PHILADELPHIA GAS WORKS

SPECIFICATION FOR INSTALLING

PRIVATELY OWNED

UNDERGROUND NATURAL GAS HOUSE PIPING

FOR

HOUSING PROJECTS, CONDOMINIUMS, APARTMENTS, INDUSTRIAL SITES OR SIMILAR COMPLEXES

June, 2017
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Specifications for Installing Private Underground Gas Piping for Housing Projects, Condominiums, Apartments, or Similar Complexes

NOTE: These specifications are subject to change without notice. Consult with the Operations Department of the Philadelphia Gas Works (PGW) before starting any installation. All references to statutes, rules or regulations are current as of the date of publication, but remain the responsibility of the Owner/Contractor, with respect to modification or other changes in laws or regulations. PGW makes no warranties or certification expressed or implied with respect to the methods or procedures contained herein.

Section 01. Scope of Specifications

1. Federal Regulations consider the Owner/Contractor as an Operator of a gas piping system. The Operator must be in accordance with the Code of Federal Regulations (PHMSA “Part 192”). All other applicable Federal, State, and local building, piping and fire codes as relevant to natural gas piping apply.
   a) PGW requires that the Owner of the underground gas piping system to fill out the Notification Form, see “APPENDIX A – Notification Form”, and return a signed copy for PGW records.

2. Specifications for piping within a building must be in accordance with latest addition of the International Fuel Gas Code, “NFPA 54/ANSI Z223.1” and the PGW “Piping Specifications for Fuel Lines and Equipment Installation”

3. These specifications apply to privately-owned and installed underground gas piping systems supplied through and downstream of a PGW meter. These installations can include but are not limited to:
   a) Minor Pipe Installations
      (i) Diameter ≤ 2” and Length < 100 ft.
      (ii) Individual Separate buildings
      (iii) Garages
      (iv) Pool Heaters
   b) Major Pipe Installations
      (i) Diameter > 2” or Length ≥ 100 ft.
      (ii) Housing Projects or PHA sites
      (iii) Apartments or Condominiums
      (iv) Universities or College campuses
      (v) Industrial campuses or complexes

4. PGW will not connect or approve for connection, any underground gas piping system to PGW’s Distribution system unless all the specifications and procedures
set forth in the manual are followed and all inspection and testing deemed
necessary by PGW is completed satisfactorily.

a) PGW is not permitted to connect the piping within the buildings to the
underground piping system until the leak tests have been completed and
approved by PGW.

5. All post-construction engineering review, inspection services, testing services,
corrosion control validation and documentation services will be billed to the
Owner at PGW’s current hourly rate until completion of the job.

6. The Operator must immediately notify PGW of any changes before or during
installation of Gas facilities

Section 02. PGW Contact and Source of Information

1. All matters related to underground gas piping shall be referred to the Planning
Section of the Distribution Department of PGW at 800 W. Montgomery Avenue,
Philadelphia, PA 19122. Communication should be made through the Marketing
Department first to gather information on the load being added.

a) Contact Planning Section; Monica Lyv, Sr. Staff Engineer:
Monica.Lyv@pgworks.com or at: 215.684-6116

2. Proper application for increased consumption.

a) E-mail the Residential & Commercial Sales Staff at:
res.com@pgworks.com, or call the hotline at: 215.684.6730

Section 03. PA One Call - Act 187

1. Owners/Contractors must comply with PA One Call - Act 187.

2. To place a dig or design notification in Pennsylvania

a) call 8-1-1 or 1-800-242-1776 (outside PA)

Section 04. Authority to Install Underground Gas Piping

1. PGW does not maintain the customer’s piping downstream of PGW’s meter. For
the customer responsibilities, see “APPENDIX A – Notification Form”.

2. PGW does not have permitting authority. Accordingly, any review of piping by
PGW does not act as any authorization to install underground gas piping in City
Streets, dedicated or undedicated, or property dedicated to public use.

3. Design work or gas pipe sizing should not be done before consulting with PGW to
confirm and determine the availability and/or the ability to supply adequate
upstream pressure or capacity within the Philadelphia Gas distribution system.
Section 05. **PGW Drawing Requirements**

1. Owner/Contractor shall not install underground piping without first submitting one set of Pipe Drawings to the Operations Department Planning Section. PGW requires two (2) weeks to review the project scope and specifications.

