Section 1 **MANAGEMENT OF CHANGE (MOC)**

ABU:	Plant:	Year:
South Isomax	H2 A TRAIN	2009

MOC No:	Originator:	Date Issued:	Passport No:	EWO No:
20707	Waldrop, Jason S.	8/14/2009	279644	

Section 2 Reviewer:	MOC Category:	PSM:	MOC Type:	Expiration Date:	Other Temporary Reason
Slaughter, Joseph M.	Routine		Temporary	4/20/2010	

Project/Equipment Title: IREC 79778 - Operate Below Flag Thickness - Calculate T-min - 0402-002-002 TML 25 - R-315 Feed Line

Description of Change:

Operate 0402-002-002 TML 25 below flag thickness (0.10") and calculate T-min. RT thickness found to be 0.09" thick.

Temp MOC needed until LSR 21043 clamp is installed. Pipe should be replaced during 1Q2010 H2A S/D

IRED 79778 below:
Information:
RT was performed on Hot TMLs and TML-25 piping was found to be at .09" thick. Throw away thickness is .10". The corrosion is internal and is probably caused by CO2 and steam condensing in the piping creating carbonic acid.

Recommendation:
1) Replace pipe from elbow to valve at TML-25. See marked up drawing.
2) Contact Tim Schwerdtfeger at 2-3059 with any questions and when the job is complete.
**Material, Fabrication, Welding, Inspection and Testing shall be performed in accordance with the Richmond Refinery - Metals Craft, Quality Assurance Procedures.

Reference documents:
0402-002-002_0904_TML-25 thin pipe.dwf
Maximo#279644

MOC will be required if the change will:

- ☐ Cause the use of different feed, chemicals or catalysts?
- ☑ Cause the use of different process conditions, process control, instrumentation, and protective devices or affect upstream/downstream plants?
- ☐ Cause the use of new or modified equipment [which is other than inkind]?
- ☐ Alter equipment siting, building, trailer locations, roads or fire protection?
- ☐ Require modifying existing and/or developing new procedures?

Section 2 ☐ Simultaneously Begin Construction and Start-up

Stage 1	Pre-Implementation	Dept./Person Responsible	Date Complete	Completed By	References
	Design Review	Chou, James M.	9/14/2009	McAlister, Pascha Y.	
	Process Engineering Review	Namazian, Kimia J.	8/25/2009	Namazian, Kimia J.	
	Instrumentation Review				
	Control System Review				
	Utilities Review				
	Environmental/Regulatory Review	Tarter, Donald J.	8/28/2009	Tarter, Donald J.	
	Safety/Regulatory Review				
	Building Permits Review	Tuma, Dennis A.	8/14/2009	Tuma, Dennis A.	
	Mechanical Review				
	Inspection Review	Schwerdtfeger, Timothy E.	#########	Schwerdtfeger, Timothy E.	
	Metallurgy Review				
	Contruction Review	Sullenger, Jeffrey L.	#########	Sullenger, Jeffrey L.	
	Leak Seal Review				
	Relief System Review				
	Infrastructure Review				
	PHA/HSE Review	Waldrop, Jason S.	#########	Waldrop, Jason S.	

Authorization to Implement Change (Begin Construction): Approver: Slaughter, Joseph M. Date: 2/1/2010

Stage 2	Pre-Startup	Dept./Person Responsible	Date Complete	Completed By	References
	Procedures Review				
	Communication/Training 1	Slaughter, Joseph M.	2/2/2010	Slaughter, Joseph M.	
	Pre Start-up Safety Review	Slaughter, Joseph M.	2/2/2010	Slaughter, Joseph M.	

