

| Management of Change Form | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|--|---|---|----------------------------------|---|--|--|------------------------------------|--|---|--------------------------------------|---|---|--|--|---|--|--|---|---|--|---|--|
| Title: Line 5 Straights of Mackinaw MOP Implementation | | | | | | | | | | | | | | | | | | | | | | | | | |
| Originator: ██████████ | MOC #: 2009-12 | | | | | | | | | | | | | | | | | | | | | | | | |
| Date Initiated: 11/11/2009 | Status: Implemented | | | | | | | | | | | | | | | | | | | | | | | | |
| Standard, Policy, or Procedure affected by Change: EBSS Line Description, Pressure Allowables | | | | | | | | | | | | | | | | | | | | | | | | | |
| Proposed Date of Change: 6/22/2012 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Change Duration: <input checked="" type="checkbox"/> Permanent | End Date: - | | | | | | | | | | | | | | | | | | | | | | | | |
| Required Approval Date: 6/15/2012 | Post Change Review Date: 8/31/2012 | | | | | | | | | | | | | | | | | | | | | | | | |
| Vetting Committee(s): Department: | | | | | | | | | | | | | | | | | | | | | | | | | |
| Purpose of the Change | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Reason for Change: Pressure on the pipes crossing the Straits of Mackinaw on Line 5 have been restricted to 425 psi for the past several years due to the perception that, under no circumstances, could the pressure exceed 600 psi as specified by the Michigan State Commerce Commission. The 425 psi setting was chosen based on calculations that proved the pressure would never exceed 600 psi, even under transient, or abnormal operating conditions. While the 425 psi setting ensures no pressure excursions above 600 psi, this restriction makes it difficult to operate the pipeline and results in inadvertent shutdowns of the line. Documentation has been recently located which suggests that the Maximum Operating Pressure (MOP) in this section of pipe is 600 psi. This means that the setting at the Straits could be potentially increased up to 600 psi, provided that transients did not exceed 660 psi (110% of MOP). This increased setting would improve the operability of the pipeline and result in fewer shutdowns.</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Scope of Change: Revise EBSS Line 5 line descriptions, Op Limits study and Pressure Allowables.</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Type of Change (select all that apply):</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> New Facilities</td> <td><input type="checkbox"/> Piping</td> <td><input type="checkbox"/> Equipment</td> <td><input type="checkbox"/> Material</td> <td><input type="checkbox"/> Process</td> <td><input type="checkbox"/> Procedure/Policy</td> </tr> <tr> <td><input type="checkbox"/> Instrumentation</td> <td><input type="checkbox"/> Controls/Setpoint</td> <td><input type="checkbox"/> Training</td> <td><input type="checkbox"/> Critical or Emergency</td> <td colspan="2"><input type="checkbox"/> Other:</td> </tr> </table> | | <input type="checkbox"/> New Facilities | <input type="checkbox"/> Piping | <input type="checkbox"/> Equipment | <input type="checkbox"/> Material | <input type="checkbox"/> Process | <input type="checkbox"/> Procedure/Policy | <input type="checkbox"/> Instrumentation | <input type="checkbox"/> Controls/Setpoint | <input type="checkbox"/> Training | <input type="checkbox"/> Critical or Emergency | <input type="checkbox"/> Other: | | | | | | | | | | | | | |
| <input type="checkbox"/> New Facilities | <input type="checkbox"/> Piping | <input type="checkbox"/> Equipment | <input type="checkbox"/> Material | <input type="checkbox"/> Process | <input type="checkbox"/> Procedure/Policy | | | | | | | | | | | | | | | | | | | | |
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| <p>Affected Department(s) (select all that apply):</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Safety</td> <td><input type="checkbox"/> Operations</td> <td><input type="checkbox"/> Environment</td> <td><input type="checkbox"/> Engineering</td> <td><input type="checkbox"/> Fac Man</td> <td><input type="checkbox"/> Compliance/OQ</td> </tr> <tr> <td><input type="checkbox"/> Land & ROW</td> <td><input type="checkbox"/> Control Center</td> <td><input type="checkbox"/> Integrity</td> <td><input type="checkbox"/> Petroleum Quality</td> <td><input type="checkbox"/> Measurement Technical Services</td> <td><input type="checkbox"/> Procurement</td> </tr> <tr> <td><input type="checkbox"/> Eng. Tech. Standards</td> <td><input type="checkbox"/> Shipper Services</td> <td><input type="checkbox"/> Gathering System - EPSI</td> <td><input type="checkbox"/> Gathering System - ND</td> <td colspan="2"><input type="checkbox"/> P/L Control & Leak Detection</td> </tr> <tr> <td></td> <td><input type="checkbox"/> Measurement Services</td> <td><input type="checkbox"/> Law & Regulatory</td> <td><input type="checkbox"/> Loss Management</td> <td colspan="2"><input type="checkbox"/> Business Development</td> </tr> </table> | | <input type="checkbox"/> Safety | <input type="checkbox"/> Operations | <input type="checkbox"/> Environment | <input type="checkbox"/> Engineering | <input type="checkbox"/> Fac Man | <input type="checkbox"/> Compliance/OQ | <input type="checkbox"/> Land & ROW | <input type="checkbox"/> Control Center | <input type="checkbox"/> Integrity | <input type="checkbox"/> Petroleum Quality | <input type="checkbox"/> Measurement Technical Services | <input type="checkbox"/> Procurement | <input type="checkbox"/> Eng. Tech. Standards | <input type="checkbox"/> Shipper Services | <input type="checkbox"/> Gathering System - EPSI | <input type="checkbox"/> Gathering System - ND | <input type="checkbox"/> P/L Control & Leak Detection | | | <input type="checkbox"/> Measurement Services | <input type="checkbox"/> Law & Regulatory | <input type="checkbox"/> Loss Management | <input type="checkbox"/> Business Development | |
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| | <input type="checkbox"/> Measurement Services | <input type="checkbox"/> Law & Regulatory | <input type="checkbox"/> Loss Management | <input type="checkbox"/> Business Development | | | | | | | | | | | | | | | | | | | | | |
| Document Attachments | | | | | | | | | | | | | | | | | | | | | | | | | |
| Link | Title | | | | | | | | | | | | | | | | | | | | | | | | |
| [View] | Straits Of Mackinac Pipe Line Easement | | | | | | | | | | | | | | | | | | | | | | | | |
| [View] | Summary of Change- PTCC Vetting | | | | | | | | | | | | | | | | | | | | | | | | |
| [View] | U.S. Pressure Testing Committee Meeting-February 05, 2004 | | | | | | | | | | | | | | | | | | | | | | | | |
| [View] | U.S. Pressure Testing Committee Meeting-February 19, 2004 | | | | | | | | | | | | | | | | | | | | | | | | |

