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ENGINEERING & OPERATIONS
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TRANSMISSION GAS SYSTEM INTEGRITY

Risk Management Instruction

Instruction No. RMI-06

GIS DATA QUERIES and DATA GATHERING OF HISTORIC (5 YEAR) MOP DATA IN SUPPORT OF 49 CFR§192.917 (e)(4) ERW Pipe

Prepared By: Redacted Date: 2/14/08

Approved By: Redacted Date: 3/12/08

Integrity Management Program Manager

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GIS DATA QUERIES and DATA GATHERING OF HISTORIC (5 YEAR) MOP DATA IN SUPPORT OF 49 CFR§192.917 (e)(4) ERW Pipe

1.0 PURPOSE

The purpose of this instruction is to map out a process for collecting historic MOP values in support of analyzing the Manufacturing Threat that deals with seam type, joint factor and operating pressure history which is outlined in 49 CFR §192.917 (e)(4) ERW Pipe.

49 CFR §192.917 (e)(4) ERW Pipe states:
"If a covered pipeline segment contains low frequency electric resistance welded pipe (ERW), lap welded pipe or other pipe that satisfies the conditions specified in ASME/ANSI B31.8S, Appendices A4.3 and A4.4, and any covered or noncovered segment in the pipeline system with such pipe has experienced seam failure, or operating pressure on the covered segment has increased over the maximum operating pressure experienced during the preceding five years, an operator must select an assessment technology or technologies with a proven application capable of assessing seam integrity and seam corrosion anomalies. The operator must prioritize the covered segment as a high risk segment for the baseline assessment or a subsequent reassessment."
This is a multistep process that involves GIS data queries as well as a review of operational historical records.

Over pressurization of pipeline above historic 5 year MOP
In the situations where pipeline segments with a potential Manufacturing Threat, as described in §192.917 (e)(4) ERW Pipe, will be prioritized as a high risk segment for the baseline assessment or reassessment if they have operated over the maximum operating pressure (MOP) experienced during the preceding five years plus 10 percent of the historical operating pressure.

To keep from continually losing operating pressure on pipelines that have a potential long seam manufacturing threat, PG&E has made a decision to only reprioritize those pipeline segments that exceed the historic 5 year MOP plus 10% of the historic 5 year MOP. The 10% portion was taken from 49 CFR §192.201 (a)(2)(i) Required capacity of pressure relieving and limiting stations, which states:
If the maximum allowable operating pressure is 60 p.s.i. (414 kPa) gage or more, the pressure may not exceed the maximum allowable operating pressure plus 10 percent, or the pressure that produces a hoop stress of 75 percent of SMYS, whichever is lower.
The additional 10% is from the historic 5 year MOP instead of the MAOP stated in 49 CFR §192.201 (a)(2)(i).

2.0 INTRODUCTION

Manufacturing threat, this instruction provides one method for performing the relevant queries to identify HCA pipe segments that have a Manufacturing Threat due to seam issues and the processes for reviewing job packages and system pressures related to pipe segments dealing with seam issues. It also offers a method to identify similar non-HCA segments that might become HCA's. Lastly, it provides guidance on how to use the results of the data survey for future pipeline operations.

3.0 GIS Pipe Property Review and Data Capture

A review of Transmission pipeline properties, in the GIS Pipeline attribute table, is completed to ensure that covered pipelines that have a potential seam issue in an HCA and non-HCA have the following attribute values: Route Name, Segment number, HCA Identification, Transmission Definition, MOP, MAOP, OD, Long Seam, Wall Thickness, SMYS, and Joint Efficiency. Sections 4 and 5 of RMI06 will outline the process to gather missing or assumed values.
Station piping (Routes beginning with STA) will be reviewed for purposes of what is an HCA from data being collected through RMI05, Station HCA Identification. Station pipe, that is mapped in GIS, will be included in the selected set through the queries below.

