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December 21, 2012

Mr. Chris Hoidal
Director, Western Region
Pipeline and Hazardous Materials Safety Administration
12300 W. Dakota Ave, Suite 110
Lakewood, CO. 80228

Re: CPF 5-2012-5017M
Notice of Amendment – PHMSA Control Room Management Inspection
Written Response

Dear Mr. Hoidal:

ExxonMobil Pipeline Company (EMPCo) received the Notice of Amendment (NOA) dated October 10, 2012 from the Pipeline and Hazardous Materials Safety Administration (PHMSA) concerning possible inadequacies within EMPCo's Control Room Management Plan (CRM). The letter was received by EMPCo on October 23, 2012. On November 1, 2012 EMPCo requested the response date be extended until December 23, 2012; PHMSA approved the extension on November 7, 2012. This Written Response is therefore timely.

ExxonMobil Pipeline Company strives to maintain compliance with all regulations. Allegations of noncompliant or inadequate procedures are taken very seriously. In this Written Response, EMPCo is providing a narrative explanation of its proposed changes to the Company's CRM in order to address the issues raised in the NOA. Due to the number proposed changes, EMPCo is also submitting a revised copy of the CRM, as "Attachment A".

In addition, EMPCo is also filing a Request for Hearing and Statement of Issues to accompany this Written Response in order to preserve its right to raise certain issues for further discussion with PHMSA. The CRM regulations are relatively new, and the rules themselves at 49 C.F.R. Part 195.446 and the Agency's guidance are less detailed than the underlying NOA. That said, the Company believes it has responded to all of the issues raised in the NOA in a manner that is consistent with the regulations. In the event there are any remaining issues, the Company believes they will be capable of resolution, but nevertheless reserves its right to the hearing process. EMPCo shares PHMSA's desire to enhance pipeline safety by combining strengthened control room management with improved controller training and fatigue management, and the Company is committed to working with PHMSA toward those goals.

PHMSA's allegations appear in bolded text and explanation in italic text below, with the Company's response to each immediately following. As a prefatory matter, EMPCo's CRM Plan is a part of the

Company's Part 195.402 Operations & Maintenance (O&M) Manual. As such, the document is subject to, at a minimum, review and/or revision every calendar year, pursuant to 49 C.F.R. Part 195.402(a).

**1. §195.446 Control room management.**
**(a) *General.* This section applies to each operator of a pipeline facility with a controller working in a control room who monitors and controls all or part of a pipeline facility through a SCADA system. Each operator must have and follow written control room management procedures that implement the requirements of this section. The procedures required by this section must be integrated, as appropriate, with the operator's written procedures required by§ 195.402. An operator must develop the procedures no later than August 1, 2011 and implement the procedures according to the following schedule. The procedures required by paragraphs (b), (c)(5), (d)(2) and (d)(3), (t) and (g) of this section must be implemented no later than October 1, 2011. The procedures required by paragraphs (c)(1) through (4), (d)(l), (d)(4), and (e) must be implemented no later than August 1, 2012. The training procedures required by paragraph (h) must be implemented no later than August 1, 2012 except that any training required by another paragraph of this section must be implemented no later than the deadline for that paragraph.**

*At the time of the inspection, EMCO had not developed a documented process to review their pipeline assets to determine control room locations and the specific control room written procedures to be used. A complete and formal process identifying control locations, specific assets, and applicable written CRM procedures is necessary. EMCO did identify an additional control room in Pasadena, Texas prior to the CRM inspection but it appears that this was an ad hoc addition not based on a formal process for asset review. At the time of this inspection, the plan reviewed by PHMSA did not have an applicability section with procedures, established criteria, and asset information that could be reviewed periodically to identify of additional control rooms. Also, EM CO's CRM plan did not include a documented process to identify correct form changes, versions, and their incorporation into the plan.*

EMPCo Response
At the time of the inspection EMPCo had identified two control rooms. Although formal process for control room identification was not in place, a review of EMPCo facilities had been conducted during meetings held to discuss Control Room requirements. EMPCo has now included a reference to a list of facilities in the Introduction of the CRM along with the necessary criteria to be considered a control room. This list will be reviewed when the CRM review is completed once per calendar year not to exceed 15 months. Please see CRM Introduction.

EMPCo utilizes a shared electronic storage drive to house the most current version of OCC forms. This drive is accessible to the OCC Supervisors. Please see CRM Sections 5.0 regarding change management and 10.0 regarding the history of revisions.

**2. §195.446 Control room management.**
***(b) Roles and responsibilities.* Each operator must define the roles and responsibilities of a controller during normal, abnormal, and emergency operating conditions. To provide for a controller's prompt and appropriate response to operating conditions, an operator must define each of the following:**

**(1) A controller's authority and responsibility to make decisions and take actions during normal operations;**

*At the time of the inspection, EMCO's CRM plan did include a section on controller's roles and responsibilities; however, PHMSA identified a few areas that the CRM procedures did not adequately address. They are:*

*EMCO is utilizing a "Trouble log" to document events that occur during a controller's shift but the procedures do not specifically require entries to be added to the trouble log.*
EMPCo Response
Please see EMPCo CRM section 1.9.

*EM CO's CRM did not include a process to review of all EM CO's manuals, including any O&M and Emergency Procedure, OMIS or other procedural documents to verify that all controller roles and responsibilities had been identified.*
EMPCo Response
Consistent with Part 195 requirements, EMPCo's procedural manuals undergo annual reviews, including its O&M, Emergency and Response procedures. A process for annual review is written into EMPCo's Dot Liquids Manual (O&M) under 195.402(a), the Emergency Response procedures are reviewed annually during the regulatory required drills. The process for annual review of the OCC Operating Instructions (OCC OIs) is located in EMPCo's Operations Integrity Management System (OIMS) System 6A4, Pipeline Operations section 2.1. OIMS 6A4 provides for a documented annual review by a knowledgeable person.

*EMCO's CRM did not clearly identify all activities that a controller can and cannot do, e.g. points-off-scan in this section or throughout the other CRM documentation.*
*EMPCo Response*
EMPCo's CRM sets forth Controller's general roles and responsibilities, including those activities that a controller may and may not undertake in Chapter 1 of the CRM manual. In addition, please see section 1.4.2 in the EMPCo CRM referring to Controller's ability to take points off-scan.

*EMCO did not include specific cross-training criteria or console combination requirements. For example, generic versus console specific training/cross-training may change controller roles and responsibilities, e.g. checking elevation profiles on line M-70.*
EMPCo Response
EMPCo's process for cross-training a Controller requires the Trainee to work with a qualified Controller for a period of time until the Trainer and the OCC Supervisors feel he/she is qualified to competently work alone. A training assessment form is used to document the training components including pipeline hydraulics and elevation. Please see EMPCo CRM section 7.7.3. The EMPCo training assessment forms for new hires and cross-training is attached as "Attachment B". See CRM section 1.10 for information on elevation.