2. Each Major Pipe drawing should adhere to the following:
   a) Drawings must be on a minimum size sheet of 11x17
   b) Dimensioning for all features in proper scale (English)
   c) Legends identifying features and symbols
   d) Detailed site vicinity map

3. Each Major Pipe drawing Pipeline detail must include the following
   a) Operating Pressure
   b) Diameter of the pipe
   c) Material
   d) Length of each piping between fittings
   e) Show the location of branches, offsets, valves and other significant fittings.
   f) Any other important points where there is a change of size, material, direction and depth should be shown on the drawings.

4. Each submitted Major Pipe drawing shall include the surrounding environment:
   a) Property boundary
   b) Public and Private streets
   c) Public utility easements
   d) Building footprints
   e) Driveways
   f) Walls (retaining, landscape, etc.)
   g) Curbs & gutters, Public sidewalks and contours
   h) Substructures - water, sewer, storm drains and any other utilities available (future and existing)

5. Each Minor Pipe drawing should adhere to the following:
   a) Drawings must be on a minimum size sheet of 11x17
   b) Dimensioning for all features in proper scale (English)

6. Each Minor Pipe drawing detail must include the following
   a) Operating Pressure
   b) Diameter of the Pipe
c) **Material**

d) **Location of buildings, sidewalks, easements and any other structures that could impact the installation and maintenance of the pipeline**

7. Underground systems that operate at a pressure equal to or less than 5 PSIG may be constructed of approved steel, plastic pipe, or CSST Black Underground Tubing.

8. All systems requesting to carry natural gas at a pressure greater than 5 PSIG shall be welded steel pipe and will be reviewed and approved for the higher delivery pressure by PGW on an individual basis.

9. The Owner/Contractor may request, in writing, an exception to the welded steel pipe requirement for underground systems with an operating pressure greater than 5 PSIG. The use of plastic pipe or mechanical couplings on these systems will be granted based on but not limited to:

   a) **Type of installation**
   
   b) **Location of installation**
   
   c) **Proximity of surrounding structures**
   
   d) **“Wall to Wall” paving**
   
   e) **Future construction activity in the area**

10. Owner/Contractor should not install underground piping without having received approval for installation from PGW’s Operations Department. A signed copy of the Owner/Contractor’s drawings or an e-mail from the Operations Planning Department with PGW’s approval will be returned to the Owner/Contractor

   a) For approval, PGW requires 5 working days for Minor installations and 14 working days for Major installations from date submitted to PGW Planning Department

11. If the drawings are not approved, PGW will inform the Owner/Contractor the requirements needed to gain PGW’s approval.

12. A copy of the approved drawings should be kept on the jobsite and made available to PGW inspectors or engineers during the installation of the project.

**Section 06. Materials – General**

1. The Contractor must receive PGW’s written permission prior to installation to use any materials. The Contractor shall not assume prior approval of materials used will guarantee future approval to use the same materials.

2. Owner/Contractors must follow the manufacturer's procedures for installation and joining their products and joining other materials to their products.

3. References to specific products shall not be construed as an endorsement for that material or derogatory to other competitive products.

4. For material purchase, see “APPENDIX D – List of Suppliers”.

**PGW UNDERGROUND HOUSE PIPING MANUAL**
Section 07. **Inspection**

1. Inspection of pipe must be approved before Backfilling Procedure begins.
2. Once approved, the Owner/Contractor shall notify the Operations Department not less than 5 (five) working days before starting the installation. PGW can make either a continuous or intermittent inspection during the installation.
   a) Contact Planning Section, Area Engineer
3. PGW does not guarantee or certify the present or future soundness of the piping system or proper piping design or sizing.
4. Problems discovered by PGW’s inspection shall be corrected to the satisfaction of PGW. PGW will not energize a system unless all problems are corrected.

