



# Act 167 Verification Report

PennEast Pipeline Project

October 15, 2018



A handwritten signature in blue ink, appearing to read 'W. Michael Clark'.

PennEast Pipeline Project  
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Mott MacDonald  
111 Wood Avenue South  
Iselin, NJ 08830-4112  
United States of America

T +1 (973) 379 3400  
mottmac.com

UGI Energy Services Inc.  
One Meridian Blvd.  
Suite 2C01  
Wyomissing, PA 19610  
610-373-7999

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# Issue and revision record

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# Executive Summary

The Pennsylvania Stormwater Management Act (Act 167 of 1978), more commonly referred to as Act 167, enables the regulation of development and activities causing accelerated runoff. A portion of the proposed project is located within watersheds and counties covered by DEP approved and current (from 2005 or later) Act 167 Plans. The following report summarizes the compliance information that is provided in the individual PSCM Reports for the individual sites within the project. This report covers the PennEast mainline piping and following sites:

- Wyoming Interconnect
- Springville Interconnect
- Auburn & Leidy Interconnects
- Kidder Compressor Station
- TCO & UGI-LEH Interconnects
- Hellertown Launcher & Mainline Launcher/Receiver
- Blue Mountain Interconnect
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# 1 Summary of Stormwater Recommendations in the Plans

The stated purpose of the Plans is to protect human health and safety by addressing the impacts of future land use on the current levels of stormwater runoff and to recommend measures to control accelerated runoff to prevent increased flood damages or additional water quality degradation. The Plans identify four aspects of effective stormwater management as -

- Peak discharge rate standards
- Groundwater Recharge
- Streambank Protection
- Water quality standards

The Plans identify criteria for control of stormwater runoff that are specific to the watersheds within the county. A broad and uniform approach is described for implementation of water quality, volume control, and channel protection controls. Peak discharge rate control standards were developed to achieve watershed specific controls where necessary.

## 2 Peak Rate Controls

### 2.1 Plan Requirement

Mathematical modeling of the county's watersheds was performed to analyze the flow patterns of the watersheds, the impact of anticipated development on those patterns, and when necessary, develop a release rate for various sub-basins to control regional peak flows. In some sub-basins, release rates were recommended that require sites to discharge at peak flows lower than those calculated for predevelopment conditions. The recommended release rates from the Plans fall into two categories:

- Areas not covered by a Release Rate Map

Post-development discharge rates shall not exceed the predevelopment discharge rates for the 1, 2, 5, 10, 25, 50, and 100 year storms. If it is shown that the peak rates of discharge indicated by the post-development analysis are less than or equal to the peak rates of discharge indicated by the predevelopment analysis for 1, 2, 5, 10, 25, 50, and 100 year, 24-hour storms, then the requirements of this section have been met. Otherwise, the applicant shall provide additional controls as necessary to satisfy the peak rate of discharge requirement.

- Areas covered by a Release Rate Map

For the 1, 2, 5, 10, 25, 50, and 100 year storms, the post-development peak discharge rates will follow the applicable approved release rate maps. For any areas not shown on the release rate maps, the post-development discharge rates shall not exceed the predevelopment discharge rates.

## 2.2 Consistency Verification

### 2.2.1 Wyoming Interconnect

The site is located in the Toby Creek Watershed and within Luzerne County, which has an Act 167 Stormwater Management Plan, and the Toby Creek Watershed is in an area covered by a Release Rate Map. The plan states that:

“Areas covered by a Stormwater Management District Map contained in Appendix F.1 of the Ordinance: For the 1- through 100-year storms, the post-development peak discharge rates will follow the applicable approved Stormwater Management District Maps.”

The Wyoming Interconnect site is in a B2 Management District, where the post-development peak runoff release rate must be a maximum of 60% of the pre-development peak runoff release rate for 1- through 100-year storm. The stormwater volume and peak runoff rate requirements are achieved as demonstrated in Tables 1 and 2 below:

**Table 1: Wyoming Interconnect Site Stormwater Volume Summary**

Recurrence Interval (yrs)	Existing Volume (cf)	Proposed Unmitigated Volume from Model (cf)	Difference between Proposed and Existing (cf)	Proposed Basin+Berm Total Infiltration Capacity (cf)	Adequate Infiltration Volume? (Y/N)
1	7,191	13,127	5,936	8,201+10,094=18,295	Yes
2	11,142	17,922	6,780	8,201+10,094=18,295	Yes
Act 167 2" Capture			7,188	8,201+10,094=18,295	Yes

**Table 2: Wyoming Interconnect Site POI WEST Stormwater Peak Flow Summary**

(1) Recurrence Interval (yrs)	(2) Existing Disturbed Conditions Site Q (cfs)	(3) Existing Undisturbed Conditions Offsite Q (cfs)	(4) Reduction Factor (Per Ordinance Sec. 148)	(5) Reduced Site Flow Column (2)* Column (4) (cfs)	(6) Maximum Allowable Proposed Peak Flow (cfs) (3) + (5)	(7) Proposed Q (cfs)	(8) Proposed Less than Allowable? (Y/N)
1	0.20	0.11	60%	0.12	0.23	0.13	Yes
2	0.37	0.13	60%	0.22	0.35	0.19	Yes
5	0.66	0.16	60%	0.40	0.56	0.30	Yes
10	0.94	0.19	60%	0.56	0.75	0.39	Yes
25	1.44	0.23	60%	0.86	1.09	0.59	Yes
50	1.93	0.27	60%	1.16	1.43	0.72	Yes
100	2.53	0.32	60%	1.52	1.84	0.92	Yes