*EMCO did not consider having the supervisors complete cross-training on what may be considered by the controllers and management as the most difficult console/s, or implement a subject matter expert (SME) call-out process for the most difficult consoles.*
EMPCo Response
EMPCo believes that its CRM Plan is in compliance with the intent and plain language of 49 C.F.R. Part 195.446(b)(1) regarding a controller's responsibilities during normal operations. EMPCo Controller Supervisors were all experienced Controllers that have been promoted to their current positions. While each Supervisor may not have been trained on every console, they can assist with

evaluating situations and provide suggestions and direction to the qualified Controller on duty. Supervisors are encouraged to sit with qualified Controllers when time permits to become more knowledgeable on all the consoles.

***3.* §195.446 Control room management**
***(b) Roles and responsibilities.* Each operator must define the roles and responsibilities of a controller during normal, abnormal, and emergency operating conditions. To provide for a controller's prompt and appropriate response to operating conditions, an operator must define each of the following:**
**(2) A controller's role when an abnormal operating condition is detected, even if the controller is not the first to detect the condition, including the controller's responsibility to take specific actions and to communicate with others;**
**(3) A controller's role during an emergency, even if the controller is not the first to detect the emergency, including the controller's responsibility to take specific actions and to communicate with others; and**

*During the inspection, it was noted that EMCO's leak detection and communication loss parameters were set at historical figures without considering potential consequences. Data parameters and data must be periodically reviewed to understand appropriate values in contrast to only doing what has been done historically. Values used for leak detection regarding deviations, rate of change (ROC), 15 minute, 1 hour, 24 hours must be substantiated through data review. This also applies to the 30-minute communication loss limit.*
EMPCo Response
Please see Chapter 4 Alarm Management of EMPCo's CRM. All alarms are reviewed during the rationalization process for Class, Set Point Verification and Documentation. This rationalization process includes alarms dealing with Communication, ROC, and Line Balance. EMPCo added language to section 1.8 of the CRM to better describe the process for dealing with communication failures.

**4. §195.446 Control room management.**
***(b) Roles and responsibilities.* Each operator must define the roles and responsibilities of a controller during normal, abnormal, and emergency operating conditions. To provide for a controller's prompt and appropriate response to operating conditions, an operator must define each of the following:**
**(4) A method of recording controller shift-changes and any hand-over of responsibility between controllers.**

*At the time of the inspection, EMCO had general procedures for shift changes. These procedures, however, did not specify that it is the responsibility of the controller to not turn over control to someone unfit for duty per the training they received concerning fatigue and fitness for service. Also, EMCO's CRM had a section covering roles and responsibilities that included general procedures for shift change but did not have records that the shift hand over check sheet was implemented by October 1, 2011. Records indicated that the shift hand over check sheet was implemented on November 14, 2011. Also, fatigue training was documented for all but two controllers. This was corrected after the first week of the audit.*
EMPCo Response
Please see CRM section 1.13.5 explaining Controller duties when the incoming Controller appears to be unfit for duty.

In compliance with 49 C.F.R. Part 195.446(b)(4), EMPCo had established procedures in place regarding shift change on October 1, 2011. In November at PHMSA's request, these procedures were augmented to include the shift hand over checklist. EMPCo Controller Supervisors had developed this checklist but it was not rolled out to the Controllers.

EMPCo agrees that fatigue training was omitted for two Controllers. Training was immediately conducted when this omission was discovered.

**5. §195.446 Control room management.**
***(c) Provide adequate information.*** **Each operator must provide its controllers with the information, tools, processes and procedures necessary for the controllers to carry out the roles and responsibilities the operator has defined by performing each of the following:**

*During the inspection, PHMSA conducted a physical walkthrough of the EMCO Control Center. PHMSA inspectors noticed that EMCO has an unwritten process for controllers to review new operating instructions (OI) that includes each controller checking an area called, "the box" for new and/or updated procedures and new information relevant to the operation of the Operations Control Center. EMCO's CRM procedures did not include this process. Also, EMCO's written procedures did not specify how the new operating instruction (OI) procedural update check-off box is to be reviewed and documented. A list of individuals or some other methodology to understand who and when each controller has reviewed new procedures is suggested.*
EMPCo Response
Please see CRM section 1.2 and 2.11.6 for procedures related to OI review.

**6. §195.446 Control room management.**
***(c) Provide adequate information.*** **Each operator must provide its controllers with the information, tools, processes and procedures necessary for the controllers to carry out the roles and responsibilities the operator has defined by performing each of the following:**

**(1) Implement API RP 1165 (incorporated by reference, see§ 195.3) whenever a SCADA system is added, expanded or replaced, unless the operator demonstrates that certain provisions of API RP 1165 are not practical for the SCADA system used;**

*At the time of the inspection, EMCO's CRM included a general statement that EMCO intended to comply with all regulatory requirements including referenced industry standards including API 1165. EMCO did not include specific procedures to clarify what additions or expansions will require RP1165 implementations. Also, items not specifically addressed were:*
EMPCo Response
EMPCo added language to section 2.2 of the CRM to better define additions, expansions, or replacements to the SCADA system.

*A review of all displays for RP 1165 compliance and summarize the review including sufficient documentation.*
EMPCo Response
Please see CRM section 2.2

*That the display review will include consistency requirements between screens and consoles and also verify that the CRM has color choices that are well defined. At the time of the inspection, there was apparent inconsistency between colors and it was not clear how color usage was described in the CRM, especially for wheat and white.*
EMPCo Response
Please see CRM sections 2.2 – 2.6 for explanations of EMPCo's color selection. Color selection is consistent on all regulated consoles monitored in the OCC.

*A requirement to note all display changes made.*
EMPCo Response
All changes to the SCADA control screens require a SCADA System Change Request (SSCR) to be completed and approved before the change is made. Please see CRM section 2.7 for a review of the SSCR procedure. Changes to SCADA screens that will require changes to the OIs also require an MOC to be completed.

**7.§195.446 Control room management.**
***(c) Provide adequate information.*** **Each operator must provide its controllers with the information, tools, processes and procedures necessary for the controllers to carry out the roles and responsibilities the operator has defined by performing each of the following:**

**(2) Conduct a point-to-point verification between SCADA displays and related field equipment when field equipment is added or moved and when other changes that affect pipeline safety are made to field equipment or SCADA displays;**

*During the inspection, it was noted that EMCO personnel were able to describe the process for their practice for conducting point-to-point verification, however, the process was not written in the CRM plan. EMCO's CRM did not include a clear step-by-step process for completing their point-to-point and pseudo point check outs including when and how these are to be performed.*
EMPCo Response
See CRM section 2.7 for EMPCO's point to point verification process. Section 4.7 explains that pseudo points are treated the same as actual points, this includes the verification process.

