



Application Type

Renewal

Facility Type

Non-Municipal

Major / Minor

Minor

Application No.

**PA0030341**

APS ID

**1099825**

Authorization ID

**1459871**

**NPDES PERMIT FACT SHEET  
INDIVIDUAL SEWAGE**

| Applicant and Facility Information |  |                  |                               |
|------------------------------------|--|------------------|-------------------------------|
| Applicant Name                     | <b>B&amp;L Rentals, LLC</b>                              | Facility Name    | <b>Plain Grove Apartments</b> |
| Applicant Address                  | 2025 Moores Corner Road                                  | Facility Address | 1352 Golf Course Road         |
|                                    | Slippery Rock, PA 16057-6111                             |                  | Volant, PA 16156              |
| Applicant Contact                  | Brian Ladebu, Owner                                      | Facility Contact | Brian Ladebu, Owner           |
| Applicant Phone                    | (724) 421-5284   | Facility Phone   | (724) 421-5284                |
| Client ID                          | 345455   | Site ID          | 451510                        |
| Ch 94 Load Status                  | Not Overloaded   | Municipality     | Plain Grove Township          |
| Connection Status                  | No Limitations   | County           | Lawrence                      |
| Date Application Received          | October 3, 2023  | EPA Waived?      | Yes                           |
| Date Application Accepted          | October 30, 2023   | If No, Reason    | -                             |
| Purpose of Application             | Renewal of NPDES permit for discharge of treated sewage. |                  |                               |

**Summary of Review**

The applicant is requesting the renewal of an NPDES permit to discharge up to 0.0032 MGD of treated sewage into an Unnamed Tributary to Taylor Run, a Cold-Water Fishery (CWF) receiving stream in State Water Plan Basin 20C Slippery Rock Creek. As per the Department's current existing use list, the receiving stream does not have an existing use classification that is more protective than its designated use. This stream segment is not designated as a naturally reproducing trout stream as per PA Fish & Boat Commission. This discharge is not expected to affect public water supplies.

Limitations for pH, CBOD<sub>5</sub>, Total Suspended Solids (TSS), Fecal Coliform, and Dissolved Oxygen (DO) are technology-based and carried over from the previous permit.

Limitations for Ammonia-Nitrogen are water quality-based and carried over from the previous permit.

WQM 7.0 modeling did not recommend stricter limits.

The Total Residual Chlorine (TRC) Calculation Spreadsheet did not recommend stricter limitations than the previous permit. The TRC limits from the previous permit have been maintained in this permit renewal.

The quarterly monitoring and reporting for Total Nitrogen and Total Phosphorous has been maintained in this permit.

Sewage discharges now require monitoring and reporting for E. Coli. A monitoring frequency of 1/month for design flows >= 1 MGD, 1/quarter for design flows >= 0.05 and < 1 MGD, 1/year for design flows of 0.002 – 0.05 MGD will be utilized.

For this permit renewal, all monitoring frequencies for parameters with limitations are consistent with the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (document no. 362-0400-001).

| Approve | Deny | Signatures  | Date              |
|---------|------|---|-------------------|
| X       |      | Allison S. Zukosky (signed)<br>Allison S. Zukosky / Project Manager     | December 6, 2024  |
| X       |      | Adam Olesnanik<br>Adam Olesnanik, P.E. / Environmental Engineer Manager | December 11, 2024 |

### Summary of Review

There are no representative stream gages in the vicinity of the outfall and the drainage area at Outfall 001 is too small for USGS StreamStats to estimate accurate low flow values. Therefore, the default Low Flow Yield (LFY) of 0.1 cfs/mi<sup>2</sup> was used to model the discharge. For modeling inputs, RMI values were obtained using the "PA Historic Streams" feature of eMapPA, drainage areas were delineated using USGS's StreamStats Interactive Map, and elevations were obtained using the elevation profile feature of StreamStats.

The existing permit expired on March 31, 2024, and the application for renewal was received on time.

A Water Management System Inspection query indicated that on October 5, 2021, a Compliance Evaluation was performed.

There are currently no open violations for this client that warrant withholding issuance of this permit.

Sludge use and disposal description and location(s): As per the Sewage Inspection Report dated October 5, 2021, sludge is hauled to the Mahoning Township WWTP by K&M Septic.

### Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

| Discharge, Receiving Waters and Water Supply Information |  |                              |                    |
|--|--|------------------------------|--------------------|
| Outfall No.  | 001  | Design Flow (MGD)            | 0.0032             |
| Latitude   | 41° 4' 17.58"                                      | Longitude                    | -80° 9' 9.61"      |
| Quad Name  | Harlansburg  | Quad Code                    | 1004               |
| Wastewater Description:                                  | Sewage Effluent                                    |                              |                    |
| Receiving Waters   | Unnamed Tributary to Taylor Run (CWF)              | Stream Code                  | 34190              |
| NHD Com ID   | 126219784  | RMI                          | 0.65               |
| Drainage Area  | 0.85   | Yield (cfs/mi <sup>2</sup> ) | 0.1                |
| Q <sub>7-10</sub> Flow (cfs)                             | 0.085  | Q <sub>7-10</sub> Basis      | State-wide default |
| Elevation (ft)   | 1,191.89   | Slope (ft/ft)                | -                  |
| Watershed No.  | 20-C   | 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  | -  | Name                         | -                  |
| Nearest Downstream Public Water Supply Intake            | Pennsylvania American Water Company - Ellwood City |                              |                    |
| PWS Waters   | Slippery Rock Creek                                | Flow at Intake (cfs)         | -                  |
| PWS RMI  | 0.1  | Distance from Outfall (mi)   | ~ 20.0             |

| Treatment Facility Summary                             |                            |                  |                     |                        |
|--|----------------------------|------------------|---------------------|------------------------|
| <b>Treatment Facility Name:</b> Plain Grove Apartments |                            |                  |                     |                        |
| Waste Type   | Degree of Treatment        | Process Type     | Disinfection        | Avg Annual Flow (MGD)  |
| Sewage   | Secondary                  | Activated Sludge | Chlorination        | 0.0032                 |
| <hr/>  |                            |                  |                     |                        |
| Hydraulic Capacity (MGD)                               | Organic Capacity (lbs/day) | Load Status      | Biosolids Treatment | Biosolids Use/Disposal |
| 0.0032   | 19.2                       | Not Overloaded   | -                   | Hauled                 |

Compliance History

DMR Data for Outfall 001 (from November 1, 2023 to October 31, 2024)

| Parameter  | OCT-24 | SEP-24 | AUG-24 | JUL-24 | JUN-24 | MAY-24 | APR-24 | MAR-24 | FEB-24 | JAN-24 | DEC-23 | NOV-23 |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Flow (MGD)<br>Average Monthly                              | 0.005  | 0.005  | 0.005  | 0.005  | 0.005  | 0.001  | 0.001  | 0.001  | 0.001  | 0.001  | 0.001  | 0.001  |
| Flow (MGD)<br>Weekly Average                               | 0.005  | 0.005  | 0.005  | 0.005  | 0.005  | 0.001  | 0.001  | 0.001  | 0.001  | 0.001  | 0.001  | 0.001  |
| pH (S.U.)<br>Instantaneous<br>Minimum                      | 7.19   | 7.15   | 7.37   | 7.11   | 7.36   | 7.1    | 7.1    | 7.2    | 7.2    | 7.1    | 7.1    | 7.0    |
| pH (S.U.)<br>Instantaneous<br>Maximum                      | 8.14   | 8.05   | 7.97   | 7.61   | 7.55   | 7.2    | 7.2    | 7.2    | 7.2    | 7.1    | 7.2    | 7.7    |
| DO (mg/L)<br>Daily Minimum                                 | 7.0    | 6.3    | 4.06   | 4.47   | 4.17   | 4.09   | 4.16   | 4.32   | 4.6    | 4.11   | 4.11   | 4.28   |
| TRC (mg/L)<br>Average Monthly                              | 0.5    | 0.5    | 0.5    | 0.2    | 0.3    | 0.3    | 0.3    | 0.3    | 0.2    | 0.4    | 0.2    | 0.4    |
| TRC (mg/L)<br>Instantaneous<br>Maximum                     | 1.11   | 0.6    | 1.0    | 0.7    | 0.44   | 0.41   | 0.54   | 0.4    | 0.32   | 0.52   | 0.37   | 0.5    |
| CBOD5 (mg/L)<br>Average Monthly                            | < 2.0  | < 6.5  | < 2.0  | 2.1    | < 2.5  | < 2.0  | < 2.0  | < 2.0  | 8.9    | 6.6    | < 3.4  | < 3.7  |
| TSS (mg/L)<br>Average Monthly                              | < 5.0  | < 5.0  | < 5.0  | < 5.0  | < 5.0  | < 5.0  | < 5.0  | < 5.0  | 12.0   | 6.0    | < 6.0  | < 5.0  |
| Fecal Coliform<br>(No./100 ml)<br>Geometric Mean           | < 7    | < 3    | < 1    | < 4    | > 49   | < 1    | < 1    | < 1    | 1237   | 31     | < 18   | < 14   |
| Fecal Coliform<br>(No./100 ml)<br>Instantaneous<br>Maximum | 44     | 12     | < 1    | 20     | > 2420 | < 1    | 1      | < 1    | 1986   | 62     | 330    | 210    |
| Total Nitrogen (mg/L)<br>Average Quarterly                 |        | 27.1   |        |        | 4.72   |        |        | 12.7   |        |        | 14.42  |        |
| Ammonia (mg/L)<br>Average Monthly                          | 0.6    | 6.8    | < 0.4  | 6.2    | 5.6    | 1.2    | < 1.0  | < 1.0  | < 2.0  | 7.0    | 9.0    | < 3.0  |
| Total Phosphorus<br>(mg/L)<br>Average Quarterly            |        | < 0.1  |        |        | 0.98   |        |        | 2.2    |        |        | 2.23   |        |