Authorization to Start-Up Change: Approver: Slaughter, Joseph M. Date: 2/2/2010

Extension of Temporary Change Approved By:	Approver:	Expiration Date:	Extention Reason
			Pipe will be replced suring 20

Stage 3	Post-Startup	Dept./Person Responsible	Date Complete	Completed By	References
	Communication/Training 1	Norris, Paul	4/13/2010	Norris, Paul	
	Process Safety Information	Norris, Paul	4/13/2010	Norris, Paul	

Change in Place - Reviews, Documentation & Testing Complete	Approver: Slaughter, Joseph M.	Date: 4/13/2010
MOC Cancelled:	Approver: Cancellation Reason:	Date:

Note 1: Emergency request for change should be routed by the Approver on the next working day	Retain Original in Division for five Years

DESIGNS REVIEW CHECKLIST

You have been assigned a Design Engineering Review. This checklist is a guide to help ensure that all information necessary to evaluate the change is considered.

MOC Number	20707
Filing Reference	
Person Responsible	Chou, James M.
Completed by	McAlister, Pascha Y.
Date Completed	9/14/2009

Project/Equipment Description:

Operate 0402-002-002 TML 25 below flag thickness (0.10") and calculate T-min. RT thickness found to be 0.09" thick.

Temp MOC needed until LSR 21043 clamp is installed. Pipe should be replaced during 1Q2010 H2A S/D

IRED 79778 below:

** Engineering recommends immediate attention be given to the line as we are operating in a line with a small range of reliability. Tmin for the 3/4", 1-1/4 Cr pipe nipples of the above subject line is 0.0700" - RWT as of 07/09 is 0.09" thick.
Pipe wall Tmin analyses have been performed for the 3/4" nitrogen supply line connected to the 18" overhead pipe of R-315 from E-341. Tmin data calculated and listed below are applicable to the short section of 3/4", 1-1/4 Cr pipe nipples (XS, Seamless, A335-P11) of RG1 Piping Class as shown on the attached sketch.
Tmin for the 3/4", 1-1/4 Cr pipe nipples of the above subject line is 0.0700".
(a) Tmin per pipe hoop membrane stress under design internal pressure (370 Psig) at design temperature (840 F): 0.0133".
(b) Tmin per pipe longitudinal membrane+bending stress due to pipe operating internal pressure and pipe weight combined: 0.0700".
© Tmin per pipe longitudinal membrane+bending stress due to operating thermal movement of 18" header pipe: 0.0020".
(d) Tmin per pipe longitudinal membrane+bending stress due to pipe operating internal pressure, weight and seismic loads combined: 0.0600".
(e) Tmin per pipe local bending stress at support location due to weight load imposed: Not Applicable.
It should be noted that the critical U-bolt support indicated on the attached is the only support supporting the 3/4" nitrogen supply line. Without this support, pipe weight bending stress (or the above Tmin required) at the weldolet will be increased significantly. Therefore, it is as important to UT-inspect pipe wall of the 3/4" nitrogen line as to visual-inspect the critical U-bolt support.

*When possible include copies of documents referenced in the summary.

DESIGNS REVIEW CHECKLIST

You have been assigned a Design Engineering Review. This checklist is a guide to help ensure that all information necessary to evaluate the change is considered.

MOC Number	20707
Filing Reference	
Person Responsible	Chou, James M.
Completed by	McAlister, Pascha Y.
Date Completed	9/14/2009

Project/Equipment Description:

Operate 0402-002-002 TML 25 below flag thickness (0.10") and calculate T-min. RT thickness found to be 0.09" thick.

Temp MOC needed until LSR 21043 clamp is installed. Pipe should be replaced during 1Q2010 H2A S/D

IRED 79778 below:

ENGINEERING REVIEW

- ☐ BIN Best Practic
- ☐ Civil & Structural
- ☐ Equipment Data Sheet
- ☐ Equipment Specification
- ☐ Fire Protection
- ☐ Hot Tap
- ☐ P&ID's Change due to New / Modified equipment
- ☐ P&ID's Change - Field condition not matching existing P&ID
- ☐ Plot Plan
- ☐ Seismic
- ☐ SIS Update
- ☐ Temporary Leak Repair

