CRM, SCADA, and Leak Detection - General

*** 1. Control Room Management Criteria** *Does the process adequately address criteria by which the operator determines which of its facilities are control rooms?* (CR.CRMGEN.CRMCRITERIA.P) (detail) 195.446(a)

Notes

*** 2. Control Room Management** *Are CRM procedures formalized and controlled?* (CR.CRMGEN.CRMMGMT.P) (detail) 195.446(a)

Notes

*** 3. Control Room Management** *Were procedures approved, in place, and implemented on or before the regulatory deadline?* (CR.CRMGEN.CRMIMPLEMENT.R) (detail) 195.446(a)

Notes

*** 4. Control Room Management** *Are procedures readily available to controllers in the control room?* (CR.CRMGEN.CRMPROCLOCATION.O) (detail) 195.446(a)

Notes

CRM, SCADA, and Leak Detection - Roles and Responsibilities

*** 1. Roles and Responsibilities** *Are there clear processes to describe each controller's physical domain of responsibility for pipelines and other facility assets?* (CR.CRMRR.RESPONSIBLE.P) (detail) 195.446(b)(1)

Notes

*** 2. Roles and Responsibilities** *Are there provisions in place to assure that only qualified individuals may assume control at any console/desk?* (CR.CRMRR.QUALCONTROL.P) (detail) 195.446(b)(1)

Notes

*** 3. Roles and Responsibilities** *If the physical domain of responsibility periodically changes, has a clear process been established to describe the conditions for when such a change occurs?* (CR.CRMRR.DOMAINCHANGE.P) (detail) 195.446(b)(1)

Notes

*** 4. Roles and Responsibilities** *Do processes address a controller's role during temporary impromptu (unplanned) changes in controller responsibilities?* (CR.CRMRR.RESPCHANGE.P) (detail) 195.446(b)(1)

Notes

*** 5. Roles and Responsibilities** *Do the defined roles and responsibilities require controllers to stay at the console to verify all SCADA commands that have been initiated are fulfilled, and that commands given via verbal communications are acknowledged before leaving the console for any reason?* (CR.CRMRR.COMMANDVERIFY.P) (detail) 195.446(b)(1)

Notes

*** 6. Controller Authority** *Have processes been established to define the controllers' authority and responsibilities when an abnormal operating condition is detected?* (CR.CRMRR.AUTHORITYABNORMAL.P) (detail) 195.446(b)(2)

Notes

*** 7. Overpressure Limits** *Are controllers aware of the current MOPs of all pipeline segments for which they are responsible, and have they been assigned the responsibility to maintain those pipelines at or below the MOP?* (CR.CRMRR.PRESSLIMITS.O) (detail) 195.446(b)(2)

Notes

*** 8. Controller Authority (Emergency Operations)** *Do processes define the controllers' authority and responsibility to make decisions, take actions, and communicate with others upon being notified of, or upon detection of, and during, an emergency or if a leak or rupture is suspected?* (CR.CRMRR.AUTHORITYEMERGENCY.P) (detail) 195.446(b)(3)

Notes

*** 9. Control Center Evacuation** *Do processes specifically address the controller's responsibilities in the event the control room must be evacuated?* (CR.CRMRR.EVACUATION.P) (detail) 195.446(b)(3)

Notes

*** 10. Communication Failure** *Do processes specifically address the controller's responsibilities in the event of a SCADA system or data communications system failure impacting large sections of the controller's domain of responsibility?* (CR.CRMRR.COMMSYSFAIL.P) (detail) 195.446(b)(3)

Notes

*** 11. Shift Change Process** *Have processes been established for the hand-over of responsibility that specify the type of information to be communicated to the oncoming shift?* (CR.CRMRR.HANDOVER.P) (detail) 195.446(b)(4) (195.446(c)(5))

Notes

*** 12. Shift Change Process - Documentation** *Do processes require that records document the hand-over of responsibility, document the time the actual hand-over of responsibility occurs, and the key information and topics that were communicated during the hand-over?* (CR.CRMRR.HANDOVERDOC.P) (detail) 195.446(b)(4) (195.446(c)(5))

Notes

*** 13. Shift Change Process - Documentation** *Are there records that document the hand-over of responsibility, document the time the actual hand-over of responsibility occurs, and the key information and topics that were communicated during the hand-over?* (CR.CRMRR.HANDOVERDOC.R) (detail) 195.446(b)(4) (195.446(c)(5))

Notes

*** 14. Shift Change Process - Overlap** *Do processes require the controllers to discuss recent and impending important activities ensuring adequate overlap?* (CR.CRMRR.HANDOVEROVERLAP.P) (detail) 195.446(b)(4)