Compliance History

Effluent Violations for Outfall 001, from: December 1, 2023 To: October 31, 2024

| Parameter      | Date     | SBC      | DMR Value | Units      | Limit Value | Units      |
|----------------|----------|----------|-----------|------------|-------------|------------|
| Fecal Coliform | 06/30/24 | Geo Mean | > 49      | No./100 ml | 200         | No./100 ml |
| Fecal Coliform | 06/30/24 | IMAX     | > 2420    | No./100 ml | 1000        | No./100 ml |

**Development of Effluent Limitations**

Outfall No. 001  
Latitude 41° 4' 17.80"  
Wastewater Description: Sewage Effluent

Design Flow (MGD) 0.0032  
Longitude -80° 9' 9.80"

**Technology-Based Limitations**

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

| Pollutant                    | Limit (mg/l)    | SBC             | Federal Regulation | State Regulation |
|------------------------------|-----------------|-----------------|--------------------|------------------|
| CBOD <sub>5</sub>            | 25              | Average Monthly | 133.102(a)(4)(i)   | 92a.47(a)(1)     |
|                              | 40              | Average Weekly  | 133.102(a)(4)(ii)  | 92a.47(a)(2)     |
| Total Suspended Solids       | 30              | Average Monthly | 133.102(b)(1)      | 92a.47(a)(1)     |
|                              | 45              | Average Weekly  | 133.102(b)(2)      | 92a.47(a)(2)     |
| pH                           | 6.0 – 9.0 S.U.  | Min – Max       | 133.102(c)         | 95.2(1)          |
| Fecal Coliform (5/1 – 9/30)  | 200 / 100 ml    | Geo Mean        | -                  | 92a.47(a)(4)     |
| Fecal Coliform (5/1 – 9/30)  | 1,000 / 100 ml  | IMAX            | -                  | 92a.47(a)(4)     |
| Fecal Coliform (10/1 – 4/30) | 2,000 / 100 ml  | Geo Mean        | -                  | 92a.47(a)(5)     |
| Fecal Coliform (10/1 – 4/30) | 10,000 / 100 ml | IMAX            | -                  | 92a.47(a)(5)     |
| Total Residual Chlorine      | 0.5             | Average Monthly | -                  | 92a.48(b)(2)     |
|                              | 1.6             | IMAX            |                    |                  |
| Dissolved Oxygen             | 4.0             | Minimum         | -                  | BPJ              |
| E. Coli                      | Report          | IMAX            | -                  | 92a.61           |

**Water Quality-Based Limitations**

The following limitations were determined through water quality modeling:

| Parameter                       | Limit (mg/l) | SBC               | Model                     |
|---------------------------------|--------------|-------------------|---------------------------|
| Ammonia-Nitrogen Nov 1 - Apr 30 | 25.0         | Average Monthly   | Previous Modeling/Permits |
|                                 | 50.0         | IMAX              |                           |
| Ammonia-Nitrogen May 1 - Oct 31 | 20.2         | Average Monthly   |                           |
|                                 | 40.4         | IMAX              |                           |
| Total Nitrogen                  | Report       | Average Quarterly |                           |
| Total Phosphorus                | Report       | Average Quarterly |                           |

**Anti-Backsliding**

No limitations were made less stringent.