**8. §195.446 Control room management.**
***(c) Provide adequate information.*** **Each operator must provide its controllers with the information, tools, processes and procedures necessary for the controllers to carry out the roles and responsibilities the operator has defined by performing each of the following:**
**(3) Test and verify an internal communication plan to provide adequate means for manual operation of the pipeline safely, at least once each calendar year, but at intervals not to exceed 15 months;**

*During the review of the EMCO communication plan, PHMSA noted that the plan contained general testing protocols. The tests did not include specific documentation to support that an actual test has occurred and what was actually tested. EMCO's communication plan did not require verification of what was tested, including appropriate test results, and if whatever did not work was fixed. Specifics regarding when to shut down a pipeline was not required to be included as part of the internal communications plan. Also, EMCO's communication plan did not require all tests to be documented. Appropriate records will help show that, in the future, Closed Loop Control, ESD or Cascade Shutdown Functions, are implemented consistently across consoles. PHMSA noted that*

*EMCO did not specifically include in their written procedures to continue to review this testing on their West Coast system regarding ESD or Hi pressure switch options.*
EMPCo Response
See CRM section 2.8 for a description of EMPCo's testing and documentation procedure for the communication plan. EMPCo considers its Business Continuity Plan (BCP) as a component of this communication plan. In the BCP several scenarios listing various levels of OCC communication are described as well as EMPCo's proposed actions. The BCP was available and reviewed at the time of the inspection. EMPCo has added a reference to the BCP in section 2.8 of the CRM.

EMPCo has identified several (14 active) variations of Closed Loop Control (CLC) being used in the SCADA system. None of the CLCs are used as "last line of defense" for protecting the integrity of the pipeline. Typically these CLCs are implemented as Controller tools to aid in operation of the pipeline.

EMPCo currently does not utilize cascade shutdown functions in the OCC.

**9. §195.446 Control room management.**
***(d) Fatigue mitigation.*** **Each operator must implement the following methods to reduce the risk associated with controller fatigue that could inhibit a controller's ability to carry out the roles and responsibilities the operator has defined:**
**(1) Establish shift lengths and schedule rotations that provide controllers off-duty time sufficient to achieve eight hours of continuous sleep;**

*PHMSA noted that EM CO's Fatigue Risk Management Plan (FRMP) had a number of good attributes. There were, however, a number of areas where PHMSA noted deficiencies in the procedures reviewed. A number of the issues noted were realized when EMCO personnel verbally augmented their written procedures with additional explanation on what is actually accomplished when and by whom. The CRM rule requires operators to formalize their actual actions and processes in a formal written format that includes a complete documentation system. PHMSA also noted that EMCO has executive management involvement and support for their FRMP. The details on what organizational level of involvement are to be included and how this will be implemented was note detailed in the plan. PHMSA also noted the following inadequacies:*
EMPCo Response
In section 3.1 of the CRM EMPCo added a statement documenting the support of EMPCo's Southern Operations Manager / VP. In section 3.3 the roles and responsibilities are defined.

*EMCO's FRMP did not consistently use the acronym "FRMP" and the concept of a Fatigue Management Plan in the CRM. PHMSA experienced some confusion when reading the FRMS because of inconsistent use of these terms.*
EMPCo Response
EMPCo has revised the CRM to consistently use the term Fatigue Risk Management System (FRMS).

*EM CO's Fatigue Management Plan did not include a description of what would be done if a controller self-reports as being too fatigued to perform pipeline duties.*
EMPCo Response
Please see section 3.3 (OCC Controllers) of the EMPCo CRM. EMPCo added language to describe options if a Controller self-reports a fatigue issue.

*EM CO's Fatigue Management Plan did not include additional fatigue mitigation measures (such as standing, radio, lights, temperature controls, double-checking of lists, others checking work, etc.).*
EMPCo Response
In section 3.6 of the CRM EMPCo added additional fatigue mitigation measures.

*EMCO did not add the accident reporting requirements from section 6.2 of the CRM plan to the FRMP.*
EMPCo Response
In section 3.7.5 of the CRM EMPCo added a reference for accident reporting and investigation.

*In section 3.5 (page 71) the next to the last bullet references policies and procedures but the specifics of which policies and procedures were not noted and were not available for review.*
EMPCo Response
EMPCo has deleted these references from the CRM. Note section 3.5 is now located on page 73.

*EMCO did not clarify in their manual what OCC-1 consists of(example: Sections- 3.8; 3.8.1; 3.8.2). This could cause confusion on the part of the reader or reviewer.*
EMPCo Response
EMPCo has revised the description of when the OCC-1 form will be used in section 3.8 of the CRM. A revised copy of the EMPCo OCC-1 form is attached as "Attachment C."

**10. §195.446 Control room management.**
***(d) Fatigue mitigation.*** **Each operator must implement the following methods to reduce the risk associated with controller fatigue that could inhibit a controller's ability to carry out the roles and responsibilities the operator has defined:**
**(2) Educate controllers and supervisors in fatigue mitigation strategies and how offduty activities contribute to fatigue;**

*EM CO's FRMP had a number of deficiencies noted with respect to educating controllers in fatigue mitigation strategies and associated processes. Each issue identified is detailed below:*

*EM CO's procedures did not discuss higher risk operation times and require appropriate fatigue mitigation measure implementation (hours 9-12 of each 12 hour shift, 2-6 am, 3 nights or more rotation).*
EMPCo Response
Please see CRM section 3.6. EMPCo added language on high risk operation times.

*EMCO did not clarify whether or not section 3.7.2; the first bullet (14 hours) includes shift exchange and commute times.*
EMPCo Response
EMPCo included language in CRM sections 3.7.1 and 3.7.2 regarding shift change and commute times.

*EMCO did not specify in section 3.2 - Definition of On-Duty Time is to include all hours worked as an employee.*
EMPCo Response
EMPCo revised the definition of "On Duty Time" in section 3.2 to include all activities completed as an employee.

*EMCO did not specify in section 3.3- OCC Shift Supervisor, a description of what will be done if a controller is not fit for duty due to fatigue.*
EMPCo Response
EMPCo added language to section 3.3 of the CRM to include procedures for Controller unfit for duty due to fatigue.

*EMCO did not clarify in the plan the role of Supervisors being qualified (all titles included) schedulers, and D-4 Controllers. PHMSA also noted that D-4 Controllers are initially scheduled to work days for an entire year.*
EMPCo Response
Please see the Definitions section located in the front of the CRM for updated definitions for Controller, Relief Control Room Supervisor/Shift Supervisor, D-4 Controller, and Relief Daily/Analyst/Scheduler.

*EMCO did not state in the plan that no "on-call" controllers are utilized.*
EMPCo Response
In section 3.3 of the CRM a statement was added that EMPCo does not use "On-call Controllers".

*Chronic fatigue is not addressed in the plan reviewed. EM CO's FRMP did not have any notation that chronic fatigue is addressed in the training program for Supervisors and Controllers.*
EMPCo Response
In section 3.5 of the CRM EMPCo added language that chronic fatigue symptoms were addressed in the fatigue training.

*EMCO did not consider including absenteeism as a provision in the monthly review regarding the number of Controllers needed.*
EMPCo Response
Please see CRM section 3.9 "Periodic Review of the FRMS to Achieve Continuous Improvement".

*EMCO did not state that all remote training associated with fatigue needs to be included in total hours of service (HOS).*
EMPCo Response
Please see section 3.2 in the CRM for the definition of On Duty Time. EMPCo added language concerning "remote training".

*EMCO did not include all fatigue mitigation measures on the OCC-1 form and also, did not include risk analysis, times, dates, and shifts worked on the form.*
EMPCo Response
A revised copy of the EMPCo OCC-1 form is attached as "Attachment C"

*EMCO did not include in their manual that all emergency deviations with respect to time worked will be recorded on the OCC-1 form as verbally described.*
EMPCo Response
EMPCo added language to CRM section 3.7.4 to state that emergency deviations from the Hours of Service guidelines will be documented using the OCC-1 form.

