

Application Type Renewal  
 Facility Type Non-Municipal  
 Major / Minor Minor

**NPDES PERMIT FACT SHEET  
INDIVIDUAL SEWAGE**

Application No. PA0062260  
 APS ID 599465  
 Authorization ID 1391254

**Applicant and Facility Information**

Applicant Name	<u>Brookmont Health and Rehabilitation Center LLC</u>	Facility Name	<u>Brookmont Health and Rehabilitation Center STP</u>
Applicant Address	<u>510 Brookmont Drive Effort, PA 18330-9534</u>	Facility Address	<u>510 Brookmont Drive Effort, PA 18330-9534</u>
Applicant Contact	<u>Leslie Shupper, Administrator</u>	Facility Contact	<u>David Scholtz, Operator</u>
Applicant Phone	<u>(610) 681-4070</u>	Facility Phone	<u>(570) 629-2981</u>
Client ID	<u>216250</u>	Site ID	<u>1378</u>
Ch 94 Load Status	<u>-</u>	Municipality	<u>Chestnuthill Township</u>
Connection Status	<u>-</u>	County	<u>Monroe</u>
Date Application Received	<u>April 4, 2022</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>April 11, 2022</u>	If No, Reason	<u>-</u>
Purpose of Application	<u>Renewal of existing NPDES permit to discharge treated sewage.</u>		

**Summary of Review**

The applicant is requesting renewal of their NPDES permit to discharge up to 0.04 MGD of treated sewage to Pohopoco Creek, a High Quality, Cold-Water Fishery, Migratory Fish (HQ, CWF, MF) designated receiving stream in state water plan basin 2-B (Middle Lehigh River). 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 designated as a naturally reproducing trout stream as per PA Fish & Boat Commission. This discharge is not expected to affect public water supplies. Pohopoco Creek is designated as exceptional value (EV) from the headwaters to a point that is approximately 4 miles upstream of the discharge point.

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

The latest DRBC Preliminary Docket No. D-2018-004-1 requires the addition of 2/month monitoring/reporting of CBOD<sub>5</sub> of the Raw Sewage Influent and for the monthly reporting of Percent Removal of CBOD<sub>5</sub>.

The DRBC Docket also requires a 20 mg/L average monthly limitation be added for Ammonia-Nitrogen. The previous permit only had a monitoring/reporting requirement for Ammonia-Nitrogen. An IMAX limitation of 50.0 mg/L for Ammonia-Nitrogen has also been applied to this permit to remain consistent with state-wide technology-based limitations for Ammonia Nitrogen. WQM 7.0 modeling did not recommend stricter limits.

The previous permit also required monitoring/reporting of Total Dissolved Solids (TDS). The Docket requires an IMAX limitation of 1,000 mg/L be added for TDS.

Approve	Deny	Signatures	Date
X		/s/ Allison Seyfried / Project Manager	June 22, 2023
X		/s/ Amy M. Bellanca, P.E. / Acting Engineer Manager	6-28-23

### Summary of Review

eDMR data from March 1, 2022 through February 28, 2023 can be observed on pages 5-6 of this fact sheet. This data indicates that the proposed Ammonia-Nitrogen and TDS limitations can easily be met already. Therefore, the limitations will become effective at the permit effective date.

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.

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

The monthly monitoring and reporting for Total Nitrogen, Total Phosphorous, Total Kjeldahl Nitrogen, and Nitrate-Nitrite as N has been maintained in this permit.

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).

The previous permit utilized USGS Stream Gage 01449360 (Pohopoco Creek at Kresgeville, PA) as a reference gage to develop the Low Flow Yield (LFY) of 0.3 cfs/mi<sup>2</sup>, which was used to model the discharge. The previous permit engineer calculated a Q<sub>7-10</sub> Flow of 5.13 cfs using this gage. The same USGS Stream Gage was used to recalculate the LFY and Q<sub>7-10</sub> Flow. A LFY of 0.30 cfs/mi<sup>2</sup> and a Q<sub>7-10</sub> Flow of 3.192 cfs was calculated.

USGS StreamStats was also utilized to generate a Q<sub>7-10</sub> Flow of 1.79 cfs and calculate a LFY of 0.107 cfs/mi<sup>2</sup>.

