

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE	PAGE OF PAGES
2. AMENDMENT/MODIFICATION NO. 0002		3. EFFECTIVE DATE 30-Jul-2007	4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. (If applicable) 1 17
6. ISSUED BY USACE, CONTRACTING DIVISION ATTN: CEMVN-CT, ROOM 172 7400 LEAKE AVE. NEWORLEANS LA 70118-3651		CODE W912P8	7. ADMINISTERED BY (If other than item 6) See Item 6		CODE
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)				X	9A. AMENDMENT OF SOLICITATION NO. W912P8-07-B-0019
				X	9B. DATED (SEE ITEM 11) 02-Jul-2007
					10A. MOD. OF CONTRACT/ORDER NO.
					10B. DATED (SEE ITEM 13)
CODE		FACILITY CODE			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS					
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offer <input checked="" type="checkbox"/> is extended, <input type="checkbox"/> is not extended.					
Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning <u>1</u> copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.					
12. ACCOUNTING AND APPROPRIATION DATA (If required)					
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.					
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.					
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).					
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:					
D. OTHER (Specify type of modification and authority)					
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.					
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) The above numbered solicitation for Atchafalaya Basin Levees West of Berwick, West Bayou Sale Gordy Levee Enlargement, Phase A, B/L Sta. 462+22 to B/L Sta. 741+00, St. Mary Parish, LA, is hereby amended as follows: BID OPENING DATE Bid Opening date and time of 2 August 2007, 2:00 P.M. CST has been changed. New Bid Opening date and time is 9 August 2007, 2:00 P.M. CST.					
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.					
15A. NAME AND TITLE OF SIGNER (Type or print)			16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)		
			TEL: _____ EMAIL: _____		
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)		15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)		16C. DATE SIGNED 30-Jul-2007

SECTION 00700

FAR clause 52.228-1, insert these fill-ins:

1st blank "20%," 2nd blank "\$3,000,000.00"

SECTION 02332

Page 10, paragraph 3.2.2. Delete this paragraph in its entirety and substitute the following therefore.

"The Contractor shall prosecute the embankment work such that no more than 4,000 linear feet of levee shall be under embankment construction at any time between the limits of the approved levee cross section that has been fertilized, seeded and mulched and the farthest extent of levee clearing ahead of the embankment work. If the Contractor elects to perform embankment work in multiple locations within the total contract length, the sum of the lengths of the multiple embankment construction locations allowed shall not exceed the above given total length of 4,000 linear feet. The limits of embankment work for each of the multiple locations as they fall within the total contract length shall be between the limits of the approved levee cross section that has been fertilized, seeded and mulched and the farthest extent of levee clearing ahead of the embankment work as pertinent to that particular location. During the hurricane season (1 June – 30 Nov), all above mentioned embankment work limits shall be reduced to 2,000 linear feet. The segment of work advancement defined above as 4,000 linear feet is expected to move continually onward as a unit as rapidly as the Contractor prosecutes and completes the incremental work of fertilizing, seeding and mulching of the levee cross sections it has completed within the defined work advancement segment. The incremental lengths developed within the defined work advancement segment shall be at the discretion of the Contractor in accommodating its own construction operations. The limits of embankment work as described above shall not apply to the excavation of the borrow ditch."

SECTION 02556

Delete this section in its entirety and substitute the following attached revised Section 02556 therein.

SECTION 02632

Page 4, paragraph 2.1.1. Delete this paragraph in its entirety and substitute the following therefore.

"Corrugated metal pipe shall be corrugated metal pipe, 60" diameter, minimum uncoated 12 gage, Type II joints, and the applicable requirements of LSSRB 1007. The CMP shall be bituminous coated as per LSSRB 1007.02. Bonding shall be in accordance with ASTM A 849."

SECTION 05093

Delete this section in its entirety.