*EMCO did not include in their written procedures that fatigue management training must be conducted once each calendar year not to exceed 15 months.*
EMPCo Response
Please see CRM section 3.5.

*EMCO's personnel discussed the performance review and reward system and the near loss system which included loss and prevention observations (LPO). This area was not detailed in the plan. It is suggested that this area be further developed and the process to be utilized more fully described. This could be a good indicator that a fatigue issue occurred. -*
EMPCo Response
In section 3.2 of the CRM EMPCo added a definition for Loss Prevention Observation (LPO). EMPCo also added the use of an LPO as a fatigue mitigation step in section 3.6. Performance reviews are typically done on an annual basis and used for employee development and salary treatment. These reviews are considered private and not appropriate for discussion in the CRM.

*EMCO did not have a process to verify that all time-on-task has been included in the fatigue management training module.*
EMPCo Response
EMPCo has added time on task fatigue information to the annual fatigue management training. This addition to the annual fatigue training was communicated to all controllers.

*EMCO did not include the requirement to review the fatigue management plan for effectiveness each calendar year not to exceed 15 months.*
EMPCo Response
Please see CRM section 3.9.

**11. §195.446 Control room management.**
***(d) Fatigue mitigation.*** **Each operator must implement the following methods to reduce the risk associated with controller fatigue that could inhibit a controller's ability to carry out the roles and responsibilities the operator has defined:**
**(4) Establish a maximum limit on controller hours-of-service, which may provide for an emergency deviation from the maximum limit if necessary for the safe operation of a pipeline facility.**

*EMCO's FRMP had a number of deficiencies noted with respect to establishing a maximum limit on controllers HOS. Each issue identified is detailed below:*

*EMCO's Fatigue Management Plan did not address unforeseen schedule revisions.*
EMPCo Response
Please see CRM section 3.7 for a statement regarding unforeseen schedule changes and the FRMS. Language was added to state that the OCC-1 form will be completed and approved as soon as practical after the unforeseen schedule change.

*Section 3.7.1 did not clarify whether or not 12 hours includes shift hand-over or shift exchange time and commute time.*
EMPCo Response
EMPCo has revised section 3.7.1 to address PHMSA's concern.

*Section 3.7.5 did not describe how work hours agree with the rest of the Fatigue Risk Management Plan requirements. For example, the procedure did not define what specifically is meant by abnormal operations as opposed to emergency deviations.*
EMPCo Response

The table shown in section 3.7.5 has been removed from the CRM. EMPCo agrees with PHMSA that the information listed in the table was confusing and did not add value to the plan.

**12. §195.446 Control room management.**
***(e) Alarm management.*** **Each operator using a SCADA system must have a written alarm management plan to provide for effective controller response to alarms. An operator's plan must include provisions to:**

*EMCO's Alarm Management Plan as presented had a number of good attributes. There were, however, a number of areas where PHMSA noted deficiencies in the procedures reviewed. A number of the issues noted were realized when EMCO personnel verbally augmented their written procedures with additional explanation on what is actually accomplished when and by whom. The CRM rule requires operators to formalize their actual actions and processes in a written format including a complete documentation system. Each issue identified is detailed below:*

*The definition section of the Alarm Management Plan was not specific enough to ensure all appropriate personnel understand the difference between the following terms; notification, alert, CSE- Critical Safety Equipment, SSCR, tags, OIMS, PV Filtering, inaccurate, false, stale data (noted as old data or white data), suppress versus inhibit and other utilized abbreviations in the definitions.*
EMPCo Response
EMPCo has revised CRM section 4.3 Definitions to better define the terms listed above. The terms PV Filtering, Tags, Alert, and Suppress were removed from this section. EMPCo does not currently use these terms in the CRM.

*EMCO did not adequately define how various teams interact for example, Alarm Management Team versus the Alarm Rationalization Team.*
EMPCo Response
In section 4.4 and 4.6.1 of the CRM, EMPCo describes the roles and responsibilities of the Alarm Management Team and the Alarm Rationalization Team.

*Loss Prevention Observations were not included in the Alarm Management Plan. EMCO's procedures did not fully describe this process and documentation required to support decisions made.*
EMPCo Response
EMPCo defines Loss Prevention Observation (LPO) I section 3.2 of the CRM. LPOs are not currently used in the Alarm Management section of the CRM.

*Leak Detection elements were not connected to the Alarm Management Plan.*
EMPCo Response
Please see CRM section 4.3 Definitions. EMPCo has included "Line Balance Alarms" in the definition of Safety Related Alarms.

*EMCO's procedures did not adequately define the difference between "class" versus "priority".*
EMPCo Response
Please see section 4.1 and 4.3 of the CRM for revised definitions of alarm class priorities.

*EMCO's procedures did not adequately define and consistently use the terms "Critical", "Major" and "Alert." EMCO personnel verbally described to PHMSA the meaning of each term is actually "CR",*

*"HiAud", and "HiNoAud" respectively. Also, the plan did not identify the associated referenced colors. EMCO's plan did not include an explanation of how these priorities can also affect audible alarm indications.*
EMPCo Response
Please see section 4.6.2 of the EMPCo CRM for an expanded explanation and well as color references.

*EMCO did not address stale data and forced data (whether at the PLC/RTU or SCADA level) and that these must be reviewed monthly.*
EMPCo Response
EMPCo is currently capturing stale data on a monthly basis. Reviews of this data will be done when the alarm rationalization process is complete. Section 4.9.1 Alarm System Metrics

*Section 4.12 did not include a specific interval for an internal audit. The use of "periodic" is not considered adequate.*
EMPCo Response
Please see CRM section 4.12 for a revised plan review schedule.

**13. §195.446 Control room management.**
***(e) Alarm management.*** **Each operator using a SCADA system must have a written alarm management plan to provide for effective controller response to alarms. An operator's plan must include provisions to:**
**(1) Review SCADA safety-related alarm operations using a process that ensures alarms are accurate and support safe pipeline operations;**

*EMCO's Alarm Management Plan, specifically as the plan relates to ensuring alarms are accurate and support safe pipeline operations, was not fully developed. There were a number of areas where PHMSA noted deficiencies in the procedures reviewed. Each issue identified is detailed below:*

*EMCO's CRM did not adequately define which alarms are Safety Related Alarms.*
EMPCo Response
Please see CRM section 4.3 for a revised definition of Safety Related Alarms. EMPCo revised this definition to include examples of possible safety related alarms.

*EMCO did not include a detailed process for conducting their monthly alarm review process.*
EMPCo Response
Please see section 4.9.1 Table 5 in the CRM for EMPCo's revised alarm review process.

*EMCO did not adequately define rate-of-change (ROC) alarms that are to be included in the plan with respect to various set points and purpose.*
EMPCo Response
Rate of Change (ROC) alarms are defined in CRM section 1.7.1. Currently EMPCo does not consider ROC alarms to be safety related.

