC (showed up in new analytical data even if not being used actively for disinfection). Bromides will be monitored.
- Within a week of the meeting, the Permittee will submit for NPDES permit:
    - Four copies of 10/28/2016 NPDES Permit Application Update (including updated Pollutant Group tables)
    - Revised GIF Client section for name change to Guilford Mills LLC (and new applicant contact information), with verified EIN# and PA Department of State Entity number. The permittee noted that Lear had acquired the facility around 2012. If EIN# changes, possible permit transfer or permit transfer application withdrawal situation.
    - Expanded Well map showing the individual wells within ¼ mile of the facility (icon on figure could represent multiple wells or other features). The permittee believes that all wells were taken into account in terms of the EPA-authorized groundwater remediation project.
    - DEP M&C-required additional effluent chlorides sampling data (updating pollutant group table as needed). The permittee indicated that the sampling occurred but it had not been e-mailed or otherwise supplied per DEP M&C request.
    - SIC Code for Ingenco Landfill Gas-to-energy Facility SIC Code (facility within facility permit area and subject to stormwater requirements).
- Within 30 days of Meeting, the Permittee will provide their plan and schedule submittal date to otherwise update the NPDES application as desired by the Permittee: Otherwise, the Department would issue the Draft NPDES Permit based upon available information. They may pursue assorted options:
    - In-stream hardness sampling & analysis (at least one sample upstream of Outfall #001, under normal or near normal stream conditions)
    - Effluent Acrylamide sampling & analysis meeting Target QL
    - Justification for revised maximum monthly production peaking factor (1.16 estimated from current application) used to develop Federal ELG limits.
    - Other options with water quality-based limits (reducing NPDES permit basis from 2.0 MGD, additional site-specific stream data for inclusion in water quality modeling, etc.) including iron, copper, zinc, ammonia-N, DO, total phenolics, and several detected organics. The facility discharge has averaged ~0.5 MGD with daily max of ~0.8 MGD per recent DMRs (as opposed to 2.0 MGD NPDES permit basis flow).
    - Updated stormwater information to justify representative outfalls (individual outfall sampling & analysis data, details on what is in the drainage areas, etc.) or show that the outfall drainage area does not contain industrial activities or material handling areas (like parking lots, complete enclosure) along the lines of the new PAG-03 "no exposure area". New Outfall #009 (IWTP and that side of stream) will be in permit in case that they want to define the area better or establish no-exposure areas. The Department noted that

sampling was time-critical due to approaching cold weather (i.e. the Department will not wait until next Spring for stormwater sampling data). The Department also noted that representative sampling might not be acceptable if there are exposed pollutant sources (i.e. if there are tanks in several drainage areas, then monitoring might be required for both on the simple basis that there can always be a leak/release in one drainage area but not the other). Outfall #008 will only be monitored upon request as not industrial activitiy/material handling was indicated within the drainage area. Appendix Q applies to site. Additional appendix for onsite LFG-to-energy plant. Possibly additional constituents to IWTP area (no PAG-03 Appendix) like iron, but not yet determined. There will be additional stormwater BMPs for IWTP plant area in the Part C conditions.

- An IWTP Engineering Evaluation to determine the as-built/as-modified IWTP's hydraulic and organic loading capacities. The 1970s WQM Permit Application information is outdated and there is a concern that the facility might hit an unexpected capacity limitation as production increases or because of post-1970s permit limits not considered in original site design. The plant was designed, permitted and built in the 1970s (not designed to meet Chesapeake Bay limits or probable future permit limits), and has had clarifier problems, etc. Plant has increased production rate (25% increase in 2015 over previous years) and might run into capacity limitations at some point. Does the facility have adequate redundancy to comply with permit limits in event of equipment/unit downtimes (including preventive maintenance)? Sometimes original permitting design differs from the as-built/as-modified treatment plant. No WQM Part II Permit was issued for closure of IWTP lagoons or any post-1970s changes. Any Part II WQM Permit (such as for a disinfection system) would require determination of actual as-built/as-operated capacities. The Department generally recommends a 20-year planning horizons for STP upgrades, but a IWTP should be looking at potential production rates, permit limits, and need to either rehabilitate/upgrade or replace an old aging IWTP that was not designed for current/future limits. NOTE: Plant personnel thought that the iron chloride system was added to address antimony issues circa 2006 or so.