Section 08. **Trenching, Installation and Backfilling**

1. The location of the pipe, in respect to building, curbs, sidewalks, and other underground structures, should be carefully chosen so that future maintenance work will be expedited. All pipe locations should be clearly shown on the drawings required.
2. The depth of minor installations shall be 2’ to the top of the pipe wherever possible. In no case shall the depth be less than 1’6”.
3. The depth of major installations shall be between 2’6” and 3’6” to top of pipe, but this 2’6” minimum is permissible only provided the requirements for grading and depth of piping entering buildings have been fully met.
4. When a gas pipe parallels other underground structures, a clear horizontal distance of at least 12” between the two structures shall be maintained, unless otherwise approved by PGW.
5. When gas piping crosses over or under other underground structures, a clear vertical distance of at least 6” shall be maintained.
6. If a common trench will be used all trenching and installation must be in accordance with *PGW Manuals* “Common Trenching Manual - General Design Requirements”
7. All trenches must be level and free of debris at the time gas lines are to be installed.
8. The trench bottom in suitable earth shall be excavated and graded so that the pipe will be supported for its entire length on undisturbed ditch bottom. Blocking shall not be used. A 6” sand base must be installed in the trench prior to installation.
9. All pipes shall be internally cleaned and blown clear prior to installation. Pipe shall be inspected for deformations. Damaged pipe shall be removed.
10. Pipe shall not be dragged.
11. Installed pipe and appurtenances shall be made watertight at the end of each day, and at all times when the Owner/Contractor is not actively working on that pipe.
12. All joint trenches will be backfilled with sand to be a minimum of 6” of cover over all gas main and service pipe in normal soil and a minimum of 12” in rocky soil.

13. When tamping, the backfill shall be placed in layer according to applicable regulations, but in no case exceeding 12” in depth.

14. A yellow caution gas line tape must be installed about 1’ prior to the top of trench. This will alert a future excavator of the gas line below.

Section 09. **Turn-on of Gas**

1. Underground piping system must fulfill the requirements of “Section 18 – Leak Tests” and be approved by PGW.

2. PGW reserves the right to be the sole authority to introduce gas into the underground piping system or be present when the Owner/Contractor energizes the underground piping system.

3. After review of the Underground System Drawings, PGW will make the recommendation whether the system can be energized by the Contractor or requires PGW to complete the Turn-On.
Section 10. Steel Pipe

1. All pipes shall be new steel, API-5L, Grade B or ASTM A-53 seamless, or electric resistance welded

<table>
<thead>
<tr>
<th>Nominal Size (In.)</th>
<th>Wall Thickness (In.)</th>
<th>Schedule No. ANSI B36.10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-¼”</td>
<td>.140</td>
<td>40</td>
</tr>
<tr>
<td>2”</td>
<td>.154</td>
<td>40</td>
</tr>
<tr>
<td>3”</td>
<td>.216</td>
<td>40</td>
</tr>
<tr>
<td>4”</td>
<td>.237</td>
<td>40</td>
</tr>
<tr>
<td>6”</td>
<td>.280</td>
<td>40</td>
</tr>
<tr>
<td>8”</td>
<td>.322</td>
<td>40</td>
</tr>
</tbody>
</table>

2. Steel pipe shall be procured with ends beveled for welding. Individual single random lengths, as received on the job, shall not be less than 18’ long. Not more than one “cut length” shall be used between any two fittings. For this purpose, a valve shall be considered as a fitting.

3. No steel pipe smaller than 1-¼” shall be installed underground.

Section 11. Steel Pipe Assembly Procedures


2. Welder Qualification must be in accordance with PHMSA “Part 192, Subpart E – Welding of Steel in Pipelines -192.227(Qualification of Welders) and in accordance with PGW Welder Qualifications

3. All welding shall be shielded metal arc welding

   a) The Owner/Contractor must repair all rejected welds.

4. Owner/Contractor shall supply all documentation concerning welding procedures qualifications and welding qualifications for all welders to PGW for approval prior to construction. PGW reserves the right to accept or reject the procedures and qualifications.

5. Mechanical Compression Coupling Assembly for Steel and Plastic Pipe shall be installed per the manufacturer’s specifications and installation instructions.