The state-wide default Low Flow Yield (LFY) of 0.1 cfs/mi<sup>2</sup> was also 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 USGS StreamStats Q<sub>7-10</sub> Flow and LFY were used to be conservative. Stricter limitations were not recommended.

A Water Management System Inspection query indicated that on February 25, 2022 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 permittee's NPDES permit renewal application, sludge is hauled to the West Hazelton Sewage Plant in West Hazelton, PA by BORGER 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)	.04
Latitude	40° 55' 28.71"	Longitude	-75° 25' 40.51"
Quad Name	Brodheads ville	Quad Code	1142
Wastewater Description: Sewage Effluent			
Receiving Waters	Pohopoco Creek (HQ-CWF)	Stream Code	3917
NHD Com ID	26286923	RMI	21.52
Drainage Area	16.8 mi <sup>2</sup>	Yield (cfs/mi <sup>2</sup> )	0.107
Q <sub>7-10</sub> Flow (cfs)	1.79	Q <sub>7-10</sub> Basis	USGS StreamStats
Elevation (ft)	727.33	Slope (ft/ft)	-
Watershed No.	2-B	Chapter 93 Class.	HQ-CWF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Not Assessed		
Cause(s) of Impairment	-		
Source(s) of Impairment	-		
TMDL Status	-	Name	-
Nearest Downstream Public Water Supply Intake	Bethlehem City Water System		
PWS Waters	Beltzville Lake	Flow at Intake (cfs)	-
PWS RMI	12.2	Distance from Outfall (mi)	~ 9.5

Treatment Facility Summary				
<b>Treatment Facility Name:</b> Brookmont Health and Rehabilitation Center LLC				
<b>WQM Permit No.</b>	<b>Issuance Date</b>			
4597402 T-1	January 16, 2004			
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Chlorination	0.013 (2019-2021)
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.040	31.67	-	Aerobic Digestion	Hauled

Compliance History

DMR Data for Outfall 001 (from March 1, 2022 to February 28, 2023)

Parameter	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22
Flow (MGD) Average Monthly	0.012	0.011	0.012	0.013	0.012	0.01	0.013	0.009	0.009	0.008	0.010	0.0102
Flow (MGD) Daily Maximum	0.013	0.012	0.014	0.013	0.013	0.01	0.013	0.01	0.011	0.011	0.011	0.011
pH (S.U.) Minimum	6.54	6.76	6.84	6.01	6.25	6.31	6.24	6.15	6.02	6.15	6.03	6.0
pH (S.U.) Instantaneous Maximum	7.95	7.8	7.84	7.54	7.15	7.02	7.14	7.03	7.51	7.3	7.58	7.3
DO (mg/L) Minimum	8.43	7.01	7.12	7.19	8.24	8.0	6.44	7.0	7.65	7.46	7.12	9.26
TRC (mg/L) Average Monthly	< 0.20	0.4	< 0.3	< 0.2	0.3	< 0.3	< 0.2	< 0.3	< 0.3	< 0.3	< 0.1	< 0.20
TRC (mg/L) Instantaneous Maximum	0.60	1.24	1.1	1.06	0.8	0.87	0.57	1.09	1.0	1.23	0.52	0.96
CBOD5 (mg/L) Average Monthly	< 7.4	< 6.3	4.3	< 6.9	19.5	< 2.5	< 5.1	< 3.5	19.0	3.3	9.5	17.5
TSS (mg/L) Average Monthly	8.0	< 4.0	5.5	15.5	< 7.0	< 4.0	6.0	< 6.0	7.5	< 5.0	7.5	< 9.5
Total Dissolved Solids (mg/L) Average Quarterly			232			250			312			276
Fecal Coliform (No./100 ml) Geometric Mean	8.0	9	116	2	< 2	8	3	20	< 9	2	7	57
Fecal Coliform (No./100 ml) Instantaneous Maximum	21.3	30.1	387.3	4.1	4	35	8	78	87	5	11	67
Nitrate-Nitrite (mg/L) Average Monthly	12.5	15	14	12.6	11.7	11.9	12.8	14.3	19.2	18	35.0	18.5
Total Nitrogen (mg/L) Average Monthly	15.0	16.9	15.7	15.9	16	13.9	15.2	17	22.5	21.8	39.1	23.3
Ammonia (mg/L) Average Monthly	< 0.10	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.20	< 0.10
TKN (mg/L) Average Monthly	3.0	1.9	1.7	3.3	4.3	2	2.4	2.7	3.3	3.8	4.1	4.8
Total Phosphorus (mg/L) Average Monthly	2.1	2.8	2.8	2.6	3	3.5	3.3	3	3.3	4.1	3.9	3.5