**Table 3: Wyoming Interconnect Site POI EAST Stormwater Peak Flow Summary**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Recurrence Interval (yrs)	Existing Disturbed Conditions Site Q (cfs)	Existing Undisturbed Conditions Offsite Q (cfs)	Reduction Factor (Per Ordinance Sec. 148)	Reduced Site Flow Column (2)* Column (4) (cfs)	Maximum Allowable Proposed Peak Flow (cfs) (3) + (5)	Proposed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	0.69	0.61	60%	0.41	1.02	0.54	0.69
2	1.21	1.14	60%	0.73	1.87	0.74	1.21
5	2.08	2.06	60%	1.25	3.31	1.05	2.08
10	2.91	2.96	60%	1.75	4.71	1.34	2.91
25	4.36	4.53	60%	2.62	7.15	2.60	4.36
50	5.77	6.08	60%	3.46	9.54	5.85	5.77
100	7.50	8.00	60%	4.50	12.50	9.50	7.50

**Table 4: Wyoming Interconnect Site Total Stormwater Peak Flow Summary**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Recurrence Interval (yrs)	Existing Disturbed Conditions Site Q (cfs)	Existing Undisturbed Conditions Offsite Q (cfs)	Reduction Factor (Per Ordinance Sec. 148)	Reduced Site Flow Column (2)* Column (4) (cfs)	Maximum Allowable Proposed Peak Flow (cfs) (3) + (5)	Proposed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	0.89	0.62	60%	0.53	1.15	1.14	Yes
2	1.58	1.16	60%	0.95	2.11	1.61	Yes
5	2.73	2.08	60%	1.64	3.72	2.35	Yes
10	3.85	2.99	60%	2.31	5.30	3.04	Yes
25	5.79	4.57	60%	3.47	8.05	4.18	Yes
50	7.70	6.13	60%	4.62	10.75	6.61	Yes
100	10.03	8.05	60%	6.02	14.07	10.79	Yes

See Wyoming Interconnect Post-Construction Stormwater Management Plan Section 4 for calculation narrative and Appendices for calculations.

### 2.2.2 Springville Interconnect Site

The site is located in the Toby Creek Watershed and within Luzerne County, which has an Act 167 Stormwater Management Plan in place, and Toby Creek Watershed is in an area covered by a Release Rate Map. The plan states that:

“Areas covered by a Stormwater Management District Map contained in Appendix F.1 of the Ordinance: For the 1- through 100-year storms, the post-development peak discharge rates will follow the applicable approved Stormwater Management District Maps.”

Springville Interconnect Site is in a B2 Management District, where the post- development peak runoff release rate must be a maximum of 60% of the pre-development peak runoff release rate for 1- through 100-year storm. The stormwater volume and peak runoff rate requirements are achieved as demonstrated in Tables 3 and 4 below:

**Table 5: Springville Interconnect Site Stormwater Volume Summary**

Recurrence Interval (yrs)	Existing Volume (cf)	Proposed Unmitigated Volume from Model (cf)	Difference between Proposed and Existing (cf)	Proposed Basin+Berm Total Infiltration Capacity (cf)	Adequate Infiltration Volume? (Y/N)
1	5,275	10,677	5,402	3,823+4,028 =7,851	Yes
2	8,060	14,181	6,121	3,823+4,028 =7,851	Yes
Act 167 2" Capture			6,618	3,823+4,028 =7,851	Yes

**Table 6: Springville Interconnect Site Stormwater Peak Flow Summary**

(1) Recurrence Interval (yrs)	(2) Existing Disturbed Conditions Site Q (cfs)	(3) Existing Undisturbed Conditions Offsite Q (cfs)	(4) Reduction Factor (Luzerne County B2 Management District Requirement)	(5) Reduced Site Flow Column (2)* Column (4) (cfs)	(6) Maximum Allowable Proposed Peak Flow (cfs) (3) + (5)	(7) Proposed Q (cfs)	(8) Proposed Less than Allowable? (Y/N)
1	6.34	1.68	60%	1.01	7.35	6.67	Yes
2	10.84	2.78	60%	1.67	12.51	11.62	Yes
5	18.30	4.58	60%	2.75	21.05	19.71	Yes
10	25.50	6.32	60%	3.79	29.29	27.45	Yes
25	37.76	9.25	60%	5.55	43.31	40.57	Yes
50	49.76	12.10	60%	7.26	57.02	53.36	Yes
100	64.43	15.56	60%	9.34	73.77	68.95	Yes

See the Springville Interconnect Post-Construction Stormwater Management Plan Section 4 for calculation narrative and Appendices for calculations.

### 2.2.3 Auburn & Leidy Interconnects

The site is in the Abraham's Creek Watershed and is within Luzerne County, which has an Act 167 Stormwater Management Plan in place, and Abraham's Creek Watershed is in an area covered by a Release Rate Map. The plan states that:

“Areas covered by a Stormwater Management District Map contained in Appendix F.1 of the Ordinance: For the 1- through 100-year storms, the post-development peak discharge rates will follow the applicable approved Stormwater Management District Maps.”

Auburn & Leidy Interconnect site is in an A Management District, where the post-development peak runoff release rate must be a maximum of 100% of the pre-development peak runoff release rate for 1- through 100-year storm. The site location is adjacent to an existing site at the common point discharge. The proposed site incorporates a portion of the existing site PCSM facilities and demonstrates compliance. The stormwater volume and peak runoff rate requirements are achieved as demonstrated in Tables 5 and Table 6 below:

**Table 7: Auburn & Leidy Interconnects Stormwater Volume Summary**

Recurrence Interval (yrs)	Existing Volume (cf)	Proposed Unmitigated Volume from Model (cf)	Difference between Proposed and Existing (cf)	Proposed Infiltration Capacity from Existing and Proposed UG Infiltration Basins (cf)	Adequate Infiltration Volume? (Y/N)
1	17,064	29,514	12,450	7,135+11,342=18,477	Yes
2	24,505	38,308	13,802	7,135+11,342=18,477	Yes
Act 167 2" Capture			14,520	7,135+11,342=18,477	Yes

**Table 8: Auburn & Leidy Interconnects Stormwater Peak Flow Summary**

Recurrence Interval (yrs)	Existing Conditions Q (cfs)	Maximum Allowable Proposed Peak Flow (cfs)	Proposed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	5.18	5.18	2.76	Yes
2	8.26	8.26	3.98	Yes
5	13.21	13.21	10.72	Yes
10	17.78	17.78	16.62	Yes
25	27.72	27.72	22.86	Yes
50	35.35	35.35	28.67	Yes
100	47.76	47.76	37.81	Yes

See Auburn & Leidy Interconnects Post-Construction Stormwater Management Plan Section 4 for calculation narrative, and Appendices for calculations.