6. It is the Owner/Contractors responsibility to ensure all welded and mechanical coupling installations are performed by qualified personnel who have been properly trained in the joining procedures.
Section 12.  **Corrosion Control Requirements**

1. Corrosion Control must be in accordance with *PHMSA* “Part 192 – Subpart I – Requirements for Corrosion Control” and *PGW D-Contracts* “D-1015 - General Specifications – Appendix A(Corrosion Control)”

2. Pipe Coating must be in accordance with *PHMSA* “Part 192, Subpart I – Requirements for Corrosion Control – 192.461(Coating)”

3. Cathodic Protection must be in accordance with *PHMSA* “Part 192, Subpart I – Requirements for Corrosion Control – 192.463(Cathodic Protection)”

4. Corrosion Control Devices must be installed as per manufactures instructions

Section 13.  **Plastic Pipe**

1. Plastic pipe must be ASTM D2513 Polyethylene (PE), PE 2406.

2. Plastic pipe shall be procured as follows: All CTS pipe in coiled rolls, 1-¼” IPS pipe in 500’ coils or 40’ lengths, 2” IPS pipe in 500’ coils or 40’ lengths, 3”, 4”, 6” and 8” IPS pipe in 40’ lengths.

3. PGW reserves the right to approve and reject any plastic pipe manufacturer that PGW feels does not meet the requirements set forth above. It is the Owner/Contractors responsibility to gain PGW’s approval prior to ordering pipe and or any fittings.

4. PGW only approves the following sizes and SDR pipe.

<table>
<thead>
<tr>
<th>IPS Pipe Size</th>
<th>PE 2406</th>
</tr>
</thead>
<tbody>
<tr>
<td>2”</td>
<td>SDR 11</td>
</tr>
<tr>
<td>3”</td>
<td>SDR 11.5</td>
</tr>
<tr>
<td>4”</td>
<td>SDR 11.5</td>
</tr>
<tr>
<td>6”</td>
<td>SDR 11.5</td>
</tr>
<tr>
<td>8”</td>
<td>SDR 13.5</td>
</tr>
</tbody>
</table>

Section 14.  **Plastic Pipe Fusion Procedures**

1. Plastic PE pipe must be joined by either Butt or Electrofusion or by a mechanical coupling and must be in accordance with *PHMSA* “Part 192, Subpart F – Joining of Materials Other Than Welding - 192.281(Plastic Pipe), 192.283(Qualifying Joining Procedures),

2. Fusion Personnel must be in accordance with *PHMSA* “Part 192, Subpart F – Joining of Materials Other Than Welding -192.285(Qualifying Persons to Make Joints).” Documentation must be kept for Qualifying Fusion Personnel for each machine used as well as for each pipe fused.
a) All documentation must be submitted to PGW and PGW reserves the right to approve/reject qualification documentation. If rejected, the contractor is required to come to PGW to make qualified fusion per PGW fusion procedures. Fusion training cost will be billed to the contractor.

3. Inspection of joints must be in accordance with PHMSA “Part 192, Subpart F – Joining of Materials Other Than Welding - 192.287(Inspection of Joints)”.
   a) A visual inspection shall be made of every fusion joint. Any joint of questionable appearance shall be cut out and redone. PGW reserves the right of final acceptance.
   b) Owner/Contractor shall only use proper pipe fusion equipment to perform fusion. Contractor shall have all equipment documentation on hand for PGW review including pressures, hold times, and heating times.

Section 15. **CSST TracPipe**

1. No owner/contractor should install underground CSST without first submitting one (1) set of drawings for PGW Drawing Requirements; see “Section 05 – PGW Drawing Requirements.” The drawings will be reviewed by the Distribution Planning Section along with Field Service Section of PGW.

2. Installation of Underground CSST
   a) The installation of underground CSST must follow manufacturer’s installation procedures. Manufacturer’s manual must be on site for inspection.
   b) After all underground CSST is installed in the trench and ready for inspection, the owner/contractor must contact PGW to schedule an inspection of CSST along with a 3 psig pressure test. The trench shall remain open until all piping is inspected and tested.
   c) If the pressure test passes, the owner/contractor can continue with the backfill.