*EMCO did not include a discussion around the use of trouble logs and associated maintenance in the plan.*
EMPCo Response
The trouble log is defined in the Definitions section located in the front of the CRM. EMPCo uses the trouble log to document stale data (sec 2.5), inhibited alarms (1.4.2), equipment failures (1.9), abnormal operations (1.11.1), emergency conditions (2.11.2), RTU taken off-scan (4.8.1), false alarms (4.8.4), and nuisance alarms (4.9.1).

*EMCO did not include consideration of using a HAZOPs review to provide additional information concerning the Alarm Management plan.*
EMPCo Response
In section 4.1 of the CRM EMPCo included a reference to HAZOP reviews to provide information concerning Alarm Management

*The EMCO Alarm Management plan did not include soft-pseudo points and a discussion around these types of points.*
EMPCo Response
EMPCo now defines pseudo-points in section 4.3 of the CRM and discusses their use in section 4.7.

*EMCO did not define the difference between "Critical" and "Operations Critical" in the CRM document.*
EMPCo Response
EMPCo has removed the term Operations Critical from the CRM. Critical is defined in section 4.6.2.

*EMCO did not define all associated metrics in all referenced sections.*
EMPCo Response
EMPCo's metrics associated with alarm management are listed and defined in section 4.9.1 of the CRM.

*If EMCO is not going to use alarm groupings then eliminate this discussion from the Alarm Management Plan.*
EMPCo Response
EMPCo has removed reference to alarm groupings from the CRM.

**14. §195.446 Control room management.**
***(e) Alarm management.*** **Each operator using a SCADA system must have a written alarm management plan to provide for effective controller response to alarms. An operator's plan must include provisions to:**
***(2)*** **Identify at least once each calendar month points affecting safety that have been taken off scan in the SCAD A host, have had alarms inhibited, generated false alarms, or that have had forced or manual values for periods of time exceeding that required for associated maintenance or operating activities;**

*EMCO's Alarm Management Plan as presented had a number of areas where PHMSA noted deficiencies in the procedures reviewed with respect to identifying points affecting safety that have been taken off scan in the SCAD A host, have had alarms inhibited, generated false alarms, or that*

*have had forced or manual values for periods of time exceeding that required for associated maintenance or operating activities. Each specific issue is identified below:*

*EMCO did not include in their written procedures how suppression techniques will be implemented and this was not included in the Alarm Management Plan.*
EMPCo Response
EMPCo included a discussion on alarm suppression in section 4.7.2 of the CRM. It is noted that EMPCo currently does not use alarm suppression.

*In Section 4.8.3- EMCO did not identify who can take points "Off-Scan" or "Out-ofService" and whether or not this will ever be performed. If this is to be performed, EMCO's plan did not explain under what conditions this will be allowed.*
EMPCo Response
In section 4.8.1 EMPCo discusses procedures for taking points or RTUs off-scan or out-of-service, and the documentation required.

*EMCO did not define what alarm provision attributes per point can be changed by the controller and what will be used routinely in the system.*
EMPCo Response
In section 1.4.2 of the CRM EMPCo discusses the Controllers ability to inhibit a SCADA point, also discussed is the approval process required before inhibiting a point and the review process.

*EMCO did not define inhibit functions, how inhibited points will be reviewed, if individual parameters are inhibited, and how inhibited parameters will be corrected. Also, EMCO did not explain what roles or job functions can inhibit points and individual alarm parameters.*
EMPCo Response
In section 1.4.2 of the CRM EMPCo discusses the Controllers ability to inhibit a SCADA point, also discussed is the approval process required before inhibiting a point and the review process.

*EMCO's audit forms did not include what problem was identified, what was done to correct the problem, when the correction was implemented and when the condition was found.*
EMPCo Response
Please see CRM section 4.12 for an explanation of EMPCo's Alarm Management Plan review.

*EMCO did not state in the Alarm Management Plan that the "White M" on the display means the equipment is in manual mode.*
EMPCo Response
Please see section 1.4.2 of the CRM for procedures for manually forcing data.

*EMCO did not include a "not to exceed" timeframe in section 4.8.1 Alarm Attribute. It currently addresses alarm settings and a review "after significant operating experience."*
EMPCo Response
EMPCo deleted the reference to "significant operating experience". Alarm attributes are now reviewed during commissioning and annually during the OI review and verification process.

*EMCO did not include that "False" alarms must be reviewed and reported on a monthly basis and that corrective actions must be noted.*
EMPCo Response
Please see sections 4.8.4 and 4.9 for procedures related to False alarms and review.

*Chronic Alarm Management or Equipment failure issues are addressed through the trouble log but this was not included in the Alarm Management plan.*
EMPCo Response
Please see section 4.8.4 of the CRM.

*EMCO did not include in the CRM plan a discussion about how controllers have input into alarm descriptors and how their understanding is confirmed.*
EMPCo Response
EMPCo has included a Roles and Responsibilities section to the Alarm Management Plan. Section 4.4 of the CRM describes Controller inputs.

*EMCO did not include in the operating instructions, a statement that alarm set point limits are available to the controller.*
EMPCo Response
Please see section 1.2 Operating Instructions in the CRM for a description of what is included in the OIs.

**15. §195.446 Control room management.**
**(e) Alarm management. Each operator using a SCADA system must have a written alarm management plan to provide for effective controller response to alarms. An operator's plan must include provisions to:**
**(3) Verify the correct safety-related alarm setpoint values and alarm descriptions when associated field instruments are calibrated or changed and at least once each calendar year, but at intervals not to exceed 15 months.**

*EMCO's Alarm Management Plan as presented had a number of areas where PHMSA noted deficiencies in the procedures reviewed with respect to verifying the correct safety-related alarm set point values and alarm descriptions when associated field instruments are calibrated or changed. Each issue is identified below:*

*EMCO did not have an adequate and complete procedure for their E&I design practice in section 9.7 and 11 and how the interface will work in the Alarm Management Plan.*
EMPCo Response
EMPCo determined that references to the E&I design guide were not necessary in the CRM. Instead the role of the SCADA Engineer was defined as having the responsibility to ensure design practices are being followed as they relate to alarm management. Please see section 4.4 in the CRM.

*EMCO's documentation did not include a requirement that information about set point values, "as found" and "as left" are to be recorded during the Alarm Management Plan's alarm set point review that occurs once each calendar year not to exceed to 15 months.*
EMPCo Response
EMPCo added language to section 4.6.4 pertaining to alarm documentation to include references and tracking of discrepancies. EMPCo also added language to section 1.2 to better describe the OI review and verification process.

**16. §195.446 Control room management.**

***(e) Alarm management.*** **Each operator using a SCADA system must have a written alarm management plan to provide for effective controller response to alarms. An operator's plan must include provisions to:**
**( 4) Review the alarm management plan required by this paragraph at least once each calendar year, but at intervals not exceeding 15 months, to determine the effectiveness of the plan;**

*EM CO's Alarm Management Plan as presented had a number of areas where PHMSA noted deficiencies in the procedures reviewed with respect to reviewing the alarm management plan at least once each calendar year, but at intervals not exceeding 15 months, to determine the effectiveness of the plan. Each issue is identified below:*

*EMCO did not include that the Alarm Management Plan must be reviewed once each calendar year not to exceed 15 months for effectiveness.*
EMPCo Response
Please see CRM section 4.12 Alarm Management Review

*The format EMCO is utilizing for recording the effectiveness of their CRM has not been created.*
EMPCo Response
CRM section 4.9.1 now includes a chart listing the metrics EMPCo will use for determining effectiveness.

