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| **Inspection Report** | | | | | | **Post Inspection Memorandum** | | | | | | | |
| **Inspector/Submit Date:** | | | 00/00/20## | | | **NC Required?**  **Inspection Tracking # :**  **NC Tracking # :** | |  | | | | | |
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|  | | | | | | | | | | | | | |
| **Name of Operator:** | |  | | | | | | | | |  | |  |
| **Name of Unit(s):** | |  | | | | | | | | |  | |  |
| **Records Location:** | |  | | | | | | | | | | | |
| **Unit Type & Commodity:** | | | | Natural Gas | | | | | | | | | |
| **Inspection Type:** |  | | | | | | **Inspection Date(s):** | | | 00/00/20## | | | |
| **PUC Representative(s):** | | |  | | | | **Field Days:** | | | | |  | |
| **Persons Interviewed** | | | | | **Title and Company** | | | | **Phone No.** | | | | |
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| **Summary of inspection:** |
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| **Findings** *include any**violations found, clarify all U, N/A and N/C checked***:** |
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| **Construction plans reviewed?** : |  |
| **PA One Call Information (**192.614 a & d, 192.13c) |  |
| **One Call #s:** |  |
| **Description of Construction** *include length of project (ft), number of valves, planned bores & casing locations; purpose of line, tie-in points & type, and complete pipe specs on next page* | |
|  | |

| **DESIGN REQUIREMENTS** | | | | | | | **S** | **U** | | **N/A** | | **N/C** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **.51** | **PROJECT INFORMATION** (additional info add to comments) | | | | | |  | | | | | | |
|  |  |  |  | | *Mains Servicelines* | |
|  |  |  |  | Manufacturer: |  |  |  | | | | | | |
|  |  |  |  | Manufacturing Standard: |  |  |  | | | | | | |
|  |  |  |  | Lot or Serial Numbers(main & serviceline): |  |  |  | | | | | | |
|  |  |  |  | Nominal Size: |  |  |  | | | | | | |
|  |  |  |  | SDR: |  |  |  | | | | | | |
|  |  |  |  | Density & manufacturer “born on” dates: | main 00/00/20## service 00/00/20## |  |  | | | | | | |
|  |  |  |  | Number of “pushes” or inserts (review all tests) |  |  |  | | | | | | |
|  |  |  |  | Proposed test pressure: |  |  |  | | | | | | |
|  |  |  |  | Proposed MAOP: |  |  |  | | | | | | |
|  |  |  |  | Joint design: |  |  |  | | | | | | |
|  |  |  |  | Coil or string type (indicate length string) |  |  |  | | | | | | |
|  |  |  |  | Type of excavation (direct, insert, etc) |  |  |  | | | | | | |
|  |  |  |  | Total footage or miles: |  |  |  | | | | | | |
| Approximate number of services: |  |  | | | | | | |
| Type of screenings and thickness: |  |  | | | | | | |
| Tracer wire size: |  |  | | | | | | |
| Location of tracer wire relative to pipe: |  |  | | | | | | |
| Fusion temperature if applicable: |  |  | | | | | | |
| Method of temperature measurement: |  |  | | | | | | |
| Fusion equipment model(s): |  |  | | | | | | |
| Drag considered? (butt fusion only) |  |  | | | | | | |
| Fusion pressure (butt fusion only) |  |  | | | | | | |
| Are manufacturer’s joining procedures used? |  |  | | | | | | |
| Company Inspector (s) |  |  | | | | | | |
| Name of person(s) making the fusion, company or contractor name, and qual dates? |  |  | | | | | | |
|  |  |  |  | 59(b)(5) Is the pipe free of visible defects? | | |  | |  | |  | |  |
|  |  |  |  | .63(a) Were pipes, valves, fittings and components marked in accordance with the ASTM D-2513-87? | | |  | |  | |  | |  |

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| **.101** | **requirements for the design of pipe** | **S** | **U** | **N/A** | **N/C** |
| .123 (a) Is the design pressure limited to 100psig in distribution systems or 125 psig if conditions from sections (e) or (f) are met? |  |  |  |  |
| (c) Is the wall thickness for thermal plastic pipe at least 1,57 mm (0.062 inches)? |  |  |  |  |
| (d) Is the minimum wall thickness for reinforced thermal setting plastic pipe in accordance to the  following table?   |  |  | | --- | --- | | Nominal size: " | Minimum wall: | | mm / inches | | 2 - 3 | 1.52(.060) | | 4 | 1.78(.070) | | 6 | 2.45(.100) | |  |  |  |  |
| **Comments:** | | | | | |
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| **.141** | **DESIGN AND INSTALLATION OF PIPELINE COMPONENTS AND FACILITIES** | **S** | **U** | **N/A** | **N/C** |
| .145 (b) Does each valve have a max service pressure rating for temperatures that equal or exceed the max service temperature? |  |  |  |  |
| .159 Is the pipeline designed with enough flexibility to prevent thermal expansion or contraction from causing excessive stresses in the pipe or components? |  |  |  |  |
| .181 (a) Are valves being installed and spaced according to operating pressure, size of mains and operating conditions? |  |  |  |  |
| .191 (a) Thermosetting fittings for plastic pipe must conform to ASTM D 2517-00. |  |  |  |  |