The following sections describe the process that will extract out the values that are needed to verify the restrictions and guidelines described in 49 CFR §192.921 (e)(4) ERW Pipe:

3.1 From the Pipeline Feature class, create queries for extracting out Manufacturing Threats dealing with Long Seams.
The following query selects the records that are Active pipe and exclude any TransDef = D and some types of Gas Gathering pipe:

(STATUS = 601 AND STYPE = 1201) AND (TRANS_DEF <> 'D' AND TRANS_DEF <> 'DI') AND (FAC_TYPE <> 515 AND FAC_TYPE <> 514 AND FAC_TYPE <> 511) AND (TRANS_DEF <> '')

If it is necessary to utilize historic pipeline shapefiles for comparing then use the following query:

("STATUS" = '1' AND "STYPE" = 'Active_Pipe') AND ("TRANS_DEF" <> 'D' AND "TRANS_DEF" <> 'DI') AND ("FAC_TYPE" <> 'GG-U' AND "FAC_TYPE" <> 'GG-B' AND "FAC_TYPE" <> 'GG-A') AND ("TRANS_DEF" <> ' ')

STATUS 601 is Active pipe, STYPE 1201 is Active Pipe, TRANSDEF_D and DI are classified distribution, and FAC_TYPE 515 is GG-U, 514 is GG-B and 511 is GG-A.

3.2 Create a shapefile called **PipelineTransDef_T.shp** by exporting the selected records from step 3.1 from the Pipeline Feature class using the "export to shapefile" button,  . This will extract out only Active pipe that has a TransDef_T*. (* refers to the many TransDef_T values) into a selected set.

Note:

When creating a new shapefile from an existing shapefile (that used the "export to shapefile" button), the codes for attribute values i.e. FAC_TYPE = 515 will not have the code value 515 but will have the alias GG-U.

3.3 From the shapefile **PipelineTransDef_T.shp**, extract out Low Frequency ERW pipe.
This query extracts out Low Frequency ERW pipe, Pre-1970 and YR_INSTALL that has a value equal to NULL

("YR_INSTALL" <= date '1969-12-31' OR "YR_INSTALL" IS NULL) AND "LONG_SEAM" = 'ERW'

Then query from the selected set only pipe segments that are identified as being in an HCA using the following query:

HCA_ID LIKE 'A%' OR HCA_ID LIKE 'B%' OR HCA_ID LIKE 'I%'

If querying directly from the Pipeline Feature class use the following query:

(YR_INSTALL <= '1969-12-31 00:00:00' OR YR_INSTALL IS NULL) AND LONG_SEAM = 356

3.4 Create a shapefile called **PipelineLowFreqERW.shp** by exporting the selected records from step 3.3 from the PipelineTransDef_T.shp shapefile (not using "export to shapefile" button), right click on PipelineTransDef_T.shp scroll down to data and chose export, use selected data. This will extract out only Low Frequency ERW pipe and pipe that has a TransDef_T*.

3.5 From the shapefile **PipelineTransDef_T.shp**, create queries for extracting out JE less than 1.0 and excluding ERW pipe.
Use the following query to select only pipe segments that are identified as being in an HCA:

HCA_ID LIKE 'A%' OR HCA_ID LIKE 'B%' OR HCA_ID LIKE 'I%'

The following query selects joint efficiency less than 1.0 and all long seam types except for ERW:

("JNTEFF" in ('-0.600', '-0.800', '0.600', '0.800', 'UNK') AND "LONG_SEAM" <> 'ERW') OR ("JNTEFF" in ('-0.600', '-0.800', '0.600', '0.800', 'UNK') AND "LONG_SEAM" IS NULL)

If querying directly from the Pipeline Feature class use the following query:

(JNTEFF IN (100, 402, 403, 406, 407) AND LONG_SEAM <> 356) OR (JNTEFF IN (100, 402, 403, 406, 407) AND LONG_SEAM IS NULL)

3.6 Create a shapefile called **PipelineJE_Less_than_1.shp.**
By exporting the selected records from step 3.5 from the PipelineTransDef_T.shp shapefile (not using export to shapefile button), right click on PipelineTransDef_T.shp scroll down to data and chose export, use selected data. This will extract out only selected records that have a JE value less than 1.0 and ERW pipe.