EQUIPMENT REVIEW

- ☐ Columns & Pressure Vessels
- ☐ Compressor, Blowers & Mechanical Equipment
- ☐ Concrete & Steel Structure, Walks and Stair
- ☐ Control Rooms & Building
- ☐ Exchangers, Condensers, Heaters & Cooling Tower
- ☐ Facilities & Siting
- ☐ Foundation
- ☐ Furances & Boilers
- ☐ Honeywell
- ☐ Honeywell Process Simulator
- ☐ HVAC
- ☐ Instrumentation
- ☐ Insulation
- ☐ Noise
- ☑ Piping
- ☐ Pumps & Drivers
- ☐ Relief & Venting Systems
- ☐ Sewers, Roads & Miscellaneous
- ☐ Tanks
- ☐ Update Refinery Relief Study
- ☐ Utility Systems

SUMMARY OF REVIEW*

** Engineering recommends immediate attention be given to the line as we are operating in a line with a small range of reliability. Tmin for the 3/4", 1-1/4 Cr pipe nipples of the above subject line is 0.0700" - RWT as of 07/09 is 0.09" thick.

Pipe wall Tmin analyses have been performed for the 3/4" nitrogen supply line connected to the 18" overhead pipe of R-315 from E-341. Tmin data calculated and listed below are applicable to the short section of 3/4", 1-1/4 Cr pipe nipples (XS, Seamless, A335-P11) of RG1 Piping Class as shown on the attached sketch.

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©Tmin per pipe longitudinal membrane+bending stress due to operating thermal movement of 18" header pipe: 0.0020".
(d)Tmin per pipe longitudinal membrane+bending stress due to pipe operating internal pressure, weight and seismic loads combined: 0.0600".
(e)Tmin per pipe local bending stress at support location due to weight load imposed: Not Applicable.

It should be noted that the critical U-bolt support indicated on the attached is the only support supporting the 3/4" nitrogen supply line. Without this support, pipe weight bending stress (or the above Tmin required) at the weldolet will be increased significantly. Therefore, it is as important to UT-inspect pipe wall of the 3/4" nitrogen line as to visual-inspect the critical U-bolt support.

*When possible include copies of documents referenced in the summary.

DESIGNS REVIEW CHECKLIST

You have been assigned a Design Engineering Review. This checklist is a guide to help ensure that all information necessary to evaluate the change is considered.

MOC Number	20707
Filing Reference	
Person Responsible	Chou, James M.
Completed by	McAlister, Pascha Y.
Date Completed	9/14/2009

Project/Equipment Description:

Operate 0402-002-002 TML 25 below flag thickness (0.10") and calculate T-min. RT thickness found to be 0.09" thick.

Temp MOC needed until LSR 21043 clamp is installed. Pipe should be replaced during 1Q2010 H2A S/D

IRED 79778 below:

☐ HVAC

*When possible include copies of documents referenced in the summary.

PROCESS ENGINEERING REVIEW CHECKLIST

You have been assigned a Process Engineering Review.
This checklist is a guide to help ensure that all information necessary to evaluate the change is considered.

MOC Number	20707
Filing Reference	
Person Responsible	Namazian, Kimia J.
Completed By	Namazian, Kimia J.
Date Completed	8/25/2009

Project/Equipment Title:

IREC 79778 - Operate Below Flag Thickness - Calculate T-min - 0402-002-002 TML 25 - R-315 Feed Line

DOCUMENTATION

- ☐ Drafting Work Requisition, MFG-5545
- ☐ Maximum Intended Inventory Update
- ☐ MSDS's
- ☐ PED Records
- ☐ Relief System Drawings

PROCESSES REVIEW

- ☐ ASTM-TBP-EFV Distillation Relationships
- ☐ BIN Best Practice
- ☐ Characterization of Petroleum Fractions
- ☐ Composition & Flow Information
- ☐ Conversion Factor & Constants
- ☐ Delivery Needs
- ☐ Densities
- ☐ Fundamental Properties
- ☐ Honeywell
- ☐ Honeywell Process Simulator
- ☐ Material & Energy Balance
- ☐ New Catalyst of Feeds
- ☐ Operating Parameters
- ☐ Physical Properties of Streams or Catalysts
- ☐ Solubilities
- ☐ Suppliers' Performance
- ☐ Surface Tensions
- ☐ Thermal Properties
- ☑ Upstream & Downstream Impacts
- ☐ Vapor-Liquid Equilibria
- ☐ Vapor Pressures
- ☐ Viscosities

SUMMARY OF REVIEW*

Nitrogen supply line needed for start up and shutdown. Next shutdown in 1Q2010. This line is not in use during normal operations but according to drawing the thin area in between the block valve and the process.