- Future Draft NPDES Permit: Will include compliance schedule/TRE schedule for new permit limits (3-years standard time-frame) except as problems need to be corrected upfront. For example, the 2011 NPDES Permit does not allow for observable changes in stream (with expanded language in updated NPDES permit Part A template), so a discolored stream needs correction immediately. Likewise, a new or increased loading can trigger the need for immediate action (like very high chlorides/iron concentrations in effluent).
- DEP M&C is expecting some "deliverables" prior to final permit action (within 90 – 180 days): DEP M&C discussed compliance history (3 NOVs, clarifier not operating correctly during 3 inspections, observed change in stream color during previous inspections, etc.). previously requested information, etc. Preliminary penalty cost estimation was discussed. The following is needed to allow for resolution of compliance problems for permit action to allow for permit action, penalty estimate calculation, and address status of noncompliance:
  - When the new individual chemical additive usage started onsite.
  - Compliance Plan (for how to operate the old and potentially overloaded IWTP) to remain in compliance with thoughts given to preventive maintenance plan (including lagoon clean-out/inspection schedule), operating scenarios if equipment or units are not operating, etc. For example, do they have redundancy if the single site clarifier or other equipment/unit is not operating (due to problems, maintenance, etc.).
  - Previously requested effluent chloride sampling results. Plant personnel indicated that the sampling occurred and that the information could be provided.
  - Engineering Evaluation to see if IWTP needs to be upgraded/replaced to remain in compliance under permit basis flows and increased production loadings (hydraulic, organic, otherwise) in the future. It was noted that this evaluation could be done in a future NPDES permit compliance schedule/TRE conditions. DEP M&C noted its understanding that one of the remaining lagoons was originally designed and operated in conjunction with the two closed/removed lagoons, not the other remaining lagoon.
  - Any documentation of any DEP Clean Water Program approval of IWTP modifications (closure of IWTP lagoons). The Department noted that the IWTP was subject to a 1970s Part II WQM Permit for construction and operation in addition to NPDES permit. The available files do not contain a later WQM permit amendment or any Department correspondence allowing the modification(s) without a WQM Permit.
- Miscellaneous:
  - Tim Williams (previous site contact) is no longer at facility.
  - M&C noted that any evidence that the plant had spent money to solve the problem would be helpful for penalty calculation purposes (for the Permittee's benefit).
  - Permittee indicated that it was not doing any disinfection, but TRC was detected in the 10/28/2016 E-mailed analytical data. NOTE: Only sources would be pre-treatment of process water from reservoir (residual chlorine) or from usage of Ferric Chloride (wastewater treatment chemical) or other chlorine-containing products onsite.
  - Steve Pletchan (WQ Specialist Supervisor) is the DEP M&C contact for compliance issues.

**11/14/2016 (dated 11/9/2014)**: Supplemental application information received ("Revision 3" with revised pages in yellow).

**12/5/2016 (dated 12/2/2016)**: Guilford Mills Compliance Response received (information relating to NPDES Permit Renewal)

**12/19/2016**: DEP (Bellanca) E-mail to applicant containing sample draft Part A limits per applicant request (source being unissued draft NPDES Permit prepared for internal discussion prior to November meeting. NOTE: Assorted new limits had been noted at the November meeting, but draft document was not shared.

**1/12/2017 (dated 1/10/2017)**: Supplemental application information received (fecal coliform and chlorides data).

**1/23/2017 (dated 1/20/2017)**: Supplemental NPDES application information ("Revision 4") received. Revised pages were not colored.

**2/10/2017**: DEP E-mail to consultant asking for information missing from 1/23/2017 Supplement (i.e. stream hardness).

**2/13/2017 (dated 2/10/2017)**: Stream hardness data received.

**3/17/2017 (dated 3/16/2017)**: Continued Chloride/Fecal Coliform Monitoring data. An update on the status of the fecal coliform investigation was to be provided to the Department under separate cover per concluding paragraph.

**4/4/2017 (dated 3/31/2017)**: Guilford Mills, Pine Grove Wastewater Treatment Plant Engineering Evaluation received (previously requested by DEP M&C to address concerns about modified Treatment plant hydraulic/organic loading capacities, etc.).