**17. §195.446 Control room management.**
***(e) Alarm management.*** **Each operator using a SCADA system must have a written alarm management plan to provide for effective controller response to alarms. An operator's plan must include provisions to:**
**(5) Monitor the content and volume of general activity being directed to and required of each controller at least once each calendar year, but at intervals not exceeding 15 months, that will assure controllers have sufficient time to analyze and react to incoming alarms; and**

*EMCO' s Alarm Management Plan as presented had a number of areas where PHMSA noted deficiencies in the procedures reviewed with respect to monitoring the content and volume of general activity being directed to and required of each controller at least once each calendar year, but at intervals not exceeding 15 months, that will assure controllers have sufficient time to analyze and react to incoming alarms. Each issue is identified below:*

*EMCO's Alarm Management Plan did not include adequate formality around monitoring the content and volume of alarms received per console and how various metrics will lead to additional console creation. The workload study discussed during the inspection and associated planning has not been implemented, finalized or reflected in the plan.*
EMPCo Response
EMPCo has completed a Controller workload study and is currently formalizing the conclusions derived from this study. A discussion of how this study was completed is located in CRM section 4.11.

*EMCO did not address that all cross-training is to be considered added duties and must be considered in any overall volume of activity review.*
EMPCo Response
Please see section 4.11 of EMPCo's CRM discussing workload study matrix items.

*EMCO did not consider the number of temporary alarm set-point changes in the volume of activity considerations.*
EMPCo Response
Temporary alarm set point changes (rabbit ears) are a tool available to the Controller to aid him/her in doing their job. This activity could be considered de minimis, but this data is captured in the metrics "Average number of SCADA Commands" and "Average Number of Alarms per Hour". These metrics are listed in section 4.11 of the CRM.

*Metrics regarding Day/Night shift and weekend versus week metrics have not been finalized.*
EMPCo Response
Please see section 4.11 of EMPCo's CRM discussing workload study matrix items.

*Slack line conditions, timer setting requirements, number of points, and number of commands were not included in the work load study.*
EMPCo Response
Please see section 4.11 of EMPCo's CRM discussing workload study matrix items. The number of SCADA points and the number of commands were included in these metrics. Slack line conditions are not specifically considered in the workload study but would be indirectly addressed by the "Average number of SCADA Commands" and "Average Number of Alarms per Hour". Timer setting is not considered in the workload study.

*The appropriate criterion for acceptable controller performance has not been developed.*
EMPCo Response
EMPCo strives for flawless performance in all activities. Conclusions from the EMPCo Controller workload study are in development and will be used in Controller performance standards.

**18. §195.446 Control room management.**
***(e) Alarm management.*** **Each operator using a SCADA system must have a written alarm management plan to provide for effective controller response to alarms. An operator's plan must include provisions to:**
**(6) Address deficiencies identified through the implementation of paragraphs (e)(1) through (e)(5) of this section.**

*EMCO's Alarm Management Plan as presented had a number of areas where PHMSA noted deficiencies in the procedures reviewed with respect to addressing deficiencies identified through the implementation of paragraphs (e)(l) through (e)(5) of this section. Each issue is identified below:*

*Deficiency documentation was not adequately developed and did not include the information regarding when a situation was found and then corrected and what was done to correct the problem.*
EMPCo Response
Please see CRM section 4.12 concerning the Alarm Management Plan review and follow-ups

*A method to prioritize deficiencies found was not included and discussed in the Alarm Management Plan.*
EMPCo Response
Please see CRM section 4.12 concerning the Alarm Management Plan review and follow-ups

*EMCO's Alarm Management plan procedures did not provide adequate detail to perform the effectiveness review and what actions will be included as part of the effectiveness review.*
EMPCo Response
Please see CRM section 4.12 concerning the Alarm Management Plan review and follow-ups

**19. §195.446 Control room management.**
***(f) Change management.*** **Each operator must assure that changes that could affect control room operations are coordinated with the control room personnel by performing each of the following:**
**(1) Implement section 7 of API RP 1168 (incorporated by reference, see§ 195.3) for *control* room management change and require coordination between control room representatives, operator's management, and associated field personnel when planning and implementing physical changes to pipeline equipment or configuration; and**
**(2) Require its field personnel to contact the control room when emergency conditions exist and when making field changes that affect control room operations.**

*EMCO's Change Management Plan as presented had a number of areas where PHMSA noted deficiencies in the procedures reviewed with respect to implementing section 7 of API RP 1168 for control room management change and requiring coordination between control room representatives, operator's management, and associated field personnel when planning and implementing physical changes to pipeline equipment or configuration. Each issue is identified below:*

*EMCO's Management of Change (MOC) documentation did not describe the actual changes made and what was changed in accordance with the verbal representations of EMCO personnel during the inspection including addressing formality associated with the MOC closure process (sign-off).*
EMPCo Response
EMPCo has a MOC process in place. It is housed within our Operations Integrity Management Systems (OIMS), and is identified as System 7A Management of Change. This document was available for review during the inspection and is included in this submission as Attachment D. The MOC close out process is found in section 2.7 of the MOC document.

*EMCO's calibrating procedures for reviewing alarm set points did not include all applicable details as described verbally by EMCO personnel during the inspection.*
EMPCo Response
Along with the MOC process the EMPCo SCADA Technicians use a database known as the SCADA System Change Request (SSCR). Anytime a change to the SCADA system is made an SSCR is completed and logged. The SSCR is also utilized for recording calibration and point-to-point check out. Please see section 5.1 and 4.10 of the CRM.

*EMCO did not incorporate the use of "the box" for controllers to review recent changes and modifications to OIs or equipment.*
EMPCo Response
Please see CRM section 1.2 and 2.11.6 for procedures related to OI/MOC review.

*EMCO did not include asset changes in the CRM manual regarding the SCCR or MOC process.*
EMPCo Response
EMPCo has added language concerning asset changes to the CRM in order to be consistent with the MOC process. Please see section 5.1.

**20. §195.446 Control room management.**
***(g) Operating experience.* Each operator must assure that lessons learned from its *operating* experience are incorporated, as appropriate, into its control room management procedures by performing each of the following:**
**(2) Include lessons learned from the operator's experience in the training program required by this section.**

*EM CO's procedures for operating experience as presented had a number of areas where PHMSA noted deficiencies in the procedures reviewed with respect to including lessons learned from the operator's experience in the training program required by this section. Each issue is identified below:*

*The root cause analysis technique used by EMCO, taproot, was not included in the CRM manual.*
EMPCo Response
EMPCo utilizes the Loss Prevention System (LPS) which is a behavioral based approach to safety and loss prevention. EMPCo has added language to the CRM to better describe the investigation and root cause analysis requirements of LPS. Please see section 6.2 of the CRM.