3. Backfilling of trench must be in accordance with “Section 8 - Trenching, Installation and Backfilling of the Underground System”

4. For further information and inquiries,
   a) Contact Planning Section, Area Engineer

Section 16. **Installation - Minor Pipe**

1. Diameter ≤ 2” and Length < 100 ft.

2. All Minor Pipe must have Corrosion Control and in accordance with “Section 12 - Corrosion Control Requirements”

3. In accordance with PGW D-Contracts “D-1016 - Distribution Standards - 10.0-12.5 (All Minor Pipe Specifications)
Section 17.  **Installation - Major Pipe**

1. Diameter > 2” or Length ≥ 100 ft.

2. Installation of Major Pipe must be in accordance with *PGW D-Contracts* “D-1016 - Distribution Standards - 13.3(3” & Larger Service Risers) and “Section 8 - Trenching, Installation, and Backfilling”.

3. All Major Pipe must have Corrosion Control and in accordance with “Section 12 - Corrosion Control Requirements”

Section 18.  **Leak Tests**

1. Leak Procedures must be in accordance with *PHMSA “Part 192, Subpart M – Maintenance – 192.723 (Leakage Surveys and Procedures)” and “APPENDIX E – Underground House Piping Form”*

   a) PGW must be notified by the Contractor three (3) days before a Pressure Test so that PGW can schedule a PGW inspector to witness the test.

   b) The time-pressure test shall be performed after the entire underground system is complete in every detail.

2. Plastic and Steel pipe shall be tested with air 90 PSIG on the piping system, the Contractor shall, in the presence of PGW, test with soapsuds every joint, fitting, weld, fusion, and valve, as well as any other part which PGW may designate.

3. The Owner/Contractor shall properly retain or block exposed pipe ends.

4. All main valves and service valve shall be in the open position for the duration of each of these tests.

5. Any defective material discovered by these tests shall be removed and good material substituted.

6. **Time Pressure Test**

   a) With an approved recording gauge attached to the system, air pressure shall be raised to 90 PSIG for all steel and plastic mains and services. In the event that services are physically connected to a main at the time of testing, the entire installation may be tested at 90 PSIG.

<table>
<thead>
<tr>
<th>Pipe Length (feet)</th>
<th>2” &amp; Smaller</th>
<th>3” &amp; 4”</th>
<th>6” &amp; 8”</th>
<th>12”</th>
<th>16”</th>
<th>20”</th>
<th>24”</th>
<th>30”</th>
<th>36”</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>10 min.</td>
<td>15 min.</td>
<td>30 min.</td>
<td>1.5 hrs.</td>
<td>2 hrs.</td>
<td>3 hrs.</td>
<td>4 hrs.</td>
<td>7 hrs.</td>
<td>10 hrs.</td>
</tr>
<tr>
<td>100</td>
<td>10 min.</td>
<td>15 min.</td>
<td>1 hr.</td>
<td>2.5 hrs.</td>
<td>4 hrs.</td>
<td>6 hrs.</td>
<td>8 hrs.</td>
<td>13 hrs.</td>
<td>19 hrs.</td>
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<tr>
<td>200</td>
<td>15 min.</td>
<td>30 min.</td>
<td>2 hrs.</td>
<td>4.5 hrs.</td>
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<td>11 hrs.</td>
<td>16 hrs.</td>
<td>24 hrs.</td>
<td>24 hrs.</td>
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<tr>
<td>500</td>
<td>30 min.</td>
<td>1.5 hrs.</td>
<td>5 hrs.</td>
<td>11 hrs.</td>
<td>18 hrs.</td>
<td>24 hrs.</td>
<td>24 hrs.</td>
<td>24 hrs.</td>
<td>24 hrs.</td>
</tr>
<tr>
<td>1,000</td>
<td>45 min.</td>
<td>2.5 hrs.</td>
<td>9.5 hrs.</td>
<td>22 hrs.</td>
<td>24 hrs.</td>
<td>24 hrs.</td>
<td>24 hrs.</td>
<td>24 hrs.</td>
<td>24 hrs.</td>
</tr>
</tbody>
</table>

When testing pipe of varying size, the total test duration may be calculated by adding the test durations given in the table above. Test durations beyond 24 hours are not required.