SISO N2 supply pressure is apprximately 170 psig.

*When possible include copies of documents referenced in the summary.

ENVIRONMENTAL REGULATORY REVIEW CHECKLIST

You have been assigned a Regulatory Review. This checklist is a guide to help ensure that all information necessary to evaluate the change is considered.

MOC Number: 20707
Filing Reference:
Person Responsible: Tarter, Donald J.
Completed By: Tarter, Donald J.
Date Completed: 8/28/2009

Project/Equipment Title:

IREC 79778 - Operate Below Flag Thickness - Calculate T-min - 0402-002-002 TML 25 - R-315 Feed Line

CHEVRON:

- [ ] Yellow Book

REGULATORY:

- [ ] Army Corp Permit
- [ ] BAAQMD Air Regulations & Permits (including TitleV)
- [ ] Bay Conservation & Development Commission (BCDC)
- [ ] CEQA (EIR's, etc.)
- [ ] City of Richmond Conditional Use Permits (Land use and Hazardous Materials)
- [ ] City of Richmond Design Review Board
- [ ] Permit to Build and Remove Wells, County Permit Required
- [ ] Department of Transportation (DOT)
- [ ] EPA Benzene Neshap
- [ ] EPA Benzene Waste (BW) NESHAP
- [ ] EPA MACT Requirements
- [ ] EPA New Source Performance Standards (NSPS)
- [ ] Regulation 8 Organic Compounds Rule 8 Wastewater Collection and Separation Systems
- [ ] Risk Management & Prevention Plan (RMPP)
- [ ] RWQCB Waste Discharge Orders, EPA Consent Agreement Sites
- [ ] RWQCB NPDES Regulations & Permits
- [ ] RWQCB SB-1050, Waste Discharge Requirements (WDR)
- [ ] Spill Prevention & Counter Measure Plan (SPCC)
- [ ] Waste Regulations and Permits
- [ ] Wharf-related agencies (SLC, USCG, OSPR, EPA)
- [ ] [x] **Additions, modifications, or deletions of VOC Component/Equip**

SUMMARY OF REVIEW*

No environmental regulatory issues.

*When possible include copies of documents referenced in the summary.

BUILDING PERMITS REVIEW CHECKLIST

You have been assigned a Regulatory Review. This checklist is a guide to help ensure that all information necessary to evaluate the change is considered.

MOC Number	20707
Filing Reference	
Person Responsible	Tuma, Dennis A.
Completed By	Tuma, Dennis A.
Date Completed	8/14/2009

Project/Equipment Title:

IREC 79778 - Operate Below Flag Thickness - Calculate T-min - 0402-002-002 TML 25 - R-315 Feed Line

SUMMARY OF REVIEW*

Based on the information provided, no City of Richmond building permit required.

*When possible include copies of documents referenced in the summary.

CUSA-EPA-0000896

INSPECTION REVIEW CHECKLIST

You have been assigned a Inspection Review. This checklist is a guide to help ensure that all information necessary to evaluate the change is considered.

MOC Number	20707
Filing Reference	
Person Responsible	Schwerdtfeger, Timothy E.
Completed By	Schwerdtfeger, Timothy E.
Date Completed	11/11/2009

Project/Equipment Description:

Operate 0402-002-002 TML 25 below flag thickness (0.10") and calculate T-min. RT thickness found to be 0.09" thick.