[\[View\]](#) Revised Limits MP 1479 Line 5-February 19,2004

[\[View\]](#) Straits of Mackinac- Hydrotest

[\[View\]](#) Corrosion Defect Review

[\[View\]](#) Geometry Defect Review

[\[View\]](#) Cracking Defect Review

Approvals

| Area | Approver Name | Department | Comments | Approval | Approval Date |
|----------------|---------------|---|---|----------|---------------|
| Compliance | [REDACTED] | LP US PL Compliance Systems (10001530) | | Approved | 6/1/2010 |
| Control Center | [REDACTED] | LP PL Intgr Programs Execution (10000033) | | Approved | 8/8/2011 |
| Engineering | [REDACTED] | LP Engineering Special Prjs (10002908) | Approved with the caveat that a transient analysis should be performed. | Approved | 6/13/2010 |
| Fac Man | [REDACTED] | LP Network Logistics (10000069) | Approved from a hydraulics standpoint. | Approved | 5/31/2010 |
| Integrity | [REDACTED] | LP CAN Pipeline Compliance (10002900) | Corrosion, cracking and geometry reviews were completed of the ILI data. Based on these reviews and data/information available to PI at this time, there is no reason not to proceed with the pressure restriction removal. | Approved | 9/21/2012 |
| Operations | [REDACTED] | LP US PL Compliance Systems (10001530) | Contingent on review of pipe elevation across Straits to ensure that 80% of 790 psi (at 590' elevation) results in a MOP of at least 600 psi across the entire length of 20" pipe. | Approved | 6/4/2010 |

