

Alternative Analysis Table  
 Lacustrine Resources  
 Luzerne County

| Lacustrine Resource ID and Crossing Number <sup>1</sup> | Watercourses/Lake Name | Milepost <sup>2</sup> | Latitude  | Longitude  | Primary Pipeline Crossing Method <sup>3</sup> | Secondary Pipeline Crossing Method <sup>3</sup> | Tertiary Pipeline Crossing Method <sup>3</sup> | Geology Constraints | Topography Constraints | Insufficient Workspace to Stage Trenchless | Practicality | Other (See Justification) | Implementing Trenchless Technology | Routing to Avoid/Minimize (a/m) | Crossing at Narrowest Location | Co-Locating | Reducing LOD (a/m) | Minimizing Construction Duration | Adhering to Construction Timing Windows | Implementing BMPs | Justification   |
|---|------------------------|-----------------------|-----------|------------|---|---|--|---------------------|------------------------|--|--------------|---------------------------|------------------------------------|---------------------------------|--------------------------------|-------------|--------------------|----------------------------------|---|-------------------|---|
| 052115_JC_1001_P_MA                                     | Lehigh River           | 23                    | 41.131387 | -75.688235 | DPX   | DPX   | DPX  |                     | X                      |  |              | X                         |                                    |                                 | X                              |             | X                  | X                                | X                                       | X                 | Steep slopes north of the crossing (35%) and south of the crossing (16%) present challenges to trenchless methods. HDD launch & receiving pits would need to be sited 1 foot above water level. Variability of geotechnical materials also challenge the feasibility of Direct Pipe, Microtunnel and Conventional boring methods. See site-specific justification discussion in Section 12.6 of the Alternatives Analysis (Lehigh River/Reservoir). |

Notes:

1. In instances where a watercourse is crossed by the proposed pipeline or workspace multiple times, crossing numbers (e.g. "-1", "-2") have been added to the Watercourse ID.

Watercourse ID Key: P = perennial, I = intermittent, E = ephemeral, MA = major, IN = intermediate, MI = minor, C = canal, D = ditch

2. All route deviations implemented after the FERC Certificate Application are denoted with an "R" and indicate a MP equation. MPs with an "R1" indicate route deviations implemented and provided to FERC prior to the issuance of the DEIS. MPs with an "R2" indicate route deviations implemented as part of the September 2016 Route Update. MPs with an "R3" indicate route deviations implemented post-FERC Certificate issuance. All MPs without an "R" indicate that the route has not changed since the Certificate Application.

3. Crossing Type Key for Watercourse Channels:

- DPX = Dam-and-Pump Crossing
- HDD = HDD Crossing