Temp MOC needed until LSR 21043 clamp is installed. Pipe should be replaced during 1Q2010 H2A S/D

INSPECTION:

- ☐ Additional Surveillance Required
- ☐ API Standards
- ☐ ASME Codes & Standards
- ☐ ASTM Standards
- ☐ Control Monitoring Requirements
- ☐ Electrical Inspection
- ☐ Fitness for Service Evaluation
- ☐ Honeywell
- ☐ Honeywell Process Simulator
- ☑ Inspection/Monitoring Requirements
- ☐ Non-Destructive Examination
- ☐ Normal Control Requirements
- ☐ Positive Materials Indentification
- ☐ Relief and Pressure Relief Devices Setting and Capacity
- ☐ Texas Nuclear (Metallurgy)
- ☐ UT Testing
- ☐ VOC Tagging Requirements

SUMMARY OF REVIEW*

Line is above t-min per DED engineer. Line needs to have a leak seal clamp (LSR-21043) installed as soon as possible per HSE. Line should be replaced per REC-79778 at the next opportunity.

*When possible include copies of documents referenced in the summary.

CUSA-EPA-0000897

CONSTRUCTION REVIEW CHECKLIST

You have been assigned a Construction Review. This checklist is a guide to help ensure that all information necessary to evaluate the change is considered.

MOC Number 20707
Filing Reference
Person Responsible Sullenger, Jeffrey L.
Completed By Sullenger, Jeffrey L.
Date Completed 11/12/2009

Project/Equipment Description:

Operate 0402-002-002 TML 25 below flag thickness (0.10") and calculate T-min. RT thickness found to be 0.09" thick.

Temp MOC needed until LSR 21043 clamp is installed. Pipe should be replaced during 1Q2010 H2A S/D

CONSTRUCTION:

- ☐ Building Permits
- ☐ Construction Limitations
- ☐ Coordination with Multiple Plant
- ☐ Coordination with Plant Protection
- ☐ Cranes
- ☐ Equipment Drawings
- ☐ Fire Protection Access/Requirement
- ☐ Honeywell
- ☐ Honeywell Process Simulator
- ☐ Hot Work
- ☐ Lay Down
- ☐ Personnel Qualification/Training
- ☐ Piles
- ☐ Plot Plan
- ☐ Restricted Area Classifications
- ☐ Schedules
- ☑ Site Specific Hazards
- ☐ Site Limitations
- ☐ Soil Removal
- ☐ Traffic Control
- ☐ Weather

SUMMARY OF REVIEW*

When clamping line remain aware of any hazards in and around the plant. Wear appropriate PPE.

*When possible include copies of documents referenced in the summary.

INSPECTION REVIEW CHECKLIST

You have been assigned a Inspection Review. This checklist is a guide to help ensure that all information necessary to evaluate the change is considered.

MOC Number: 20707

Completed On: 8/24/2009

Completed By: Bosworth, Gregory A.

Person Responsible: Bosworth, Gregory A.

Project/Equipment Description:

Operate 0402-002-002 TML 25 below flag thickness (0.10") and calculate T-min. RT thickness found to be 0.09" thick.

Temp MOC needed until LSR 21043 clamp is installed. Pipe should be replaced during 1Q2010 H2A S/D

Yes	No	Plant Protection/Security Review
☐	☑	City Fire-Plan Review is Mandato
☐	☑	City Fire-Permit is Mandato
☐	☑	City Acceptance Test is Mandato
☑	☐	Office of Fire Prevention Review On

No Fire-Plan Review and/or Fire-Permit are required from the Richmond Fire Dept based on the scope of work description.

The Office of Fire Prevention has reviewed the scope work description and has found that the existing fire protection is either acceptable, or that the scope of work does not require a change in fire protection for the area.

Please contact Chevron's Office of Fire Prevention with any questions at (510) 242-5481.

*When possible include copies of documents referenced in the summary.

CUSA-EPA-0000899

HEALTH & SAFETY EVALUATION

Date Issued: 8/14/2009 **Maximo Number:** 279644 **MOC Number** 20707

ABU: South Isomax **EWO Number** **Filing Reference**

Plant: H2 A TRAIN **Person Responsible** Waldrop, Jason S.