**Modeling Using State-wide Low-Flow Yield (LFY) of 0.1 cfs/mi<sup>2</sup>:**

$$\frac{0.1 \text{ ft}^3/\text{sec}}{\text{mi}^2} \times 0.85 \text{ mi}^2 = \frac{0.085 \text{ ft}^3}{\text{sec}}$$

**Modeling Using USGS StreamStats:**

**At Outfall 001 on Unnamed Tributary to Taylor Run:**

| RMI  | Elevation (ft) | Drainage Area (mi <sup>2</sup> ) | Q <sub>7-10</sub> Flow (cfs) |
|------|----------------|----------------------------------|------------------------------|
| 0.65 | 1,191.89       | 0.85                             | 0.00679                      |

$$\text{Low Flow Yield using StreamStats} = \frac{0.00679 \text{ ft}^3/\text{sec}}{0.85 \text{ mi}^2} = 0.008 \frac{\text{ft}^3/\text{sec}}{\text{mi}^2}$$

**StreamStats Report**

Region ID:

PA

Workspace ID:

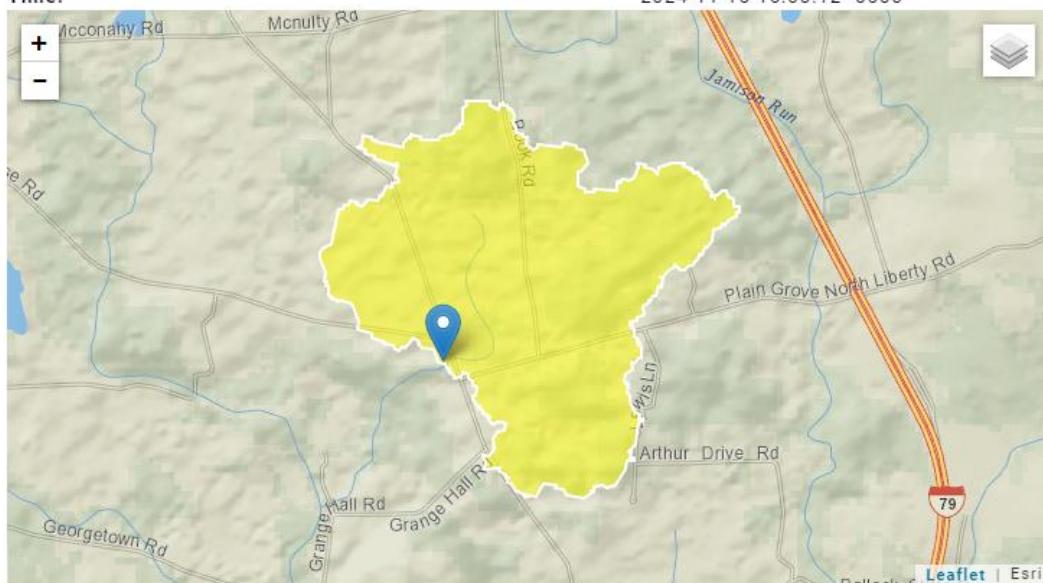
PA20241115205949079000

Clicked Point (Latitude, Longitude):

41.07147, -80.15277

Time:

2024-11-15 16:00:12 -0500



| Parameter Code | Parameter Name | Value | Units        |
|----------------|----------------|-------|--------------|
| DRNAREA        | Drainage Area  | 0.85  | square miles |

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

| Statistic              | Value   | Unit               |
|------------------------|---------|--------------------|
| 7 Day 2 Year Low Flow  | 0.0237  | ft <sup>3</sup> /s |
| 30 Day 2 Year Low Flow | 0.0461  | ft <sup>3</sup> /s |
| 7 Day 10 Year Low Flow | 0.00679 | ft <sup>3</sup> /s |

At confluence with Taylor Run (34185):

| RMI | Elevation (ft) | Drainage Area (mi <sup>2</sup> ) |
|-----|----------------|----------------------------------|
| 0.0 | 1,167.10       | 8.56                             |

StreamStats Report

Region ID:

PA

Workspace ID:

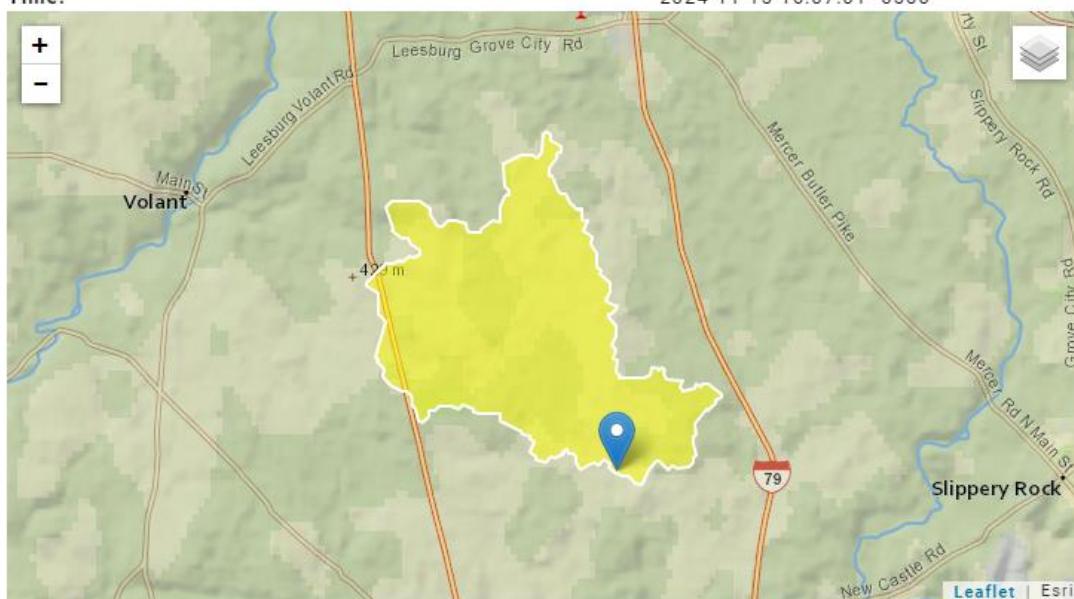
PA20241115210634205000

Clicked Point (Latitude, Longitude):

41.06508, -80.15975

Time:

2024-11-15 16:07:01 -0500



| Parameter Code | Parameter Name | Value | Units        |
|----------------|----------------|-------|--------------|
| DRNAREA        | Drainage Area  | 8.56  | square miles |

**WQM 7.0 Effluent Limits**

| <u>SWP Basin</u> | <u>Stream Code</u> | <u>Stream Name</u>       |
|------------------|--------------------|--------------------------|
| 20C              | 34190              | Trib 34190 to Taylor Run |

| 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) |
|-------|-----------------|---------------|-----------------|------------------|--------------------------------|----------------------------|----------------------------|
| 0.650 | Plain Grove Apt | PA0030341     | 0.003           | CBOD5            | 25                             |                            |                            |
|       |                 |               |                 | NH3-N            | 25                             | 50                         |                            |
|       |                 |               |                 | Dissolved Oxygen |                                |                            | 3                          |

| TRC EVALUATION                              |           |   |  |           |                     |  |  |
|---|-----------|---|--|-----------|---------------------|--|--|
| Input appropriate values in A3:A9 and D3:D9 |           |   |  |           |                     |  |  |
| Source                                      | Reference | AFC Calculations  |  | Reference | CFC Calculations    |  |  |
| TRC   | 1.3.2.iii | WLA_afc = 5.496   |  | 1.3.2.iii | WLA_cfc = 5.351     |  |  |
| PENTOXSD TRG                                | 5.1a      | LTAMULT_afc = 0.373   |  | 5.1c      | LTAMULT_cfc = 0.581 |  |  |
| PENTOXSD TRG                                | 5.1b      | LTA_afc = 2.048   |  | 5.1d      | LTA_cfc = 3.111     |  |  |
| Effluent Limit Calculations                 |           |   |  |           |                     |  |  |
| PENTOXSD TRG                                | 5.1f      | AML MULT = 1.231  |  | BAT/BPJ   |                     |  |  |
| PENTOXSD TRG                                | 5.1g      | AVG MON LIMIT (mg/l) = 0.500<br>INST MAX LIMIT (mg/l) = 1.635   |  |           |                     |  |  |
| WLA_afc                                     |           | $(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...\\ ...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)$ |  |           |                     |  |  |
| LTAMULT_afc                                 |           | $EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)$  |  |           |                     |  |  |
| LTA_afc                                     |           | wla_afc*LTAMULT_afc   |  |           |                     |  |  |
| WLA_cfc                                     |           | $(.011/e(-k*CFC_tc)) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...\\ ...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)$ |  |           |                     |  |  |
| LTAMULT_cfc                                 |           | $EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)$                                    |  |           |                     |  |  |
| LTA_cfc                                     |           | wla_cfc*LTAMULT_cfc   |  |           |                     |  |  |
| AML MULT                                    |           | $EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))$                                    |  |           |                     |  |  |
| AVG MON LIMIT                               |           | MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)  |  |           |                     |  |  |
| INST MAX LIMIT                              |           | 1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)   |  |           |                     |  |  |