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SECTION 02556 - GAS DISTRIBUTION SYSTEM

1.1 SCOPE

The work covered in this section consists of furnishing all plant, labor, equipment and material, and performing all operations necessary for the installation polyethylene or fiberglass pipe below ground including but not limited to removal of an existing line, excavation, placement, backfilling, purging, testing, connecting and disconnecting between existing gas lines and all incidental work as specified and as shown on the drawings. The replacement gas line shall be fully operational and accepted by the Government before the existing gas line is removed. At the Contractor's option, the new underground line can be installed by the directional drilling method.

1.2 MEASUREMENT AND PAYMENT

No measurement will be made for the installation of the new gas line. Payment for the new gas line will be made at the contract lump sum price for "Gas Line". Price and payment shall constitute full compensation for furnishing all plant, labor, materials and equipment for installation of the new gas pipe lines, and pipe line removals.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN GAS ASSOCIATION (AGA)

AGA XR0104 (2001) AGA Plastic Pipe Manual for Gas Service

ASME INTERNATIONAL (ASME)

ASME B16.40 (2002) Manually Operated Thermoplastic Gas Shutoffs and Valves in Gas Distribution Systems

ASME B31.8 (2000) Gas Transmission and Distribution Piping Systems

ASTM INTERNATIONAL (ASTM)

ASTM D 2513 (2003a) Thermoplastic Gas Pressure Pipe, Tubing, and Fittings

ASTM D 2517 (2000) Reinforced Epoxy Resin Gas Pressure Pipe and Fittings

ASTM D 2683	(1998) Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing
ASTM D 3261	(2003) Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing
ASTM D 3350	(2002a) Polyethylene Plastics Pipe and Fittings Materials

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY (MSS)

MSS SP-25	(1998) Standard Marking System for Valves, Fittings, Flanges and Unions
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NACE INTERNATIONAL (NACE)

NACE RP0185	(1996) Extruded, Polyolefin Resin Coating Systems with Soft Adhesives for Underground or Submerged Pipe
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U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

49 CFR 192	Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards
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1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

- Shop Drawings
- Product Data
- Test Reports
- Certificates
- Operation and Maintenance Data

1.4.1 Pipe, Fittings, and Associated Materials

Drawings shall contain complete schematic and piping diagrams and any other details required to demonstrate that the system has been coordinated and will properly function as a unit. Drawings shall show proposed layout and anchorage of the

system and appurtenances, and equipment relationship to other parts of the work including clearances for maintenance and operation.

1.4.2 Materials and Equipment

A complete list of equipment and materials, including manufacturer's descriptive and technical literature, performance charts and curves, catalog cuts, and installation instructions, including, but not limited to dielectric waterways and flange kits.

1.4.3 Spare Parts

Spare parts lists for each different item of material and equipment specified.

1.4.4 Connections to Existing Lines

Notification of the Contractor's schedule for making connections to existing gas lines, at least 10 days in advance.

1.4.5 Jointing Polyethylene and Fiberglass Piping

A copy of qualified jointing procedures, training procedures, qualifications of trainer, and training test results for joiners and inspectors.

1.4.6 Connection Plan

A copy of procedures for gas line tie in, hot taps, removal or demolition, purging, and plugging as applicable in accordance with ASME B31.8.

1.4.7 Pressure and Leak Tests

Data from all pressure tests of the distribution system.

1.4.8 Utility Work

Certification from the Operating Agency/Utility Company that work for which the Utility is responsible has been completed.

1.4.9 Training

A copy of each inspector's and joiner's training certificate with respective test results.

1.4.10 Gas Distribution System

Three copies, in booklet form and indexed, of site specific natural gas operation and maintenance manual for each gas distribution system including system operation, system maintenance, equipment operation, and equipment maintenance manuals

described below. If operation and maintenance manuals are provided in a common volume, they shall be clearly differentiated and separately indexed. The System Operation Manual shall include but not be limited to the following:

- a. Maps showing piping layout and locations of all system valves and gas line markers.
- b. Step-by-step procedures required for system startup, operation, and shutdown. System components and equipment shall be indexed to the gas maps.
- c. Isolation procedures and valve operations to shut down or isolate each section of the system. Valves and other system components shall be indexed to the gas maps.
- d. Descriptions of Site Specific Standard Operation Procedures including permanent and temporary pipe repair procedures, system restart and test procedures for placing repaired lines back in service.
- e. Descriptions of Emergency Procedures including: isolation procedures including required valve operations with valve locations indexed to gas map, and recommended emergency equipment.

