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| **Inspection Report** | | **Post Inspection Memorandum** | | | | | |
| **Inspector/Submit Date:** |  | **NC Required?** | | |  | | |
| **Inspection Tracking # :** | | |  | | |
|  | **NC Tracking # :** | | |  | | |
|  | | | | | | | |
| **Name of Operator:** | | | | | | **OPID #:** | |
| **Name of Unit(s):** | | | | | |  | |
| **Records Location:** | | | | | |  | |
| **Unit Type & Commodity:** Natural Gas | | | | | | | |
| **Inspection Type:** | | | **Inspection Date(s):** | | | | |
| **PUC Representative(s):** | | | | **Field Days:** | | |  |

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| **Persons Interviewed** | **Titles** | **Phone No.** |
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| **Summary:** |
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| **Findings:** |
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| **Company Construction Maps** (copies for Region Files): |
| **Description of Construction** (1) |
|  |

| **PIPE SPECIFICATIONS** | | | | | |
| --- | --- | --- | --- | --- | --- |
| .51 | .55 | Steel Pipe | | |
|  |  | **▪** | Manufacturer: |  |
|  |  | **▪** | Manufacturing Standard: |  |
|  |  | **▪** | Pipe Grade: |  |
|  |  | **▪** | Outside Diameter (D): |  |
|  |  | **▪** | Wall Thickness (t): |  |
|  |  | **▪** | Type of Longitudinal Seam: |  |
|  |  | **▪** | Specified Min. Yield Strength: |  |
|  |  | **▪** | Joint Design - Bevel: |  |
|  |  | **▪** | External Coating: |  |
|  |  | **▪** | Internal Coating: |  |
|  |  | **▪** | Minimum Joint Length: |  |
|  |  | **▪** | Footage or Miles: |  |