**4/25/2017 (dated 4/23/2017)**: Guilford Mills Continued Chloride Monitoring Data submittal

**5/3/2017 (dated 5/2/2017)**: "Greensand Filter" Notification of Water Treatment Improvements Submittal (groundwater well-water treatment system). The facility uses groundwater (including remediated groundwater under a RCRA CO&A) mixed with Pine Grove Borough PWS water as process water at the plant, with mixture treated through multimedia filters prior to usage. Reservoir water is also aerated to enhance mixing and prevent algae formation per submittal.

- The 313 GPM "Greensand filter" using "greensand" i.e. manganese dioxide-coated media) will treat groundwater (designed to remove iron and manganese from groundwater) prior to discharge to onsite reservoir (via the aeration nozzles which is the existing groundwater remediation system).
- The system will include a "four (4) quad auto backwashing system installed in a building adjacent to production well PW-4. Existing onsite tanks (previously used as sand filters and softening tanks might be reused for the greensand.
- The filter will operate in a continuous regeneration mode, wherein a predetermined amount of sodium hypochlorite will be supplied directly to feedwater prior to passing through the greensand filter media. The treated groundwater will be discharged to the onsite reservoir.
- Greensand filters require backwash to remove accumulated solids from the filter bed. Guilford Mill proposes to use water from the production wells to backwash the media filter, and expects to discharge 20,000 GPD backwash to the wastewater treatment system. Guilford Mills does not expect WWTP effluent quality to change.

**5/11/2017**: The Pine Grove Joint Treatment Authority (1.5 MGD POTW) requested a pre-application meeting regarding a proposed connection (and related requirements) of Guilford Mills effluent discharge. Pre-application meeting was subsequently scheduled. Date Unknown to this reviewer.

**6/9/2017**: DEP Letter requiring amending NPDES Permit Renewal Application for the proposed Greensand Filter Backwash flow. The Letter noted DEP written approval is required before directing such flows to the IWTP, and directed them to directly contact DEP Waste Management and US EPA about proposal (due to ongoing groundwater RCRA remediation under EPA order).

**8/11/2017**: Guilford Mill LLC submittal regarding Greensand Filter backwash flow, including HRG Inc. Report.

**8/21/2017**: DEP Approval with Conditions letter regarding Greensand Filter backwash flow, requiring updated application information (Influent and Effluent Pollutant Group Tables) and interim daily start-up monitoring.

**3/6/2018**: Guilford Mills-requested meeting to discuss sampling requirements (no other prior agenda). See sign-in sheet for meeting participants.