The Equipment Operation Manual shall include, but not be limited to, detail drawings, equipment data, and manufacturer supplied operation manuals for all equipment, valves and system components.

The System Maintenance Manuals shall include, but not be limited to:

- a. Maintenance check list for entire gas distribution system.
- b. Descriptions of site specific standard maintenance procedures.
- c. Piping layout, equipment layout, and control diagrams of the systems as installed.
- d. Identification of pipe materials and manufacturer by location, pipe repair procedures, and jointing procedures at transitions to other piping materials or piping from different manufacturer.

The Equipment Maintenance Manuals shall include but not be limited to the following:

- a. Identification of valves and other equipment by materials, manufacturer, vendor identification and location.

- b. Maintenance procedures and recommended maintenance tool kits for all valves and equipment.
- c. Recommended repair methods, either field repair, factory repair, or whole-item replacement for each valve component or piece of equipment or component item.
- d. Routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guide.

1.4.11 Directional Drilling

Directional drilling Contractor qualifications, a detailed description of the directional drilling procedure, and a list of similar jobs in the general area.

1.5 GENERAL REQUIREMENTS

1.5.1 Jointing Polyethylene and Fiberglass Piping

Piping shall be joined by performance qualified joiners using qualified procedures in accordance with AGA XR0104. Manufacturer's prequalified joining procedures shall be used. Joints shall be inspected by an inspector qualified in the joining procedures being used and in accordance with AGA XR0104. Joiners and inspectors shall be qualified at the jobsite by a person who has been trained and certified by the manufacturer of the pipe, to train and qualify joiners and inspectors in each joining procedure to be used on the job. Training shall include use of equipment, explanation of the procedure, and successfully making joints which pass tests specified in AGA XR0104. The Contracting Officer shall be notified at least 24 hours in advance of the date to qualify joiners and inspectors.

1.5.2 Standard Products

Materials and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening. Asbestos or products containing asbestos shall not be used. Equipment shall be supported by a service organization that is, in the opinion of the Contracting Officer, reasonably convenient to the site. Valves, flanges, and fittings shall be marked in accordance with MSS SP-25.

1.5.3 Verification of Dimensions

The Contractor shall become familiar with all details of the work, verify all dimensions in the field, and shall advise the Contracting Officer of any discrepancy before performing the work.

1.5.4 Handling

Pipe and components shall be handled carefully to ensure a sound, undamaged condition. Particular care shall be taken not to damage pipe coating. No pipe or material of any kind shall be placed inside another pipe or fitting after the coating has been applied, except as specified in paragraph 3.6. Plastic pipe shall be handled in conformance with AGA XR0104.

1.5.5 Spare Parts

The Contractor shall submit spare parts data for each different item of equipment and material specified, after approval of the detail drawings and not later than one month prior to the date of beneficial occupancy. The data shall include a complete list of parts and supplies, with current unit prices and source of supply.

PART 2 PRODUCTS

2.1 PIPE, FITTINGS, AND ASSOCIATED MATERIALS

2.1.1 Polyethylene Pipe, Tubing, Fittings and Joints

Polyethylene pipe, tubing, fittings and joints shall conform to ASTM D 3350 and ASTM D 2513, pipe designations PE 2406 and PE 3408, rated SDR 11, yellow color, as specified in ASME B31.8. Pipe sections shall be marked as required by ASTM D 2513. Butt fittings shall conform to ASTM D 3261 and socket fittings shall conform to ASTM D 2683. Fittings shall match the service rating of the pipe. Minimum wall thickness shall be 0.2159 inches. Polyethylene pipe shall be nominal 2 inches.