*The parties responsible for performing the root cause analysis were not identified.*
EMPCo Response
After an incident, a team is assigned to investigate and determine the root cause of the incident. The size and make-up of the team will depend on the severity of the incident. If a Controller's actions were determined to have played a part in the incident the OCC Near Loss/Loss Investigation Reporting Guide will be completed. See CRM section 6.2 for a copy of this Guide.

*Consider amending the "Near Loss & Loss Investigation Reporting Guide" to state the following: "Determine if Control Room actions or INACTIONS contributed to the event. If so, their deficiencies contributed to:"*
EMPCo Response
Please see the CRM section 6.2 to see a revised copy of the Near Loss & Loss Investigation Reporting Guide. EMPCo has revised the statement to include the reference to INACTIONS.

*Training in not required to be reviewed for consistency with procedures to ensure no erroneous training is conducted.*
EMPCo Response
Please see section 7.9 for procedures related to training review.

*The operating experience section of the CRM manual did not include all operating experience of note being communicated to the controllers (lessons learned, other selected of value, emails noting specific experience considerations) as described verbally during the inspection.*
EMPCo Response
Please see CRM section 6.3 for revised language describing annual Controller meetings and the review of accidents.

**21. §195.446 Control room management.**
***(h) Training.* Each operator must establish a controller training program and review the *training* program content to identify potential improvements at least once each calendar**

**year, but at intervals not to exceed 15 months. An operator's program must provide for training each controller to carry out the roles and responsibilities defined by the operator. In addition, the training program must include the following elements**:

*EMCO's procedures for training as presented had a number of areas where PHMSA noted general deficiencies in the training procedures reviewed. Each issue as identified below:*

*EMCO's training section lacked adequate detail and requires more content, substance, and formality to meet the requirements/intent of the code.*
EMPCo Response
EMPCo has added language and content to the Training section of the CRM (chapter 7) describing the training required by EMPCo Controllers. EMPCo feels these revisions meet the intent of the regulation.

*EMCO's use of the terms, "Experienced controllers" and "Inexperienced controllers" is not consistently implemented through-out the training section.*
EMPCo Response
EMPCo does not use the term "Inexperienced Controllers", instead the terms Qualified/Experienced Controller or Controller Trainee are used to describe the level of competence. See the CRM Definitions section in the Introduction for a revised definition of Controller Trainee.

*New system asset training has not been addressed in EMCO's training section of the CRM plan. Class room training, hydraulic review, simulation, and beginning low flow conditions have not been included in the manual.*
EMPCo Response
EMPCo has added section 7.3.3 to the CRM to discuss training for new system assets.

*EMCO has not reviewed controller and cross-training assessment documentation. Hours of Service (HOS) for individuals in training and receiving span-of-control of 1:1 training has not been addressed by signing, (with date and time) the shift change document.*
EMPCo Response
EMPCo has added a line on the Operations Control Center Controller Check List for signatures of both the Controller and the Controller Trainee. This document is reviewed by the Controller Supervisor at the conclusion of each shift.

*EMCO has not defined what "promptly" means regarding identified improvement implementation.*
EMPCo Response
Please see CRM section 7.9, EMPCo states that any irregularities in the training will be addressed before the next required review cycle.

*EMCO has not documented all elements of training in their training plan.*
EMPCo Response
EMPCo has expanded CRM sections 7.3.1 and 7.3.2 in an attempt to capture elements of the Controller training plan.

*EMCO has not included interviews with supervisors as well as a trainee's activities in their training plan. Also, EMCO has not constructed formality and implementation references associated with identified improvements in training.*
EMPCo Response

EMPCo has added discussion of the Controller Supervisor interviews in sections 7.3.1 and 7.3.2. Section 7.9 discusses review of training and potential improvements.

*EMCO has not included procedures to cross-check to confirm O&M, Emergency, CRM, and other specific plan sections are addressed in the Roles and Responsibility section and that all roles and responsibilities are covered in the CRM training program.*
EMPCo Response
EMPCo's has procedures in place to review O&M, Emergency Response and CRM manuals once per calendar year not to exceed 15 months. OCC OIs are also reviewed on an annual basis. Controller roles and responsibilities are documented in Chapter 1 of the CRM, which is reviewed as part of training.

*EMCO has not included the training module completed list for controllers and supervisors in their training plan.*
EMPCo Response
EMPCo Controllers and Controller Supervisors can view a list of completed training modules anytime via the EMPCo intranet. Please see section 7.3.1 and 7.3.2 for procedures related to Controller Supervisors review of Controller training.

*EMCO has not included the power point presentations that are used for controller training in their plan.*
EMPCo Response
EMPCo believes that as revised its CRM Plan is in compliance with the intent and plain language of 49 C.F.R. Part 195.446(h) regarding training. EMPCo Controllers are required to review and test on numerous training modules located in EMPCo's WebCat training database. There are also classroom presentations that the Controller is required to attend. EMPCo does not feel it would add value to the CRM to include all of the training modules and presentations. This information is available to the Controller through other resources.

*EMCO had not emphasized that controllers should "Think leak first" in the training material.*
EMPCo Response
Please see CRM section 7.6 for a revised description of EMPCo's training objectives. As stated in this section and throughout the CRM Controllers have the authority to shut down any pipeline when a leak is suspected. Controllers are reminded in the CRM to enlist the help and advice of the Controller Supervisor when an abnormal or emergency condition is suspected.

*EMCO has not addressed explicitly explaining differences between consoles in the training section (Console 7 versus console 3).*
EMPCo Response
Please see section 7.6 of the CRM for a discussion of training differences between consoles.

**22. §195.446 Control room management.**
***(h) Training.* Each operator must establish a controller training program and review the training program content to identify potential improvements at least once each calendar year, but at intervals not to exceed 15 months. An operator's program must provide for training each controller to carry out the roles and responsibilities defined by the operator. In addition, the training program must include the following elements:**
**(1) Responding to abnormal operating conditions likely to occur simultaneously or in sequence;**

*EMCO's procedures for training did not include responding to abnormal operating conditions likely to occur simultaneously or in sequence;*
EMPCo Response
Please see section 7.2 in the CRM.

**23. §195.446 Control room management.**
***(h) Training.*** **Each operator must establish a controller training program and review the training program content to identify potential improvements at least once each calendar year, but at intervals not to exceed 15 months. An operator's program must provide for training each controller to carry out the roles and responsibilities defined by the operator. In addition, the training program must include the following elements:**
**(2) Use of a computerized simulator or non-computerized (tabletop) method for training controllers to recognize abnormal operating conditions;**

*EMCO's procedures for training as presented had a number of areas where PHMSA noted general deficiencies in the training procedures reviewed with respect to the use of a computerized simulator or non-computerized (tabletop) method for training controllers to recognize abnormal operating conditions. Each issue is identified below:*

*EMCO did not adequately address information about OCC participation in field driven tabletop exercises or spill drills as verbally described by EMCO personnel during the inspection.*
EMPCo Response
Please see CRM section 7.5 for an expanded description of EMPCo Controllers involvement during field driven spill drills.

*EMCO plan does not include consideration for working with executive management to allow controller input to the selection of field tabletop scenarios.*
EMPCo Response
EMPCo believes that as revised its CRM Plan is in compliance with 49 C.F.R. Part 195.446(h)(2) regarding the use of simulator and tabletop training methods to recognize abnormal operating conditions. EMPCo's OCC does not participate in the selection of field led spill drill or tabletop scenarios. EMPCo feels that Field Operations is best able to make these decisions.

