

Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Allegheny County, Pennsylvania
DEP File: E02-1718
Auth. No.: 1082170
November 2016


Prepared for:
Pennsylvania Department of Environmental Protection
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, Pennsylvania, 15222

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:

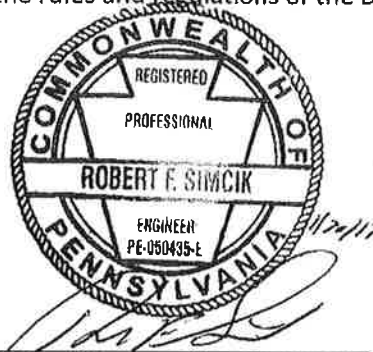

Pat Green
Tetra Tech OGA, Inc.

Approved by:


Brad Schaeffer, P.M.P.
Tetra Tech OGA, Inc.

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

"I, Robert F. Simcik, do hereby certify pursuant to the penalties of 18 Pa.C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection."



Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 14

STORMWATER MANAGEMENT ANALYSIS

The proposed Project has been designed to satisfy Pennsylvania's stormwater management requirements and has incorporated best management practices identified in the Pennsylvania Stormwater Best Management Practices Manual. Stormwater will be managed during construction activities in accordance with the Project's Erosion and Sediment Control Plan. The Project does involve the construction of above ground stations and valve settings that will require grading, permanent access roads, and other impermeable surfaces, however these are all located outside of wetlands, streams, and the FEMA floodway. All of these sites are designed to manage stormwater runoff in accordance with the Pennsylvania Stormwater Best Practices Manual and are discussed and presented within the Project's Erosion and Sediment Control Plan.

Coordination with the local municipalities was initiated with letters and project maps sent in November and December 2015. Coordination has been ongoing and updated project maps were sent in November 2016. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

FLOODPLAIN MANAGEMENT ANALYSIS

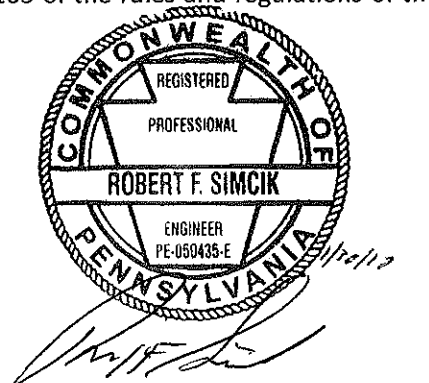
As presented in the Environmental Assessment (Attachment 11), the proposed Project does cross floodways delineated on FEMA maps. However, the Project will not involve the construction of any aboveground structures within these mapped floodways nor will the Project result in any change in the storage capacity of the floodways. All floodways temporarily impacted by the Project will be restored to their pre-existing contours and no additional/new fill will be placed in the floodways. There are no permanent impacts to FEMA floodways as a result of the proposed Project. In addition, in Allegheny County, no permanent impacts are proposed within the FEMA 100 year floodplain.

Coordination with the local municipalities was initiated with letters and project maps sent in November and December 2015. Coordination has been ongoing and updated project maps were sent in November 2016. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

A summary of the stormwater and floodplain management correspondence is included in this attachment as Table 14-1. Following Table 14-1 are copies of the consistency letter requests, delivery confirmations, and responses received to date.

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

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Professional Engineer No. PE050435E

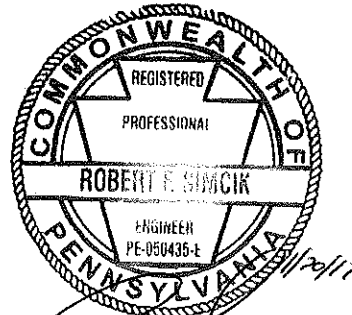
ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

NOTE: The proposed Project does not alter the flow volumes, direction, or geomorphology of any of the streams traversed: all streams and wetlands temporarily disturbed will be restored to their pre-existing topographic contours. Furthermore, the Project does not involve the creation of impermeable surfaces that would result in a change in the existing 100-year frequency flood discharges. Similarly, the Project will not alter the flood storage capacity of any floodways traversed as there will be no permanent structures built in FEMA floodways and no additional/new fill will be placed in FEMA floodways. In addition, in Allegheny County, no permanent impacts are proposed within the FEMA 100 year floodplain. Accordingly, further coordination regarding this requirement is not applicable.

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Professional Engineer No. PE050435E

ATTACHMENT 15

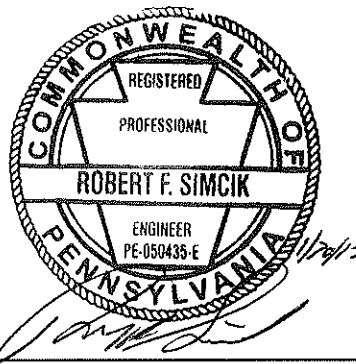
RISK ASSESSMENT

NOTE: The proposed Project in Allegheny County will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted.

Accordingly, further coordination regarding this requirement is not applicable.

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ATTACHMENT 16

PROFESSIONAL ENGINEER'S SEAL/CERTIFICATION

Note: The plans and specifications for the proposed Project are included in Attachment 7 and Attachment 12 of this Joint Application Package. In accordance with Title 25 of the Pennsylvania Code §105.13(j), these plans are affixed with the seal and certification of a registered professional engineer within the respective Attachments.

Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Berks County, Pennsylvania
Application ID: E06-701
APS No.: 879354
November 2016


Prepared for:
Pennsylvania Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, Pennsylvania, 17110

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:

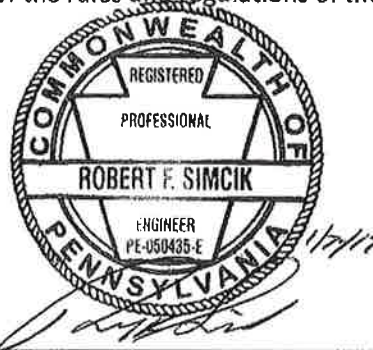

Pat Green
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Approved by:


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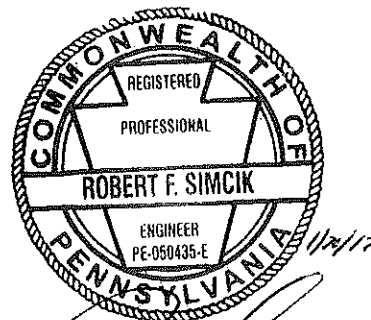
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HYDROLOGIC AND HYDRAULIC ANALYSIS

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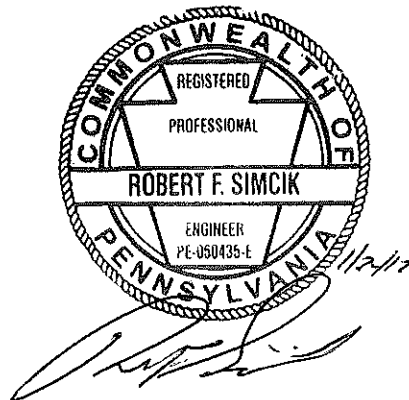
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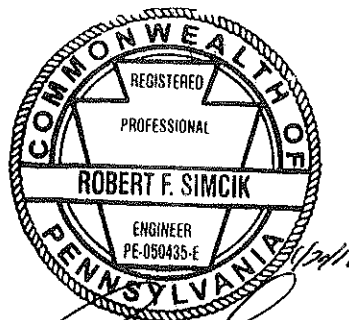
RISK ASSESSMENT

NOTE: The proposed Project will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted.

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Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Blair County, Pennsylvania
Application ID: E07-459
APS No.: 879354
November 2016

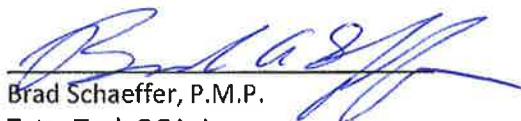
Prepared for:
Pennsylvania Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, Pennsylvania, 17110

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
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Prepared by:

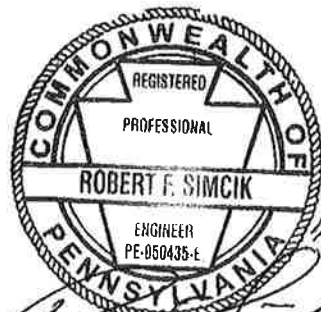

Pat Green
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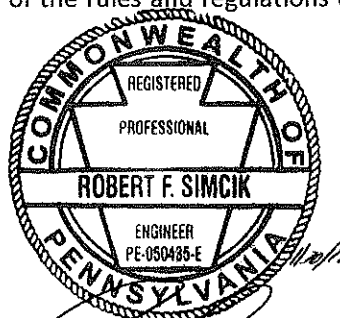
ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

NOTE: The proposed Project does not alter the flow volumes, direction, or geomorphology of any of the streams traversed: all streams and wetlands temporarily disturbed will be restored to their pre-existing topographic contours. Furthermore, the Project does not involve the creation of impermeable surfaces that would result in a change in the existing 100-year frequency flood discharges. Similarly, the Project will not alter the flood storage capacity of any floodways traversed as there will be no permanent structures built in FEMA floodways and no additional/new fill will be placed in FEMA floodways. One aboveground structure, the Juniata River West Block Valve station would require temporary disturbance within a FEMA designated 100-year floodplain. However, only a small portion of the Project would require construction within the floodplain. No permanent fill is proposed, and the once construction is complete, the Project would restore the site grades and contours to existing conditions. As such, potential project impacts would be negligible. Accordingly, further coordination regarding this requirement is not applicable.