2.1.2 Fiberglass Pipe, Fittings and Adhesive

Fiberglass pipe, fittings and adhesive shall conform to ASTM D 2517. Pipe sections shall be marked as required by ASTM D 2517. Minimum wall thickness shall be 0.060. Fiberglass pipe shall be nominal 2 inches.

2.1.3 Identification

Pipe flow markings and metal tags for each valve, meter, and regulator shall be provided as required by the Contracting Officer.

2.1.4 Insulating Joint Materials

Insulating joint materials shall be provided between flanged or threaded metallic pipe systems where shown to isolate galvanic or electrolytic action.

2.1.4.1 Dielectric Waterways and Flanges

Dielectric waterways shall have temperature and pressure rating equal to or greater than that specified for the connecting piping. Waterways shall have metal connections on both ends suited to match connecting piping. Dielectric waterways shall be internally lined with an insulator specifically designed to prevent current flow between dissimilar metals. Dielectric flanges shall meet the performance requirements described herein for dielectric waterways.

2.1.5 Gas Transition Fittings

Gas transition fittings shall be manufactured steel fittings approved for jointing steel and polyethylene or fiberglass pipe. Approved transition fittings are those that conform to AGA XR0104 requirements for transition fittings.

2.2 VALVES

Valves shall be suitable for shutoff or isolation service and shall conform to the following:

2.2.1 Polyethylene Valves

Polyethylene valves shall conform to ASME B16.40. Polyethylene valves, in sizes 1/2 inch to 6 inches, shall be used with polyethylene distribution and service lines for underground installation only.

2.3 PROTECTIVE COVERING MATERIALS

Continuously extruded polyethylene and adhesive coating system materials shall conform to NACE RP0185, Type A.

PART 3 EXECUTION

3.1 GENERAL

The new line shall be connected to the existing line at Hwy 317 near levee station 465+00. The line shall cross the levee at Sta. 465+00 from the flood side to the protected side of the new levee section. The line shall then parallel the new levee and tie-in to the existing gas line at the Gordy Pump Station.

Underground lines shall be buried a minimum of 24 inches and a maximum of 30 inches below finish grade and located a minimum of 12 inches from other pipelines and utility crossings. After the line is installed and prior to being placed in the service the new line shall maintain a pressure of 60 psi air to prevent crushing by heavy equipment. Lines that are damaged or crushed during construction shall be replaced at no cost to the Government. Underground lines passing below permanent or

temporary haul roads shall be incased in schedule 40 galvanized steel pipe. Underground new lines shall be marked with survey stakes and flagged every 50 feet along the entire length. Within 14 days of completion of installation the contractor shall provide the COR 5 copies of a detail plan showing the exact location of the new line including depth of burial and crossing pipelines and utilities.

In the course of work the Contractor shall take whatever action is required to maintain gas service to Gordy Pump Station. Final connection to the station and to the existing line near Hwy. 317 and any required outage shall be coordinated with and approved in advance by Gulf South Pipeline (Contact: Daryl Johnson (377) 224-0432), St. Mary Parish (Contact: Mr. Robie Robeson(377) 828-0675 or (377) 207-5408 cell) and the COR. If required by the Parish or the COR, the Contractor shall provide temporary auxiliary service to the station for outages that exceed four hours. In such cases the temporary service shall be in place before the outage. Temporary service connections will require the Contractor to submit for approval a detail plan with drawing showing how the temporary service will be provided.

3.2 EXCAVATION AND BACKFILLING

Earthwork shall be as specified in Section 02316 Excavation, Trenching, and Backfilling for Utilities Systems.

3.3 GAS LINES

Underground pipe for gas lines shall be polyethylene or fiberglass. Polyethylene or fiberglass mains shall not be installed above ground.

3.4 WORKMANSHIP AND DEFECTS

Pipe, tubing, and fittings shall be clear and free of cutting burrs and defects in structure or threading and shall be thoroughly brushed and blown free of chips and scale. Defective pipe, tubing, or fittings shall be replaced and shall not be repaired.