### 2.2.4 Kidder Compressor Station

The site is in the Lehigh River Watershed within Carbon County, which does not have an Act 167 Stormwater Management Plan in place, and therefore the Lehigh River Watershed is in an area not covered by a Release Rate Map. Hence it is subject to the requirements of item (g)(2) of PADEP Code Section 102.8, which states that the post-development peak runoff rate must not exceed pre-development peak runoff rate under any storm condition. The stormwater volume and peak runoff rate requirements are achieved as demonstrated in Tables 7 and Table 8 below:

**Table 9: Kidder Compressor Station Stormwater Volume Summary**

Recurrence Interval (yrs)	Existing Volume (cf)	Proposed Unmitigated Volume from Model (cf)	Difference between Proposed and Existing (cf)	Proposed Basins Infiltration Capacity (cf)	Adequate Infiltration Volume? (Y/N)
1	138,386	211,916	73,530	97,774	Yes
2	196,409	279,592	83,182	97,774	Yes

**Table 10: Kidder Compressor Station Stormwater Peak Flow Summary**

Recurrence Interval (yrs)	Existing Conditions Q (cfs)	Maximum Allowable Proposed Peak Flow (cfs)	Proposed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	63.91	63.91	58.92	Yes
2	91.10	91.10	81.33	Yes
5	133.19	133.19	115.15	Yes
10	172.99	172.99	147.75	Yes
25	239.35	239.35	203.87	Yes
50	302.73	302.73	249.15	Yes
100	379.26	379.26	300.88	Yes

See the Kidder Compressor Station Post Construction Stormwater Management Plan Section 4 for Calculation narrative, and Appendices for calculations.

### 2.2.5 TCO & UGI-LEH Interconnects

The site is in the Saucon’s Creek Watershed and is within Northampton County. The Lehigh Valley Planning Commission has an Act 167 Stormwater Management Plan in place, covering Northampton and Lehigh Counties, which includes the Saucon’s Creek watershed, and states:

“The basic goal is no increase in the peak rate of runoff at any point in the watershed...If however, through the use of infiltration or other means, an applicant can demonstrate that neither the peak rate nor the volume of runoff are increasing with the development, additional controls to meet the release rates are not required.”

The stormwater volume and peak runoff rate requirements are achieved as demonstrated in Tables 9 and Table 10 below:

**Table 11: TCO and UGI-LEH Interconnects Stormwater Volume Summary**

Recurrence Interval (yrs)	Existing Volume (cf)	Proposed Unmitigated Volume from Model (cf)	Difference between Proposed and Existing (cf)	Proposed Basin Infiltration Capacity (cf)	Adequate Infiltration Volume? (Y/N)
1	4,555	15,791	11,238	13,750	Yes
2	6,863	19,937	13,074	13,750	Yes
Act 167 2" Capture	-	-	11,413	13,750	Yes

**Table 12: TOC & UGI-LEH Interconnects Stormwater Peak Flow Summary**

Recurrence Interval (yrs)	Existing Conditions Q (cfs)	Maximum Allowable Proposed Peak Flow (cfs)	Proposed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	1.84	1.84	1.66	Yes
2	2.91	2.91	2.33	Yes
5	5.14	5.14	3.57	Yes
10	7.33	7.33	4.74	Yes
25	10.81	10.81	7.86	Yes
50	13.99	13.99	11.51	Yes
100	17.72	17.72	15.90	Yes

See TCO & UGI-LEH Interconnects Post-Construction Stormwater Management Plan Section 4 for calculation narrative, and Appendices for calculations.



### 2.2.6 Hellertown Launcher & Mainline Launcher/Receiver

The site is in the Lehigh River Watershed and is within Northampton County, and the Lehigh River Watershed is in an area not covered by a Release Rate Map. However, the Lehigh Valley Planning Commission has an Act 167 Stormwater Management Plan in place covering Northampton and Lehigh Counties, which includes the Lehigh River watershed, and states:

“The basic goal is no increase in the peak rate of runoff at any point in the watershed...If however, through the use of infiltration or other means, an applicant can demonstrate that neither the peak rate nor the volume of runoff are increasing with development, additional controls to meet the release rates are not required.”

The stormwater volume and peak runoff rate requirements are achieved as demonstrated in Tables 11 and Table 12 below:

**Table 13: Hellertown Launcher & Mainline Launcher/Receiver Stormwater Volume Summary**

Recurrence Interval (yrs)	Existing Volume (cf)	Proposed Unmitigated Volume from Model (cf)	Difference between Proposed and Existing (cf)	Proposed Basin+Berm Total Infiltration Capacity (cf)	Adequate Infiltration Volume? (Y/N)
1	7,322	10,946	3,623	4,876+3,480 = 8,356	Yes
2	10,367	14,439	4,072	4,876+3,480 = 8,356	Yes
ACT 167 2" Capture			6,220	4,876+3,480 = 8,356	Yes

**Table 14: Hellertown Launcher & Mainline Launcher/Receiver Stormwater Peak Flow Summary**

Recurrence Interval (yrs)	Existing Conditions Q (cfs)	Maximum Allowable Proposed Peak Flow (cfs)	Proposed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	2.56	2.56	1.28	Yes
2	3.94	3.94	2.06	Yes
5	6.25	6.25	3.84	Yes
10	8.32	8.32	5.40	Yes
25	11.55	11.55	7.53	Yes
50	14.35	14.35	9.26	Yes
100	17.44	17.44	11.11	Yes

See Hellertown Launcher & Mainline Launcher/Receiver Post-Construction Stormwater Management Plan Section 4 for calculation narrative and Appendices for calculations.