Notes

*** 15. Shift Change Process - Handover Alternative** *When a controller is unable to continue or assume responsibility for any reason, do the shift hand-over processes include alternative shift hand-over actions that specifically address this situation?* (CR.CRMRR.HANDOVERALTERNATIVE.P) (detail) 195.446(b)(4)

Notes

*** 16. Shift Change Process - Unattended Consoles** *Has the operator established an adequate process for occasions when the console is left temporarily unattended for any reason?* (CR.CRMRR.UNATTENDCONSOLE.P) (detail) 195.446(b)(4)

Notes

*** 17. Shift Change Process - Console Coverage** *Do processes maintain adequate console coverage during shift hand-over?* (CR.CRMRR.CONSOLECOVERAGE.P) (detail) 195.446(b)(4)

Notes

CRM, SCADA, and Leak Detection - Supervisory Control and Data Acquisition

*** 1. Change Management** *Do processes clearly define the types of changes to the SCADA system(s) that constitute additions, expansions, or replacements under the meaning of the CRM rule?* (CR.SCADA.SYSTEMMOC.P) (detail) 195.446(c)(1)

Notes

2. SCADA Displays *Are there written processes to implement the API RP 1165 display standards to the SCADA systems that have been added, expanded, or replaced since August 1, 2012?* (CR.SCADA.DISPLAYCONFIG.P) (detail) 195.446(c)(1)

Notes

*** 3. SCADA Human Factors** *Has section 4 of API RP 1165 regarding human factors engineering been implemented?* (CR.SCADA.HUMANFACTORS.R) (detail) 195.446(c)(1)

Notes

*** 4. SCADA Display Hardware** *Has section 5 of API RP 1165 regarding display hardware been implemented?* (CR.SCADA.DISPLAYHARDWARE.R) (detail) 195.446(c)(1)

Notes

*** 5. SCADA Display Layout** *Has section 6 of API RP 1165 regarding display layout and organization been implemented?* (CR.SCADA.DISPLAYLAYOUT.R) (detail) 195.446(c)(1)

Notes

*** 6. SCADA Display Navigation** *Has section 7 of API RP 1165 regarding display navigation been implemented?* (CR.SCADA.DISPLAYNAVIGATION.R) (detail) 195.446(c)(1)

Notes

*** 7. SCADA Display Objects** *Has section 8 of API RP 1165 regarding display object characteristics been implemented?* (CR.SCADA.DISPLAYOBJECTS.O) (detail) 195.446(c)(1)

Notes

*** 8. SCADA Display Dynamics** *Has section 9 of API RP 1165 regarding display object dynamics been implemented?* (CR.SCADA.DISPLAYDYNAMICS.R) (detail) 195.446(c)(1)

Notes

*** 9. SCADA Control Selection** *Has section 10 of API RP 1165 control selection and techniques been implemented?* (CR.SCADA.CONTROLSELECTION.R) (detail) 195.446(c)(1)

Notes

*** 10. SCADA Administration** *Has section 11 of API RP 1165 administration been implemented?* (CR.SCADA.ADMINISTRATION.R) (detail) 195.446(c)(1)

Notes

*** 11. SCADA Impracticality** *If any/all applicable paragraph(s) of API RP 1165 have not been implemented, has it been demonstrated and documented that the unimplemented provisions are impractical for the SCADA system used?* (CR.SCADA.1165IMPRACTICAL.R) (detail) 195.446(c)(1)

Notes

*** 12. Setpoints** *Does the process adequately define safety-related points?* (CR.SCADA.SETPOINT.P) (detail) 195.446(c)(2) (195.406(b))

Notes

*** 13. Setpoints** *Do records indicate safety-related points have been adequately implemented?* (CR.SCADA.SETPOINT.R) (detail) 195.446(c)(2)

Notes

*** 14. Point-to-Point Verification** *Are there adequate processes to define and identify the circumstances which require a point-to-point verification?* (CR.SCADA.POINTVERIFY.P) (detail) 195.446(c)(2)

Notes

*** 15. Point-to-Point Verification** *Have required point-to-point verifications been performed?* (CR.SCADA.POINTVERIFY.R) (detail) 195.446(c)(2)

Notes

*** 16. Point-to-Point Verification Extent** *Are there adequate processes for the thoroughness of the point-to-point verification?* (CR.SCADA.POINTVERIFYEXTENT.P) (detail) 195.446(c)(2)

Notes

*** 17. Point-to-Point Verification Extent** *Do records demonstrate adequate thoroughness of the point-to-point verification?* (CR.SCADA.POINTVERIFYEXTENT.R) (detail) 195.446(c)(2)