3.5 INSTALLATION

Gas distribution system and equipment shall be installed in conformance with the manufacturer's recommendations and applicable sections of ASME B31.8, AGA XR0104 and 49 CFR 192. Existing gas piping shall be removed and disposed of by the Contractor. Pipe shall be cut without damaging the pipe. Unless otherwise authorized, cutting shall be done by an approved type of mechanical cutter. Wheel cutters shall be used where practicable. Cutting of plastic pipe shall be in accordance with AGA XR0104. Valve installation in plastic pipe shall be designed to protect the plastic pipe against excessive torsional or shearing loads when the valve is operated and from other stresses that may be exerted through the valve or valve box.

3.5.1 Installing Pipe Underground

Gas lines shall be graded as indicated to provide a minimum of 24 inches and a maximum of 30 inches of ground cover based on finish grade. Gas lines shall be placed on firmly compacted select material for the full length. Where indicated, the main shall be encased, bridged, or designed to withstand any anticipated external loads as specified in ASME B31.8. The encasement material shall be standard weight black steel pipe with a protective coating as specified. The pipe shall be separated from the casing by insulating spacers and sealed at the ends with casing bushings. Trench shall be excavated below pipe grade, bedded with bank sand, and compacted to provide full-length bearing. Laying the pipe on blocks to produce uniform grade will not be permitted. The pipe shall be clean inside before it is lowered into the trench and shall be kept free of water, soil, and all other foreign matter that might damage or obstruct the operation of the valves, regulators, meters, or other equipment. When work is not in progress, open ends of pipe or fittings shall be securely closed by expandable plugs or other suitable means. Minor changes in line or gradient of pipe that can be accomplished through the natural flexibility of the pipe material without producing permanent deformation and without overstressing joints may be made when approved. Changes in line or gradient that exceed the limitations specified shall be made with fittings. When polyethylene or fiberglass piping is used, the piping shall have foil backed magnetic tape placed above the pipe to permit locating with a magnetic detector. After laying of pipe and testing, trench shall be backfilled in accordance with Section 02316 EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS. If the Contractor elects to use the Directional drilling method, Contractor shall have a minimum of five years experience in directional drilling and shall submit documentation stating his qualifications as well as a list of similar jobs in the vicinity. The directional drilling Contractor shall develop a detailed description of his direct drilling procedure in strict accordance with the requirements of the polyethylene pipe manufacturer for approval by the Contracting Officer. The Contractor shall notify the Contracting Officer 48 hours in advance of his directional drilling operations so that the Contracting Officer or his representative, may, at his option, witness the operation. The supply line shall be as short and as straight as practicable between the point of delivery and the tie in point and shall not be bent or curved laterally unless necessary to avoid obstructions or otherwise permitted. It shall be laid with as few joints as practicable.

3.5.2 Removal of Existing Gas Line

After the new gas line is installed, the existing line shall be disconnected and removed. All existing pipe, valves and materials removed shall become the property of the contractor and shall be disposed of by the contractor. Trenching as a result of gas line removal shall be promptly back filled with compacted fill. Work to remove the existing line shall start and progress uninterrupted except for holidays until completion. In the event of a flood threat the contractor, at the request of the COR, shall refill any open trench. Removal is limited to the bypassed gas line,

approximately 2400 linear feet from the new connection point of the new line to the tie-in to the existing line, as shown on the drawings.

3.6 PIPE JOINTS

Pipe joints shall be designed and installed to effectively sustain the longitudinal pullout forces caused by the contraction of piping or superimposed loads.

3.6.1 Polyethylene and Fiberglass Pipe Jointing Procedures

Jointing procedures shall conform to AGA XR0104. Indiscriminate heat fusion joining of plastic pipe or fittings made from different polyethylene resins by classification or by manufacturer shall be avoided if other alternative joining procedures are available. If heat fusion joining of dissimilar polyethylenes is required, special procedures are required. The method of heat fusion joining dissimilar polyethylene resins shall be tested in accordance with paragraph 3.11, subparagraph 3.11.1.