- New facility EHS Contact/Client Contact (Ms. Kelly Kester): She introduced herself. The onsite EHS position is new. EHS was previously handled by a corporate person based offsite. She has been onsite as of December. She did not yet have business cards.
    - She was still trying to get up to speed in terms of all EHS issues, having problems in accessing company files scattered in other offices. She indicated she was unaware of outstanding compliance issues.
    - Other Guilford Mills Personnel (attendees of 2016 Compliance Meeting):
        - Robert Kitchen (Facility Engineer and previous client/site contact) is gone. Norman Johnson is gone. Their departure was indicated as the main reason that Guilford Mills had not already followed-up regarding the Greensands Filter issues.
        - Sunil Hoskote is still the plant manager. Avtar Mavi is still with Guilford Mills.
    - The Department noted the new client contact information should be included in the NPDES Application GIF, and separate letter should be sent in for the near-by separate Guilford Mills facility covered by a PAG-03. The Department noted she could contact DEP Records Management to schedule a file review for available facility files.
      **NOTE: Updated E-facts mailing/location contact information after meeting to identify Ms. Kelly Kester as the current client/site contact.**
- HRG Involvement: HRG (Mendinsky) noted that it had been called in on assorted site issues by Guilford Mills (IWTP Engineering Evaluation, Greensands Filter project), but was not involved in most of the NPDES permit renewal application and/or other plant issues. He had not been present in the 2016 Compliance Meeting.
- 8/21/2017 DEP "Greensands Filter" Letter Sampling Requirements: The Greensands filter would be treating VOC-contaminated groundwater, with unknown concentrations of VOCs ending up in the 20,000 GPD of backwash going to the old 1970s IWTP (not designed for these constituents, not previously receiving contaminated groundwater, and modified by elimination of lagoons, etc.). HRG indicated it found no information on how the greensands filter would handle the VOCs. The Greensands filter has been installed onsite, but previously involved company personnel left.
    - The basis for the sampling requirements were explained: daily monitoring & 30-day reporting during shakedown period till further notice, and new NPDES Application influent/effluent sampling data within 60 days (unless more time is needed for steady-state operations) to determine whether any new permit limits/monitoring requirements are required due to new waste-stream and its impact on IWTP operation. Iron and Manganese are AMD metals for a discharge to AMD-impacted stream. TRC was already detected in site effluent (not sure if coming from process water treatment or ferric chloride in IWTP), and listed VOCs were at detectable concentrations in the raw untreated groundwater (being remediated under EPA RCRA Order). The Draft NPDES Permit would contain any future permit limits/monitoring requirements (after an updated Reasonable Potential Analysis including water quality modeling, with the need for limits/monitoring determined per IW Effluent Limitation SOP).
    - Options included:
        - Not starting up the Greensands Filter (including sodium hypochlorite chemical addition for the precipitation/filtration process). It would require a major NPDES Permit amendment (subject to public notice requirements) if not addressed in the NPDES permit renewal.
        - Relocating the Greensands water treatment to some location after the ongoing VOC remediation (spray nozzle discharge at site reservoir under US EPA/DEP Waste Management Order) to reduce VOC monitoring frequency requirements (some data will still be needed). If the reservoir is a source of the fecal coliform issues, then this might also help address that issue due to sodium hypochlorite usage.
        - Hauling offsite the Greensands Filter backwash for disposal until the system achieved steady-state, i.e. without typical start-up issues (some data will still be needed).
        - If they did not like the effluent concentrations for metals/organics (after steady state is achieved), then they could take ten (10) weekly samples to allow for calculation of Long-Term Average Monthly Effluent Concentrations via the DEP TOXCONC Spreadsheet that uses EPA-approved statistical methodology.
- NPDES Permit Renewal Status: The permit renewal process is not open-ended. Over the last 2 years, the Department has met with Guilford Mills on and offsite, and with both Guilford Mills & the Pine Grove WWTP Authority regarding potential Regionalization (connection to existing Pine Grove WWTP), plus giving time to allow Guilford Mills to investigate Fecal Coliform issues, Engineering evaluation of the existing IWTP, etc. As discussed in previous meetings, the future Draft NPDES Permit will include new/revised limits (more stringent ELG production-based limits, Fecal Coliform, Ammonia-N limits, new WQBELs for new constituents including VOCs) and non-ELG-based limit Schedule of Compliance/TRE conditions based on preliminary modeling. Some draft potential NPDES permit limits were shared in a 2016 Compliance Meeting. The Department needs clarification on

Guilford Mill's plans (Greensands Filter-related; Regionalization) before issuing a Draft NPDES Permit for public comment.

- **Plan of Action Submittal Within 90 days (i.e. by circa 6/6/2018)**: Guilford Mills will update the Department with its proposed plan of action within 90 days. Firm dates are needed for items under Guilford Mills control. The Department will take the Plan of action into account in its Draft NPDES Permit development. At minimum, Guilford Mills must indicate what it plans to do with the Greensands filter and whether Regionalization is a feasible option within the new 5-year permit term. (If not feasible, then Guilford Mills will have to take other measures to come into compliance with new NPDES Permit limits & requirements by the future compliance dates).
- **Related Compliance Requirements**: The compliance issues must be settled to allow for final NPDES permit action. DEP M&C will be evaluating whether a Consent Order & Agreement or Civil Penalty Assessment/Consent Decree is appropriate after reviewing the plan (due in 90 days). Guilford Mills will be shown the draft documents either way, and they will spell out DEP compliance findings. The Department noted that it had received a 12/2/2016 Guilford Mills "Compliance Response" document to address the ten (10) areas of concern. DEP personnel noted they had seen a tree growing out of a treatment unit during a site visit.
- Updated NPDES Application: Blank GIF and IW NPDES Permit Application forms given to Guilford Mills with some sections yellow-tabbed to help them find relevant requirements. Noted IW NPDES Permit Application Instructions had DEP Target QLs and guidance on how to refine DEP water quality modeling with site-specific information.
- EPA: EPA will be copied on the Draft NPDES Permit due to IW NPDES Permit basis flow (2.0 MGD), Significant Chesapeake Bay discharge, discharge to TMDL stream, etc. EPA will comment on any Draft NPDES Permit. They have already asked about the NPDES permit due to Chesapeake Bay-related requirements.