Section 2 Reviewer: Slaughter, Joseph M. **Completed By** Waldrop, Jason S.

Project/Equipment Title: IREC 79778 - Operate Below Flag Thickness - Calculate T-min - 0402-002-002 TML 25 **Date Completed** 11/10/2009

Description: Operate 0402-002-002 TML 25 below flag thickness (0.10") and calculate T-min. RT thickness found to be 0.09" thick.

Temp MOC needed until LSR 21043 clamp is installed. Pipe should be replaced during 1Q2010 H2A S/D

Step 1: ☐ **Notify USW** ☐ **USW Representation Present** **USW Representative:** John Pollard

Worker's Committee Member/Steward's comments if unable to attend:

☐ **Notify Trainer** ☐ **TrainerRepresentation Present** **Training Representative:**

Step 2: Involve: Operations, Maintenance, Technical and others with appropriate expertise relevant to the change (CRTC, Contractors, etc)

Attendees: Joe Slaughter, John Pollard, Glenn Argate, Tim Schwerdtfeger, Shad Rahman, Pascha McAlister, Jason Waldrop

Step 3: Think about the task at hand. Discuss the existing situation. Discuss the change. Discuss the impact of the change on the existing situation. Determine the training requirements for this change.

Step 4: **Training Type:** 1

Develop a list of concerns, consider your options, consider your following:

*H2S *NH3 *Acid *Caustic *Benzene *Fall Protection *Staging *Scott Air *PPE *Hot Work *Confined Space Entry *Evacuation Plan *Safety Operator

Concern	Consequence	Mitigation	Proceed Safely
T-min is 0.07" vs 0.09" RWT (measured with RT is about the same thickness)	Operating at about t-min, potential piping failure	LSR 21043 generated to clamp until this pipe can replaced during 1Q2010 H2A S/D	Yes

HSE Action Items

Additional Comments

Internal carbonic acid corrosion is not a linear corrosion mechanism.

Note that this pipe is incorrectly carbon steel, pipe spec RG1 notes that this should be 1-1/4 Cr - pipe will be replace with correct metallurgy

CUSA-EPA-0000900

Stage Two Training and Communication Review

10/5/2012 9:08:01 AM

- [x] **Identify the affected employees.**
  - * **Maintenance and Technical affected?**
  - * **Employee who will require training to start up the change based on the level of training.**
  - * **Employees who will receive training after the start up BUT before they can perform work affected by the change**
- [ ] **Procedures have been modified/written (Ops/SSO/Trainer)**
- [ ] **Identify the affected employees..**
  - * **Lesson plan cover sheet (includes training objective statement and list of affected employees)**
  - * **Procedural changes (Standing Orders, mark-ups)**
  - * **Flow daigrams (final or mark-ups)**
- [ ] **Determine level of training**
- [ ] **Training has been scheduled**
- [ ] **Affected employees have been trained in order to start up the change.**

MOC No: 20707

Date Completed: 2/2/2010

Completed By: Slaughter, Joseph M.

Person Responsible: Slaughter, Joseph M.

Project/Equipment Title:

IREC 79778 - Operate Below Flag Thickness - Calculate T-min - 0402-002-002 TML 25 - R-315 Feed Line

Summary of Review:

We will be replacing this line during the upcoming SISO Cluster Shutdown in March 2010.

Tmin for the 3/4", 1-1/4 Cr pipe nipples of the above subject line is 0.0700" - RWT as of 07/09 is 0.09" thick.

Pipe wall Tmin analyses have been performed for the 3/4" nitrogen supply line connected to the 18" overhead pipe of R-315 from E-341. Tmin data calculated and listed below are applicable to the short section of 3/4", 1-1/4 Cr pipe nipples (XS, Seamless, A335-P11) of RG1 Piping Class as shown on the attached sketch.