Minimum Test Duration for Plastic and Steel Pipe
b) The time pressure test shall be considered as passed when a constant pressure of 90 PSIG has been plotted on the recording gauge chart for a period satisfactory to PGW but not to exceed 24 hours.

c) If at any time there is a drop in pressure indicating a leak, the test shall be disconnected until the Owner/Contractor locates and corrects the cause of the leak. The time pressure test shall then be repeated until a constant pressure reading is recorded for a time satisfactory to PGW.

d) All valves shall be operated after the final time pressure test and then left in the closed position.

7.Leaks located on any welds or fusion made by the Owner/Contractor shall be repaired to the satisfaction of PGW. Leaks located on material found to be defective shall also be repaired by the Owner/Contractor.

Section 19. **Damage Prevention Standards**

1. Damage Prevention must be in accordance with *PGW D-Contracts* “D-1016 - Distribution Standards - 53.0(Damage Prevention Instruction), 53.1(Caution Tape Installation), 53.2(Tracer Wire Installation)

Section 20. **Termination of Piping**

1. In accordance with *PGW D-Contracts* “D-1016 - Distribution Standards - 13.3(3” & Larger Service Heads)

2. No gas piping (meter, riser, etc.) can be placed within a 36” horizontal measurement from:
   a) An electric meter or electrical equipment (air cond compressor unit, etc.)
   b) Combustion air or fresh air intakes.
   c) Any ignition source.

3. Meters cannot be placed under a carport roof, awning or an overhang larger than a standard eave.

4. Meters may be installed under operable windows only when no other options exist and is approved by PGW.

5. PGW will not approve Underground Under Building piping

6. Outside Risers or Meter Sets
   a) Meters and piping must be protected from damage by vehicles by 4” diameter bollards per *PGW D-Contracts* “D-1016 - Distribution Standards – 53.0(Damage Prevention Instruction)”
APPENDIX A – Notification Form

Notification of Owner’s Responsibilities for Underground Gas Piping

RE: Underground Piping Notification

Dear Customer:

The outside gas service line which provides your property with natural gas comes under federal regulations. The regulation pertains to a portion of the underground piping downstream of PGW’s meters and therefore, is not owned by PGW. This piping is the property of the land owner at your address.

Most property owners are not aware of their responsibilities in regards to underground natural gas piping; therefore, the federal codes discussed herein require Local Gas Distribution Companies, such as PGW, to notify owners of their obligations to safely maintain such piping. PGW does not maintain piping downstream of our meter. Federal Piping Safety Regulations, Part 192, Section 192.16 is attached to this notice.

There are four (4) requirements for maintaining your portion of underground piping:

1. Monitor for Corrosion
2. Survey for Leaks
3. Repair any Unsafe Conditions
4. Identify and Locate the Piping Prior to any Excavation

By serving this letter, PGW meets the federal requirements to notify you. You, or the correct owner of this facility, must make arrangements to comply with federal safety standards in maintaining the underground piping on your property.

Please fill out the attached form and return it so that PGW can better assist you in the future.

Thank you for your anticipated cooperation in this matter.

Sincerely,

Project Manager for New Business
Philadelphia Gas Works
800 W. Montgomery Avenue; Philadelphia, PA 19122
Fax Number: (215) 684-6853
Customer Name: _______________________________________________
Customer Address: _______________________________________________

Do you own the above mentioned property?       Yes [ ]       No [ ]
If no, please return this form even if you are not the property owner.

Customer Signature:_______________________________________________

Property Owner’s Name: ____________________________________________
Property Owner’s Mailing Address: ______________________________
________________________________________________________________
Property Owner’s Phone Number: ______________________________

Please return signed copy to

    Distribution Planning, UFL files, 800-2
    800 W. Montgomery Avenue
    Philadelphia, PA 19122
APPENDIX B - Joint Trenching Detail