3.7 From the shapefile **PipelineTransDef_T.shp**, create query for extracting out JE equal to 1.0 with Long Seams considered to have a Manufacture Threat.
"LONG_SEAM" = 'AOS' OR "LONG_SEAM" = 'CW' OR "LONG_SEAM" = 'FBW' OR "LONG_SEAM" = 'FLASH_WLD' OR "LONG_SEAM" = 'LAP' OR "LONG_SEAM" = 'SPIRAL' OR "LONG_SEAM" = 'UNK' AND "JNTEFF" in ('-1.000', '1.000', 'UNK')

If querying directly from the Pipeline Feature class use the following query:

(LONG_SEAM = 353 OR LONG_SEAM = 354 OR LONG_SEAM = 358 OR LONG_SEAM = 359 OR LONG_SEAM = 360 OR LONG_SEAM = 363 OR LONG_SEAM = 100) AND JNTEFF in (401, 408, 100)

3.8 Create a shapefile called **PipelineJE_equal_to_1_w_manuf_thrt.shp.**
By exporting the selected records from step 3.7 from the PipelineTransDef_T.shp shapefile (not using "export to shapefile" button), right click on PipelineTransDef_T.shp scroll down to data and chose export, use selected data. This will extract out only selected records that have a JE value equal to 1.0, -1.0 and unknown with a Long Seam that is considered to have a Manufacture Threat.

3.9 Create shapefiles for every Division using the "Select by Location" selection tool.
Using the MaintOrg attribute:

- select one division at a time for using with the shapefiles created in steps 3.4, 3.6 and 3.8.
- Shapefiles will be created from the selected sets and the shapefiles should be named:
  - (MaintOrg)_LowFreqERW.shp
  - (MaintOrg)_JE_Less_than_1.shp
  - (MaintOrg)_JE_equal_to_1.shp

Example, DDIA_LowFreqERW.shp refers to Diablo Division.

Note:

Additional research is needed on all values that are suspect in JE, Year installed, Long_Seam etc. Research consists of, but not limited to, pulling job files, comparing adjacent pipe segments to verify pipe specs are the same (Job number, year installed (i.e. 1993 could be 1939), reviewing company records for minimum values for unknown data, etc.
Unknown values need to be reconciled through methods mentioned in above note.
Records that are pulled that refer to API 5 L for a specific year should be researched for the JE value.

4.0 Analysis of GIS Data and Reporting of Potential Seam Issues

In section 3.0, pipe segments with a manufacturing seam threat described in section 1.0 were identified. The next step is to establish the 5 year maximum operating pressure for these lines and find out if the manufacturing threat has been activated since these pipe segments were identified as being in high consequence areas.
The following steps will outline the process involved in extracting out the pressure information using an excel program called GasHist.xls or if assistance is needed, to give the Transmission Planners as much useful information as possible to be able to extract out the requested pressure data.

4.1 Each division pipeline shapefile created needs to be reviewed. To aide in the review process, an excel spreadsheet of the pipelines with the pipeline specifications must be created. The assumed

values (MOP\MAOP, Long Seam, SMYS, OD, WT and JE) need to be highlighted for validation and verification which is described in more detail in section 5. There might be a opportunity to capture missing and assumed information that could change the HCA or reduce the areas of concern for Manufacturing Threats dealing with seam issues.

4.2 When establishing the Historic 5 year MOP, the date that an HCA was identified for a pipe segment with a potential Manufacturing Threat needs to be established.
The date of the HCA is located in separate object tables that are related to the pipeline feature in GasMap. The two tables are Cgt.sde.ASSESS_08 and Cgt.sde.BAP_07. The tables were added to GasMap and then a relationship to the pipeline feature was created with the tables.
Note: The date range for the research for the historic 5 year MOP values was between 1/1/200 to 12/17/2004.