**Compliance History**

**Effluent Violations for Outfall 001, from: April 1, 2022 To: February 28, 2023**

<b>Parameter</b>	<b>Date</b>	<b>SBC</b>	<b>DMR Value</b>	<b>Units</b>	<b>Limit Value</b>	<b>Units</b>
TRC	01/31/23	IMAX	1.24	mg/L	1.1	mg/L
TRC	05/31/22	IMAX	1.23	mg/L	1.1	mg/L

**Development of Effluent Limitations**

<b>Outfall No.</b> <u>001</u>	<b>Design Flow (MGD)</b> <u>0.04</u>
<b>Latitude</b> <u>40° 55' 28.69"</u>	<b>Longitude</b> <u>-75° 25' 40.57"</u>
<b>Wastewater Description:</b> <u>Sewage Effluent</u>	

**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>	25.0	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	50.0	IMAX	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30.0	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	60.0	IMAX	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)
Dissolved Oxygen	5.0	Minimum	-	BPJ
E. Coli (No./100 ml)	Report	Average Annually	-	92a.61

**Water Quality-Based Limitations**

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

Parameter	Limit (mg/l)	SBC	Model
Total Residual Chlorine	1.1	IMAX	Previous TRC Modeling
Ammonia-Nitrogen	20.0	Average Monthly	DRBC Docket No. D-2018-004-1
	50.0	IMAX	BPJ
Carbonaceous Biochemical Oxygen Demand (CBOD <sub>5</sub> ) Raw Sewage Influent	Report	Average Monthly	DRBC Docket No. D-2018-004-1
CBOD <sub>5</sub> Minimum % Removal (%)	Report	Average Monthly	DRBC Docket No. D-2018-004-1
Nitrate-Nitrite as N	Report	Average Monthly	Previous Permit/Modeling
Total Kjeldahl Nitrogen	Report	Average Monthly	
Total Phosphorus	Report	Average Monthly	
Total Nitrogen	Report	Average Monthly	

**Anti-Backsliding**

No limitations were made less stringent.

### Modeling with USGS Stream Gage 01449360 – Pohopoco Creek Kresgeville, PA:

Period of Record: 9/30/1966 – 4/09/2023

Drainage Area: 49.9 mi<sup>2</sup>

Statistic Name	Value	Units	Preferred?	Years of Record	Standard Error, percent	Citation	Comments
7 Day 10 Year Low Flow	15.1	cubic feet per second	✓	41		49	Statistic Date Range 4/1/1967 - 3/31/2008

$$LFY = \frac{Q_{7-10}}{\text{Stream Gage Drainage Area}} \times \frac{15.1 \text{ cfs}}{49.9 \text{ mi}^2} = 0.30$$

$$\text{Stream Flow} = \text{Outfall 001 Drainage Area} \times LFY = 16.8 \text{ mi}^2 \times 0.19 = 3.192 \text{ cfs}$$

### Modeling Using StreamStats:

At Outfall 001 on Pohopoco Creek:

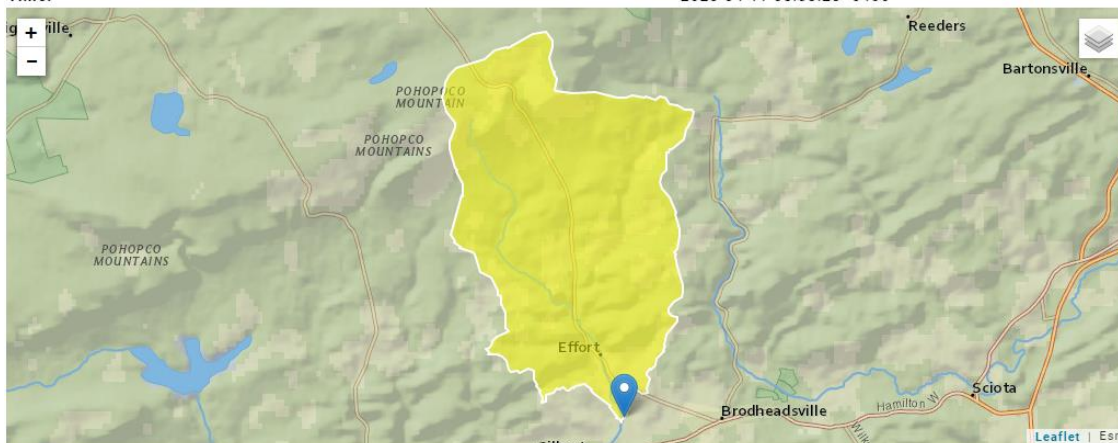
RMI	Elevation (ft)	Drainage Area (mi <sup>2</sup> )	Q <sub>7-10</sub> Flow (cfs)
21.52	727.33	16.8	1.79

$$\text{Low Flow Yield using StreamStats} = \frac{1.79 \text{ ft}^3/\text{sec}}{16.8 \text{ mi}^2} = 0.107 \frac{\text{ft}^3/\text{sec}}{\text{mi}^2}$$

#### StreamStats Report

Region ID:  
 Workspace ID:  
 Clicked Point (Latitude, Longitude):  
 Time:

PA  
 PA20230411123802516000  
 40.92403, -75.42777  
 2023-04-11 08:38:23 -0400



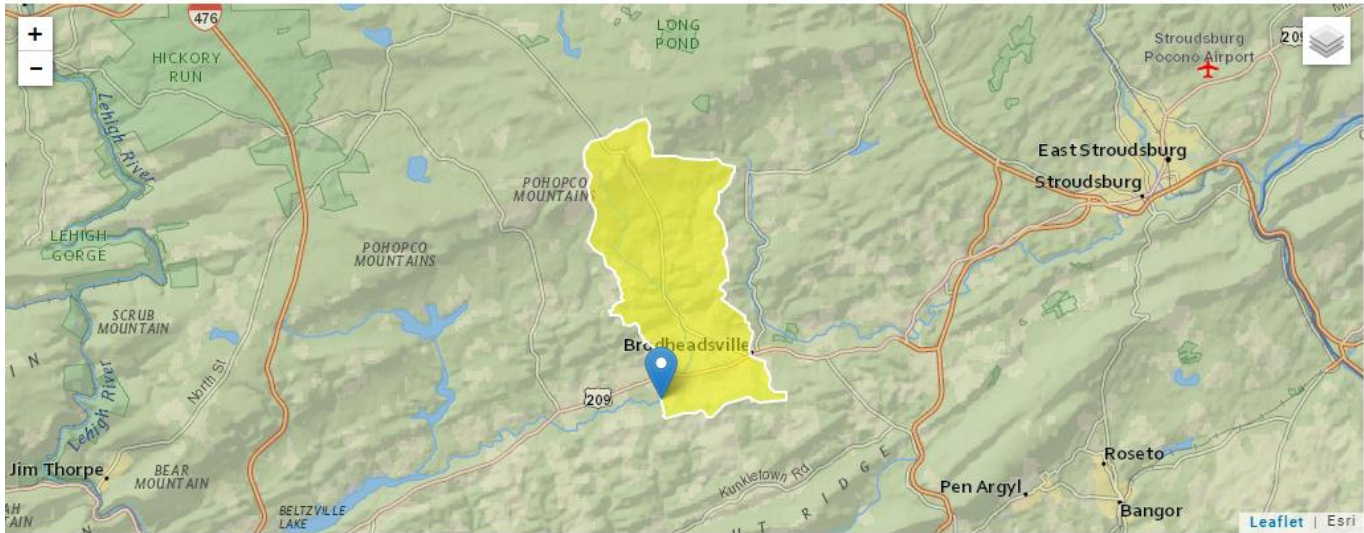
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	16.8	square miles	4.93	1280
Statistic		Value	Unit	SE	ASEp
7 Day 2 Year Low Flow		3.58	ft <sup>3</sup> /s	38	38
30 Day 2 Year Low Flow		4.65	ft <sup>3</sup> /s	33	33
7 Day 10 Year Low Flow		1.79	ft <sup>3</sup> /s	51	51