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FLOODPLAIN MANAGEMENT ANALYSIS

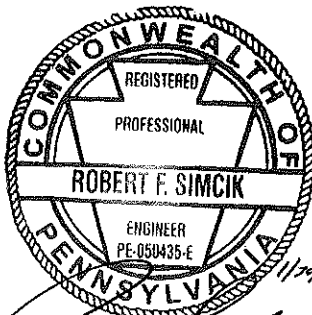
As presented in the Environmental Assessment (Attachment 11), the proposed Project does cross floodways delineated on FEMA maps. However, the Project will not involve the construction of any aboveground structures within these mapped floodways nor will the Project result in any change in the storage capacity of the floodways. All floodways temporarily impacted by the Project will be restored to their pre-existing contours and no additional/new fill will be placed in the floodways. There are no permanent impacts to FEMA floodways as a result of the proposed Project. The Project would involve the development of a new block valve station, the Juniata River West Block Valve Station, which would require some temporary disturbance within a FEMA designated 100-year floodplain. Once construction is complete, the site would be restored to existing grades and contours, and no changes to flood elevation would occur. Furthermore, the Project would not require permanent fill, and is not anticipated to result in adverse impacts as only a nominal amount of construction would be located within the floodplain.

Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

A summary of the initial stormwater and floodplain management correspondence is included in this attachment as Table 14-1. Following Table 14-1 are copies of the consistency letter requests, delivery confirmations, and responses received to date.

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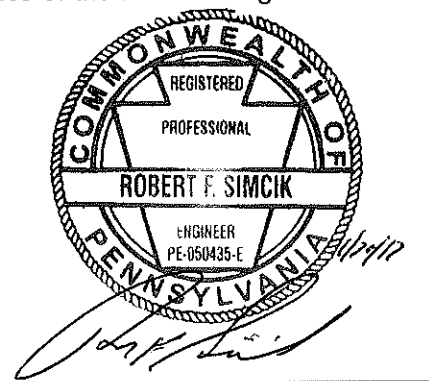
RISK ASSESSMENT

NOTE: The proposed Project in Blair County will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted.

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Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Cambria County, Pennsylvania
DEP File: E11-352
Auth. No.: 1082170
November 2016


Prepared for:
Pennsylvania Department of Environmental Protection
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, Pennsylvania, 15222

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
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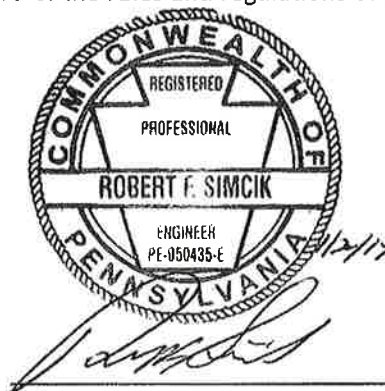

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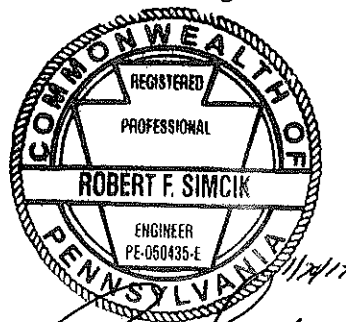
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Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

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An existing access road to be used by the Project is located within a PADEP 50-foot floodway. This road would be utilized during the expansion of the existing Vinco Block Valve proposed in Cambria County. However, as this road currently exists and no improvements are required, no changes to the existing grade and contours, or to the existing flood elevation are planned. Furthermore, the Project will implement a Post-Construction Stormwater Plan to ensure that increases in runoff or changes in stormwater flows do not occur. As such, Project impacts to the PADEP 50-foot floodway as a result of the Project would be negligible. A copy of the PCSP for the Vinco Terminal is provided in Attachment 12.

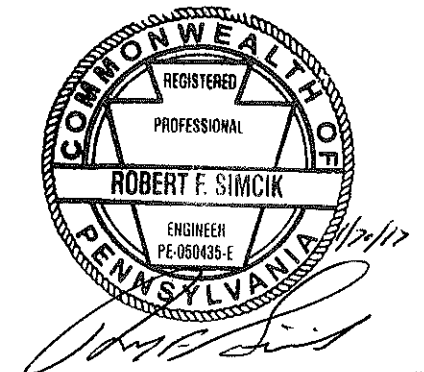
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"I, Robert F. Simcik, do hereby certify pursuant to the penalties of 18 Pa.C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection."



Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 15

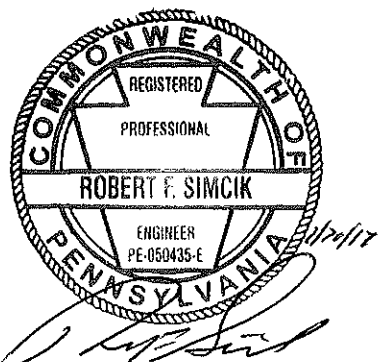
RISK ASSESSMENT

NOTE: The proposed Project in Cambria County will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted.

Accordingly, further coordination regarding this requirement is not applicable.

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 16

PROFESSIONAL ENGINEER'S SEAL/CERTIFICATION

Note: The plans and specifications for the proposed Project are included in Attachment 7 and Attachment 12 of this Joint Application Package. In accordance with Title 25 of the Pennsylvania Code §105.13(j), these plans are affixed with the seal and certification of a registered professional engineer within the respective Attachments.

Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Chester County, Pennsylvania
Application No: E15-862
APS No.: 879047
AUTH: 1087479
November 2016

Prepared for:
Pennsylvania Department of Environmental Protection
Southeast Regional Office
2 East Main Street
Norristown, Pennsylvania, 19401-4915

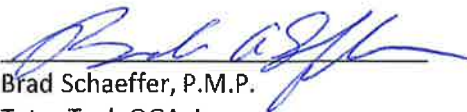
Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:



Pat Green
Tetra Tech OGA, Inc.

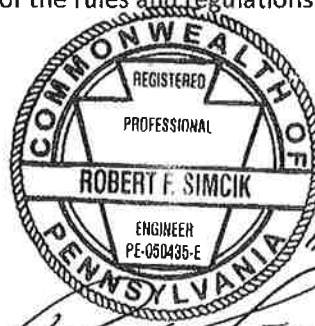
Approved by:




Brad Schaeffer, P.M.P.
Tetra Tech OGA, Inc.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

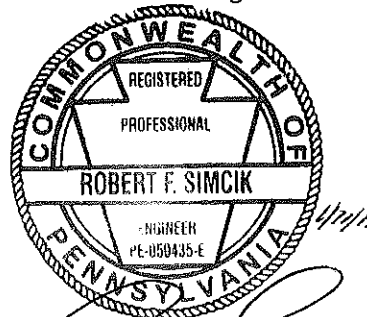
ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

NOTE: The proposed Project does not alter the flow volumes, direction, or geomorphology of any of the streams traversed: all streams and wetlands temporarily disturbed will be restored to their pre-existing topographic contours. Furthermore, the Project does not involve the creation of impermeable surfaces that would result in a change in the existing 100-year frequency flood discharges. Similarly, the Project will not alter the flood storage capacity of any floodways traversed as there will be no permanent structures built in FEMA floodways and no additional/new fill will be placed in FEMA floodways. In addition, in Chester County, no permanent impacts are proposed within the FEMA 100 year floodplain. Accordingly, further coordination regarding this requirement is not applicable.

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 14

STORMWATER MANAGEMENT ANALYSIS

The proposed Project has been designed to satisfy Pennsylvania's stormwater management requirements and has incorporated best management practices identified in the Pennsylvania Stormwater Best Management Practices Manual. Stormwater will be managed during construction activities in accordance with the Project's Erosion and Sediment Control Plan. The Project does involve the construction of above ground stations and valve settings that will require grading, permanent access roads, and other impermeable surfaces, however these are all located outside of wetlands, streams, and the FEMA floodway. All of these sites are designed to manage stormwater runoff in accordance with the Pennsylvania Stormwater Best Practices Manual and are discussed and presented within the Project's Erosion and Sediment Control Plan.

Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

FLOODPLAIN MANAGEMENT ANALYSIS

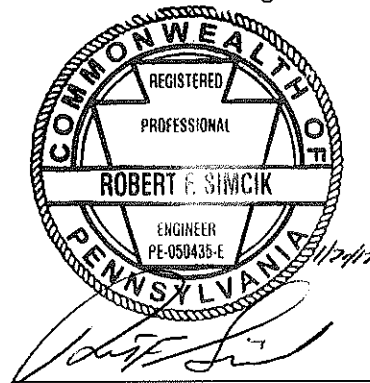
As presented in the Environmental Assessment (Attachment 11), the proposed Project does cross floodways delineated on FEMA maps. However, the Project will not involve the construction of any aboveground structures within these mapped floodways nor will the Project result in any change in the storage capacity of the floodways. All floodways temporarily impacted by the Project will be restored to their pre-existing contours and no additional/new fill will be placed in the floodways. There are no permanent impacts to FEMA floodways as a result of the proposed Project. In addition, in Chester County, no permanent impacts are proposed within the FEMA 100 year floodplain.

Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

A summary of the initial stormwater and floodplain management correspondence is included in this attachment as Table 14-1. Following Table 14-1 are copies of the consistency letter requests, delivery confirmations, and responses received to date.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

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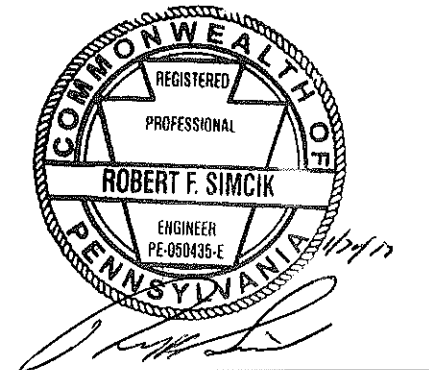
RISK ASSESSMENT

NOTE: The proposed Project will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted.