Notes

*** 18. Point-to-Point Verification Extent** *Is there an adequate process for defining when the point-to-point verification must be completed?* (CR.SCADA.POINTVERFIYINTVL.P) (detail) 195.446(c)(2)

Notes

*** 19. Point-to-Point Verification Extent** *Do records indicate the point-to-point verification has been completed at the required intervals?* (CR.SCADA.POINTVERFIYINTVL.R) (detail) 195.446(c)(2)

Notes

*** 20. Internal Communication Plan** *Has an internal communication plan been established and implemented that is adequate to manually operate the pipeline during a SCADA failure/outage?* (CR.SCADA.COMMPLAN.P) (detail) 195.446(c)(3)

Notes

*** 21. Internal Communication Plan** *Has the internal communication plan been tested and verified for manual operation of the pipeline safely at least once each calendar year but at intervals not exceeding 15 months?* (CR.SCADA.COMMPLAN.R) (detail) 195.446(c)(3)

Notes

*** 22. Backup SCADA System** *Is there a backup SCADA system?* (CR.SCADA.BACKUPSCADA.O) (detail) 195.446(c)(4)

Notes

*** 23. Backup SCADA Development** *Has the use of the backup SCADA system for development work been defined?* (CR.SCADA.BACKUPSCADADEV.P) (detail) 195.446(c)(4)

Notes

*** 24. Backup SCADA Testing** *Is the backup SCADA system tested at least once each calendar year at intervals not to exceed 15 months?* (CR.SCADA.BACKUPSCADATEST.R) (detail) 195.446(c)(4)

Notes

*** 25. Backup SCADA Verification** *Does the testing verify that there are adequate processes in place for decision-making and internal communications to successfully implement a transition from primary SCADA to backup SCADA, and back to primary SCADA?* (CR.SCADA.BACKUPSCADAVERIFY.R) (detail) 195.446(c)(4)

Notes

*** 26. Backup SCADA Adequacy** *If the back-up SCADA system is not designed to handle all the functionality of the main SCADA system, does the testing determine whether there are adequate procedures in place to account for displaced and/or different available functions during back-up operations?* (CR.SCADA.BACKUPSCADAADEQUACY.R) (detail) 195.446(c)(4)

Notes

*** 27. Backup SCADA Transfer** *Do processes adequately address and test the logistics of transferring control to a backup control room?* (CR.SCADA.BACKUPSCADATRANSFER.P) (detail) 195.446(c)(4)

Notes

*** 28. Backup SCADA Return to Primary** *Do procedures adequately address and test the logistics of returning operations back to the primary control room?* (CR.SCADA.BACKUPSCADARETURN.P) (detail) 195.446(c)(4)

Notes

*** 29. Backup SCADA Testing** *Is a representative sampling of critical functions in the back-up SCADA system being tested to ensure proper operation in the event the backup system is needed?* (CR.SCADA.BACKUPSCADAFUNCTIONS.R) (detail) 195.446(c)(4)

Notes

CRM, SCADA, and Leak Detection - Fatigue Management

*** 1. Fatigue Mitigation** *Does the fatigue mitigation process or procedures (plan) identify operator-specific fatigue risks?* (CR.CRMFM.FATIGUEMITIGATION.P) (detail) 195.446(d)

Notes

*** 2. Fatigue Risk Reduction** *Does the fatigue mitigation plan adequately address how the program reduces the risk associated with controller fatigue?* (CR.CRMFM.FATIGUERISKS.P) (detail) 195.446(d)

Notes

*** 3. Fatigue Quantification** *Do processes require that the potential contribution of controller fatigue to incidents and accidents be quantified during investigations?* (CR.CRMFM.FATIGUEQUANTIFY.P) (detail) 195.446(d)

Notes

*** 4. Fatigue Mitigation Manager** *Is there a designated fatigue risk manager who is responsible and accountable for managing fatigue risk and fatigue countermeasures, and someone (perhaps the same person) that is authorized to review and approve HOS emergency deviations?* (CR.CRMFM.FATIGUEMANAGER.P) (detail) 195.446(d)

Notes

*** 5. Normal Shift Length** *Is the scheduled shift length less than or equal to 12 hours (not including shift hand-over) or is there a documented technical basis to show that shift lengths and schedule rotations are adequate to provide controllers off-duty time sufficient to achieve 8 hours of continuous sleep?* (CR.CRMFM.SHIFTLENGTH.R) (detail) 195.446(d)(1)