3.6.2 Connections Between Metallic and Plastic Piping

Connections shall be made only outside, underground, and with approved transition fittings.

3.7 VALVE BOXES

Valve boxes of cast iron not less than 3/16 inch thick shall be installed at each underground valve except where concrete or other type of housing is indicated. Valve boxes shall be provided with locking covers that require a special wrench for removal. Wrench shall be furnished for each box. The word "gas" shall be cast in the box cover. When the valve is located in a roadway, the valve box shall be protected by a suitable concrete slab at least 3 square feet. When in a sidewalk, the top of the box shall be in a concrete slab 2 feet square and set flush with the sidewalk. Boxes shall be adjustable extension type with screw or slide-type adjustments. Valve boxes shall be separately supported, not resting on the pipe, so that no traffic loads can be transmitted to the pipe. Valves shall only be located in valve boxes or inside of buildings.

3.8 CONNECTIONS TO EXISTING LINES

Connections between new work and existing gas lines, where required, shall be made in accordance with ASME B31.8, using proper fittings to suit the actual conditions. When connections are made by tapping into a gas main, the connecting fittings shall be the same size as the pipe being connected.

3.8.1 Connection to Government Owned/Operated Gas Lines

The Contractor shall provide connections to the existing gas lines in accordance with approved procedures.

3.9 TESTS

3.9.1 Destructive Tests of Plastic Pipe Joints

Each day, prior to making polyethylene heat fusion joints or fiberglass adhesive joints, a joint of each size and type to be installed that day shall be made by each person performing joining of plastic pipe that day and destructively tested. At least 3 longitudinal straps shall be cut from each joint. Each strap shall be visually examined, shall not contain voids or discontinuities on the cut surfaces of the joint area, and shall be deformed by bending, torque, or impact, and if failure occurs, it must not initiate in the joint area. If a joint fails the visual or deformation test, the qualified joiner who made that joint shall not make further field joints in plastic pipe on this job until that person has been retrained and requalified. The results of the destructive tests shall be recorded to include the date and time of the tests, size and type of the joints, ambient conditions, fusion iron temperature and names of inspectors and joiners.

3.9.2 Pressure and Leak Tests

The system of gas mains and service lines shall be tested after construction and before being placed in service using air as the test medium. The normal operating pressure for the system is 60 psi. The test pressure is 90 psi. Prior to testing the system, the interior shall be blown out, cleaned and cleared of all foreign materials. All meters, regulators, and controls shall be removed before blowing out and cleaning and reinstalled after clearing of all foreign materials. Testing of gas mains and service lines shall be done with due regard for the safety of employees and the public during the test. Persons not working on the test operations shall be kept out of the testing area while testing is proceeding. The test shall be made on the system as a whole or on sections that can be isolated. Joints in sections shall be tested prior to backfilling when trenches must be backfilled before the completion of other pipeline sections. The test shall continue for at least 24 hours from the time of the initial readings to the final readings of pressure and temperature. The initial test readings of the instrument shall not be made for at least 1 hour after the pipe has been subjected to the full test pressure, and neither the initial nor final readings shall be made at times of rapid changes in atmospheric conditions. The temperatures shall be representative of the actual trench conditions. There shall be no indication of reduction of pressure during the test after corrections have been made for changes in atmospheric conditions in conformity with the relationship $T(1)P(2)=T(2)P(1)$, in which T and P denote absolute temperature and pressure, respectively, and the numbers denote initial and final readings. During the test, the entire system shall be completely isolated from all compressors and other sources of air pressure. Each joint shall be tested by means of soap and water or an equivalent nonflammable

solution prior to backfilling or concealing any work. The testing instruments shall be approved by the Contracting Officer. All labor, materials and equipment for conducting the tests shall be furnished by the Contractor and shall be subject to inspection at all times during the tests. The Contractor shall maintain safety precautions for air pressure testing at all times during the tests.