| **DESIGN REQUIREMENTS** | | | | **S** | | **U** | **N/A** | **N/C** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **.51** | **MATERIAL SPECIFICATIONS** | | | |  | | | |
|  |  | .55 | Does the steel pipe meet one of the **API** or **ASTM** listed specifications? |  | |  |  |  |
|  |  | .63(a) | Are pipe, valves, and fittings properly marked for identification? |  | |  |  |  |
|  |  | .63(c) | Were pipe, valves, and fittings marked with other than field die stamping? |  | |  |  |  |
| **.101** | **PIPE DESIGN** | | |  | | | | |
|  |  | .105(a) | Was the pipeline designed in accordance with this formula: **P = (2St/D) x F x E x T** |  | |  |  |  |
|  |  | .112 | If the pipeline is designed to the alternative MAOP standard in 192.620 (80% SMYS) Refer to Attachment 1 for additional design requirements. |  | | | | |
|  |  | .113 | Is the **longitudinal joint factor (E)** for steel pipe equal to **1**? (See table) |  | |  |  |  |
|  |  | .115 | Is the **temperature derating factor (T)** for steel pipe equal to **1**? (See table) |  | |  |  |  |
| **.141** | **DESIGN of PIPELINE COMPONENTS** | | |  | | | | |
|  |  | .143(b) | The design and installation of pipeline components and facilities must meet applicable requirements for corrosion control found in subpart I of this part. |  | |  |  |  |
|  |  | .145 | Does each valve meet minimum requirements of **API 6D** or a national or international standard that provides an equivalent performance level? |  | |  |  |  |
|  |  | .147 | Does each flange or flange accessory meet the minimum requirements of **ASME/ANSI 16.5, MSS SP44, or ASME/ANSI B16.25**, or equivalent? |  | |  |  |  |
|  |  | .149 | Are steel butt welded fittings rated at or above the pressure and temperature as the pipe? |  | |  |  |  |
|  | .159 | Is the pipeline designed with enough flexibility to prevent thermal expansion or contraction from causing excessive stresses in the pipe or component? |  | |  |  |  |
|  | .161(d) | For a pipeline to operate at 50% of SMYS, are structural supports not welded directly to the pipe, but to a member that completely encircles the pipe? |  | |  |  |  |
|  | .161(e) | Is each underground pipeline that is connected to a relatively unyielding line or fixed object provided with enough flexibility to allow for possible movement, or is it anchored? |  | |  |  |  |
|  | .179 | Are transmission line valves spaced properly  Each point in a Class 1 location within 10 miles of a valve  Each point in a Class 2 location within 7 ½ miles of a valve  Each point in a Class 3 location within 4 miles of a valve  Each point in a Class 4 location with 2 ½ miles of a valve |  | |  |  |  |
|  | .199 | Are pressure relief and pressure limiting devices designed and installed correctly? |  | |  |  |  |
|  | .201 | Do pressure relief and pressure limiting devices have adequate capacity? |  | |  |  |  |
| **.163** | **DESIGN of COMPRESSOR STATION** | | |  | | | | |
|  |  | .163(a) | Is each compressor building located on property under the control of the operator? |  | |  |  |  |
|  |  |  | Is the distance to adjacent property far enough to prevent the spread of fire? |  | |  |  |  |
|  |  |  | Is there enough space around compressor buildings to allow free movement of firefighting equipment? |  | |  |  |  |
|  | .168(b) | Are buildings constructed with non-combustible material? |  | |  |  |  |
|  |  | .163(c) | Are there two separate and unobstructed exits on each operating floor of each compressor building? |  | |  |  |  |
|  |  |  | Do doors swing outward? |  | |  |  |  |
|  |  | .163(d) | Does each fence around a compressor station have at least two gates? |  | |  |  |  |
|  |  |  | Does each gate located within 200 feet of a building open outwardly and when occupied must be operated from the inside without a key? |  | |  |  |  |
|  |  | .163(e) | Is electrical equipment and wiring installed per ANSI/NFPA 70? |  | |  |  |  |
|  |  | .165(a) | Are compressors protected from liquids? |  | |  |  |  |
|  |  | .165(b) | Do liquid separators have a manual drain and if slugs of liquid could be carried into the compressor, automatic liquid removal, compressor shutdown, or high liquid level alarm? |  | |  |  |  |
|  |  |  | Are liquid separators manufactured in accordance with Section VIII of the ASME Boiler and Pressure Vessel Code or a design factor less than or equal to 0.4 if constructed of pipe and fittings with no internal welding? |  | |  |  |  |
|  |  | .167(a) | Does the compressor station have an emergency shutdown system? |  | |  |  |  |
|  |  |  | Is the ESD able to isolate station and blowdown station piping? |  | |  |  |  |
|  |  |  | Is discharge of gas from the blowdown piping at a location where the gas will not create a hazard? |  | |  |  |  |
|  |  |  | Will ESD shutdown compressor, gas fired equipment and electrical facilities (except emergency lighting and circuits needed to protect equipment)? |  | |  |  |  |
|  |  |  | Are there at least two ESD stations outside gas area near exits gates or emergency exists? |  | |  |  |  |
|  |  | .169(a) | Does compressor station have overpressure protection devices of sufficient capacity to prevent pressure greater than 110% MAOP? |  | |  |  |  |
|  |  | .169(b) | Do relief valves vent in safe location? |  | |  |  |  |
|  |  | .171(c) | Are there slots or holes in baffles of gas engine mufflers? |  | |  |  |  |
|  |  | .173 | Are buildings ventilated to prevent the accumulation of gas? |  | |  |  |  |
|  |  | .735(b) | Are aboveground oil or gasoline storage tanks protected per NFPA No. 30? (Dikes) |  | |  |  |  |
|  |  | .736(a) | Does the compressor building have a fixed gas detection and alarm system? |  | |  |  |  |