## WQM 7.0 Modeling Specifications

|                    |        |                                     |                                     |
|--------------------|--------|-------------------------------------|-------------------------------------|
| Parameters         | Both   | Use Inputted Q1-10 and Q30-10 Flows | <input checked="" type="checkbox"/> |
| WLA Method         | EMPR   | Use Inputted W/D Ratio              | <input type="checkbox"/>            |
| Q1-10/Q7-10 Ratio  | 0.64   | Use Inputted Reach Travel Times     | <input type="checkbox"/>            |
| Q30-10/Q7-10 Ratio | 1.36   | Temperature Adjust Kr               | <input checked="" type="checkbox"/> |
| D.O. Saturation    | 90.00% | Use Balanced Technology             | <input checked="" type="checkbox"/> |
| D.O. Goal          | 5      |                                     |                                     |

**WQM 7.0 Effluent Limits**

| <u>SWP Basin</u> | <u>Stream Code</u> | <u>Stream Name</u> |                 |                          |                                |                            |                            |
|------------------|--------------------|--------------------|-----------------|--------------------------|--------------------------------|----------------------------|----------------------------|
|                  |                    | 20C                | 34190           | Trib 34190 to Taylor Run |                                |                            |                            |
| 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) |
| 0.650            | Plain Grove Apt    | PA0030341          | 0.003           | CBOD5                    | 25                             |                            |                            |
|                  |                    |                    |                 | NH3-N                    | 25                             | 50                         |                            |
|                  |                    |                    |                 | Dissolved Oxygen         |                                |                            | 3                          |

### WQM 7.0 Wasteload Allocations

| <u>SWP Basin</u>                    |                 | <u>Stream Code</u>        | <u>Stream Name</u>  |                           |                     |                         |                   |
|-------------------------------------|-----------------|---------------------------|---------------------|---------------------------|---------------------|-------------------------|-------------------|
| 20C                                 | 34190           | Trib 34190 to Taylor Run  |                     |                           |                     |                         |                   |
| <b>NH3-N Acute Allocations</b>      |                 |                           |                     |                           |                     |                         |                   |
| RMI                                 | Discharge Name  | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach          | Percent Reduction |
| 0.650                               | Plain Grove Apt | 9.38                      | 50                  | 9.38                      | 50                  | 0                       | 0                 |
| <b>NH3-N Chronic Allocations</b>    |                 |                           |                     |                           |                     |                         |                   |
| RMI                                 | Discharge Name  | Baseline Criterion (mg/L) | Baseline WLA (mg/L) | Multiple Criterion (mg/L) | Multiple WLA (mg/L) | Critical Reach          | Percent Reduction |
| 0.650                               | Plain Grove Apt | 1.89                      | 25                  | 1.89                      | 25                  | 0                       | 0                 |
| <b>Dissolved Oxygen Allocations</b> |                 |                           |                     |                           |                     |                         |                   |
| RMI                                 | Discharge Name  | <u>CBOD5</u>              |                     | <u>NH3-N</u>              |                     | <u>Dissolved Oxygen</u> |                   |
|                                     |                 | Baseline (mg/L)           | Multiple (mg/L)     | Baseline (mg/L)           | Multiple (mg/L)     | Baseline (mg/L)         | Multiple (mg/L)   |
| 0.65                                | Plain Grove Apt | 25                        | 25                  | 25                        | 25                  | 3                       | 3                 |
|                                     |                 |                           |                     |                           |                     | 0                       | 0                 |

### WQM 7.0 D.O.Simulation

| <u>SWP Basin</u>                | <u>Stream Code</u>         | <u>Stream Name</u>               |                             |                |
|---------------------------------|----------------------------|----------------------------------|-----------------------------|----------------|
| 20C                             | 34190                      | Trib 34190 to Taylor Run         |                             |                |
| <u>RMI</u>                      | Total Discharge Flow (mgd) | <u>Analysis Temperature (°C)</u> | <u>Analysis pH</u>          |                |
| 0.650                           | 0.003                      | 20.275                           | 7.000                       |                |
| <u>Reach Width (ft)</u>         | <u>Reach Depth (ft)</u>    | <u>Reach WDRatio</u>             | <u>Reach Velocity (fps)</u> |                |
| 4.478                           | 0.345                      | 12.989                           | 0.058                       |                |
| <u>Reach CBOD5 (mg/L)</u>       | <u>Reach Kc (1/days)</u>   | <u>Reach NH3-N (mg/L)</u>        | <u>Reach Kn (1/days)</u>    |                |
| 3.27                            | 0.459                      | 1.38                             | 0.715                       |                |
| <u>Reach DO (mg/L)</u>          | <u>Reach Kr (1/days)</u>   | <u>Kr Equation</u>               | <u>Reach DO Goal (mg/L)</u> |                |
| 7.954                           | 23.322                     | Owens                            | 5                           |                |
| <u>Reach Travel Time (days)</u> | <b>Subreach Results</b>    |                                  |                             |                |
| 0.682                           | TravTime<br>(days)         | CBOD5<br>(mg/L)                  | NH3-N<br>(mg/L)             | D.O.<br>(mg/L) |
|                                 | 0.068                      | 3.16                             | 1.31                        | 8.20           |
|                                 | 0.136                      | 3.07                             | 1.25                        | 8.20           |
|                                 | 0.205                      | 2.97                             | 1.19                        | 8.20           |
|                                 | 0.273                      | 2.88                             | 1.13                        | 8.20           |
|                                 | 0.341                      | 2.79                             | 1.08                        | 8.20           |
|                                 | 0.409                      | 2.70                             | 1.03                        | 8.20           |
|                                 | 0.477                      | 2.62                             | 0.98                        | 8.20           |
|                                 | 0.545                      | 2.53                             | 0.93                        | 8.20           |
|                                 | 0.614                      | 2.46                             | 0.89                        | 8.20           |
|                                 | 0.682                      | 2.38                             | 0.85                        | 8.20           |