4.3 The SCADA point (PVID) at the regulation upstream of the pipe segments will be used for gathering of the 5 year MOP pressure information to determine the 5 year MOP high.
Using GIS, Operating Diagrams, WinTerm (SCADA program) to gather the information needed to determine the SCADA point that is monitoring the pipe segments down stream from the regulation If it is not obvious what the sources are for the gas pressure for the pipe segments with potential seam issues are, work with the Transmission Planner for those areas to determine what stations are the sources for gas pressure.

Once the stations are identified, use WinTerm to identify the SCADA point at those stations to get the PVID number. The PVID number is input into an excel program called GasHist.xls to extract out the pressure data (hourly average of 30 data points). The past 5 years of pressure data, if available, is gathered for each station that affects the pipe segments at risk.
Using the same method for collecting pressure data to establish the 5 year high, collect the pressure data from the date the HCA was determined to the present day, sorting out the highest pressure recorded per year.

4.4 Using the excel program, **5yr_high_MOP_CALCULATOR.xls** extract out the highest operating pressure for a specific year (using the data from 4.3) for all PVID's for a given division or district. Once the highest operating pressure for the PVID's are determined for a specific year, that information is populated in an excel spreadsheet labeled <Division>_5_year_high_MOP.xls. Do to the accuracy of the SCADA data, the MOP value will not carry the decimal value. All the data for all the years starting with 2000 to 2004 will be input and compared to determine the highest MOP for the 5 year period. Data from 2005 to the present is also added to the spreadsheet and then compared with the highest operating pressure for 2000 to 2004.

4.5 Once all 5 year historic high MOP value has been determined a spreadsheet is created (MOP Tracking dates1.xls) that has the line number, the listed MOP value, the 5 year high MOP value, Division\District and date that is needed to maintain the 5 year high MOP value. If there is a question about a certain MOP value, a request is made to Gas Operations (Kieth Slibsager) to have the value reviewed and verified.

5.0 Research Job Packages to Collect Missing or Assumed Data in GIS

After gathering the GIS data for the specific pipe segments, it might be beneficial to research the Jobs that installed the pipelines with the assumed values. Some pipelines with missing information were purchased by PG&E and the records\files for these pipelines will be difficult to locate if they exist at all.
Job Packages and test records that are found might hold the missing data or they might be able to allow us to use a more reasonable value, for example SMYS -24000 is for pipelines we know nothing about but the year installed and the size of the pipeline. If we had test records that tested the yield strength in a few locations along the pipe in question we might be able to assume a higher SMYS value, say -42000.
The following steps outline the basic steps for recovering data.

5.1 With the spreadsheet created in section 4.1, use the Job numbers for each pipe segment that have assumed values in pipe specifications (Grade, SMYS, Joint Eff, OD, WT, Hydro Test Information, upgradejob, MaintOrg). Sort out all segments that have assumed or missing values.

5.2 Contact the Senior Distribution Engineer for a specific division and set up a meeting to go over the pipe segments of concern. The Senior Dist. Eng. should be able to introduce the Mapping group that will help pull jobs to search for assumed pipe specs.
The Senior Dist. Eng. might also have binders that were created for the Transmission lines in their territory that have documentation and \or STPR's on the pipelines that had their MOP\MAOP's established in 1970.

5.3 Work with the Mapping group in the Division to have them pull the jobs listed in the spreadsheet created in section 4.1. Any information that will confirm pipe specifications listed in 5.1 should have copies made. Any maps of pipelines that are being reviewed should have copies made. Any Bill of Materials, Hydro test information, pipe tests to determine the pipe properties, any references to other jobs (Foreign pipelines purchased by PG&E).

5.4 Some job packages might be located or stored in the Records Center in Brisbane (8-579-2174). Need to call to see if the Records center has the Job Packages. Also check with other Mapping Departments in adjacent Divisions.
If all data is compiled of all the job numbers that are needed, that information can be given to Records and the Records group can make the requests to the Division, Brisbane and search the local records.

6.0 SCADA, Electronic Recorder and Pressure Chart Data Gathering

If the SCADA data can not be gathered per section 4.3, then the following process should be used when working with the Transmission Planners.