Accordingly, further coordination regarding this requirement is not applicable.

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Professional Engineer No. PE050435E

ATTACHMENT 16

PROFESSIONAL ENGINEER'S SEAL/CERTIFICATION

Note: The plans and specifications for the proposed Project are included in Attachment 7 and Attachment 12 of this Joint Application Package. In accordance with Title 25 of the Pennsylvania Code §105.13(j), these plans are affixed with the seal and certification of a registered professional engineer within the respective Attachments.

Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Cumberland County, Pennsylvania
Application ID: E21-449
APS No.: 879354
November 2016

Prepared for:
Pennsylvania Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, Pennsylvania, 17110

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:

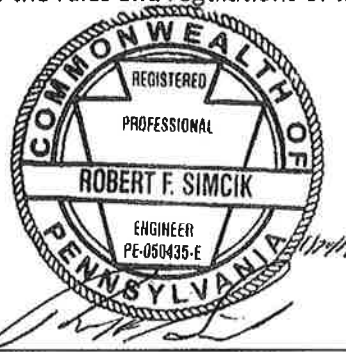

Pat Green
Tetra Tech OGA, Inc.

Approved by:


Brad Schaeffer, P.M.P.
Tetra Tech OGA, Inc.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

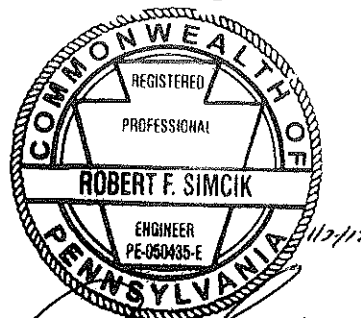
ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

NOTE: The proposed Project does not alter the flow volumes, direction, or geomorphology of any of the streams traversed: all streams and wetlands temporarily disturbed will be restored to their pre-existing topographic contours. Furthermore, the Project does not involve the creation of impermeable surfaces that would result in a change in the existing 100-year frequency flood discharges. Similarly, the Project will not alter the flood storage capacity of any floodways traversed as there will be no permanent structures built in FEMA floodways and no additional/new fill will be placed in FEMA floodways. In addition, in Cumberland County, no permanent impacts are proposed within the FEMA 100 year floodplain. Accordingly, further coordination regarding this requirement is not applicable.

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

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Professional Engineer No. PE050435E

ATTACHMENT 14

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The proposed Project has been designed to satisfy Pennsylvania's stormwater management requirements and has incorporated best management practices identified in the Pennsylvania Stormwater Best Management Practices Manual. Stormwater will be managed during construction activities in accordance with the Project's Erosion and Sediment Control Plan. The Project does involve the construction of above ground stations and valve settings that will require grading, permanent access roads, and other impermeable surfaces, however these are all located outside of wetlands, streams, and the FEMA floodway. All of these sites are designed to manage stormwater runoff in accordance with the Pennsylvania Stormwater Best Practices Manual and are discussed and presented within the Project's Erosion and Sediment Control Plan.

Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their stormwater comprehensive plans and/or ordinances.

FLOODPLAIN MANAGEMENT ANALYSIS

As presented in the Environmental Assessment (Attachment 11), the proposed Project does cross floodways delineated on FEMA maps. However, the Project will not involve the construction of any aboveground structures within these mapped floodways nor will the Project result in any change in the storage capacity of the floodways. All floodways temporarily impacted by the Project will be restored to their pre-existing contours and no additional/new fill will be placed in the floodways. There are no permanent impacts to FEMA floodways as a result of the proposed Project. In addition, in Cumberland County, no permanent impacts are proposed within the FEMA 100 year floodplain.

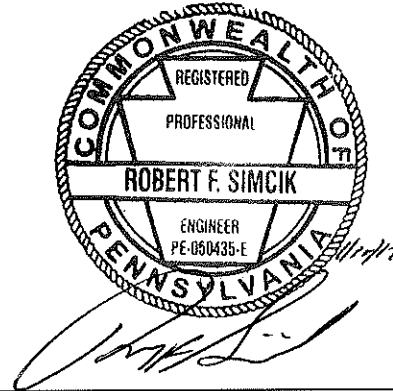
Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their floodplain management plans.

A summary of the initial stormwater and floodplain management correspondence is included in this attachment as Table 14-1. Following Table 14-1 are copies of

the consistency letter requests, delivery confirmations, and responses received to date.

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

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Professional Engineer No. PE050435E

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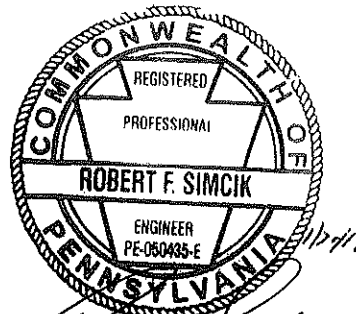
RISK ASSESSMENT

NOTE: The proposed Project in Cumberland County will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life, property, and the environment is not warranted.

Accordingly, further coordination regarding this requirement is not applicable.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 16

PROFESSIONAL ENGINEER'S SEAL/CERTIFICATION

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Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Dauphin County, Pennsylvania
Application ID: E22-619
APS No.: 879354
November 2016

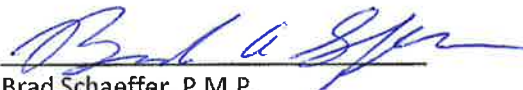
Prepared for:
Pennsylvania Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, Pennsylvania, 17110

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:

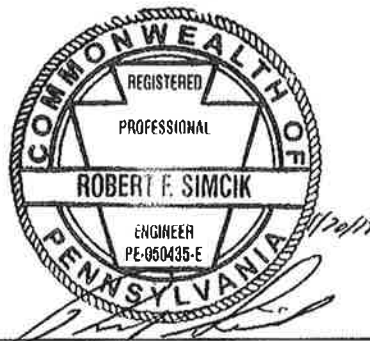

Pat Green
Tetra Tech OGA, Inc.

Approved by:


Brad Schaeffer, P.M.P.
Tetra Tech OGA, Inc.

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Professional Engineer No. PE050435E

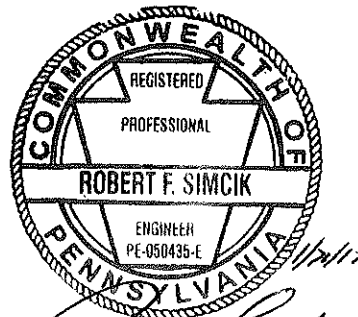
ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

NOTE: The proposed Project does not alter the flow volumes, direction, or geomorphology of any of the streams traversed: all streams and wetlands temporarily disturbed will be restored to their pre-existing topographic contours. Furthermore, the Project does not involve the creation of impermeable surfaces that would result in a change in the existing 100-year frequency flood discharges. Similarly, the Project will not alter the flood storage capacity of any floodways traversed as there will be no permanent structures built in FEMA floodways and no additional/new fill will be placed in FEMA floodways. Accordingly, further coordination regarding this requirement is not applicable.

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Professional Engineer No. PE050435E

ATTACHMENT 14

STORMWATER MANAGEMENT ANALYSIS

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Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

FLOODPLAIN MANAGEMENT ANALYSIS

As presented in the Environmental Assessment (Attachment 11), the proposed Project does cross floodways delineated on FEMA maps. However, the Project will not involve the construction of any aboveground structures within these mapped floodways nor will the Project result in any change in the storage capacity of the floodways. All floodways temporarily impacted by the Project will be restored to their pre-existing contours and no additional/new fill will be placed in the floodways. There are no permanent impacts to FEMA floodways as a result of the proposed Project.

Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

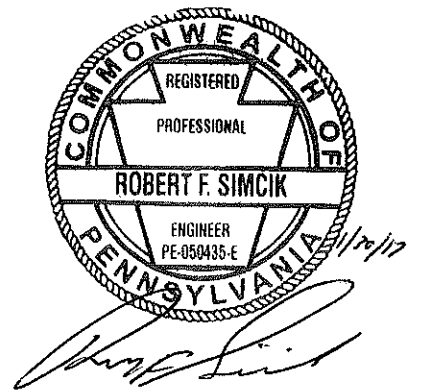
A portion of the proposed Middletown Pump Station in Dauphin County would be located within a PADEP 50-foot floodway. However, this particular floodway is considered waived from a PADEP Chapter 105 permit requirements as it drains less than 100 acres. The impacts to the 50-foot floodway are quantified within the aquatic resource impact tables located in Attachment 11. Furthermore, the Project

will implement a Post-Construction Stormwater Plan to ensure that increases in runoff or changes in stormwater flows do not occur. As such, Project impacts to the PADEP 50-foot floodway as a result of the Project would not result in adverse effects and would be negligible. A copy of the E&S Plan and PCSP for the Middletown Pump Station is provided Attachment 12.

A summary of the initial stormwater and floodplain management correspondence is included in this attachment as Table 14-1. Following Table 14-1 are copies of the consistency letter requests, delivery confirmations, and responses received to date.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 15

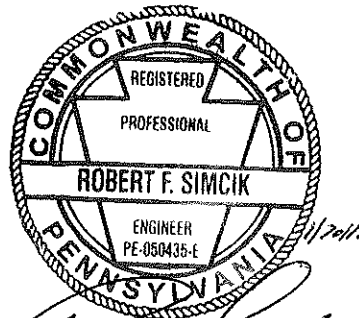
RISK ASSESSMENT

NOTE: The proposed Project will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted.