| **Comments:** |
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| **.13(c)** | **WELDING AND WELD DEFECT REPAIR/REMOVAL REQUIREMENTS** | **S** | **U** | **N/A** | **N/C** |
| --- | --- | --- | --- | --- | --- |
|  | .225 (a) Are welding procedures qualified under **Section 5 of API 1104** or **Section IX of** **ASME Boiler and Pressure Code** by destructive test. |  |  |  |  |
|  | (b) Are welding procedures recorded in detail, including results of the qualifying tests? |  |  |  |  |
|  | Note: Alternate welding procedures criteria are addressed in API 1104 Appendix A, section A.3. |  |  |  |  |
|  | .227 (a) Are welders qualified according to **Section 6, API Std. 1104** or **Section IX, ASME Boiler and Pressure Vessel Code**? (Welders qualified under an earlier edition may weld but may not requalify under earlier edition) |  |  |  |  |
|  | (b) Welders may be qualified under **section I of Appendix C** to weld on lines that operate at  **< 20% SMYS.** |  |  |  |  |
| .229 (a) Are all welders on compressor station piping and components qualified by means other than nondestructive testing? |  |  |  |  |
| (b) Has the welder welded with this same process and has a weld been tested and found  acceptable according to **Section 6 or 9, API Std. 1104** at least twice each calendar year not to exceed 7 ½ months? (Welders qualified under an earlier edition may weld but may not  requalify under earlier edition).  (c) For “low stress” welder requalification requirements, references 192.229(d). |  |  |  |  |
| .231 Is the welding operation protected from the weather conditions that could impair the quality of  the completed weld? |  |  |  |  |
| .233 Miter joints (**consider pipe alignment**) |  |  |  |  |
| .235 Are welding surfaces clean, free of foreign material, and aligned in accordance with the  qualified welding procedure? |  |  |  |  |
|  | **Repair and Removal of Weld Defects** |  | | | |
| .245 (a) Are cracks longer than 8% of the weld length removed? |  |  |  |  |
| For each weld that is repaired, is the defect removed down to clean metal and is the pipe  preheated if conditions demand it? |  |  |  |  |
| (b) Are the repairs inspected to insure acceptability? |  |  |  |  |
| If additional repairs are required, are they done in accordance with qualified written  welding procedures to assure minimum mechanical properties are met? |  |  |  |  |
|  | (c) Repair of a crack or any other defect in a previously repaired area must be in accordance  with a written weld repair procedure, qualified under **§192.225** |  |  |  |  |

| **Comments:** |
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| **.13(c)** | **WELD INSPECTIONS and NONDESTRUCTIVE TESTING REQUIREMENTS** | | **S** | **U** | **N/A** | **N/C** |
| --- | --- | --- | --- | --- | --- | --- |
| .241 Are inspectors performing visual inspection to check for adherence to the welding procedure  and the acceptability of welds as per Section 9, API Std. 1104, except for Subsection 9.7 for  depth of undercutting adjacent to the root bead?  Note: If the alternative acceptance criteria in API 1104 Appendix A are used, has the operator performed an Engineering Critical Assessment (ECA)? | |  |  |  |  |
| .243 (a) Is a detailed written **NDT** procedure established and qualified? | |  |  |  |  |
| (b) Are there records to qualify procedures? | |  |  |  |  |
| (c) Is the radiographer trained and qualified? (Level II or better) | |  |  |  |  |
| (d) Are the following percentages of each days field butt welds nondestructively tested: | |  | | | |
| (1) **10%** in **Class 1** locations. | |  |  |  |  |
| (2) **15%** in **Class 2** locations | |  |  |  |  |
| (3) **100%** in **Class 3** and **4** locations, river crossings, within railroad or public highway  ROWs, tunnels, bridges, overhead road crossings: however, if impracticable may test not  less than **90%**. | |  |  |  |  |
| (4) **100% at pipeline tie-ins.** | |  |  |  |  |
| (e) Is a sample of each welder’s work for each day nondestructively tested? (see code for  exceptions) | |  |  |  |  |
| (f) Do the radiograph records and daily reports show: | |  |  |  |  |
|  | ▪ Number of welds made. |  |  |  |  |
|  | ▪ Number of welds tested. |  |  |  |  |
|  | ▪ Number of welds rejected. |  |  |  |  |
|  | ▪ Disposition of rejected welds. |  |  |  |  |
|  | ▪ Is there a correlation of welds and radiographs to a bench mark? (Engineering station  or survey marker) |  |  |  |  |

| **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? | |  |  |  |  |
|  |  | .309(a) | Are any defects or damage that impairs the serviceability of a length of steel pipe such as a gouge, dent, groove, or arc burn repaired or removed? | |  |  |  |  |
|  |  | .309(c) | If repairs are made by grinding, is the remaining wall thickness in conformance with the tolerances in the pipe manufacturing specifications or the nominal wall thickness required for the design pressure of the pipe? | |  |  |  |  |
|  |  | .313(b) | If a circumferential weld is permanently deformed during bending, is the weld nondestructively tested? | |  |  |  |  |
|  |  | .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? | |  |  |  |  |
|  |  | .461(c) | External protective coating is inspected (by jeeping, etc.) prior to lowering the pipe into the ditch. Coating damage repaired, as required. | |  |  |  |  |
|  |  | .325(a) | Is there **12 inches** clearance between the pipeline and any other underground structure? If **12 inches** cannot be attained, are adequate provisions made to protect the pipeline from damage that could result from the proximity of the other structure? | |  |  |  |  |
|  |  | .327(a) | ▪ | Is pipe in a **Class 1** location installed with **30 inches** of cover in **normal soil**, or **24 inches** of cover in **consolidated rock**? |  |  |  |  |
|  |  |  | ▪ | Is pipe in **Class 2, 3,** and **4** locations, drainage ditches of public roads and railroad crossings, installed with **36 inches** of cover in **normal soil** or **24 inches** of cover in consolidated rock? |  |  |  |  |
|  |  |  | ▪ | Does pipe installed in a river or harbor have **48 inches** of cover in **soil** or **24 inches** of cover in **consolidated rock**? |  |  |  |  |
|  |  |  | ▪ | If the above cover cannot be attained, is additional protection provided to withstand anticipated external loads? |  |  |  |  |
|  |  | .328 | If the pipeline will be operated at the alternative MAOP standard calculated under 192.620 (80% SMYS) Refer to Attachment 1 for additional construction requirements | |  | | | |