Once the pipeline segments that qualify for investigation under 49 CFR §192.917 (e)(4) ERW Pipe have been identified in section 3.0, specific organizations in PG&E need to be enlisted in the gathering of pressure data for establishing the historic 5 year MOP high for the segment.
The following sections describe what needs to be collected and who might be able to help in that data collection.

The Transmission Planners, in specific areas\Divisions, will be given the pipeline segments with line number, beginning and ending Mile Points (MP's) and pipe specifications from GIS. The planners will also be given the dates that pressure data will need to be gathered (see section 6.2) and any information that will aide them in collecting the information requested from the Integrity Management Group.
During the current data collection efforts, the Transmission Planners gave the PVID's for the upstream regulation for the pipeline segments that have a potential Manufacturing Threat. The data mining for pressure data from SCADA records was done by the Senior Gas Engineer described in section 4.0.

The following steps describe the different groups involved and the level of support they would be able supply.

6.1 Transmission Planners would gather:

- The historic 5 year pressure data for each given segment from when the segment was determined to be an HCA (see section 4.2).
- The highest pressure recorded for the time period then becomes the baseline MOP pressure for the affected segments.

Example: If a segment was converted into an HCA 12-04-2004 then the Planner would need to gather pressure data back to 12-04-1999 to 12-04-2004. An excel spreadsheet dump from SCADA or Electronic Recorders with the date and time would be acceptable.

6.2 Transmission Planners would gather:

- The pressure data from the time the segment became an HCA to the present day to determine if the pressure at that segment location exceeded the Historic 5 year high pressure.

6.3 If there is no SCADA data available, the Transmission Planner should be able to get pressure data from Electronic Recorders, if they exist in the areas of concern, from the local T&R supervisor and their M&C Techs. The M&C Techs will be able to extract out the pressure data information needed that is described in sections 6.2 and 6.3. The M&C Techs can deliver the data in an excel format. We would need the data for the dates determined in section 4.2, to establish the Historic 5 year MOP if the data exists. The M&C techs only maintain a 5 year history, some Divisions may have more than 5 years of data.

6.4 The following information could be gathered by the M&C Techs in each division if needed.

- Regulator settings immediately upstream of pipe segments with potential manufacture threat with seam issues need to be collected to document the history of those regulators.

- Regulator and Transducer manufacture information needs to be collected for the years the data was collected. Equipment could be removed and stations could be upgraded after 5 year high was established.
- All equipment tolerances and accuracies need to be collected if any issues on the pressure readings collected come up, i.e. pressure exceeds 5 year MOP high and the reading looks like an error.
- The calibration records for the Transducers and ER equipment

6.5 If there is no electronic data that exists for the segments of concern, then the data collection will need to revert to looking through pressure charts.

- The T&R supervisor will be a good contact along with the M&C Techs for the Division\Office where the charts are located.
- The Transmission Planner will be a good source for what stations would be best to collect chart data from.
- The M&C Techs will be the best source in locating the charts, if they exist.
- The M&C Techs will also be able to give more insight for a better location to collect pressure information needed that is described in sections 6.2 and 6.3.

7.0 Notification to Mapping Group to Update GIS

The process and steps outlined in sections 1.0 through 6.0 describe how to extract out data from GIS, research Job files for missing information and gathering pressure data from the Transmission Planners and M&C Techs.
If the data that was collected changes any information that is currently in GIS, an initial meeting will be held with Mapping to look over the data. The spreadsheets with the information that needs to be updated will be handed over to the Mapping Group to update GIS.
The Mapping group will be given any updates by Division to minimize any confusion in data entry.

8.0 Gas Control Notification and Reporting Process

The process and steps outlined in sections 1.0 through 6.0 describe how to extract out data from GIS, research Job files for missing information and gathering pressure data from the Transmission Planners and M&C Techs.
A meeting will be held to discuss any issues that arise from the research and data collection that could affect the operating pressure in the system.
Gas Control needs to know any critical dates and pressures that need to be maintained that were established when determining the 5 year high for MOP. When all data is gathered and examined by the System Integrity team, a meeting will be called to discuss solutions to communicating the critical dates and pressures on the pipe segments in question.