| (b) Thermoplastic fittings for plastic pipe must conform to ASTM D 2513-99. |  |  |  |  |
| .193 Is each valve installed against excessive torsional or shearing loads exerted during operation of the valve? |  |  |  |  |

| **.271** | **JOINING of PIPELINE MATERIALS** | **S** | **U** | **N/A** | **N/C** |
| --- | --- | --- | --- | --- | --- |
| .272 (a) Is the pipeline designed to sustain longitudinal pullout or thrust forces caused by expansion or contraction of the piping or by anticipated external loading? |  |  |  |  |
| .273 (b) Is each joint being made in accordance with written procedures? |  |  |  |  |
| (c) Is each joint being inspected to insure compliance with Subpart F? |  |  |  |  |
| .281 (a) A plastic pipe joint that is joined by solvent cement, adhesive, or heat fusion may not be disturbed until it has properly set. Plastic pipe may not be joined by a threaded joint or miter joint. |  |  |  |  |
| (b) Each solvent cement joint on plastic pipe must comply with the following: |  | | | |
| (1) The mating surfaces of the joint must be clean, dry, and free of material which might be detrimental to the joint. |  |  |  |  |
| (2) The solvent cement must conform to ASTM Designation: D 2513-99. |  |  |  |  |
| (3) The joint may not be heated to accelerate the setting of the cement. |  |  |  |  |
| (c) Each heat-fusion joint on plastic pipe must comply with the following: |  | | | |
| (1) A butt heat-fusion joint must be joined by a device that holds the heater element square to the ends of the piping, compresses the heated ends together, and holds the pipe in proper alignment while the plastic hardens. |  |  |  |  |
| (2) A socket heat-fusion joint must be joined by a device that heats the mating surfaces of the joint uniformly and simultaneously to essentially the same temperature. |  |  |  |  |
| (3) An electrofusion joint must be joined utilizing the equipment and techniques of the fittings manufacturer or equipment and techniques shown, by testing joints to the requirements of §192.283(a)(1)(iii), to be at least equivalent to those of the fittings manufacturer. |  |  |  |  |
| (4) Heat may not be applied with a torch or other open flame. |  |  |  |  |
| (d) Each adhesive joint on plastic pipe must comply with the following: |  | | | |
| (1) The adhesive must conform to ASTM Designation: D 2517. |  |  |  |  |
| (2) The materials and adhesive must be compatible with each other. |  |  |  |  |
| (e) Each compression type mechanical joint on plastic pipe must comply with the following: |  | | | |
| (1) The gasket material in the coupling must be compatible with the plastic. |  |  |  |  |
| (2) A rigid internal tubular stiffener, other than a split tubular stiffener, must be used in conjunction with the coupling. |  |  |  |  |
| .283 (a) Before any written procedure established under §192.273(b) is used for making plastic pipe joints by a heat fusion, solvent cement, or adhesive method, the procedure must be qualified by subjecting specimen joints made according to the procedure to the following tests: |  | | | |
| (1) The burst test requirements of– |  | | | |
| (i) Thermoplastic pipe: paragraph 6.6 (sustained pressure test) or paragraph 6.7 (Minimum Hydrostatic Burst Test) or paragraph 8.9 (Sustained Static pressure Test) of ASTM D2513 |  |  |  |  |
| (ii) Thermosetting plastic pipe: paragraph 8.5 (Minimum Hydrostatic Burst Pressure) or paragraph 8.9 (Sustained Static Pressure Test) of ASTM D2517; or |  |  |  |  |
| (iii) Electrofusion fittings for polyethylene pipe and tubing: paragraph 9.1 (Minimum Hydraulic Burst Pressure Test), paragraph 9.2 (Sustained Pressure Test), paragraph 9.3 (Tensile Strength Test), or paragraph 9.4 (Joint Integrity Tests) of ASTM Designation F1055. |  |  |  |  |
| (2) For procedures intended for lateral pipe connections, subject a specimen joint made from pipe sections joined at right angles according to the procedure to a force on the lateral pipe until failure occurs in the specimen. If failure initiates outside the joint area, the procedure qualifies for use; and, |  |  |  |  |
| (3) For procedures intended for non-lateral pipe connections, follow the tensile test requirements of ASTM D638, except that the test may be conducted at ambient temperature and humidity If the specimen elongates no less than 25 percent or failure initiates outside the joint area, the procedure qualifies for use. |  |  |  |  |
| (b) Before any written procedure established under §192.273(b) is used for making mechanical plastic pipe joints that are designed to withstand tensile forces, the procedure must be qualified by subjecting five specimen joints made according to the procedure to the following tensile test: |  | | | |
| (1) Use an apparatus for the test as specified in ASTM D 638 (except for conditioning). |  |  |  |  |