| **.451** | **CORROSION REQUIREMENTS** | | | | **S** | **U** | **N/A** | **N/C** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | .455(a) | (1) | Does the pipeline have an effective external coating and does it meet the coating specifications? |  |  |  |  |
|  |  | (2) | Is a cathodic protection system installed or being provided for? |  |  |  |  |
|  | .471(a) | Are test leads mechanically secure and electrically conductive? | |  |  |  |  |
|  | .471(b) | Are test leads attached to the pipe by cadwelding or other process so as to minimize stress concentration on the pipe? | |  |  |  |  |
|  | .471(c) | Are bare test leads and the connections to the pipe coated? | |  |  |  |  |
|  | .476 | Systems designed to reduce internal corrosion  (a) New construction | |  |  |  |  |
|  |  | (b) Exceptions – offshore pipeline and systems replaced before 5/23/07 | |  |  |  |  |
|  |  | (c) Evaluate changes to existing systems | |  |  |  |  |

| **Comments:** |
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| **.501** | **TESTING REQUIREMENTS** | | | | | **S** | **U** | **N/A** | **N/C** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | .503(a) | (1) | | Is a hydrostatic pressure test planned to substantiate the MAOP? |  |  |  |  |
|  |  |  | (2) | | If the pipeline has been hydrostatically tested, have all potentially hazardous leaks been located and eliminated? |  |  |  |  |
|  |  | .505(a) | ▪ | Is there a specified hydrostatic pressure testing procedure? | |  |  |  |  |
|  |  |  | ▪ | Is the **specified test pressure equal to: 1.1 x MAOP for Class 1 locations, 1.25 x MAOP for Class 2 locations, and 1.5 x MAOP for Class 3 and 4 locations**? Refer to Attachment 1 for additional testing requirements for Alternate MAOP. | |  |  |  |  |
|  |  | **NOTE:** | Verify ASME Vessels (ASME Code standard is a 1.3 test factor) are designed for 1.5 test factor, or isolate them when testing to 1.5 x MAOP. | | |  | | | |
|  |  | .505(c) | For pipelines which operate at **30% of more of SMYS**, is the minimum test duration for the pipeline at least **8 hours**? (Strength Test) | | |  |  |  |  |
|  |  | .505(e) | Is the minimum test duration for pretested fabricated units and **short sections of pipe** at least **4 hours**? | | |  |  |  |  |
|  |  | .515(a) | Does the operator take every reasonable precaution to protect the general public and all personnel during the test? | | |  |  |  |  |
|  |  | .515(b) | Does the operator insure that the test medium is disposed of in a manner that will minimize damage to the environment? | | |  |  |  |  |
|  |  | .517 (a) | Do the test records include the following: | | |  | | | |
|  |  |  | (1) | | Operator's name, name of operator's employee responsible for making the test, and the name of the test company used. |  |  |  |  |
|  |  |  | (2) | | Test medium used. |  |  |  |  |
|  |  |  | (3) | | Test pressure. |  |  |  |  |
|  |  |  | (4) | | Test duration. |  |  |  |  |
|  |  |  | (5) | | Pressure recording charts, or other record of pressure readings. |  |  |  |  |
|  |  |  | (6) | | Elevation variations, whenever significant for the particular test. |  |  |  |  |
|  |  |  | (7) | | Leaks and failures noted and their disposition. |  |  |  |  |

| **Comments:** |
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| **.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. |  |  |  |  |
| **.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.