**WQM 7.0 Hydrodynamic Outputs**

| <u>SWP Basin</u>   |             |          | <u>Stream Code</u> |               |             | <u>Stream Name</u>       |       |           |          |                 |               |             |
|--------------------|-------------|----------|--------------------|---------------|-------------|--------------------------|-------|-----------|----------|-----------------|---------------|-------------|
| 20C                |             |          | 34190              |               |             | Trib 34190 to Taylor Run |       |           |          |                 |               |             |
| RMI                | Stream Flow | PWS With | Net Stream Flow    | Disc Analysis | Reach Slope | Depth                    | Width | W/D Ratio | Velocity | Reach Trav Time | Analysis Temp | Analysis pH |
|                    | (cfs)       | (cfs)    | (cfs)              | (cfs)         | (ft/ft)     | (ft)                     | (ft)  |           | (fps)    | (days)          | (°C)          |             |
| <b>Q7-10 Flow</b>  |             |          |                    |               |             |                          |       |           |          |                 |               |             |
| 0.650              | 0.09        | 0.00     | 0.09               | .005          | 0.00722     | .345                     | 4.48  | 12.99     | 0.06     | 0.682           | 20.28         | 7.00        |
| <b>Q1-10 Flow</b>  |             |          |                    |               |             |                          |       |           |          |                 |               |             |
| 0.650              | 0.05        | 0.00     | 0.05               | .005          | 0.00722     | NA                       | NA    | NA        | 0.05     | 0.860           | 20.42         | 7.00        |
| <b>Q30-10 Flow</b> |             |          |                    |               |             |                          |       |           |          |                 |               |             |
| 0.650              | 0.12        | 0.00     | 0.12               | .005          | 0.00722     | NA                       | NA    | NA        | 0.07     | 0.579           | 20.21         | 7.00        |

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| SWP Basin             | Stream Code   | Stream Name        |                          | RMI                         | Elevation<br>(ft)            | Drainage Area<br>(sq mi)  | Slope<br>(ft/ft)  | PWS Withdrawal<br>(mgd) | Apply FC                            |                     |           |
|-----------------------|---------------|--------------------|--------------------------|-----------------------------|------------------------------|---------------------------|-------------------|-------------------------|-------------------------------------|---------------------|-----------|
|                       |               |                    |                          |                             |                              |                           |                   |                         |                                     |                     |           |
| 20C                   |               | 34190              | Trib 34190 to Taylor Run | 0.650                       | 1191.89                      | 0.85                      | 0.00000           | 0.00                    | <input checked="" type="checkbox"/> |                     |           |
| <b>Stream Data</b>    |               |                    |                          |                             |                              |                           |                   |                         |                                     |                     |           |
| Design Cond.          | LFY<br>(cfsm) | Trib Flow<br>(cfs) | Stream Flow<br>(cfs)     | Rch Trav Time<br>(days)     | Rch Velocity<br>(fps)        | WD Ratio                  | Rch Width<br>(ft) | Rch Depth<br>(ft)       | Tributary pH<br>(°C)                | Stream Temp<br>(°C) | Stream pH |
| Q7-10                 | 0.100         | 0.00               | 0.00                     | 0.000                       | 0.000                        | 0.0                       | 0.00              | 0.00                    | 20.00                               | 7.00                | 0.00      |
| Q1-10                 |               | 0.00               | 0.00                     | 0.000                       | 0.000                        |                           |                   |                         |                                     |                     |           |
| Q30-10                |               | 0.00               | 0.00                     | 0.000                       | 0.000                        |                           |                   |                         |                                     |                     |           |
| <b>Discharge Data</b> |               |                    |                          |                             |                              |                           |                   |                         |                                     |                     |           |
| Name                  |               | Permit Number      |                          | Existing Disc Flow<br>(mgd) | Permitted Disc Flow<br>(mgd) | Design Disc Flow<br>(mgd) | Reserve Factor    | Disc Temp<br>(°C)       | Disc pH                             |                     |           |
| Plain Grove Apt       |               | PA0030341          |                          | 0.0032                      | 0.0032                       | 0.0032                    | 0.000             | 25.00                   | 7.00                                |                     |           |
| <b>Parameter Data</b> |               |                    |                          |                             |                              |                           |                   |                         |                                     |                     |           |
| Parameter Name        |               |                    | Disc Conc<br>(mg/L)      | Trib Conc<br>(mg/L)         | Stream Conc<br>(mg/L)        | Fate Coef<br>(1/days)     |                   |                         |                                     |                     |           |
| CBOD5                 |               |                    | 25.00                    | 2.00                        | 0.00                         | 1.50                      |                   |                         |                                     |                     |           |
| Dissolved Oxygen      |               |                    | 3.00                     | 8.24                        | 0.00                         | 0.00                      |                   |                         |                                     |                     |           |
| NH3-N                 |               |                    | 25.00                    | 0.00                        | 0.00                         | 0.70                      |                   |                         |                                     |                     |           |