| (2) The specimen must be of such length that the distance between the grips of the apparatus and the end of the stiffener does not affect the joint strength. |  |  |  |  |
| (3) The speed of testing is 0.20 in. (5.0 mm) per minute, plus or minus 25 percent. |  |  |  |  |
| (4) Pipe specimens less than 4 inches (102 mm) in diameter are qualified if the pipe yields to an elongation of no less than 25 percent or failure initiates outside the joint area. |  |  |  |  |
| (5) Pipe specimens 4 inches (102 mm) and larger in diameter shall be pulled until the pipe is subjected to a tensile stress equal to or greater than the maximum thermal stress that would be produced by a temperature change of 100° F (38° C) or until the pipe is pulled from the fitting. If the pipe pulls from the fitting, the lowest value of the five test results or the manufacturer's rating, whichever is lower must be used in the design calculations for stress. |  |  |  |  |
| (6) Each specimen that fails at the grips must be retested using new pipe. |  |  |  |  |
| (7) Results pertain only to the specific outside diameter, and material of the pipe tested, except that testing of a heavier wall pipe may be used to qualify pipe of the same material but with a lesser wall thickness. |  |  |  |  |
| (c) A copy of each written procedure being used for joining plastic pipe must be available to the persons making and inspecting joints. |  |  |  |  |
| (d) Pipe or fittings manufactured before July 1, 1980, may be used in accordance with procedures that the manufacturer certifies will produce a joint as strong as the pipe. |  |  |  |  |
| .285 (a) No person may make a plastic pipe joint unless that person has been qualified under the applicable joining procedure by: |  | | | |
| (1) Appropriate training or experience in the use of the procedure; and |  |  |  |  |
| (2) Making a specimen joint from pipe sections joined according to the procedure that passes  the inspection and test set forth in paragraph (b) of this section. |  |  |  |  |
| (b) The specimen joint must be: |  | | | |
| (1) Visually examined during and after assembly or joining and found to have the same  appearance as a joint or photographs of a joint that is acceptable under the procedure; and |  |  |  |  |
| (2) In the case of a heat fusion, solvent cement, or adhesive joint; |  |  |  |  |
| (i) Tested under any one of the test methods listed under §192.283(a) applicable to the type of  joint and material being tested; |  |  |  |  |
| (ii) Examined by ultrasonic inspection and found not to contain flaws that may cause failure; or |  |  |  |  |
| (iii) Cut into at least three longitudinal straps, each of which is: |  | | | |
| (A) Visually examined and found not to contain voids or discontinuities on the cut surfaces of the joint area; and |  |  |  |  |
| (B) Deformed by bending, torque, or impact, and if failure occurs, it must not initiate in the joint area. |  |  |  |  |
| (c) A person must be requalified under an applicable procedure, if during any 12-month period that person: |  | | | |
| (1) Does not make any joints under that procedure; or |  |  |  |  |
| (2) Has 3 joints or 3 percent of the joints made, whichever is greater, under that procedure that are found unacceptable by testing under §192.513. |  |  |  |  |
| (d) Each operator shall establish a method to determine that each person making joints in plastic pipelines in the operator’s system is qualified in accordance with this section. |  |  |  |  |
| .287 No person may carry out the inspection of joints in plastic pipes required by §§192.273(c) and 192.285(b) unless that person has been qualified by appropriate training or experience in evaluating the acceptability of plastic pipe joints made under the applicable joining procedure. |  |  |  |  |
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| **Comments:** |
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| **.301** | **CONSTRUCTION REQUIREMENTS** | | | **S** | **U** | **N/A** | **N/C** |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | .303 | Are comprehensive written construction specifications available and adhered to? |  |  |  |  |
|  |  | .305 | Are inspections performed to check adherence to the construction specifications? |  |  |  |  |
|  |  | .307 | Is material being visually inspected at the site of installation to insure against damage that could impair its serviceability? |  |  |  |  |
|  |  | .311 | Has each imperfection or damage that would impair serviceability been repaired or removed? |  |  |  |  |
|  |  | .317(a) | Is the pipeline being protected from washouts, floods, unstable soil, or other hazards that could cause the pipeline to move or sustain abnormal loads? |  |  |  |  |
|  |  | .317 (b) | Are aboveground facilities protected from anticipated causes of damage? |  |  |  |  |
|  |  | .319(a) | When pipe is placed in the ditch, is it installed so as to fit the ditch, minimize stresses, and protect the pipe coating from damage? |  |  |  |  |