Pre-Modification Tasks

| Task | Responsible Person | Responsible Department | Date Informed | Completion Deadline | Completion Date |
|--|--------------------|--------------------------------|---------------|---------------------|-----------------|
| Review crossing elevations to ensure 600 psi MOP is appropriate given the 790 psi test pressure at elev. 590 feet (north scraper barrel) | [REDACTED] | LP PL Intgr Programs Execution | 6/4/2010 | 8/11/2010 | 12/18/2011 |

Post-Modification Tasks

| Task | Responsible Person | Responsible Department | Date Informed | Completion Deadline | Completion Date |
|---------------------------------------|--------------------|--------------------------------|---------------|---------------------|-----------------|
| Transient Analysis | [REDACTED] | LP Ops Eng - Process Eng | 5/26/2010 | 8/20/2010 | - |
| Revise High Pressure Shutdown Setting | [REDACTED] | LP PL Ctrl Tech Svcs Eng | 5/26/2010 | 8/27/2010 | 10/1/2012 |
| Create Communication Strategy | [REDACTED] | LP PL Intgr Programs Execution | 5/26/2010 | 12/9/2009 | - |

Q&A Forum

| | Posted | Posted | Answered | Answered |
|--|--------|--------|----------|----------|
| | | | | |

| Question | By | On | Answer | By | On |
|--|------------|----------|---|------------|-----------|
| Why were we under the perception that we could not exceed 600psi? | [REDACTED] | 6/8/2010 | I think in the past we did not consider surge pressure is allowed to go up to 110%MOP = 660 psi. | [REDACTED] | 6/11/2010 |
| Who conducted this transient hydraulic analysis? What transient events did they consider (i.e. pump trips, PCV closures, etc...)? | [REDACTED] | 6/8/2010 | To my knowledge, transient analysis has not been conducted. I have added a post checklist item for Facilities Management to be responsible for transient analysis to determine the appropriate change to the High Pressure setting. | [REDACTED] | 6/11/2010 |
| "Documentation has been recently located which suggests that the Maximum Operating Pressure (MOP) in this section of pipe is 600 psi." What type of documentation? | [REDACTED] | 6/8/2010 | The documentation is the "Straits Of Mackinac Pipe Line Easement" which can be found in the attachments section of this MOC. | [REDACTED] | 6/11/2010 |

Distribution List

| Name | Department | Assigned Responsibility | Assigned By | Assigned On | Status | Completion Date |
|------------|--------------------------------|-------------------------|--------------|-------------|----------|-----------------|
| [REDACTED] | LP PL CCO Terminals | Control Center | [REDACTED] | 5/27/2010 | Approved | 8/8/2011 |
| [REDACTED] | LP CAN West Rgn Pipeline Svcs | Control Center | SYSTEM | 8/2/2010 | Approved | 8/8/2011 |
| [REDACTED] | LP PL Intgr Programs Execution | Control Center | [REDACTED] | 8/8/2011 | Approved | 8/8/2011 |
| [REDACTED] | LP Engineering Special Prjs | Engineering | [REDACTED] | 5/26/2010 | Approved | 6/13/2010 |
| [REDACTED] | LP PL Intgr Reliability Assess | Integrity | [REDACTED] | 7/19/2010 | Approved | 9/21/2012 |
| [REDACTED] | LP PL Integrity QMS | Integrity | SYSTEM | 8/2/2010 | Approved | 9/21/2012 |
| [REDACTED] | LP PL Intgr Reliability Assess | Integrity | [REDACTED] | 8/16/2010 | Approved | 9/21/2012 |
| [REDACTED] | LP PL Intgr Deformation Prog | Integrity | [REDACTED] t | 8/8/2011 | Approved | 9/21/2012 |
| [REDACTED] | LP CAN Pipeline Compliance | Integrity | [REDACTED] | 6/7/2012 | Approved | 9/21/2012 |
| [REDACTED] | LP US PL Compliance Systems | Operations | [REDACTED] | 5/26/2010 | Approved | 6/4/2010 |