Joint Trench specifications with gas, cable, electric and phone

Note: Gas main is to be placed on the street side of the trench

PGW
5/1/04
## APPENDIX C – INSPECTION CHECKLIST for GAS TURN-ON

<table>
<thead>
<tr>
<th>STEPS</th>
<th>INSPECTION REQUIREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Notify POCS</td>
</tr>
<tr>
<td>4</td>
<td>Submit Drawings</td>
</tr>
<tr>
<td>5</td>
<td>Approved Drawings</td>
</tr>
<tr>
<td>6</td>
<td>Notify PGW before work.</td>
</tr>
<tr>
<td>7</td>
<td>Proper Cover on pipe</td>
</tr>
<tr>
<td>8</td>
<td>Proper Clearance</td>
</tr>
<tr>
<td>9</td>
<td>Proper Cathodic Control System</td>
</tr>
<tr>
<td>10</td>
<td>Approved Materials Used</td>
</tr>
<tr>
<td>11</td>
<td>Approved Assembly of Pipe</td>
</tr>
<tr>
<td>12</td>
<td>Used PGW qualified &amp; approved Welders</td>
</tr>
<tr>
<td>13</td>
<td>Used PGW qualified &amp; approved Fusion Operators</td>
</tr>
<tr>
<td></td>
<td>Action Description</td>
</tr>
<tr>
<td>---</td>
<td>--------------------</td>
</tr>
<tr>
<td>14</td>
<td>Proper Trenching &amp; Backfilling</td>
</tr>
<tr>
<td>15</td>
<td>Installed proper “head of service” Fittings or Riser</td>
</tr>
<tr>
<td>16</td>
<td>Leak Test – before backfilling</td>
</tr>
<tr>
<td>17</td>
<td>Installed Damage Prevention systems</td>
</tr>
<tr>
<td>18</td>
<td>Post Construction Corrosion Survey</td>
</tr>
<tr>
<td>19</td>
<td>Communicate/Understand:</td>
</tr>
<tr>
<td></td>
<td>PGW Turn-On procedure</td>
</tr>
<tr>
<td></td>
<td>Gas Turn-On by: (circle one)</td>
</tr>
<tr>
<td></td>
<td>PGW Contractor</td>
</tr>
<tr>
<td>20</td>
<td>Exposed Piping System tagged OK.</td>
</tr>
<tr>
<td>21</td>
<td>Underground Piping System Tagged OK.</td>
</tr>
<tr>
<td>22</td>
<td>Gas Turned – On</td>
</tr>
<tr>
<td>23</td>
<td>PGW maps Updated</td>
</tr>
<tr>
<td>24</td>
<td>Underground System Letter sent to PGW</td>
</tr>
</tbody>
</table>
APPENDIX D - List of Suppliers

Material mentioned in the Specification for Installing Underground Gas Piping may be purchased from the following suppliers. All purchased materials must be in accordance with PHMSA, Code of Federal Regulations, Part 192 as well as all other applicable Federal, State, and local building, piping and fire codes as relevant to natural gas piping. Materials must be documented for reference to applicable codes.

1. Couplings, Risers and Fittings
   a. Dresser Piping Specialties
      41 Fisher Avenue
      Bradford, PA 16701
      ph: (814) 362-9200
      fax: (814) 362-9333
   b. Deacon Industrial Supply
      Company, Inc.
      www.deaconind.com/
      165 Boro Line Road
      P.O. Box 62485
      King of Prussia, PA 19406
      ph: (610) 265-5322
      Fax: (215) 256-1716
   c. Mueller Company
      www.muellercompany.com
      500 West Eldorado Street
      Decatur, IL 62522
      ph: (800) 798-3131
      fax: (217) 425-7524
   d. Perfection Corporation
      www.perfectioncorp.com
      436 N. Eagle Street
      Geneva, OH 44041
      ph: (800) 544-6344
      fax: (440) 428-7325

2. Primer, Tape Coating, Anodes and Cathodic Protection Services
   a. Corrpro Companies, Inc.
      www.Corrpro.com
      1380 Enterprise Dr. Suite 100
      West Chester, PA 19380
      ph: (610) 344-7002
      fax: (610) 344-7092
   b. Stuart Steel Protection Corp.
      www.StuartSteel.com
      P.O. Box 476
      S. Boundbrook, NJ 08880
      ph: (732) 469-5544
      fax: (732) 469-9270