- Fecal Coliform Issues: The Department has not been updated on Fecal Coliform investigation (high numbers in non-sewage treated IW discharge in assorted NPDES Permit Renewal Applications and subsequent site investigation; some fecals in stormwater) since March/April 2017. The Department noted that any DMR fecal coliform data was not going to the DEP permitting section, with last "report" received circa March/April 2017.
  - The source has not yet been located per Guilford Mills. They have not run a test to determine if the fecals are from humans or wildlife yet.
  - The NPDES Permit will include fecal coliform limits (consistent with regulatory STP requirements) and Schedule of Compliance due to pathogen-impaired receiving stream. Chapter 92a.51 will require the problem be addressed as soon as practicable. This might require installation of a disinfection system for the site effluent.
  - Stormwater outfalls will have to be monitored for fecal coliform, with Guilford Mills having to track down source to verify that it is not coming from the plant. (Animal fecals are expected.) Stormwater monitoring will also include some other permit limits based on PAG-03 Benchmark Numbers, etc.
  - DEP is also concerned about potential health impacts as the site workers might be exposed to pathogen-containing process water.
  - If Guilford Mills wanted to treat sewage, it would be a major NPDES Permit amendment with new requirements as appropriate (such as a certified operator requirement). Any source of human sewage must be disconnected from the IWTP, if found otherwise. If they found the fecals were non-human, that would mean an outside (non-plant) source and entry point.
- Regionalization Options: The Department has met with both Guilford Mills and Pine Grove Authority about potential direction of Guilford Mills effluent to the existing Pine Grove WWTP, but did not know the status. Guilford Mills indicated that it was unsure of what the status/schedule might be, but thought some progress had been made.
  - If Regionalization is a feasible chosen option within the new 5-year NPDES Permit Term (starting on the effective date of a final NPDES Permit), then that would have implications in terms of the schedule of compliance for assorted constituents (ammonia-N, etc.).
  - If Regionalization is not feasible within the permit term, then Guilford Mills will have to do something else within the permit term to address schedules of compliance/TRE requirements for assorted constituents. Generally, the Department gives 3 years for the schedule for new permit limits. The first year is to do a feasibility study to find options. Second year is for pursuing chosen feasible options (engineering, permitting), and third year to do any related construction and to come into compliance. The Schedule cannot exceed the 5-year permit terms except when a Court of Competent Jurisdiction issues a Consent Decree (not CO&A). It is easy to move interim compliance milestones, but difficult to move final compliance dates (requires permit modification with public notice).
  - The Authority has not yet submitted Planning for the major WWTP expansion required for this connection, and a Major NPDES Permit Amendment (Pine Grove WWTP) will be required. The Authority WWTP will

have to have a Pretreatment Program to account for the Guilford Mills waste-stream. There will be indirect discharger Pretreatment requirements for Guilford Mills per Federal ELG and Authority Pre-treatment Plan.

- Other Site Changes: The Department noted Guilford Mills and its consultant (HRG) had evaluated the existing IWTP in regard to its ability to meet existing NPDES permit limits (not the future permit limits), and HRG had made some recommendations about IWTP modifications.
    - The existing NPDES Permit has Part A.III.C.1 (Planned Changes to Physical Plant) notification requirements for any plant changes, including anything that changes the effluent quality. If Guilford Mills wanted to make site changes, it can notify the Department which would decide if permitting is required. For example, if Guilford Mills decided on an effluent disinfection system, Part II WQM permitting would be required but the Department has sometimes allowed someone to install something upfront to correct an existing operational issue, with follow-up WQM permitting.
    - After reviewing the future Draft NPDES Permit, Guilford Mills will be better able to evaluate its feasible options under the NPDES permit schedule of compliance/TRE schedule and options.