Notes

*** 6. Factors in Shift Length** *Does the operator factor in all time the individual is working for the company when establishing shift lengths and schedule rotations or is there a documented technical basis to show that shift lengths and schedule rotations are adequate to provide controllers off-duty time sufficient to achieve 8 hours of continuous sleep?* (CR.CRMFM.SHIFTLENGTHTIME.R) (detail) 195.446(d)(1)

Notes

*** 7. Scheduled Time Off** *Are all scheduled periods of time off at least one hour longer than 8 hours plus commute time or is there a documented technical basis to show that shift lengths and schedule rotations are adequate to provide controllers off-duty time sufficient to achieve 8 hours of continuous sleep?* (CR.CRMFM.SCHEDULEDTIMEOFF.R) (detail) 195.446(d)(1)

Notes

*** 8. On Call Controllers** *For controllers who are on call, does the operator minimize interrupting the required 8 hours of continuous sleep or is there a documented technical basis to show that shift lengths and schedule rotations are adequate to provide controllers off-duty time sufficient to achieve 8 hours of continuous sleep?* (CR.CRMFM.ONCALLCONTROLLER.R) (detail) 195.446(d)(1)

Notes

*** 9. Maximum Hours of Service** *Do processes limit the maximum HOS limit in any sliding 7 day period to no more than 65 hours or is there a documented technical basis to show reduction of the risk associated with controller fatigue?* (CR.CRMFM.MAXHOS.P) (detail) 195.446(d)(4)

Notes

*** 10. Minimum Time Off** *After reaching the HOS limit in any sliding 7 day period, is the minimum time off at least 35 hours or is there a documented technical basis to show a reduction of the risk associated with controller fatigue?* (CR.CRMFM.MINTIMEOFF.P) (detail) 195.446(d)(4)

Notes

*** 11. Documented Time Schedule** *Is there a formal system to document all scheduled and unscheduled HOS worked, including overtime and time spent performing duties other than control room duties?* (CR.CRMFM.DOCSCHEDULE.P) (detail) 195.446(d)(4)

Notes

*** 12. Days Off** *For normal business hour type operations (i.e., five days per week), are no more than five days worked in succession before at least two days off?* (CR.CRMFM.DAYSOFF.P) (detail) 195.446(d)(4)

Notes

*** 13. Normal Work Hours** *For normal business hour type operations (i.e., five days per week), is the shift start time no earlier than 6:00 a.m. and the shift end time no later than 7:00 p.m.?* (CR.CRMFM.WORKHOURS.R) (detail) 195.446(d)(4)

Notes

*** 14. Fatigue Countermeasures** *For shifts longer than 8 hours, have specific fatigue countermeasures been implemented for the ninth and beyond hours?* (CR.CRMFM.FATIGUECOUNTERMEASURES.P) (detail) 195.446(d)(4)

Notes

*** 15. Daily HOS Limit** *Do processes limit the daily maximum HOS limit no more than 14 hours in any sliding 24-hour period?* (CR.CRMFM.DAILYHOSLIMIT.P) (detail) 195.446(d)(4)

Notes

*** 16. Number of Qualified Controllers** *Do operations include a sufficient number of qualified controllers?* (CR.CRMFM.CONTROLLERNUMBERS.O) (detail) 195.446(d)(4)

Notes

*** 17. Off Duty Hours** *Do processes ensure that controllers are provided with at least thirty-five (35) continuous off-duty hours when limits are reached following the most recent 35-hour (minimum) off-duty rest period or is there a documented technical basis to show that the maximum limit on controller HOS is adequate to reduce the risk associated with controller fatigue?* (CR.CRMFM.OFFDUTYHOURS.P) (detail) 195.446(d)(4)

Notes

*** 18. Shift Holdover** *Does the shift holdover process conform to shift holdover guidelines or is their a documented technical basis to show that the maximum limit on controller HOS is adequate to reduce the risk associated with controller fatigue?* (CR.CRMFM.SHIFTHOLDOVER.P) (detail) 195.446(d)(4)

Notes

*** 19. Specific Fatigue Countermeasures** *Do processes require specific fatigue countermeasures during applicable time periods, or is there a documented technical basis to show that the maximum limit on controller HOS is adequate to reduce the risk associated with controller fatigue?* (CR.CRMFM.SPECIFICCOUNTERMEASURES.P) (detail) 195.446(d)(4)

Notes

*** 20. Deviations from HOS Limits** *Is there a formal process for approving deviations from the maximum HOS limits?* (CR.CRMFM.HOSDEVIATIONS.P) (detail) 195.446(d)(4)