At confluence with Weir Creek (4014):

RMI	Elevation (ft)	Drainage Area (mi <sup>2</sup> )
19.71	686.5	23

StreamStats Report

Region ID: PA  
 Workspace ID: PA20230411130103519000  
 Clicked Point (Latitude, Longitude): 40.90550, -75.44445  
 Time: 2023-04-11 09:01:23 -0400



Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	23	square miles	4.93	1280

Modeling with State-Wide default LFY of 0.1 cfs/mi<sup>2</sup>:

$$\frac{0.1 \text{ ft}^3/\text{sec}}{\text{mi}^2} \times 16.8 \text{ mi}^2 = \frac{1.68 \text{ ft}^3}{\text{sec}}$$

**WQM 7.0 Effluent Limits**

SWP Basin	Stream Code	Stream Name					
02B	3917	POHOPOCO 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)
21.520	Brookmont	PA0062260	0.040	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3



TRC EVALUATION					
Input appropriate values in A3:A9 and D3:D9					
1.79	= Q stream (cfs)			0.5	= CV Daily
0.04	= Q discharge (MGD)			0.5	= CV Hourly
30	= no. samples			1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream			1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge			15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value			720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)				=Decay Coefficient (K)
Source	Reference	AFC Calculations		Reference	CFC Calculations
TRC	1.3.2.iii	WLA_afc = 9.247		1.3.2.iii	WLA_cfc = 9.007
PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373		5.1c	LTAMULT_cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc = 3.446		5.1d	LTA_cfc = 5.236
Source	Effluent Limit Calculations				
PENTOXSD TRG	5.1f	AML_MULT = 1.231			
PENTOXSD TRG	5.1g	AVG_MON_LIMIT (mg/l) = 0.500		BAT/BPJ	
		INST_MAX_LIMIT (mg/l) = 1.635			
WLA_afc	$(.019/e^{-k \cdot AFC\_tc}) + [(AFC\_Yc \cdot Qs \cdot .019 / Qd \cdot e^{-k \cdot AFC\_tc}) \dots + Xd + (AFC\_Yc \cdot Qs \cdot Xs / Qd)]^*(1-FOS/100)$				
LTAMULT_afc	$EXP((0.5 \cdot LN(cvh^2 + 1)) - 2.326 \cdot LN(cvh^2 + 1)^{0.5})$				
LTA_afc	$wla\_afc \cdot LTAMULT\_afc$				
WLA_cfc	$(.011/e^{-k \cdot CFC\_tc}) + [(CFC\_Yc \cdot Qs \cdot .011 / Qd \cdot e^{-k \cdot CFC\_tc}) \dots + Xd + (CFC\_Yc \cdot Qs \cdot Xs / Qd)]^*(1-FOS/100)$				
LTAMULT_cfc	$EXP((0.5 \cdot LN(cvd^2 / no\_samples + 1)) - 2.326 \cdot LN(cvd^2 / no\_samples + 1)^{0.5})$				
LTA_cfc	$wla\_cfc \cdot LTAMULT\_cfc$				
AML_MULT	$EXP(2.326 \cdot LN((cvd^2 / no\_samples + 1)^{0.5}) - 0.5 \cdot LN(cvd^2 / no\_samples + 1))$				
AVG_MON_LIMIT	$MIN(BAT\_BPJ, MIN(LTA\_afc, LTA\_cfc) \cdot AML\_MULT)$				
INST_MAX_LIMIT	$1.5 \cdot ((av\_mon\_limit / AML\_MULT) / LTAMULT\_afc)$				



WQM 7.0.pdf



DRBC Docket  
 D-2018-004-1.pdf



TRC Calculation  
 Spreadsheet - Brook