**6/25/2018**: Applicant Consultant E-mail regarding Greensands Filter change to uses plant process water for backwash.
**6/25/2018**: DEP (Berger) E-mail response noting no change to previous 8/21/2017 Approval with Conditions Letter requirements (Greensands Filter start-up) applied to proposal. E-mail also noted lack of fecal coliform investigation update since March/April 2017.
**7/3/2018: Guilford Mills (ERG Consultant) indicated they had lost the compliance "to do" list (verbal discussion with ERG who were in the Regional Office for a meeting regarding separate client/application).**
**10/12/2018**: New Guilford Mills LLC EHS person telephone about Greensands Filter. His name is Steve Vasko (svasko@gfd.com, does not have a phone yet).
**10/24/2018**: Guildford Mills consultant (ERG) e-mail indicating ERG has been hired for "compliance response and greensand filter installation" and requesting conference call.
**11/8/2018**: Conference Call with Guilford Mills and its consultant (ERG) Scheduled per Applicant Request:

- DEP was represented by: Amy Bellanca, Pat Musinski, and James Berger
- Guilford Mills was represented by: "Attar", Sunil, Steve Vasko, and Tom Pullar (ERG)
- Greensands Filter:
    - They plan to start it up in the next week or so (after making arrangements with the lab).
    - The 8/21/2017 Greensands Letter Item 1 daily monitoring requirements are for start-up and characterization of wastestream once the flow is consistent/steady-state for normal operations, and to allow for inclusion in the Draft NPDES Permit.
        - After 30 days, they can see if the discharge is consistent and characterized and request modification of the sampling requirements. They do not have to sample during Greensands Filter downtimes, but that might drag out the time-frame before they reach "steady state conditions". Their engineering consultant can include his judgement whether the greensands filter discharge has been adequately defined in the 30-day Report.
        - In 60 days, they need to update the NPDES Permit Application with the updated sampling & analysis information. The Department would update the Reasonable Potential Analysis and NPDES Permit prior to issuing a Draft NPDES Permit for public comment.
        - If they do not start it up soon, the Department will issue a Draft NPDES Permit without including the Greensands Filter discharge to the IWTP. They would then have to submit a Major NPDES Permit Amendment to allow for Greensand filter discharges to go to the IWTP.
        - They will send a meeting follow-up e-mail about Greensand filter start-up date.
- Other NPDES Permit Application Updating: They will update GIF Client/Site contact information in a meeting follow-up e-mail. They will also need to update the NPDES Permit Application (due 60 days after Greensands Filter start-up to include updated GIF and new influent/effluent sampling data meeting DEP Target QLs) and other information updating as needed, otherwise the Department will issue the permit based on available information. For example, the Draft NPDES Permit will be based on previously provided production information, chemical additive information, etc. if the NPDES permit application information is not updated. Changes after permit issuance might require NPDES permit amendment application, chemical additive notification, etc.
- Fecal Coliform Source in Effluent: The Department asked them if the source had been found. They responded that the testing was continuing. The Department asked them to update the Department regarding the fecal coliform issues.

**11/29/2018: Berger E-mail asking for status of 11/8/2018 Meeting requested information (Greensands start-up schedule; updated Guilford Mills client/site contact information; Fecal Coliform investigation update).**

**12/4/2018: Greensands Filter start-up (triggering submittal time-frames) per dates in 30-Day Report (first backwash discharge per 1/28/2019 30-day Report for first sampling event, with 12,000 GPD backwash flow discharged on 12/5/2018).**

**1/28/2019: 30-day Greensands Filter Backwash Report received**

**3/6/2019: NPDES Permit Application supplement for Greensands Filter wastestream received. Missing required influent/effluent resampling/Pollutant Group Tables to allow for updated Reasonable Potential Analysis accounting for this wastestream on IWTP operation and effluent quality.**