Accordingly, further coordination regarding this requirement is not applicable.

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Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Delaware County, Pennsylvania
Application No: E23-524
APS No.: 879047
AUTH: 1087479
November 2016

Prepared for:
Pennsylvania Department of Environmental Protection
Southeast Regional Office
2 East Main Street
Norristown, Pennsylvania, 19401-4915

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:

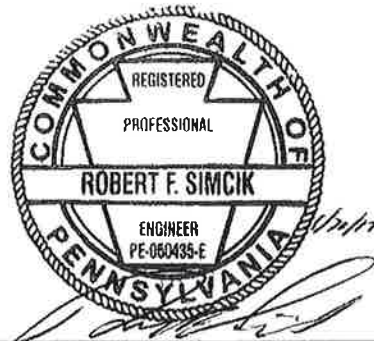

Pat Green
Tetra Tech OGA, Inc.

Approved by:


Brad Schaeffer, P.M.P.
Tetra Tech OGA, Inc.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

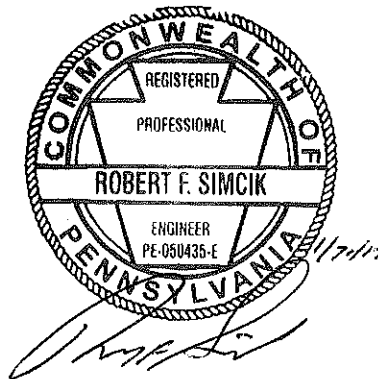
ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

NOTE: The proposed Project does not alter the flow volumes, direction, or geomorphology of any of the streams traversed: all streams and wetlands temporarily disturbed will be restored to their pre-existing topographic contours. Furthermore, the Project does not involve the creation of impermeable surfaces that would result in a change in the existing 100-year frequency flood discharges. Similarly, the Project will not alter the flood storage capacity of any floodways traversed as there will be no permanent structures built in FEMA floodways and no additional/new fill will be placed in FEMA floodways. Accordingly, further coordination regarding this requirement is not applicable.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 14

STORMWATER MANAGEMENT ANALYSIS

The proposed Project has been designed to satisfy Pennsylvania's stormwater management requirements and has incorporated best management practices identified in the Pennsylvania Stormwater Best Management Practices Manual. Stormwater will be managed during construction activities in accordance with the Project's Erosion and Sediment Control Plan. The Project does involve the construction of above ground stations and valve settings that will require grading, permanent access roads, and other impermeable surfaces, however these are all located outside of wetlands, streams, and the FEMA floodway. All of these sites are designed to manage stormwater runoff in accordance with the Pennsylvania Stormwater Best Practices Manual and are discussed and presented within the Project's Erosion and Sediment Control Plan.

Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

FLOODPLAIN MANAGEMENT ANALYSIS

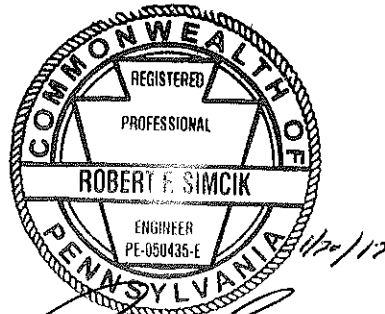
As presented in the Environmental Assessment (Attachment 11), the proposed Project does cross floodways delineated on FEMA maps. However, the Project will not involve the construction of any aboveground structures within these mapped floodways nor will the Project result in any change in the storage capacity of the floodways. All floodways temporarily impacted by the Project will be restored to their pre-existing contours and no additional/new fill will be placed in the floodways. There are no permanent impacts to FEMA floodways as a result of the proposed Project.

Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances. A summary of the initial stormwater and floodplain management correspondence is included in this attachment as Table 14-1. Following Table 14-1 are copies of the consistency letter requests, delivery confirmations, and responses received to date.

A portion of the proposed Twin Oak Station modification in Delaware County would be located within a PADEP 50-foot floodway. However, this particular floodway is considered waived from a PADEP Chapter 105 permit requirements as it drains less than 100 acres and represents a stormwater drain. The impacts to the 50-foot floodway are quantified within the aquatic resource impact tables located in Attachment 11. Furthermore, the Project will implement a Post-Construction Stormwater Plan to ensure that increases in runoff or changes in stormwater flows do not occur. As such, Project impacts to the PADEP 50-foot floodway as a result of the Project would not result in adverse effects and would be negligible. A copy of the E&S Plan and PCSP for the Twin Oaks Station expansion is provided Attachment 12.

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

"I, Robert F. Simcik, do hereby certify pursuant to the penalties of 18 Pa.C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection."



Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 15

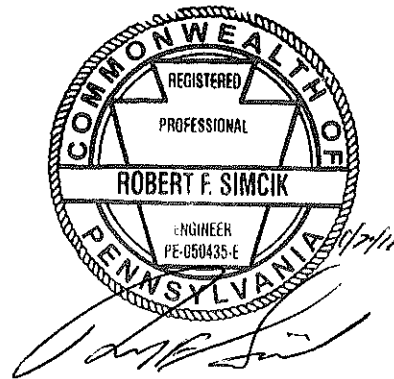
RISK ASSESSMENT

NOTE: The proposed Project will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted.

Accordingly, further coordination regarding this requirement is not applicable.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 16

PROFESSIONAL ENGINEER'S SEAL/CERTIFICATION

Note: The plans and specifications for the proposed Project are included in Attachment 7 and Attachment 12 of this Joint Application Package. In accordance with Title 25 of the Pennsylvania Code §105.13(j), these plans are affixed with the seal and certification of a registered professional engineer within the respective Attachments.

Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Huntingdon County, Pennsylvania
Application ID: E31-234
APS No.: 879354
November 2016


Prepared for:
Pennsylvania Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, Pennsylvania, 17110

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:

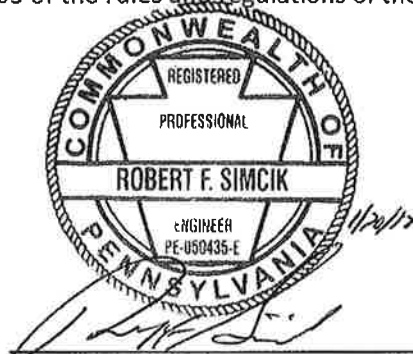

Pat Green
Tetra Tech OGA, Inc.

Approved by:


Brad Schaeffer, P.M.P.
Tetra Tech OGA, Inc.

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Professional Engineer No. PE050435E

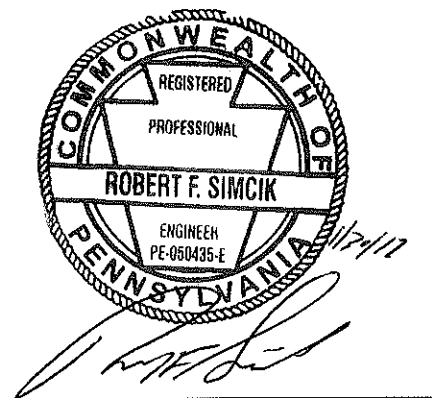
ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

NOTE: The proposed Project does not alter the flow volumes, direction, or geomorphology of any of the streams traversed: all streams and wetlands temporarily disturbed will be restored to their pre-existing topographic contours. Furthermore, the Project does not involve the creation of impermeable surfaces that would result in a change in the existing 100-year frequency flood discharges. Similarly, the Project will not alter the flood storage capacity of any floodways traversed as there will be no permanent structures built in FEMA floodways and no additional/new fill will be placed in FEMA floodways. In addition, in Huntingdon County, no permanent impacts are proposed within the FEMA 100 year floodplain. Accordingly, further coordination regarding this requirement is not applicable.

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ATTACHMENT 14

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Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

FLOODPLAIN MANAGEMENT ANALYSIS

As presented in the Environmental Assessment (Attachment 11), the proposed Project does cross floodways delineated on FEMA maps. However, the Project will not involve the construction of any aboveground structures within these mapped floodways nor will the Project result in any change in the storage capacity of the floodways. All floodways temporarily impacted by the Project will be restored to their pre-existing contours and no additional/new fill will be placed in the floodways. There are no permanent impacts to FEMA floodways as a result of the proposed Project. In addition, in Huntingdon County, no permanent impacts are proposed within the FEMA 100 year floodplain.

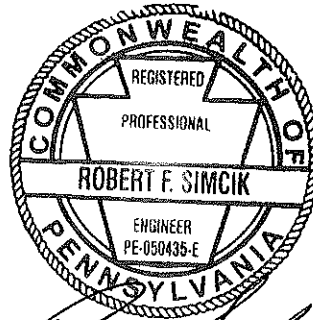
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A summary of the initial stormwater and floodplain management correspondence is included in the CD attachment as Table 14-1. Following Table 14-1 are electronic copies of the consistency letter requests, delivery confirmations, and responses received to date.

Huntingdon County
Pennsylvania Pipeline Project
DEP File: E31-234
APS No.: 879354

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 15

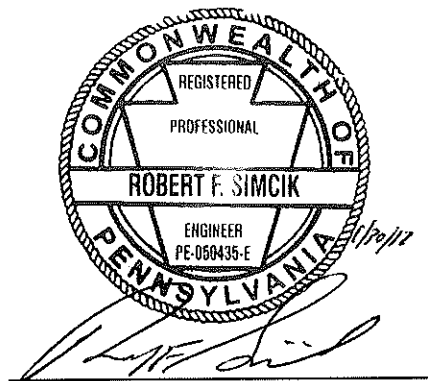
RISK ASSESSMENT

NOTE: The proposed Project will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life, property, and the environment is not warranted.