### 2.2.7 Blue Mountain Interconnect

The site is in the Aquashicola Creek Watershed and is within Carbon County, which does not have an Act 167 Stormwater Management Plan in place, therefore Aquashicola Creek Watershed is in an area not covered by a Release Rate Map. Hence it is subject to the requirements of item (g)(2) of PADEP Code Section 102.8, which states that the post-development peak runoff rate must not exceed pre-development peak runoff rate under any storm condition. The stormwater volume and peak runoff rate requirements are achieved as demonstrated in Tables 13 and Table 14 below:

**Table 15: Blue Mountain Interconnect Stormwater Volume Summary**

Recurrence Interval (yrs)	Existing Volume (cf)	Proposed Unmitigated Volume from Model (cf)	Difference between Proposed and Existing (cf)	Proposed Basin and Infiltration Area Capacity (cf)	Adequate Infiltration Volume? (Y/N)
1	7,550	8,829	1,279	673 + 914 = 1,587	Yes
2	10,426	11,933	1,517	673 + 914 = 1,587	Yes

**Table 16: Blue Mountain Interconnect Stormwater Peak Flow Summary**

Recurrence Interval (yrs)	Existing Conditions Q (cfs)	Maximum Allowable Proposed Peak Flow (cfs)	Proposed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	1.21	1.21	1.15	Yes
2	1.78	1.78	1.62	Yes
5	3.19	3.19	2.87	Yes
10	5.17	5.17	4.57	Yes
25	8.95	8.95	7.95	Yes
50	12.92	12.92	11.93	Yes
100	17.83	17.83	17.22	Yes

See Blue Mountain Interconnect Post-Construction Stormwater Management Plan Section 4 for calculation narrative, and Appendices for calculations.

### 2.2.8 Blue Mountain Side Valve

The site is in the Aquashicola Creek Watershed and is within Carbon County, which does not have an Act 167 Stormwater Management Plan in place, therefore Aquashicola Creek Watershed is in an area not covered by a Release Rate Map. Hence it is subject to the requirements of item (g)(2) of PADEP Code Section 102.8, which states that the post-development peak runoff rate must not exceed pre-development peak runoff rate under any storm condition. The stormwater volume and peak runoff rate requirements are achieved as demonstrated in Tables 15 and Table 16 below:

**Table 17: Blue Mountain Side Valve Stormwater Volume Summary**

Recurrence Interval (yrs)	Existing Volume (cf)	Proposed Unmitigated Volume from Model (cf)	Difference between Proposed and Existing (cf)	Proposed Basin Infiltration Capacity (cf)	Adequate Infiltration Volume? (Y/N)
1	1,147	1,651	504	1,259	Yes
2	1,767	2,350	583	1,259	Yes

**Table 18: Blue Mountain Side Valve Stormwater Peak Flow Summary**

Recurrence Interval (yrs)	Existing Conditions Q (cfs)	Maximum Allowable Proposed Peak Flow (cfs)	Proposed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	0.45	0.45	0.22	Yes
2	0.74	0.74	0.34	Yes
5	1.23	1.23	0.56	Yes
10	1.67	1.67	0.75	Yes
25	2.44	2.44	1.11	Yes
50	3.17	3.17	2.18	Yes
100	4.04	4.04	3.50	Yes

See Blue Mountain Side Valve Post-Construction Stormwater Management Plan Section 4 for calculation narrative, and Appendices for calculations.

### 2.2.9 Mainline Block Valve - 1

The site is located in the Susquehanna-Lackawanna Watershed and within Luzerne County, which has an Act 167 Stormwater Management Plan. This site is subject to the requirements of the Luzerne County Act 167 Stormwater Management Plan, which imposes stricter requirements than item (g)(2) of Pennsylvania Code Section 102.8. It states that:

“The basic goal is no increase in the peak rate of runoff at any point in the watershed...If however, through the use of infiltration or other means, an applicant can demonstrate that neither the peak rate nor the volume of runoff are increasing with development, additional controls to meet the release rates are not required.”

The stormwater volume and peak runoff rate requirements are achieved as demonstrated in Tables 17 and 18 below:

**Table 19: MLV-1 Stormwater Volume Summary**

Recurrence Interval (yrs)	Existing Volume (cf)	Proposed Unmitigated Volume from Model (cf)	Difference between Proposed and Existing (cf)	Proposed Trench Infiltration Capacity (cf)	Adequate Infiltration Volume? (Y/N)
1	684	755	71	378	Yes
2	933	1,013	80	378	Yes
Act 167 2" Capture			73	378	Yes

**Table 20: MLV-1 Stormwater Peak Flow Summary**

Recurrence Interval (yrs)	Existing Conditions Q (cfs)	Maximum Allowable Proposed Peak Flow (cfs)	Proposed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	0.233	0.233	0.201	Yes
2	0.324	0.324	0.281	Yes
5	0.467	0.467	0.409	Yes
10	0.599	0.599	0.527	Yes
25	0.820	0.820	0.726	Yes
50	1.030	1.030	0.913	Yes
100	1.282	1.282	1.140	Yes

See MLV-1 Post-Construction Stormwater Management Plan Section 4 for calculation narrative, and Appendices for calculations.

**2.2.10 Mainline Block Valve - 2**

The site is located in the Susquehanna-Lackawanna Watershed and within Luzerne County, which has an Act 167 Stormwater Management Plan. This site is subject to the requirements of the Luzerne County Act 167 Stormwater Management Plan, which imposes stricter requirements than item (g)(2) of Pennsylvania Code Section 102.8. It states that:

“The basic goal is no increase in the peak rate of runoff at any point in the watershed...If however, through the use of infiltration or other means, an applicant can demonstrate that neither the peak rate nor the volume of runoff are increasing with development, additional controls to meet the release rates are not required.”