**6/11/2019: Compliance Meeting: Guilford Mills sent in a meeting agenda via 6/5/2019 (ERG) E-mail. Highlights:**

- **Attendees:**
  - **DEP: Pat Musinski, Amy Bellanca, Steve Pletchan, Jared Sabitsky, and James Berger**
  - **Guilford Mills: Avtar Mavi (Corporate), Steve Vasko (facility), Tom Pullar (ERG), and Jennifer Taylor (ERG). Sunil Hoskote (application client/site contact) was traveling and could not make it.**
- **Introduction and Review: Introductions made. Guilford Mills indicated it had asked for this meeting. Avtar indicated some things had fallen through but the company wanted to be in compliance.**
- **Permit Renewal – WWTP Capacity:**
  - **Opening:** Guilford Mills thinks most compliance issues were tied to facility sizing.
  - **Draft NPDES Permit Renewal:** Draft NPDES Permit is being drafted and will be issued in next several weeks (July/August if delayed) for public comment. EPA will be copied on the Draft NPDES Permit.
    - There is a minimum 30-day public comment period after PA Bulletin Notice publication. Permittees can ask for another automatic 15 days (about 60 days total). They can request still more time for public comment. They will need to submit public comments or ask for more time within the public comment period. If they want to do more sampling, they would need to provide a schedule for submittal of results.
    - Final NPDES permit cannot be issued until compliance issues resolved.
    - New limits and conditions will be effective on the first day of the following month after permit is signed.
    - Draft NPDES Permit assumed a 2.0 MGD NPDES Permit basis flow.
  - **There is a mismatch between NPDES permit basis flow and information in a Guilford Mills Plant Evaluation indicating facility could not meet permit limits at 2.0 MGD flow (with potential for additional as-built hydraulic limitations).**
    - The Department asked what they wanted to do, such as a derating.
    - They asked if they could have staged limits (at 1 MGD and in event of plant upgrades to 2.0 MGD). The Department indicated it would discuss the option with Central Office but there might be Chesapeake Bay WIP (Watershed Implementation Plan) mass cap limits implications.
    - Tom Pullar (Consultant Engineer) indicated he would want to evaluate facility capacity himself. NOTE: Different Engineering firm had done the plant evaluation.
    - They indicated they needed to know what permit limits would be in the future permit for decision-making. The Department provided some (obsolete pre-draft) Part A limits in the 2016 meeting (no one had copy handy), but Draft NPDES Permit will have revised permit limits (additions, changes) and might be issued within several weeks.
    - They would need to inform the Department if they wanted to pursue plant upgrades to meet Chesapeake Bay cap limits for inclusion in the CO&A (separate compliance schedule from compliance issues).
  - **The Department needed to know of any proposed facility changes within the next 5-years. The Department noted the Plant evaluation had made various upgrade recommendations. The Department also asked for a Part A.III.C.1 notification for any change, copying DEP Engineer (Berger) during NPDES permitting (in addition to regular notification copy).**
  - Guilford Mills believes Regionalization is a distant option (involving Planning, Infrastructure changes, etc.), and is not an option for the 5-year permit term. No one from DEP Planning was present to clarify if the POTW Authority had initiated any Planning change. The Authority contacts the Department for information about the Guilford Mills application status every once in a while.
- **Greensands Filter:**
  - No new sampling data provided.
  - They clarified Greensands Filter backwash filter flow goes to the Octagonal Pump Station and then onto the Treatment Plant.

- Guilford Mills has not done any additional sampling and analysis (beyond initial 30 days). They had thought the 25:1 dilution factor would mean nothing would show up in the effluent.
- The DEP Approval with condition Letter required monitoring and reporting "until further notice".
- The Department had previously met with Guilford Mills to discuss Greensands Filter M&R requirements. Discussions had included potential Guilford Mills options.
- Draft NPDES permit will include authorization for Greensands Filter, with additional Backwash Internal Monitoring Point M&R and additional effluent M&R (some upon request) due to lack of sampling data. For example, there will be "upon request" monitoring and reporting requirements for chlorine residuals. The Department has broad authority to reopen a permit if data shows limits are needed.