Process for meeting and how the dates and pressures will be communicated TBD.

8.1 Pipe segments that have a potential Manufacturing Threat with a seam issue and are in an HCA need to have the upstream pressures tracked and maintained at the current 5 year MOP high.

8.2 Pipe segments that have a potential Manufacturing Threat with a seam issue, **but are not in an HCA (non-HCA)**, should also have there pressures tracked to make sure that the MOP is maintained. If the non-HCA status for the pipe segment changes to an HCA we will need to establish the 5 year MOP high and we will want the pressure of the pipe segment to be at the MOP of the line.

9.0 Pipeline Engineer Notification and Reporting Process

When all the data has been collected and the historic 5 year high MOP has been determined, the spreadsheet (section 4.5) MOP Tracking dates1.xls will be sent out to all Pipeline Engineers (PLE) for the years 2008 to 2013. The PLE's will need to understand the extents of the areas of concern so they can prepare for raising the pressure to meet the historic 5 year high MOP value. This process could be costly to create the clearances and coordinate between divisions and T&R groups to get the work done.

The PLE could utilize the data collected or initiate the collection of the data described in section 5.0.

10.0 Maintaining Historical Records

The data collected in sections 3.0 through 6.0 needs to be collected and documented so that when a review is done on the pipe segments, if a non-HCA turns into an HCA, the establishing a 5 year MOP high or the MOP pressure on a given pipe segment is maintained, the data for that pipe segment will be readily accessible. The data will be stored by Division or District then broken down by office, if necessary.

10.1 Section 3.0 data needs to be stored on the network folders located in **\\walnutcrk01\Mapping\ Documentation\Weld Const Material Threats\MOPSeamIssues**.
The folder\filing structure will be:
- GIS Shapefile data
- GIS queries data (word doc describing other queries besides the ones documented in section 3.0).

10.2 Section 4.0 data needs to be stored on the network folders located in **\\walnutcrk01\Mapping\ Documentation\Weld Const Material Threats\MOPSeamIssues**.
The folder\filing structure will be:
- PipeSpec_data
- 5_year_MOP_high data
- Upstream_Station data
- Pipe_segment_data

10.3 Section 5.0 data needs to be stored on the network folders located in **\\walnutcrk01\Mapping\ Documentation\Weld Const Material Threats\MOPSeamIssues** .
The folder\filing structure will be:
- Assumed_values_data
- Job_Package_data

Hard copy job package information will be stored in the IM library (TBD)
- Word documentation on what was collected for what specific pipe segments

10.4 Section 6.0 data needs to be stored on the network folders located in **\\walnutcrk01\Mapping\ Documentation\Weld Const Material Threats\MOPSeamIssues**.
The folder\filing structure will be:
- PipeSpec_data
- 5_year_MOP_high data
- Upstream_Station data
- Pipe_segment_data
- Equipment_Specs
- Shapefiles_stations – PVID will need to be put in as an attribute value for each regulator scada point used.

Hard copy equipment information will be stored in the IM library (TBD)
- Calibration records
- Chart records
- Regulator settings

11.0 FAQ's from PHMSA Web Site

FAQ-165: Databases as records

Go To FAQ#: Go

Question: Is information in an electronic database considered satisfactory documentation?

Answer: Yes. An operator should be prepared to discuss with inspectors evidence demonstrating that the database was used as a contemporary record, rather than having been created after the fact. Procedures, historical printouts, and archived copies of the database are examples of means that can be used to demonstrate that the database is relevant documentation.

FAQ-205: Quality of information

Go To FAQ#: Go

Question: Does an operator have to provide the original source documents for the covered segment of the pipeline? (Source document means actual pressure test chart for MAOP, mill test report on pipe, etc.) In the absence of original source material, will DOT accept inventory map data for pipeline information, MAOP database information, etc.?