The stormwater volume and peak runoff rate requirements are achieved as demonstrated in Tables 17 and 18 below:

**Table 21: MLV-2 Stormwater Volume Summary**

Recurrence Interval (yrs)	Existing Volume (cf)	Proposed Unmitigated Volume from Model (cf)	Difference between Proposed and Existing (cf)	Proposed Trench Infiltration Capacity (cf)	Adequate Infiltration Volume? (Y/N)
1	952	1,260	308	352	Yes
2	1,424	1,770	346	352	Yes
Act 167 2" Capture			306	352	Yes

**Table 22: MLV-2 Stormwater Peak Flow Summary**

Recurrence Interval (yrs)	Existing Conditions Q (cfs) Existing Disturbed Conditions Site Q (cfs)	Existing Undisturbed Conditions Offsite Q (cfs)	Maximum Allowable Proposed Peak Flow (cfs)	Proposed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	0.119	0.175	0.271	0.185	Yes
2	0.172	0.260	0.403	0.297	Yes
5	0.258	0.399	0.618	0.525	Yes
10	0.338	0.529	0.819	0.718	Yes
25	0.471	0.746	1.154	1.025	Yes
50	0.599	0.959	1.481	1.308	Yes
100	0.757	1.221	1.882	1.630	Yes

See MLV-2 Post-Construction Stormwater Management Plan Section 4 for calculation narrative, and Appendices for calculations.

**2.2.11 Mainline Block Valve - 3**

The site is in the Lehigh River Watershed within Carbon County, which does not have an Act 167 Stormwater Management Plan in place, and therefore the Lehigh River Watershed is in an area not covered by a Release Rate Map. Hence it is subject to the requirements of item (g)(2) of PADEP Code Section 102.8, which states that the post-development peak runoff rate must not exceed pre-development peak runoff rate under any storm condition. The stormwater volume and peak runoff rate requirements are achieved as demonstrated in Tables 21 and Table 22 below:

**Table 23: MLV-3 Stormwater Volume Summary**

Recurrence Interval (yrs)	Existing Volume (cf)	Proposed Unmitigated Volume from Model (cf)	Difference between Proposed and Existing (cf)	Proposed Trench Infiltration Capacity (cf)	Adequate Infiltration Volume? (Y/N)
1	90	438	348	1,426	Yes
2	45	504	459	1,426	Yes
Act 167 2" Capture			261	1,426	Yes

**Table 24: MLV-3 Stormwater Peak Flow Summary**

Recurrence Interval (yrs)	Existing Conditions Q (cfs)	Maximum Allowable Proposed Peak Flow (cfs)	Proposed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	0.000	0.000	0.000	Yes
2	0.000	0.000	0.000	Yes
5	0.000	0.000	0.000	Yes
10	0.000	0.000	0.000	Yes
25	0.001	0.001	0.000	Yes
50	0.004	0.004	0.002	Yes
100	0.031	0.031	0.014	Yes

See MLV-3 Post-Construction Stormwater Management Plan Section 4 for calculation narrative, and Appendices for calculations.

**2.2.12 Mainline Block Valve - 4**

The site is in the Lehigh River Watershed within Carbon County, which does not have an Act 167 Stormwater Management Plan in place, and therefore the Lehigh River Watershed is in an area not covered by a Release Rate Map. Hence it is subject to the requirements of item (g)(2) of PADEP Code Section 102.8, which states that the post-development peak runoff rate must not exceed pre-development peak runoff rate under any storm condition. The stormwater volume and peak runoff rate requirements are achieved as demonstrated in Tables 23 and Table 24 below:

**Table 25: MLV-4 Stormwater Volume Summary**

Recurrence Interval (yrs)	Existing Volume (cf)	Proposed Unmitigated Volume from Model (cf)	Difference between Proposed and Existing (cf)	Proposed Trench Infiltration Capacity (cf)	Adequate Infiltration Volume? (Y/N)
1	376	803	427	606	Yes
2	691	1,192	501	606	Yes

**Table 26: MLV-4 Stormwater Peak Flow Summary**

Recurrence Interval (yrs)	Existing Conditions Q (cfs)	Maximum Allowable Proposed Peak Flow (cfs)	Proposed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	0.066	0.066	0.065	Yes
2	0.185	0.185	0.180	Yes
5	0.442	0.442	0.426	Yes
10	0.715	0.715	0.688	Yes
25	1.213	1.213	1.157	Yes
50	1.722	1.722	1.667	Yes
100	2.358	2.358	2.315	Yes

See MLV-4 Post-Construction Stormwater Management Plan Section 4 for calculation narrative, and Appendices for calculations.

### 2.2.13 Mainline Block Valve - 6

The site is in the Lehigh River Watershed and is within Northampton County, and the Lehigh River Watershed is in an area not covered by a Release Rate Map. However, the Lehigh Valley Planning Commission has an Act 167 Stormwater Management Plan in place covering Northampton and Lehigh Counties, which includes the Lehigh River watershed, and states:

“The basic goal is no increase in the peak rate of runoff at any point in the watershed...If however, through the use of infiltration or other means, an applicant can demonstrate that neither the peak rate nor the volume of runoff are increasing with development, additional controls to meet the release rates are not required.”

The stormwater volume and peak runoff rate requirements are achieved as demonstrated in Tables 25 and Table 26 below:

**Table 27: MLV-6 Stormwater Volume Summary**

Recurrence Interval (yrs)	Existing Volume (cf)	Proposed Unmitigated Volume from Model (cf)	Difference between Proposed and Existing (cf)	Proposed Trench Infiltration Capacity (cf)	Adequate Infiltration Volume? (Y/N)
1	666	874	208	1,024	Yes
2	1,264	1,510	246	1,024	Yes
Act 167 2" Capture			210	1,024	Yes

**Table 28: MLV-6 Stormwater Peak Flow Summary**

Recurrence Interval (yrs)	Existing Conditions Q (cfs)	Maximum Allowable Proposed Peak Flow (cfs)	Proposed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	0.058	0.058	0.052	Yes
2	0.212	0.212	0.081	Yes
5	0.589	0.589	0.173	Yes
10	1.006	1.006	0.283	Yes
25	1.741	1.741	0.492	Yes
50	2.478	2.478	1.951	Yes
100	3.380	3.380	3.338	Yes

See MLV-6 Post-Construction Stormwater Management Plan Section 4 for calculation narrative, and Appendices for calculations.