- **Stormwater Monitoring:**
  - The Department noted that the December 2018 stormwater sampling did not include most outfalls. It is important to schedule sampling during rainy parts of year to ensure sample results.
  - Guilford Mills indicated the problem was the "72-hours after previous rain event" requirement due to very wet year. The Department noted Guilford Mills can contact the Department (Amy Bellanca, Steve Pletchan or Jarrod Sabitsky) to ask for a waiver of the requirement, for it is better to have some data rather than none.
- **Fecal Coliform Investigation:**
  - No new information provided.
  - Tom Pullar deferred investigation discussions to Mr. Vasko, but said fecal levels were variable. They have not found the source. They said the plant was old, and even with cleaning fecals are gone and then come back. **They have not determined if the fecals are from human or wildlife sources.**
  - The Department noted the NPDES Permit Outfall No. 001 will have fecal coliform permit limits (effective upon PED) with the separate Consent Order & Agreement (CO&A) for time-frame for coming into compliance with existing Water Quality criteria. EPA does not want NPDES Permits schedule of compliance for coming into compliance with existing water quality criteria, as they have repeatedly stated on other permits. The permit limits will reflect Chapter 92a.47 fecal coliform limits.
  - The Department noted a Part II WQM Permit Application will be needed for a new Treatment Plant disinfection unit meeting DWFM requirements. Some permittees have put in temporary operational systems until they permit a disinfection system. Tom Pullar noted that he was unsure what loadings to design for due to variability of results.
  - The NPDES Permit stormwater monitoring will include monitoring and reporting for fecal coliforms.
  - The Department indicated it would make a difference if the fecal coliform came from wildlife.
- **Nutrient Trading Issues: Will be addressed in the CO&A.**
  - DEP will be sending out compliance assistance letters in July/August after reviewing June data. The letter does not account for purchased credits. DEP had sent such a letter in 2018 to Guilford Mills.
  - Guilford Mills will update its Nutrient reporting (using the current DEP spreadsheet template). Apparently, they had been using an older version of the DEP spreadsheet, which did not update the facility DMRs. This resulted in conflicting information in the DMRs.
  - Guilford Mills indicated there was no scheduled Chesapeake Bay nutrient auction this year, or last year. The Department noted many facilities purchase credits early and at different times of the year to make sure they get any required credits. Guilford Mills should be contacting individual facilities (like Pine Grove) to see if there are credits available. Guilford Mills can look at the DEP Chesapeake Bay WIP for a listing of PA facilities with Mass Caps to contact about potential purchase of nutrient credits.
  - If they purchase extra (unneeded) credits, check the spreadsheet. Sometimes extra credits can trigger indications that only 98-99% of needed credits were obtained.
- **Action Items:**
  - **Draft NPDES Permit:** DEP will be issuing a Draft NPDES Permit for public comment within several weeks (July/August if delayed).
  - **Draft CO&A:** DEP will be drafting a draft CO&A over the next few months, which will address fecal coliform issues, Greensands Filter issues and nutrient issues (with schedule of compliance) plus civil penalty. The draft will be sent to Guilford Mills for comment.
    - The Department has received Guilford Mills responses to the 2016/2017 violations.
    - The draft CO&A will address all violations in the last five years. Usually, the Department does not address older violations (older than 5 years) in a CO&A.
    - The Department can add older violations to the CO&A if Guilford Mills wanted them addressed therein for the public record. This can be useful as it provides a written record for third parties.
    - The Department had gone through how civil penalties are calculated during the 2016 meeting, which Tom Pullar attended**.**
    - Tom Pullar photographed the white-board list of compliance issues for Guilford Mills reference. The Meeting did not go through the list.

- **Certified Operator:** Steve Vasko (Guilford Mills) said he was a certified operator and will send in his Certified Operator License number to both Pat Musinski (DEP M&C) and James Berger (DEP Permits Section). Steve was unsure if his operator classification included lagoons. The Department noted that the fecal coliforms indicated sewage was going to the WWTP, which can trigger certified operator requirements. It would be best to have someone onsite who knows how to operate a lagoon treatment system.
- **Client Contact Updating:** This is the contact for the application and compliance-related communications such as a draft CO&A.
  - Guilford Mills will decide if it needs to update the Client Contact (currently Sunil who travels a lot). It will officially update the Department if so.
    They asked that Steve Vasko be cc'd on compliance letters. The Department indicated that was not usually done, but it would try.
  - The Department asked them to update the Chapter 92a fee contact information as well.
  - Any received DEP correspondence should be addressed immediately**.**
- **Plant Upgrading:** Guilford Mills will be deciding on plant upgrading options after it receives the Draft NPDES Permit.
- **Nutrient Reporting:** Guilford Mills will use latest Nutrient spreadsheet to ensure accurate DMR reporting. Guilford Mills will be looking for nutrient credits (needed) now.

**6/12/2019**: Mr. Vasko called to ask if there will be TRC limit in the NPDES Permit. I indicated yes (Chapter 92.47/48 TRC TBEL limit applies) and will be in permit to clarify requirements in event of chlorine disinfection onsite.