Input Data WQM 7.0

| SWP Basin             | Stream Code      | Stream Name              |                             |                              | RMI                       | Elevation<br>(ft)     | Drainage Area<br>(sq mi) | Slope<br>(ft/ft)  | PWS Withdrawal<br>(mgd) | Apply FC                            |
|-----------------------|------------------|--------------------------|-----------------------------|------------------------------|---------------------------|-----------------------|--------------------------|-------------------|-------------------------|-------------------------------------|
| 20C                   | 34190            | Trib 34190 to Taylor Run |                             |                              | 0.000                     | 1167.10               | 8.56                     | 0.00000           | 0.00                    | <input checked="" type="checkbox"/> |
| <b>Stream Data</b>    |                  |                          |                             |                              |                           |                       |                          |                   |                         |                                     |
| Design Cond.          | LFY<br>(cfs/m)   | Trib Flow<br>(cfs)       | Stream Flow<br>(cfs)        | Rch Trav Time<br>(days)      | Rch Velocity<br>(fps)     | WD Ratio              | Rch Width<br>(ft)        | Rch Depth<br>(ft) | Tributary Temp<br>(°C)  | Stream Temp<br>(°C)                 |
| Q7-10                 | 0.100            | 0.00                     | 0.00                        | 0.000                        | 0.000                     | 0.0                   | 0.00                     | 0.00              | 20.00                   | 7.00                                |
| Q1-10                 |                  | 0.00                     | 0.00                        | 0.000                        | 0.000                     |                       |                          |                   |                         |                                     |
| Q30-10                |                  | 0.00                     | 0.00                        | 0.000                        | 0.000                     |                       |                          |                   |                         |                                     |
| <b>Discharge Data</b> |                  |                          |                             |                              |                           |                       |                          |                   |                         |                                     |
|                       | Name             | Permit Number            | Existing Disc Flow<br>(mgd) | Permitted Disc Flow<br>(mgd) | Design Disc Flow<br>(mgd) | Reserve Factor        | Disc Temp<br>(°C)        | Disc pH           |                         |                                     |
|                       |                  |                          | 0.0000                      | 0.0000                       | 0.0000                    | 0.000                 | 25.00                    | 7.00              |                         |                                     |
| <b>Parameter Data</b> |                  |                          |                             |                              |                           |                       |                          |                   |                         |                                     |
|                       | Parameter Name   |                          | Disc Conc<br>(mg/L)         | Trib Conc<br>(mg/L)          | Stream Conc<br>(mg/L)     | Fate Coef<br>(1/days) |                          |                   |                         |                                     |
|                       | CBOD5            |                          | 25.00                       | 2.00                         | 0.00                      | 1.50                  |                          |                   |                         |                                     |
|                       | Dissolved Oxygen |                          | 3.00                        | 8.24                         | 0.00                      | 0.00                  |                          |                   |                         |                                     |
|                       | NH3-N            |                          | 25.00                       | 0.00                         | 0.00                      | 0.70                  |                          |                   |                         |                                     |