### 2.2.14 Mainline Block Valve - 7

The site is in the Lehigh River Watershed and is within Northampton County, and the Lehigh River Watershed is in an area not covered by a Release Rate Map. However, the Lehigh Valley Planning Commission has an Act 167 Stormwater Management Plan in place covering Northampton and Lehigh Counties, which includes the Lehigh River watershed, and states:

“The basic goal is no increase in the peak rate of runoff at any point in the watershed...If however, through the use of infiltration or other means, an applicant can demonstrate that neither the peak rate nor the volume of runoff are increasing with development, additional controls to meet the release rates are not required.”

The stormwater volume and peak runoff rate requirements are achieved as demonstrated in Tables 27 and Table 28 below:

**Table 29: MLV-7 Stormwater Volume Summary**

Recurrence Interval (yrs)	Existing Volume (cf)	Proposed Unmitigated Volume from Model (cf)	Difference between Proposed and Existing (cf)	Proposed Trench Infiltration Capacity (cf)	Adequate Infiltration Volume? (Y/N)
1	626	847	221	576	Yes
2	835	1,086	250	576	Yes
Act 167 2" Capture			156	576	Yes

**Table 30: MLV-7 Stormwater Peak Flow Summary**

Recurrence Interval (yrs)	Existing Conditions Q (cfs)	Maximum Allowable Proposed Peak Flow (cfs)	Proposed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	0.259	0.259	0.228	Yes
2	0.354	0.354	0.303	Yes
5	0.504	0.504	0.421	Yes
10	0.638	0.638	0.526	Yes
25	0.847	0.847	0.689	Yes
50	1.031	1.031	0.832	Yes
100	1.243	1.243	1.071	Yes

See MLV-7 Post-Construction Stormwater Management Plan Section 4 for calculation narrative, and Appendices for calculations.

### 2.2.15 Mainline Pipe

Areas of disturbance associated with mainline pipe right-of-way will be restored to pre-construction grade and revegetated to meadow in good condition. Thus, these areas will be compliant with Post-Construction Stormwater Requirements for linear utilities.

## 3 Groundwater Recharge, Streambank Protection, and Water Quality Standards

### 3.1 Plan Requirement

The Plans identify meeting the goals of Groundwater Recharge, Streambank Protection, and Water Quality through the use of structural and non-structural Best Management Practices (BMPs).

The five sites in Luzerne County are covered by the Luzerne County Act 167 Stormwater Management Plan, which complies with the PA DEP BMP Manual Volume Control Guideline 1 (CG-1) and/or CG-2 as follows:

“For all regulated activities that require submission of a formal SWM Site Plan, both the Design Storm Method and the Simplified Method shall be calculated; the larger control volume based on the two calculations shall be controlled.

The sites located within Luzerne County are as follows:

- Wyoming Interconnect
- Springville Interconnect
- Auburn & Leidy Interconnects
- Mainline Block Valve – 1
- Mainline Block Valve – 2

The Design Storm Method (CG-1 in the BMP Manual): Do not increase the post-development total runoff volume for all storms equal to or less than the 2-year 24-hour duration precipitation.

The Simplified Method (CG-2 in the BMP Manual): Accommodate 2” of permanently removed runoff volume. At least the first 0.5 inch of the permanently removed runoff should be infiltrated.”

The five sites in Carbon County that do not have Act 167 plans meet the requirements of PADEP Code Section 102.8, to manage the net change in volume between pre-construction and postconstruction for storms up to and including the 2-year/24-hour storm event. The sites located within Carbon County are as follows:

- Kidder Compressor Station
- Blue Mountain Interconnect
- Blue Mountain Side Valve
- Mainline Block Valve – 3
- Mainline Block Valve – 4

The four sites in Northampton County meet the requirements of the Lehigh Valley Planning Commission Act 167 Stormwater Management Plan, which indicates that volume must be provided as the larger of the difference between the post-development and pre-development 2-year runoff volume, or 1.25 inches of precipitation over the site area based on the Rational Method. The sites located within Northampton County are as follows:

- TCO & UGI-LEH Interconnects
- Hellertown Launcher & Mainline Launcher/Receiver
- Mainline Block Valve – 6
- Mainline Block Valve – 7

## 3.2 Consistency Verification

### 3.2.1 Wyoming Interconnect

The Site Restoration Plan and/or Post Construction Stormwater Management Plan for this project is consistent with the Luzerne County Act 167 County-Wide Stormwater Management Plan (Plan). The Plan was adopted by the County and approved by the Pennsylvania Department of Environmental Protection. The Erosion and Sediment Control Plan, Site Restoration Plan, and Post Construction Stormwater Management Plan (SR/PCSM Plan) for this project were prepared by Mott MacDonald and AECOM personnel, under the direct supervision of a Pennsylvania licensed Professional Engineer trained and experienced in E&S control methods and techniques and stormwater management design methods and techniques.

The PCSM report provides evidence that the Act 167 standards for groundwater recharge, streambank protection and water quality are met or exceeded as demonstrated in Wyoming Interconnect Post-Construction Stormwater Management Plan 3.1.2 Post-Construction Stormwater Management Plan Analysis Page 16 through 20.