**24. §195.446 Control room management.**
***(h) Training.*** **Each operator must establish a controller training program and review the training program content to identify potential improvements at least once each calendar year, but at intervals not to exceed 15 months. An operator's program must provide for training each controller to carry out the roles and responsibilities defined by the operator. In addition, the training program must include the following elements:**
**(3) Training controllers on their responsibilities for communication under the operator's emergency response procedures;**
*EMCO has not included simulating AOCs not addressed elsewhere, (communication outages for example) in their training procedures.*
EMPCo Response
Before a Controller Trainee is allowed to operate a console without a qualified trainer present, he/she is required to complete the New Hire Controller Assessment Form or the cross training assessment form. This form lists the training requirements that the Trainee has been exposed to

and successfully completed. A copy of the New Hire Controller Assessment Form, which includes exposure to communication outages among other conditions, is attached as Attachment B.

**25. §195.446 Control room management.**
***(h) Training.*** **Each operator must establish a controller training program and review the training program content to identify potential improvements at least once each calendar year, but at intervals not to exceed 15 months. An operator's program must provide for training each controller to carry out the roles and responsibilities defined by the operator. In addition, the training program must include the following elements:**
**(4) Training that will provide a controller a working knowledge of the pipeline system, especially during the development of abnormal operating conditions; and**

*EM CO's procedures for training as presented had a number of areas where PHMSA noted deficiencies in the procedures reviewed with respect to providing a controller a working knowledge of the pipeline system, especially during the development of abnormal operating conditions. EMCO must amend their procedures to address each issue as identified below:*

*EMCO did not include HAZOPS, trouble logs, and other monthly reviews of lessons learned in their training program.*
EMPCo Response
See CRM section 6.3 and 7.6 for a description of Controller Annual Training meetings. Controller training for use of the Trouble Log is covered on the New Hire Controller Assessment Form (Attachment B). EMPCo routinely sends Control Room representatives to participate in HAZOPS but this activity is not part of the Controllers training plan.

*EMCO did not include covering older selected lesson learned (war stories) with new controllers in their training section.*
EMPCo Response
See CRM section 6.3 and 7.6 for a description of Controller Annual Training meetings.

*EMCO did not incorporate operating experience components into their training program, specifically those identified through section G review as discussed verbally during the inspection.*
EMPCo Response
EMPCo Controllers are required to attend monthly safety meetings; a portion of this meeting includes a review of all Loss Incidents (LI) and Near Loss Incidents (NLI) that have involved Controllers, or the Control Room. See CRM section 7.6.

**26. §195.446 Control room management.**
***(h) Training.*** **Each operator must establish a controller training program and review the training program content to identify potential improvements at least once each calendar year, but at intervals not to exceed 15 months. An operator's program must provide for training each controller to carry out the roles and responsibilities defined by the operator. In addition, the training program must include the following elements:**
**(5) For pipeline operating setups that are periodically, but infrequently used, providing an opportunity for controllers to review relevant procedures in advance of their application.**

*EMCO's procedures for training as presented had a number of areas where PHMSA noted deficiencies in the procedures reviewed with respect to pipeline operating setups that are*

*periodically, but infrequently used, providing an opportunity for controllers to review relevant procedures in advance of their application. Each issue as identified below:*

*EMCO did not include seldom used procedures/set-ups in the training section (example: the leased two lines from DOE regarding flowing at a specific rate once a year and reverse flow considerations.)*
EMPCo Response
See Section 7.7 of EMPCo's CRM. EMPCo utilizes Operating Instructions (OIs) to describe line ups that are used frequently and infrequently. Controllers are required to be familiar with the OIs for the consoles that they are qualified to operate. Any lineup that is not listed in the OIs must have an approved MOC with Controller instructions. Controllers are required to review the MOC before operating the lineup.

*EMCO did not include equipment position regarding power failure (well heads fail closed, some tank ·valves failed closed other equipment does not) in their training program.*
EMPCo Response
EMPCo has found two instances of valves that could potentially fail close during a power failure. EMPCo will update the OIs for these systems to include a statement about equipment position during power failure.

**27. §195.446 Control room management.**
***(i) Compliance validation.*** **Upon request, operators must submit their procedures to PHMSA or, in the case of an intrastate pipeline facility regulated by a State, to the appropriate State agency.**

*At the time of the inspection, EMCO's procedures for compliance validation did not include a log to document CRM plan requests and the operator's response to the requests in section 8.0. EMCO's procedures did not include the date of the request to submit their plan, the date of the plan submittal, the person's title responsible for submitting the plans, and the person to whom the plan is submitted.*
EMPCo Response
Please see section 8.2 of EMPCo's CRM.

**28. §195.446 Control room management.**
**(j) *Compliance and deviations.* An operator must maintain for review during inspection:**
**(1) Records that demonstrate compliance with the requirements of this section; and**

*EM CO's procedures for compliance and deviations as presented had a number of areas where PHMSA noted deficiencies in the procedures reviewed with respect to the requirement that operators must maintain for review during inspection, records that demonstrate compliance with the requirements of this section. EMCO must amend their procedures to address each issue as identified below:*

*EM CO's procedures did not ensure that the documentation of deviations applies to all aspects of the CRM plan, not just fatigue and hours of service.*
EMPCo Response
Please see section 9.2 of the CRM.

*EMCO's procedures did not provide sufficient detail to know how documentation of deviations will be pulled together for future reference.*
EMPCo Response
Please see section 9.2 of the CRM. EMPCo may use different methods for documenting deviations, including, forms, instructions, electronic record storage, tape data storage for SCADA or other methods.

*EMCO's procedures did not include information about the various electronic record storage media and associated durations (Tape drive, on SCADA system live data retrieval, I drive, email storage) are utilized as described verbally during the inspection.*
EMPCo Response
Section 9.2 of EMPCo's CRM discusses different types of storage media and current retention duration.

**29. §195.446 Control room management.**
**(j) Compliance and deviations. An operator must maintain for review during inspection:**
**(2) Documentation to demonstrate that any deviation from the procedures required by this section was necessary for the safe operation of the pipeline facility.**

*At the time of the inspection, EMCO's procedures did not ensure that deviations must be required as a result of pipeline safety considerations or that the reason for the deviation regarding pipeline safety impact is documented or ensure routine and cyclical deviations are addressed in the CRM manual.*

EMPCo Response
EMPCo's MOC process or other deviation documentation processes are in place to record any deviations to the CRM for pipeline safety considerations or otherwise.

EMPCo shares PHMSA's desire to enhance pipeline safety through improved control room management practices. To that end, EMPCo has attempted to provide a detailed response to each allegation of inadequate procedures in the event that these matters can be resolved outside of a hearing. However if a solution to this matter cannot be agreed upon based on the information provided, EMPCo reserves its right to a hearing. Accordingly, EMPCo is also filing a Request for Hearing and Statement of Issues to accompany this Written Response in order to preserve its rights to raise certain issues for further discussion with PHMSA.

Sincerely,