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©Tmin per pipe longitudinal membrane+bending stress due to operating thermal movement of 18" header pipe: 0.0020".
(d)Tmin per pipe longitudinal membrane+bending stress due to pipe operating internal pressure, weight and seismic loads combined: 0.0600".
(e)Tmin per pipe local bending stress at support location due to weight load imposed: Not Applicable.

It should be noted that the critical U-bolt support indicated on the attached is the only support supporting the 3/4" nitrogen supply line. Without this support, pipe weight bending stress (or the above

Tmin required) at the weldolet will be increased significantly. Therefore, it is as important to UT-inspect pipe wall of the 3/4" nitrogen line as to visual-inspect the critical U-bolt support.

APPENDIX III
PRE-START-UP SAFETY REVIEW CHECKLIST

You have been assigned a Pre Start-Up Safety Review. This checklist is a guide to help ensure that all information necessary to evaluate the change is considered.

Passport No: 279644
EWO No.:
MOC PSSR.: 20707.001

MOC Number 20707
Filing Reference
Person Responsible Slaughter, Joseph M.
Completed By Slaughter, Joseph M.
Date Completed 2/2/2010

Project/Equipment Description:

IREC 79778 - Operate Below Flag Thickness - Calculate T-min - 0402-002-002 TML 25 - R-315 Feed Line

Subsystem:

NOT The PSSR facilitator shall involve employees with expertise in process operations, maintenance, and engineering, based upon their experience and understanding of the process system being evaluated.

The following requirements for PSSR shall be addressed:	Approved by:	Date
1. Has the equipment and construction been completed in accordance with the critical design specifications? Some examples of how this may be accomplished are: * Review of equipment quality assurance and inspection records. * Review of construction inspection records. * P & ID "check" after mechanical completion, and facility "walk-through" inspection. **Justification:** N/A Only Tmin Calculation	Slaughter, Joseph M.	2/2/2010
2. Are Safety, operating, maintenance, and emergency procedures in place and adequate? * The phrase "in place and adequate" means: written, reviewed, approved, and accessible to employees requiring the procedures in their work. * This does not prevent the use of "mark-up" procedures to satisfy the requirement, but these must undergo the same review and approval and training interaction as would "the final version" of the same procedure and would require rigorous control. **Justification:** N/A Only Tmin Calculation	Slaughter, Joseph M.	2/2/2010
3. Has the communication or training of affected operating, maintenance, or contract workers been completed? * Maintenace employees, contractors, and other employees whose work is affected by the change must be informed of the change and training in the impact on their job tasks before the changed equipment is started up. **Justification:** Yes	Slaughter, Joseph M.	2/2/2010
4. Have the quality assurance goals of mechanical integrity been met? * Ensure that changes are suitable for the intended service. * Ensure that the quality of the work is acceptable. * Ensure that the quality of the Leak Seal is acceptable. **Justification:** N/A Only Tmin Calculation	Slaughter, Joseph M.	2/2/2010
5. Have all recommendations resulting from PHA's or HSE's been addressed of resolved * Ensure tall Recommendations have been documented as addressed or resolved	Slaughter, Joseph M.	2/2/2010

CUSA-EPA-0000903

APPENDIX III
PRE-START-UP SAFETY REVIEW CHECKLIST

You have been assigned a Pre Start-Up Safety Review. This checklist is a guide to help ensure that all information necessary to evaluate the change is considered.

Passport No: 279644
EWO No.:
MOC PSSR.: 20707.001

MOC Number 20707
Filing Reference
Person Responsible Slaughter, Joseph M.
Completed By Slaughter, Joseph M.
Date Completed 2/2/2010

Project/Equipment Description:

IREC 79778 - Operate Below Flag Thickness - Calculate T-min - 0402-002-002 TML 25 - R-315 Feed Line

Subsystem:

Justification: Yes

Are there any safety-related exceptions encountered during the PSSR that require follow-up after started up? ☐ **Yes**

Miscellaneous Comments:

Only a Tmin Min Calculation. We will be replacing this line during upcoming 2010 SISO Cluster Turnaround

Exception	*Owner*	*Completed By*	*Completed On*	*Notified*