|  |  | .319(b) | Does backfill provide firm support under the pipe and is the ditch backfilled in a manner that prevents damage to the pipe and coating from equipment or the backfill material? |  |  |  |  |
|  |  | .321(a) | Is the plastic being installed below ground? |  |  |  |  |
|  |  | .321(b) | If installed in a vault or any below grade structure, is the plastic encased in gas tight metal pipe with the metal pipe and fittings protected against corrosion? |  |  |  |  |
|  |  | .321(c) | Is plastic pipe being installed to minimize shear and tinsel forces? |  |  |  |  |
|  |  | .321(e) | Does the plastic pipe have a means of being located with either tracer wire or some other means? |  |  |  |  |
|  |  | .321(f) | If inserted or encased is it done in a manner that protects the pipe from damage and is the lead end capped or sealed? |  |  |  |  |
|  |  | .323 | Is casing installed under highways or railroads designed properly? |  |  |  |  |
|  |  | .325(b) | Are mains installed with enough clearance to underground structures to allow proper maintenance and protection from such structures? |  |  |  |  |
|  |  | .325(c) | Is the plastic pipe protected from heat damage from outside forces? |  |  |  |  |
|  | .327 (b-d) Is the pipeline installed with a minimal depth of 24 inches unless additional protection is  provided from anticipated outside damage? | | |  |  |  |  |
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| **Comments:** |
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| **.351** |  | **CUSTOMER METERS, SERVICE REGULATORS, AND SERVICE LINES** | | **S** | **U** | **N/A** | **N/C** |
|  |  | .361(a) | Are service lines provided with a minimum of 12 inches of cover on privately owned property and 18 inches on public roads? |  |  |  |  |
|  |  | .361(b) | Are service lines properly supported and backfilled with suitable material which will not cause damage to the pipe? |  |  |  |  |
|  |  | .361(c) | Are service lines graded to the main or are drips installed to prevent loss of service to the customer in the case of condensation in wet gas? |  |  |  |  |
|  |  | .361(d) | Are service lines protected against piping strain and external loading? |  |  |  |  |
|  |  | .363(b) | Are service line valves which may be subject to anticipated heat made of material which could withstand the heat ( i.e. no soft seat valves) |  |  |  |  |
|  |  | .365(a) | Does each service line have a valve installed upstream of the regulator or where there is no regulator, upstream of the meter? |  |  |  |  |
|  |  | .365(b) | Does each service line have a valve in a readily accessible location and if feasible , outside of the building? |  |  |  |  |
|  |  | .365(c) | Is each underground valve located inside a durable curb box or standpipe that allows for ready operation of the valve and is each curb box supported independently from the service line? |  |  |  |  |
|  |  | .367(a) | Unless impractical, are service line taps located at the top of the main? |  |  |  |  |
|  |  | .375(a)  (1)&(2) | Are service lines installed below ground with the portion of the service which extends aboveground protected from damage and is the riser not used to support external loads  (i.e. meter)? |  |  |  |  |
|  |  | .379 | Are new service lines not in use, properly secured with a locking device or in a manner which would prevent unauthorized tampering (i.e. physical disconnected with ends sealed)? |  |  |  |  |

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| **.501** |  | **TEST REQUIREMENTS** | | **S** | **U** | **N/A** | **N/C** |
|  |  | .513(b) | Is the pipeline tested in a manner which would allow for the discovery of hazardous leaks?  For inserted pipe is each increment tested and documented? |  |  |  |  |
|  |  | .513(c) | Is the pipeline to be tested at least to 150% of the MAOP or 50 psig whichever is greater? (no more than 3 times the design pressure) |  |  |  |  |
|  |  | .513(d) | When the pipeline is tested, is the temperature of the plastic less than 100 degrees Fahrenheit? |  |  |  |  |

| **.801 - .809** | **OPERATOR QUALIFICATION FIELD VERIFICATION** | **S** | **U** | **N/A** | **N/C** |
| --- | --- | --- | --- | --- | --- |
|  | Operator Qualification - Use PHMSA Form 15 Operator Qualification Field Inspection Protocol Form if applicable to the project *(tapping crew, purging, starting up operation must be qualified).* |  |  |  |  |
| **.620** | If performance of a construction task associated with implementing the alternative MAOP standard in 192.620 can affect the integrity of the pipeline, the operator treats those tasks as “covered tasks” and implements the requirements of subpart N as appropriate. |  |  |  |  |

| **Comments:** |
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Click icons to add photosand perform OQ Protocol 9 when fusion or other tasks are witnessed.