### 3.2.2 Springville Interconnect

The Site Restoration Plan and/or Post Construction Stormwater Management Plan for this project is consistent with the Luzerne County Act 167 County-Wide Stormwater Management Plan (Plan). The Plan was adopted by the County and approved by the Pennsylvania Department of Environmental Protection. The Erosion and Sediment Control Plan, Site Restoration Plan, and Post Construction Stormwater Management Plan (SR/PCSM Plan) for this project were prepared by Mott MacDonald and AECOM personnel, under the direct supervision of a Pennsylvania licensed Professional Engineer trained and experienced in E&S control methods and techniques and stormwater management design methods and techniques.

The PCSM report provides evidence that the Act 167 standards for groundwater recharge, streambank protection and water quality are met or exceeded as demonstrated in Springville Interconnect Site Post-Construction Stormwater Management Plan 3.1.2 Post-Construction Stormwater Management Plan Analysis Page 15 through 19.

### 3.2.3 Auburn & Leidy Interconnects

The Site Restoration Plan and/or Post Construction Stormwater Management Plan for this project is consistent with the Luzerne County Act 167 County-Wide Stormwater Management Plan (Plan). The Plan was adopted by the County and approved by the Pennsylvania Department of Environmental Protection. The Erosion and Sediment Control Plan, Site Restoration Plan, and Post Construction Stormwater Management Plan (SR/PCSM Plan) for this project were prepared by Mott MacDonald and AECOM personnel, under the direct supervision of a Pennsylvania licensed Professional Engineer trained and experienced in E&S control methods and techniques and stormwater management design methods and techniques.

The PCSM report provides evidence that the Act 167 standards for groundwater recharge, streambank protection and water quality are met or exceeded as demonstrated in Springville Interconnect Site Post-Construction Stormwater Management Plan 3.1.2 Post-Construction Stormwater Management Plan Analysis Page 6 through 11.

### 3.2.4 Kidder Compressor Station

The Site Restoration Plan and/or Post Construction Stormwater Management Plan for this project in Carbon County is consistent with PADEP Code Section 102.8 requirements. The Erosion and Sediment Control Plan, Site Restoration Plan, and Post-Construction Stormwater Management Plan (SR/PCSM Plan) for this project were prepared by Mott MacDonald and AECOM personnel, under the direct supervision of a Pennsylvania licensed Professional Engineer trained and experienced in E&S control methods and techniques and stormwater management design methods and techniques.

The PCSM report provides evidence that the PADEP Code Section 102.8 requirements for groundwater recharge, streambank protection and water quality are met or exceeded as demonstrated in Kidder Compressor Station Post-Construction Stormwater Management Plan 3.1.2 Post-Construction Stormwater Management Plan Analysis Page 15 through 19.

### 3.2.5 TCO & UGI-LEH Interconnects

The Site Restoration Plan and/or Post Construction Stormwater Management Plan for this project is consistent with the Lehigh Valley Planning Commission Act 167 Stormwater Management Plan. The Erosion and Sediment Control Plan, Site Restoration Plan, and Post Construction Stormwater Management Plan (SR/PCSM Plan) for this project were prepared by Mott MacDonald and AECOM personnel, under the direct supervision of a Pennsylvania licensed Professional Engineer trained and experienced in E&S control methods and techniques and stormwater management design methods and techniques.

The PCSM report provides evidence that the Act 167 standards for groundwater recharge, streambank protection and water quality are met or exceeded as demonstrated in TCO & UGI-LEH Interconnects Post-Construction Stormwater Management Plan 3.1.2 Post-Construction Stormwater Management Plan Analysis Page 13 through 18.

### **3.2.6 Hellertown Launcher & Mainline Launcher/Receiver**

The Site Restoration Plan and/or Post Construction Stormwater Management Plan for this project is consistent with the Lehigh Valley Planning Commission Act 167 Stormwater Management Plan. The Erosion and Sediment Control Plan, Site Restoration Plan, and Post Construction Stormwater Management Plan (SR/PCSM Plan) for this project were prepared by Mott MacDonald and AECOM personnel, under the direct supervision of a Pennsylvania licensed Professional Engineer trained and experienced in E&S control methods and techniques and stormwater management design methods and techniques.

The PCSM report provides evidence that the Act 167 standards for groundwater recharge, streambank protection and water quality are met or exceeded as demonstrated in Hellertown Launcher & Mainline Launcher/Receiver Post-Construction Stormwater Management Plan 3.1.2 Post-Construction Stormwater Management Plan Analysis Page 14 through 18.

### **3.2.7 Blue Mountain Interconnect/MLV-5**

The Site Restoration Plan and/or Post Construction Stormwater Management Plan for this project in Carbon County is consistent with PADEP Code Section 102.8 requirements. The Erosion and Sediment Control Plan, Site Restoration Plan, and Post-Construction Stormwater Management Plan (SR/PCSM Plan) for this project were prepared by Mott MacDonald and AECOM personnel, under the direct supervision of a Pennsylvania licensed Professional Engineer trained and experienced in E&S control methods and techniques and stormwater management design methods and techniques.

The PCSM report provides evidence that the PADEP Code Section 102.8 requirements for groundwater recharge, streambank protection and water quality are met or exceeded as demonstrated in Blue Mountain Interconnect/MLV-5 Post-Construction Stormwater Management Plan 3.1.2 Post-Construction Stormwater Management Plan Analysis Page 13 through 16.

### **3.2.8 Blue Mountain Side Valve**

The Site Restoration Plan and/or Post Construction Stormwater Management Plan for this project in Carbon County is consistent with PADEP Code Section 102.8 requirements. The Erosion and Sediment Control Plan, Site Restoration Plan, and Post-Construction Stormwater Management Plan (SR/PCSM Plan) for this project were prepared by Mott MacDonald and AECOM personnel, under the direct supervision of a Pennsylvania licensed Professional Engineer trained and experienced in E&S control methods and techniques and stormwater management design methods and techniques.