Accordingly, further coordination regarding this requirement is not applicable.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 16

PROFESSIONAL ENGINEER'S SEAL/CERTIFICATION

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Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Indiana County, Pennsylvania
DEP File: E32-508
Auth. No.: 1082170
November 2016

Prepared for:
Pennsylvania Department of Environmental Protection
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, Pennsylvania, 15222

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:



Pat Green
Tetra Tech OGA, Inc.

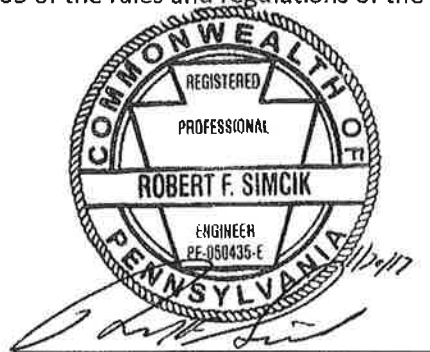
Approved by:



Brad Schaeffer, P.M.P.
Tetra Tech OGA, Inc.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

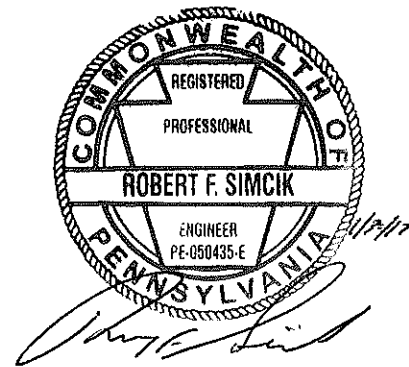
ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

NOTE: The proposed Project does not alter the flow volumes, direction, or geomorphology of any of the streams traversed: all streams and wetlands temporarily disturbed will be restored to their pre-existing topographic contours. Furthermore, the Project does not involve the creation of impermeable surfaces that would result in a change in the existing 100-year frequency flood discharges. Similarly, the Project will not alter the flood storage capacity of any floodways traversed as there will be no permanent structures built in FEMA floodways and no additional/new fill will be placed in FEMA floodways. In addition, in Indiana County, no permanent impacts are proposed within the FEMA 100 year floodplain. Accordingly, further coordination regarding this requirement is not applicable.

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Robert F. Simcik, P.E.
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ATTACHMENT 14

STORMWATER MANAGEMENT ANALYSIS

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Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

FLOODPLAIN MANAGEMENT ANALYSIS

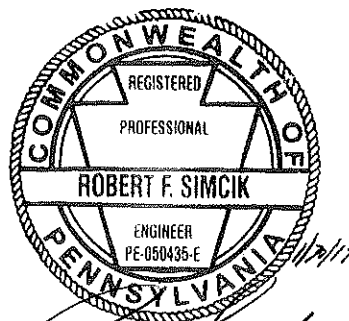
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Professional Engineer No. PE050435E

ATTACHMENT 15

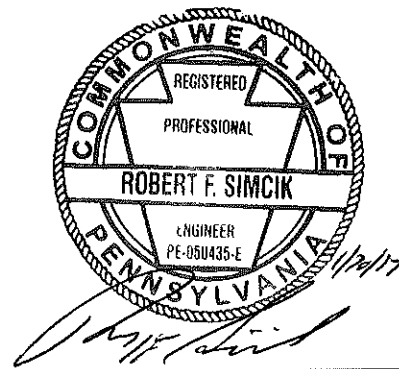
RISK ASSESSMENT

NOTE: The proposed Project in Indiana County will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted.

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ATTACHMENT 16

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Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Juniata County, Pennsylvania
Application ID: E34-136
APS No.: 879354
November 2016


Prepared for:
Pennsylvania Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, Pennsylvania, 17110

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:

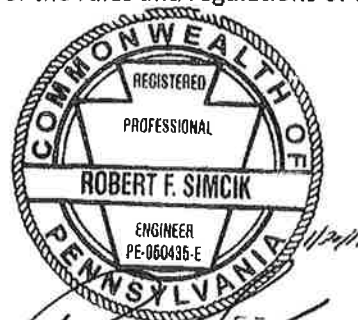

Pat Green
Tetra Tech OGA, Inc.

Approved by:


Brad Schaeffer, P.M.P.
Tetra Tech OGA, Inc.

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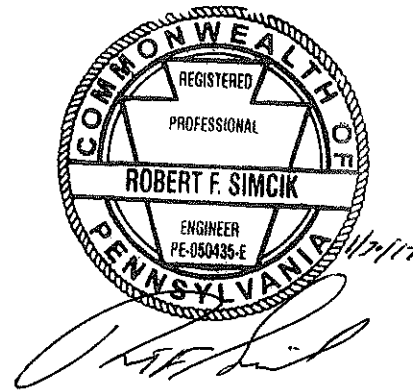
ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

NOTE: The proposed Project does not alter the flow volumes, direction, or geomorphology of any of the streams traversed: all streams and wetlands temporarily disturbed will be restored to their pre-existing topographic contours. Furthermore, the Project does not involve the creation of impermeable surfaces that would result in a change in the existing 100-year frequency flood discharges. Similarly, the Project will not alter the flood storage capacity of any floodways traversed as there will be no permanent structures built in FEMA floodways and no additional/new fill will be placed in FEMA floodways. In addition, in Juniata County, no permanent impacts are proposed within the FEMA 100 year floodplain. Accordingly, further coordination regarding this requirement is not applicable.

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FLOODPLAIN MANAGEMENT ANALYSIS

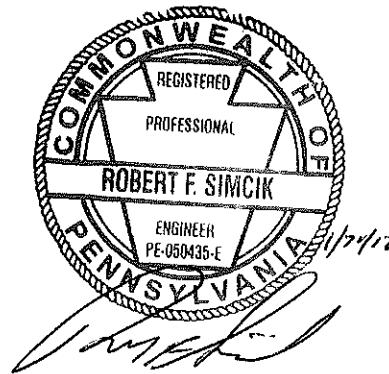
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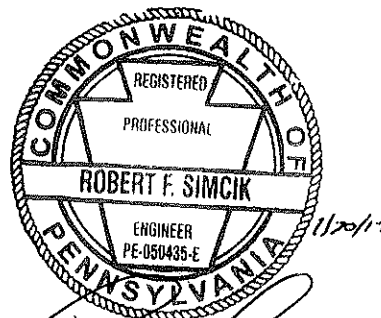
RISK ASSESSMENT

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Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Lancaster County, Pennsylvania
Application ID: E36-945
APS No.: 879354
November 2016

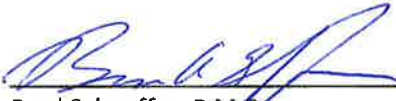
Prepared for:
Pennsylvania Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, Pennsylvania, 17110

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:

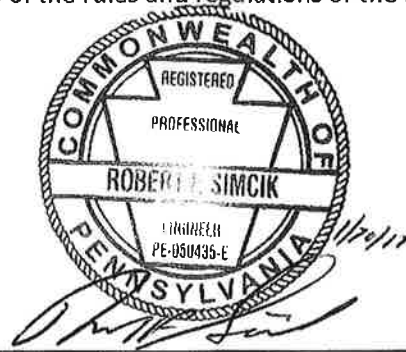

Pat Green
Tetra Tech OGA, Inc.

Approved by:


Brad Schaeffer, P.M.P.
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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

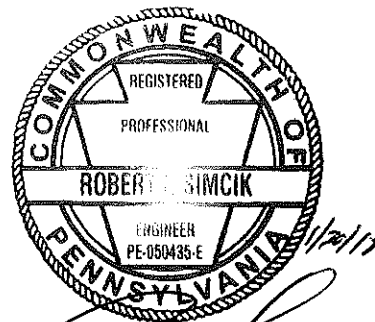
ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

NOTE: The proposed Project does not alter the flow volumes, direction, or geomorphology of any of the streams traversed: all streams and wetlands temporarily disturbed will be restored to their pre-existing topographic contours. Furthermore, the Project does not involve the creation of impermeable surfaces that would result in a change in the existing 100-year frequency flood discharges. Similarly, the Project will not alter the flood storage capacity of any floodways traversed as there will be no permanent structures built in FEMA floodways and no additional/new fill will be placed in FEMA floodways. In addition, in Lancaster County, no permanent impacts are proposed within the FEMA 100 year floodplain. Accordingly, further coordination regarding this requirement is not applicable.

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

"I, Robert F. Simcik, do hereby certify pursuant to the penalties of 18 Pa.C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection."



Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 14

STORMWATER MANAGEMENT ANALYSIS

The proposed Project has been designed to satisfy Pennsylvania's stormwater management requirements and has incorporated best management practices identified in the Pennsylvania Stormwater Best Management Practices Manual. Stormwater will be managed during construction activities in accordance with the Project's Erosion and Sediment Control Plan. The Project does involve the construction of above ground stations and valve settings that will require grading, permanent access roads, and other impermeable surfaces, however these are all located outside of wetlands, streams, and the FEMA floodway. All of these sites are designed to manage stormwater runoff in accordance with the Pennsylvania Stormwater Best Practices Manual and are discussed and presented within the Project's Erosion and Sediment Control Plan.

Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

FLOODPLAIN MANAGEMENT ANALYSIS

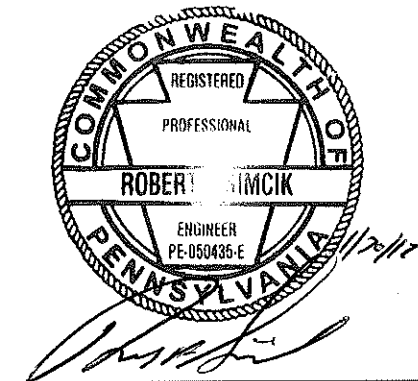
As presented in the Environmental Assessment (Attachment 11), the proposed Project does cross floodways delineated on FEMA maps. However, the Project will not involve the construction of any aboveground structures within these mapped floodways nor will the Project result in any change in the storage capacity of the floodways. All floodways temporarily impacted by the Project will be restored to their pre-existing contours and no additional/new fill will be placed in the floodways. There are no permanent impacts to FEMA floodways as a result of the proposed Project. In addition, in Lancaster County, no permanent impacts are proposed within the FEMA 100 year floodplain.

Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

A summary of the initial stormwater and floodplain management correspondence is included in this attachment as Table 14-1. Following Table 14-1 are copies of the consistency letter requests, delivery confirmations, and responses received to date.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 15

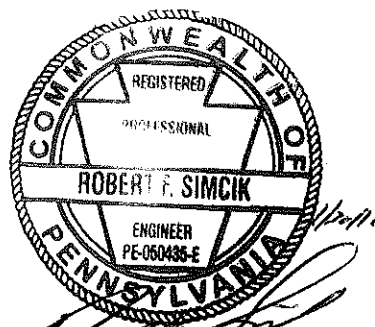
RISK ASSESSMENT

NOTE: The proposed Project will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted.

Accordingly, further coordination regarding this requirement is not applicable.

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 16

PROFESSIONAL ENGINEER'S SEAL/CERTIFICATION

Note: The plans and specifications for the proposed Project are included in Attachment 7 and Attachment 12 of this Joint Application Package. In accordance with Title 25 of the Pennsylvania Code §105.13(j), these plans are affixed with the seal and certification of a registered professional engineer within the respective Attachments.

Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Lebanon County, Pennsylvania
Application ID: E38-194
APS No.: 879354
November 2016

Prepared for:
Pennsylvania Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, Pennsylvania, 17110

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:

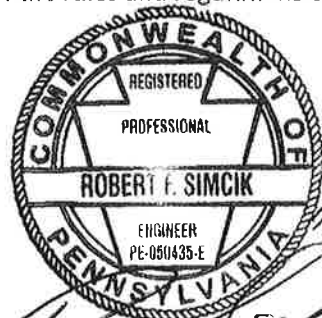

Pat Green
Tetra Tech OGA, Inc.

Approved by:


Brad Schaeffer, P.M.P.
Tetra Tech OGA, Inc.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

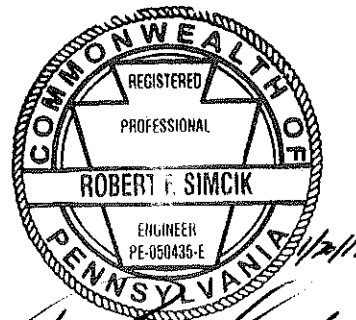
ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

NOTE: The proposed Project does not alter the flow volumes, direction, or geomorphology of any of the streams traversed: all streams and wetlands temporarily disturbed will be restored to their pre-existing topographic contours. Furthermore, the Project does not involve the creation of impermeable surfaces that would result in a change in the existing 100-year frequency flood discharges. Similarly, the Project will not alter the flood storage capacity of any floodways traversed as there will be no permanent structures built in FEMA floodways and no additional/new fill will be placed in FEMA floodways. In addition, in Lebanon County, no permanent impacts are proposed within the FEMA 100 year floodplain. Accordingly, further coordination regarding this requirement is not applicable.

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 14

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Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

FLOODPLAIN MANAGEMENT ANALYSIS

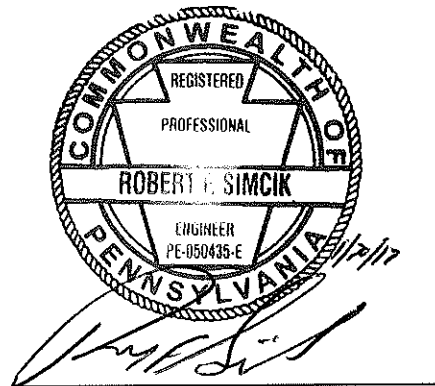
As presented in the Environmental Assessment (Attachment 11), the proposed Project does cross floodways delineated on FEMA maps. However, the Project will not involve the construction of any aboveground structures within these mapped floodways nor will the Project result in any change in the storage capacity of the floodways. All floodways temporarily impacted by the Project will be restored to their pre-existing contours and no additional/new fill will be placed in the floodways. There are no permanent impacts to FEMA floodways as a result of the proposed Project. In addition, in Lebanon County, no permanent impacts are proposed within the FEMA 100 year floodplain.

Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

A summary of the initial stormwater and floodplain management correspondence is included in this attachment as Table 14-1. Following Table 14-1 are copies of the consistency letter requests, delivery confirmations, and responses received to date.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 15

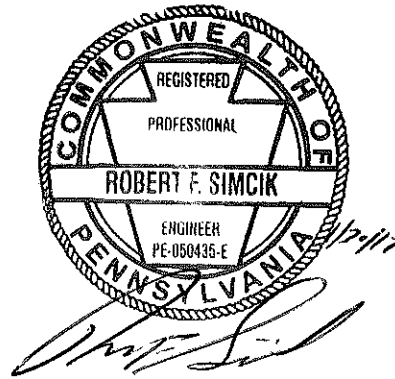
RISK ASSESSMENT

NOTE: The proposed Project will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted.

Accordingly, further coordination regarding this requirement is not applicable.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 16

PROFESSIONAL ENGINEER'S SEAL/CERTIFICATION

Note: The plans and specifications for the proposed Project are included in Attachment 7 and Attachment 12 of this Joint Application Package. In accordance with Title 25 of the Pennsylvania Code §105.13(j), these plans are affixed with the seal and certification of a registered professional engineer within the respective Attachments.

Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Perry County, Pennsylvania
Application ID: E50-258
APS No.: 879354
November 2016


Prepared for:
Pennsylvania Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, Pennsylvania, 17110

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:

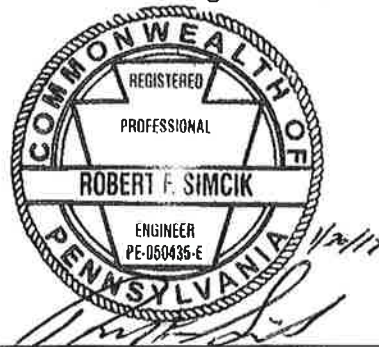

Pat Green
Tetra Tech OGA, Inc.

Approved by:


Brad Schaeffer, P.M.P.
Tetra Tech OGA, Inc.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

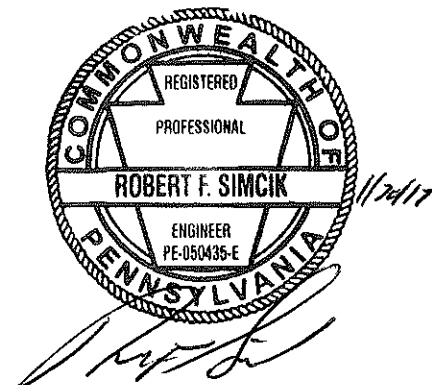
ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

NOTE: The proposed Project does not alter the flow volumes, direction, or geomorphology of any of the streams traversed: all streams and wetlands temporarily disturbed will be restored to their pre-existing topographic contours. Furthermore, the Project does not involve the creation of impermeable surfaces that would result in a change in the existing 100-year frequency flood discharges. Similarly, the Project will not alter the flood storage capacity of any floodways traversed as there will be no permanent structures built in FEMA floodways and no additional/new fill will be placed in FEMA floodways. In addition, in Perry County, no permanent impacts are proposed within the FEMA 100 year floodplain. Accordingly, further coordination regarding this requirement is not applicable.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 14

STORMWATER MANAGEMENT ANALYSIS

The proposed Project has been designed to satisfy Pennsylvania's stormwater management requirements and has incorporated best management practices identified in the Pennsylvania Stormwater Best Management Practices Manual. Stormwater will be managed during construction activities in accordance with the Project's Erosion and Sediment Control Plan. The Project does involve the construction of above ground stations and valve settings that will require grading, permanent access roads, and other impermeable surfaces, however these are all located outside of wetlands, streams, and the FEMA floodway. All of these sites are designed to manage stormwater runoff in accordance with the Pennsylvania Stormwater Best Practices Manual and are discussed and presented within the Project's Erosion and Sediment Control Plan.

Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

FLOODPLAIN MANAGEMENT ANALYSIS

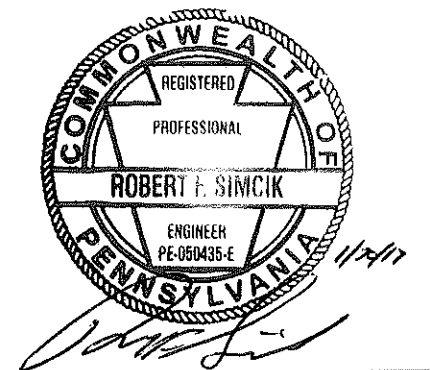
As presented in the Environmental Assessment (Attachment 11), the proposed Project does cross floodways delineated on FEMA maps. However, the Project will not involve the construction of any aboveground structures within these mapped floodways nor will the Project result in any change in the storage capacity of the floodways. All floodways temporarily impacted by the Project will be restored to their pre-existing contours and no additional/new fill will be placed in the floodways. There are no permanent impacts to FEMA floodways as a result of the proposed Project. In addition, in Perry County, no permanent impacts are proposed within the FEMA 100 year floodplain.

Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

A summary of the initial stormwater and floodplain management correspondence is included in this attachment as Table 14-1. Following Table 14-1 are copies of the consistency letter requests, delivery confirmations, and responses received to date.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 15

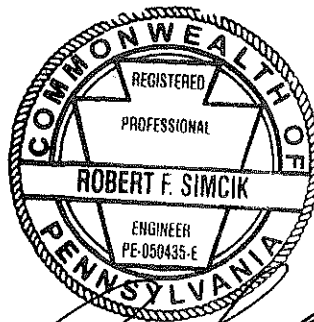
RISK ASSESSMENT

NOTE: The proposed Project will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted.

Accordingly, further coordination regarding this requirement is not applicable.

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Professional Engineer No. PE050435E

ATTACHMENT 16

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Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Washington County, Pennsylvania
DEP File: E63-674
Auth. No.: 1082170
November 2016


Prepared for:
Pennsylvania Department of Environmental Protection
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, Pennsylvania, 15222

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:

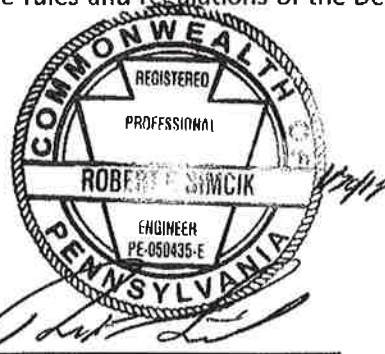

Pat Green
Tetra Tech OGA, Inc.

Approved by:


Brad Schaeffer, P.M.D.
Tetra Tech OGA, Inc.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

Note: SPLP has minimized project impacts to the maximum extent, including siting valves and permanent access roads out of waters and floodways of the Commonwealth. In Washington County all permanent above ground facilities are located outside of wetlands, streams, FEMA floodways, FEMA floodplains, and DEP floodways, except the Houston Injection Station. The Houston Injection Station is sighted within the FEMA 100-year floodplain.

As part of the ESCGP-2 approval process, a detailed floodplain analysis was performed for Westland Run and Chartiers Run. The analysis is summarized within a Floodplain Analysis for Chartiers Run and Westland Run report that included a Hydrologic and Hydraulic (H&H) analysis. The results of the H&H analysis portion of the study indicated the following:

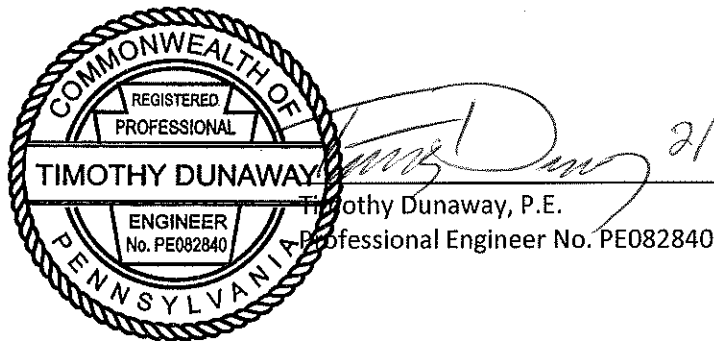
Grading will not cause an increase in the 100-year water surface elevations relative to the existing conditions within the study reaches for the 100-year peak flow rate of 2,950 cfs. No significant on-site or off-site increases in flood velocities are anticipated to occur. The proposed pipe support foundations and cable tray foundations within the Base Flood Elevation (BFE) will be firmly anchored to resist flotation, collapse, and lateral movement. The proposed equipment and structures outside of the BFE but within the FEMA Zone A (approximate) floodplain will be flood proofed. Therefore, the proposed grading will not increase the risk of flooding within the limits of this study for the 100- year storm event along Westland Run and Chartiers Run.

The study reaching this conclusion is included with this application within this Attachment. The study has been submitted to Chartiers Township for review and comments were received from Nichols & Slagle Engineering, Inc. A hard copy of the final report and Township consistency determination from the Township will be provided to the DEP when the consultation process is concluded. Detailed design plans for the Houston Injection Station are provided within Attachment 12 and Chapter 106 impacts accounted for within the Attachment 11 aquatic resource impact tables. The study included in this Attachment includes a signed PE seal.

Washington County
Pennsylvania Pipeline Project
DEP File: E63-674
Auth. No.: 1082170

"I, Timothy Dunaway, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

"I, Timothy Dunaway, do hereby certify pursuant to the penalties of 18 Pa.C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection."



ATTACHMENT 14

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Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

FLOODPLAIN MANAGEMENT ANALYSIS

As presented in the Environmental Assessment (Attachment 11), the proposed Project does cross floodways delineated on FEMA maps. However, the Project will not involve the construction of any aboveground structures within these mapped floodways nor will the Project result in any change in the storage capacity of the floodways. All floodways temporarily impacted by the Project will be restored to their pre-existing contours and no additional/new fill will be placed in the floodways. There are no permanent impacts to FEMA floodways as a result of the proposed Project.

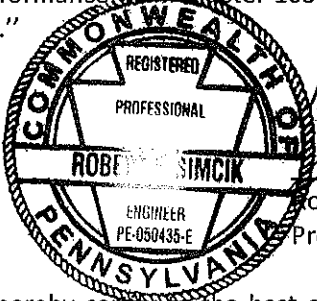
One aboveground structure, the Houston Injection Station, proposed within Chartiers Township in Washington County would be located within a 100-year floodplain. A Hydrology and Hydraulics Study was conducted to determine project impacts on the flood capacity for Chartiers Run and Westland Run. Results of the study indicate that the Project construction would not exceed 100-year peak flow rates or increase flood velocity on-site or off-site. Therefore, the proposed grading will not increase the risk of flooding within the limits of this study for the 100-year storm even along Wetland Run and Chartiers Run. A Post Construction Stormwater Plan has been prepared and is currently being reviewed by Chartiers Township.

Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

A summary of the initial stormwater and floodplain management correspondence is included in this attachment as Table 14-1. Following Table 14-1 are copies of the consistency letter requests, delivery confirmations, and responses received to date.

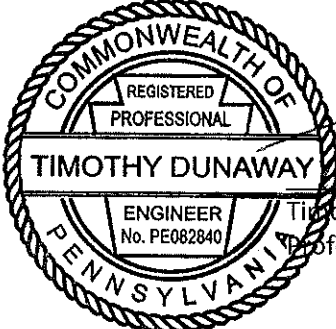
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"I, Robert F. Simcik, do hereby certify pursuant to the penalties of 18 Pa.C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection."

 1/30/17
Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

I, Timothy Dunaway, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

"I, Timothy Dunaway, do hereby certify pursuant to the penalties of 18 Pa.C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection."

 2/1/17
Timothy Dunaway, P.E.
Professional Engineer No. PE08284

ATTACHMENT 15

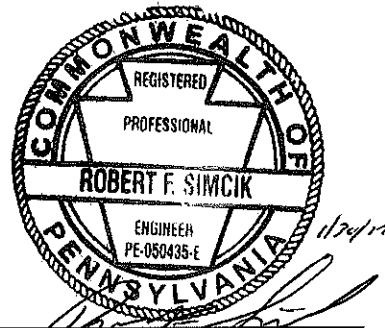
RISK ASSESSMENT

Note: The proposed Project in Washington County will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted.

Accordingly, further coordination regarding this requirement is not applicable.

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

"I, Robert F. Simcik, do hereby certify pursuant to the penalties of 18 Pa.C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection."



Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 16

PROFESSIONAL ENGINEER'S SEAL/CERTIFICATION

Note: The plans and specifications for the proposed Project are included in Attachment 7 and Attachment 12 of this Joint Application Package. In accordance with Title 25 of the Pennsylvania Code §105.13(j), these plans are affixed with the seal and certification of a registered professional engineer within the respective Attachments.

Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
Westmoreland County, Pennsylvania
DEP File: E65-973
Auth. No.: 1082170
November 2016


Prepared for:
Pennsylvania Department of Environmental Protection
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, Pennsylvania, 15222

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:

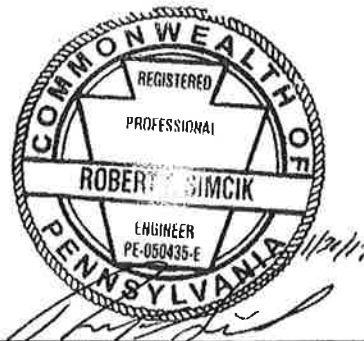

Pat Green
Tetra Tech OGA, Inc.