Answer: Operators should use the best information that they have available in performing the data integration and analysis associated with integrity management and must assure the quality of information used. Information of this nature would be subject to review during integrity management inspections.

FAQ-219: Manufacturing and Construction Defects if Subpart J tested

Go To FAQ#: Go

Question: Are integrity assessments required for manufacturing and construction defects, including seam defects, if the pipeline has been pressure tested in accordance with Subpart J?

Answer: OPS considers a successful Subpart J pressure test to be sufficient to reveal any manufacturing and construction defects that could jeopardize pipeline integrity at operating pressures less than or equal to MAOP, as of the date of the pressure test. Any manufacturing and construction defects that survive the Subpart J pressure test are considered to be stable and not subject to failure, unless other threats adversely affect the stability of the residual manufacturing and construction defects. An operator is expected to conduct its threat identification analysis in sufficient detail to identify if other interacting threats could adversely affect the stability of residual manufacturing and construction defects, as required by ASME B31.8S, Section 2.2, and establish its assessment plans accordingly.

Assessments addressing the threat of manufacturing and construction defects are required for pipe that has never been tested to Subpart J requirements if operating conditions on the line change. (See FAQ-220)

FAQ-220: Manufacturing and Construction defects if never Subpart J tested

Go To FAQ#: Go

Question: Are assessments required for manufacturing and construction defects, including seam defects, if the pipeline has not been pressure tested in accordance with Subpart J?

Answer: Assessments may be required, if operating conditions on the line change. Initially, manufacturing and construction defects may be considered to be stable based on operating history, if no pipeline failures have been caused by manufacturing and construction defects. However, the rule requires that pipeline segments be prioritized as high risk, and appropriately scheduled for an assessment, if the operating conditions change significantly. The specific operating conditions that require an assessment for manufacturing and construction defects are any one or more of the following:
o Operating pressure, including abnormal operating conditions, which exceed the maximum operating pressure experienced during the five years preceding identification of the HCA; or
o MAOP increases; or
o The stresses leading to cyclic fatigue increase.

In addition, other interacting threats could adversely affect the stability of residual manufacturing and construction defects. An operator is expected to conduct its threat identification analysis in sufficient detail to identify if other interacting threats could adversely affect the stability of residual manufacturing and construction defects, as required by ASME B31.8S, Section 2.2, and establish its assessment plans accordingly.

Assessments for manufacturing and construction defects generally are not required for pipe that has successfully passed a Subpart J pressure test even if these changes in operating conditions occur. (See FAQ-219.)

FAQ-221: Amount of pressure increase to trigger assessment of M&C defects

Go To FAQ#: Go

Question: Relative to the requirement in 192.917(e)(3)(i), how much pressure increase (above the maximum experienced in the preceding five years of operation) will trigger the requirement to treat the segment as high risk for purposes of integrity assessments.

Answer: The rule specifies that any pressure increase, regardless of amount, will require that the segment be prioritized as high risk for integrity assessment.

FAQ-231: Reference period for M&C threats

Go To FAQ#: Go

Question: What 5-year period must I consider to establish a reference pressure for stability of manufacturing and construction defects?

Answer: Section 192.917(e)(3) requires that operators consider the five years preceding identification of a high consequence area to determine a maximum operating pressure that will assure the stability of manufacturing

and construction (M&C) threats. As long as operation does not involve pressures higher than the highest operating pressure experienced during those five years, any M&C threats can be considered stable. (The "preceding five years" referred to in sub-paragraph 192.917(e)(3)(i) is the same five years preceding HCA identification.)

Operators should note that section 192.917(e)(3) specify that "the analysis must consider the results of prior assessments on the covered segment." This includes any prior hydrostatic tests, including tests conducted after the pipe was installed. OPS considers that a hydrostatic test, meeting subpart J requirements, is sufficient to demonstrate that any manufacturing and construction defects will remain stable at the operating pressures related to that test. Operators need not consider the operating pressure in the five years preceding HCA identification for segments that have passed a Subpart J hydrostatic test.