The PCSM report provides evidence that the PADEP Code Section 102.8 requirements for groundwater recharge, streambank protection and water quality are met or exceeded as demonstrated in Blue Mountain Side Valve Post-Construction Stormwater Management Plan 3.1.2 Post-Construction Stormwater Management Plan Analysis Page 12 through 16.

### **3.2.9 Mainline Block Valve - 1**

The Site Restoration Plan and/or Post Construction Stormwater Management Plan for this project is consistent with the Luzerne County Act 167 County-Wide Stormwater Management Plan (Plan). The Plan was adopted by the County and approved by the Pennsylvania Department of Environmental Protection. The Erosion and Sediment Control Plan, Site Restoration Plan, and Post Construction Stormwater Management Plan (SR/PCSM Plan) for this project were prepared by Mott MacDonald and AECOM personnel, under the direct supervision of a Pennsylvania licensed Professional Engineer trained and experienced in E&S control methods and techniques and stormwater management design methods and techniques.

The PCSM report provides evidence that the PADEP Code Section 102.8 requirements for groundwater recharge, streambank protection and water quality are met or exceeded as demonstrated in Mainline Block Valve -1 Post-Construction Stormwater Management Plan 3.1.2 Post-Construction Stormwater Management Plan Analysis Page 13 through 16.

### **3.2.10 Mainline Block Valve - 2**

The Site Restoration Plan and/or Post Construction Stormwater Management Plan for this project is consistent with the Luzerne County Act 167 County-Wide Stormwater Management Plan (Plan). The Plan was adopted by the County and approved by the Pennsylvania Department of Environmental Protection. The Erosion and Sediment Control Plan, Site Restoration Plan, and Post Construction Stormwater Management Plan (SR/PCSM Plan) for this project were prepared by Mott MacDonald and AECOM personnel, under the direct supervision of a Pennsylvania licensed Professional Engineer trained and experienced in E&S control methods and techniques and stormwater management design methods and techniques.

The PCSM report provides evidence that the PADEP Code Section 102.8 requirements for groundwater recharge, streambank protection and water quality are met or exceeded as demonstrated in Mainline Block Valve - 2 Post-Construction Stormwater Management Plan 3.1.2 Post-Construction Stormwater Management Plan Analysis Page 14 through 17.

### **3.2.11 Mainline Block Valve - 3**

The Site Restoration Plan and/or Post Construction Stormwater Management Plan for this project in Carbon County is consistent with PADEP Code Section 102.8 requirements. The Erosion and Sediment Control Plan, Site Restoration Plan, and Post-Construction Stormwater Management Plan (SR/PCSM Plan) for this project were prepared by Mott MacDonald and AECOM personnel, under the direct supervision of a Pennsylvania licensed Professional Engineer trained and experienced in E&S control methods and techniques and stormwater management design methods and techniques.

The PCSM report provides evidence that the PADEP Code Section 102.8 requirements for groundwater recharge, streambank protection and water quality are met or exceeded as demonstrated in Mainline Block Valve - 3 Post-Construction Stormwater Management Plan 3.1.2 Post-Construction Stormwater Management Plan Analysis Page 13 through 16.

### **3.2.12 Mainline Block Valve - 4**

The Site Restoration Plan and/or Post Construction Stormwater Management Plan for this project in Carbon County is consistent with PADEP Code Section 102.8 requirements. The Erosion and Sediment Control Plan, Site Restoration Plan, and Post-Construction Stormwater Management Plan (SR/PCSM Plan) for this project were prepared by Mott MacDonald and AECOM personnel, under the direct supervision of a Pennsylvania licensed Professional Engineer trained and experienced in E&S control methods and techniques and stormwater management design methods and techniques.

The PCSM report provides evidence that the PADEP Code Section 102.8 requirements for groundwater recharge, streambank protection and water quality are met or exceeded as demonstrated in Mainline Block Valve – 4 Post-Construction Stormwater Management Plan 3.1.2 Post-Construction Stormwater Management Plan Analysis Page 12 through 15.

### **3.2.13 Mainline Block Valve - 6**

The Site Restoration Plan and/or Post Construction Stormwater Management Plan for this project is consistent with the Lehigh Valley Planning Commission Act 167 Stormwater Management Plan. The Erosion and Sediment Control Plan, Site Restoration Plan, and Post Construction Stormwater Management Plan (SR/PCSM Plan) for this project were prepared by Mott MacDonald and AECOM personnel, under the direct supervision of a Pennsylvania licensed Professional Engineer trained and experienced in E&S control methods and techniques and stormwater management design methods and techniques.

The PCSM report provides evidence that the PADEP Code Section 102.8 requirements for groundwater recharge, streambank protection and water quality are met or exceeded as demonstrated in Mainline Block Valve - 6 Post-Construction Stormwater Management Plan 3.1.2 Post-Construction Stormwater Management Plan Analysis Page 12 through 16.

### **3.2.14 Mainline Block Valve - 7**

The Site Restoration Plan and/or Post Construction Stormwater Management Plan for this project is consistent with the Lehigh Valley Planning Commission Act 167 Stormwater Management Plan. The Erosion and Sediment Control Plan, Site Restoration Plan, and Post Construction Stormwater Management Plan (SR/PCSM Plan) for this project were prepared by Mott MacDonald and AECOM personnel, under the direct supervision of a Pennsylvania licensed Professional Engineer trained and experienced in E&S control methods and techniques and stormwater management design methods and techniques.

The PCSM report provides evidence that the PADEP Code Section 102.8 requirements for groundwater recharge, streambank protection and water quality are met or exceeded as demonstrated in Mainline Block Valve - 7 Post-Construction Stormwater Management Plan 3.1.2 Post-Construction Stormwater Management Plan Analysis Page 13 through 17.

### **3.2.15 Mainline Pipe**

Areas of disturbance associated with mainline pipe right-of-way will be restored to pre-construction grade and revegetated to meadow in good condition. Therefore, these areas will be compliant with Groundwater Recharge, Streambank Protection, and Water Quality Standards.