Approved by:


Brad Schaeffer, P.M.P.
Tetra Tech OGA, Inc.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

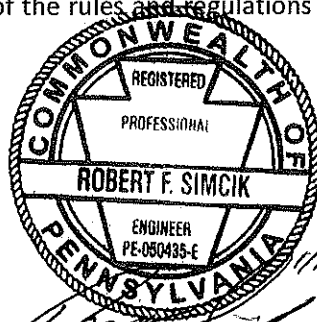
ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

NOTE: The proposed Project does not alter the flow volumes, direction, or geomorphology of any of the streams traversed: all streams and wetlands temporarily disturbed will be restored to their pre-existing topographic contours. Furthermore, the Project will not alter the flood storage capacity of any floodways traversed as there will be no permanent structures built in FEMA floodways and no additional/new fill will be placed in FEMA floodways. The project would include an expansion of an existing block valve off Westinghouse Road in Westmoreland County, a small portion of which would be located within a FEMA 100 year floodplain. However, only a nominal amount of the block valve station pad (approximately 0.11-acre) would be located within the floodplain and impacts would be negligible as the berm is anticipated to be overtopped by the FEMA floodplain elevation. Accordingly, further coordination regarding this requirement is not applicable. The Township through the Act 167 consistency requirement for Ch. 105 has been notified of the construction of a small portion of this block valve within floodplain.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 14

STORMWATER MANAGEMENT ANALYSIS

The proposed Project has been designed to satisfy Pennsylvania's stormwater management requirements and has incorporated best management practices identified in the Pennsylvania Stormwater Best Management Practices Manual. Stormwater will be managed during construction activities in accordance with the Project's Erosion and Sediment Control Plan. The Project does involve the construction of above ground stations and valve settings that will require grading, permanent access roads, and other impermeable surfaces, however these are all located outside of wetlands, streams, and the FEMA floodway. All of these sites are designed to manage stormwater runoff in accordance with the Pennsylvania Stormwater Best Practices Manual and are discussed and presented within the Project's Erosion and Sediment Control Plan.

Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

FLOODPLAIN MANAGEMENT ANALYSIS

As presented in the Environmental Assessment (Attachment 11), the proposed Project does cross floodways delineated on FEMA maps. However, the Project will not involve the construction of any aboveground structures within these mapped floodways nor will the Project result in any change in the storage capacity of the floodways. All floodways temporarily impacted by the Project will be restored to their pre-existing contours and no additional/new fill will be placed in the floodways. There are no permanent impacts to FEMA floodways as a result of the proposed Project. The project would include an expansion of an existing block valve off Westinghouse Road (also known as the Conemaugh River West Block Valve) in Westmoreland County, a small portion of which would be located within a FEMA 100 year floodplain. However, only a nominal amount of the block valve station pad (approximately 0.11-acre) would be located within the floodplain and impacts would be negligible as the pad and berm is anticipated to be overtopped by the FEMA floodplain elevation and is not anticipated to impact the floodplain boundary. The proposed Conemaugh River West block valve was addressed in the floodplain management consistency request letter to Derry Township included in Attachment 14. SPLP has yet to receive a consistency response from this Township but will work with this Township to ensure the block valve is consistent with their management plan. The consistency statement or further comment will be provided to the DEP upon receipt. The Conemaugh River West valve is depicted on the E&S Plan Sheet set located in Attachment 12, as well as Post

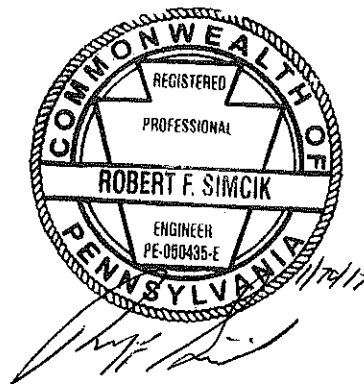
Construction Stormwater Management plan drawing and civil drawings for this site are located in Attachment 12. The impacts to the floodplain are quantified in the Chapter 106 impact table located in Attachment 11.

In general, coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

A summary of the initial stormwater and floodplain management correspondence is included in this attachment as Table 14-1. Following Table 14-1 are copies of the consistency letter requests, delivery confirmations, and responses received to date.

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

"I, Robert F. Simcik, do hereby certify pursuant to the penalties of 18 Pa.C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection."



Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 15

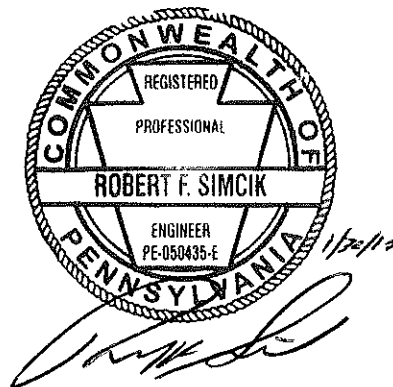
RISK ASSESSMENT

NOTE: The proposed Project in Westmoreland County will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted.

Accordingly, further coordination regarding this requirement is not applicable.

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

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ATTACHMENT 16

PROFESSIONAL ENGINEER'S SEAL/CERTIFICATION

Note: The plans and specifications for the proposed Project are included in Attachment 7 and Attachment 12 of this Joint Application Package. In accordance with Title 25 of the Pennsylvania Code §105.13(j), these plans are affixed with the seal and certification of a registered professional engineer within the respective Attachments.

Pennsylvania Pipeline Project
Chapter 105 Joint Permit Application
York County, Pennsylvania
Application ID: E67-920
APS No.: 879354
November 2016

Prepared for:
Pennsylvania Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, Pennsylvania, 17110

Prepared by:
Tetra Tech OGA, Inc.
301 Ellicott Street
Buffalo, New York
(716) 849-9419

Prepared by:

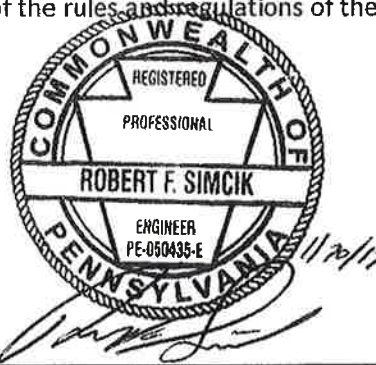

Pat Green
Tetra Tech OGA, Inc.

Approved by:


Brad Schaeffer, P.M.P.
Tetra Tech OGA, Inc.

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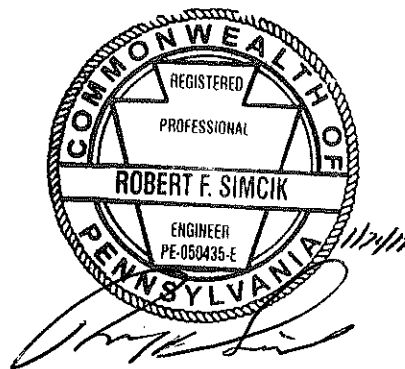
ATTACHMENT 13

HYDROLOGIC AND HYDRAULIC ANALYSIS

NOTE: The proposed Project does not alter the flow volumes, direction, or geomorphology of any of the streams traversed: all streams and wetlands temporarily disturbed will be restored to their pre-existing topographic contours. Furthermore, the Project does not involve the creation of impermeable surfaces that would result in a change in the existing 100-year frequency flood discharges. Similarly, the Project will not alter the flood storage capacity of any floodways traversed as there will be no permanent structures built in FEMA floodways and no additional/new fill will be placed in FEMA floodways. Accordingly, further coordination regarding this requirement is not applicable.

"I, Robert F. Simcik, do hereby certify to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted professional practice, is true and correct, and is in conformance with Chapter 106 of the rules and regulations of the Department of Environmental Protection."

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Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

FLOODPLAIN MANAGEMENT ANALYSIS

As presented in the Environmental Assessment (Attachment 11), the proposed Project does cross floodways delineated on FEMA maps. However, the Project will not involve the construction of any aboveground structures within these mapped floodways nor will the Project result in any change in the storage capacity of the floodways. All floodways temporarily impacted by the Project will be restored to their pre-existing contours and no additional/new fill will be placed in the floodways. There are no permanent impacts to FEMA floodways as a result of the proposed Project.

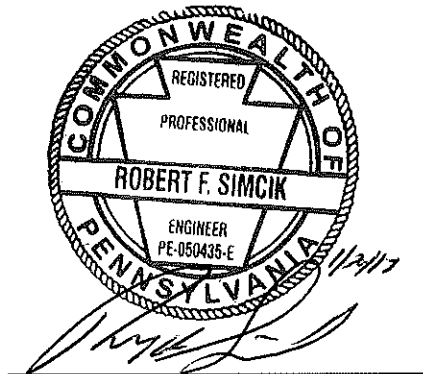
Coordination with the local municipalities was initiated with letters and project maps sent between the dates of November 10 and December 22, 2015. As part of that process, the municipalities were requested to respond with any concerns regarding the proposed Project and its consistency with their comprehensive plans and/or ordinances.

A portion of the Old York Road Block Valve in York County would be located within a PADEP 50-foot floodway. However, the Project will implement a Post-Construction Stormwater Plan to ensure that increases in runoff or changes in stormwater flows do not occur. As such, Project impacts to the PADEP 50-foot floodway a result of the Project would not result in adverse effects and would be negligible. A copy of the PCSP for the Old York Road Block Valve Station is provided electronically in Attachment 12 as well as design details.

A summary of the initial stormwater and floodplain management correspondence is included in the CD attachment as Table 14-1. Following Table 14-1 are electronic copies of the consistency letter requests, delivery confirmations, and responses received to date.

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Robert F. Simcik, P.E.
Professional Engineer No. PE050435E

ATTACHMENT 15

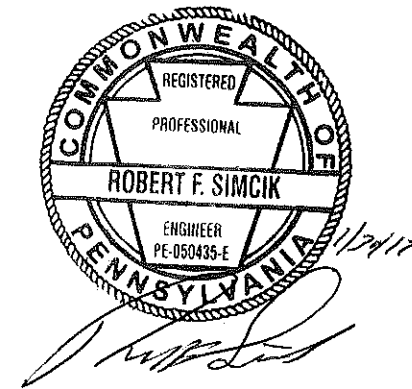
RISK ASSESSMENT

NOTE: The proposed Project will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted.

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