3. Tracer Wire, Damage Prevention
   a. Deacon Industrial Supply
      Company, Inc.
      www.deaconind.com/
      165 Boro Line Road
      P.O. Box 62485
      King of Prussia, PA 19406
      ph: (610) 265-5322
      fax: (215) 256-1716
4. Valves

a. Central Plastics Company
   www.centralplastics.com
   1901 West Independence Street
   P. O. Box 3129
   Shawnee, OK 74802-3129
   ph: (405) 823-1391
   fax: (800) 733-5993

b. Balon Corporation
   www.balon.com
   3245 South Hattie
   Oklahoma City, OK 73129
   ph: (405) 677-3321
   fax: (405) 677-3917

c. Deacon Industrial Supply
   Company, Inc.
   www.deaconind.com/
   165 Boro Line Road
   P.O. Box 62485
   King of Prussia, PA 19406
   ph: (610) 265-5322
   fax: (215) 256-1716

d. Perfection Corporation
   www.perfectioncorp.com
   436 N. Eagle Street
   Geneva, OH 44041
   ph: (800) 544-6344
   fax: (440) 428-7325

e. OmegaFlex, Inc.
   www.omegaflex.com
   451 Creamery Way
   Exton, PA 19341-2509
   Ph: (610) 524 – 7272
   Fax: (610) 524-6484

d. Deacon Industrial Supply
   Company, Inc.
   www.deaconind.com/
   165 Boro Line Road
   P.O. Box 62485
   King of Prussia, PA 19406
   ph: (610) 265-5322
   fax: (215) 256-1716

5. Plastic Pipe and Fittings

a. Central Plastics Company
   www.centralplastics.com
   1901 West Independence Street
   P. O. Box 3129
   Shawnee, OK 74802-3129
   ph: (405) 823-1391
   fax: (800) 733-5993

b. Dresser Piping Specialties
   41 Fisher Avenue
   Bradford, PA 16701
   ph: (814) 362-9200
   fax: (814) 362-9333

c. Polypipe
   www.PolyPipeInc.com
   PO Box 199
   1050 Industrial Drive South
   Erwin, TN 37650
   ph: (423) 743-9116
   fax: (423) 743-8419

6. Plastic Pipe

   Chevron Phillips Chemical Co.
   www.PerformancePipe.com
   5085 W. Park Blvd., Suite 500
   Plano, TX 75093
   ph: (972) 783-2603
   fax: (972) 783-2647

   2665 Research Drive
   P. O. Box 2259
   Corona, CA 91718-2259
   ph: (800) 535-9255
   fax: (909) 270-1600

c. Polypipe
   www.PolyPipeInc.com
   PO Box 199
   1050 Industrial Drive South
   Erwin, TN 37650
   ph: (423) 743-9116
   fax: (423) 743-8419
## APPENDIX E - UNDERGROUND HOUSE PIPING FORM

<table>
<thead>
<tr>
<th>General</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Name of Inspector</td>
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</tr>
<tr>
<td>Contractor Installing Pipe</td>
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</table>

<table>
<thead>
<tr>
<th>Pipeline</th>
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</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>2” 3” 4” 6” 8”</td>
</tr>
<tr>
<td>Pressure</td>
<td>LP IP HP</td>
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</table>

| Steel      |                                      |
| Grade      |                                      |
| Brand Name |                                      |
| Name of Welder |                                  |
| Welder Qualifications |                           |
| Welding Procedure |                                  |
| Coating    |                                      |
| Cathodic Protection |                                |

| Plastic    |                                      |
| Nom. Wall Thickness |                                |
| SDR         |                                      |
| ASTM #      |                                      |
| Brand Name  |                                      |
| Name of Fuser |                                   |
| Fusion Procedures |                                |
| Company     |                                      |
### Air Test (90psig)

<p>| | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Start Time</td>
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</tr>
<tr>
<td>Temperature On</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finish Time</td>
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<td></td>
</tr>
<tr>
<td>Temperature Off</td>
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</table>

<table>
<thead>
<tr>
<th>Result</th>
<th>Pass</th>
<th>Fail</th>
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### Finalization

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Customer Signature</td>
<td></td>
</tr>
<tr>
<td>PGW Employee Signature</td>
<td></td>
</tr>
</tbody>
</table>

Note: Contractor will be charged if additional testing required