Notes

*** 21. Fatigue Education** *Does the program require that fatigue education/training is required for all controllers and control room supervisors?* (CR.CRMFM.FATIGUEEDUCATE.P) (detail) 195.446(d)(2) (195.446(d)(3))

Notes

*** 22. Fatigue Education Refresher** *Is refresher fatigue education provided at regular intervals?* (CR.CRMFM.FATIGUEREFRESHER.R) (detail) 195.446(d)(2) (195.446(d)(3))

Notes

*** 23. Review of Fatigue Education Program** *Do processes require that the effectiveness of the fatigue education/training program be reviewed at least once each calendar year, not to exceed 15 months?* (CR.CRMFM.FATIGUEREVIEW.P) (detail) 195.446(d)(2) (195.446(d)(3))

Notes

*** 24. Fatigue Mitigation Strategy** *Does fatigue education address fatigue mitigation strategies (countermeasures)?* (CR.CRMFM.FATIGUESTRATEGY.P) (detail) 195.446(d)(2)

Notes

*** 25. Off-Duty Activity Impact on Fatigue** *Does fatigue education address how off-duty activities contribute to fatigue?* (CR.CRMFM.OFFDUTY.P) (detail) 195.446(d)(2)

Notes

*** 26. Fatigue Training Content** *Is the content of fatigue training adequate for training controllers and supervisors to recognize the effects of fatigue?* (CR.CRMFM.FATIGUECONTENT.P) (detail) 195.446(d)(3)

Notes

CRM, SCADA, and Leak Detection - Alarm Management

*** 1. Alarm Procedures** *Is the alarm management plan a formal process that specifically identifies critical topical areas included in the program?* (CR.CRMAM.ALARM.P) (detail) 195.446(e)

Notes

*** 2. Alarm Malfunction** *Is there a process to identify and correct inaccurate or malfunctioning alarms?* (CR.CRMAM.ALARMMALFUNCTION.P) (detail) 195.446(e)(1)

Notes

*** 3. Alarm Systems** *Does the review of safety-related alarms account for different alarm designs and all alarm types/priorities?* (CR.CRMAM.ALARMREVIEW.P) (detail) 195.446(e)(1)

Notes

*** 4. Controller SCADA Performance** *Does the review of safety-related alarms account for individual-specific controller qualification and performance?* (CR.CRMAM.CONTROLLERPERFORMANCE.P) (detail) 195.446(e)(1)

Notes

*** 5. Managing Stale or Unreliable Data** *Does the review of safety-related alarms include specific procedures and practices for managing stale or unreliable data?* (CR.CRMAM.STALEDATA.P) (detail) 195.446(e)(1)

Notes

*** 6. Monthly Analysis of SCADA Data** *Do processes require the monthly identification, recording, review, and analysis of points that have been taken off scan, 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?* (CR.CRMAM.MONTHLYANALYSIS.P) (detail) 195.446(e)(2)

Notes

*** 7. Correction of SCADA Problems** *Does the alarm management plan include a process for promptly correcting identified problems and for returning these points to service?* (CR.CRMAM.PROBLEMCORRECTION.P) (detail) 195.446(e)(2)

Notes

*** 8. Alarm Setpoint Process** *Is there a formal process to determine the correct alarm setpoint values and alarm descriptions?* (CR.CRMAM.ALARMSETPOINTS.P) (detail) 195.446(e)(3)

Notes

*** 9. Controls on SCADA Settings** *Have procedures been established to clearly address how and to what degree controllers can change alarm limits or setpoints, or inhibit alarms, or take points off-scan?* (CR.CRMAM.SETTINGCONTROL.P) (detail) 195.446(e)(3)

Notes

*** 10. Verification of SCADA Settings** *Do processes require that any calibration or change to field instruments require verification of alarm setpoints and alarm descriptions?* (CR.CRMAM.VERIFICATION.P) (detail) 195.446(e)(3)

Notes

*** 11. Alarm Management Plan Review** *Are there processes to review the alarm management plan at least once each calendar year, but at intervals not exceeding 15 months, in order to determine the effectiveness of the plan?* (CR.CRMAM.PLANREVIEW.P) (detail) 195.446(e)(4)

Notes

*** 12. Alarm Management Plan Review** *Do records indicate review of the alarm management plan at least once each calendar year, but at intervals not exceeding 15 months, in order to determine the effectiveness of the plan?* (CR.CRMAM.PLANREVIEW.R) (detail) 195.446(e)(4)

Notes

*** 13. Measuring Work Load** *Does the CRM program have a means of identifying and measuring the work load (content and volume of general activity) being directed to an individual controller?* (CR.CRMAM.WORKLOAD.P) (detail) 195.446(e)(5)

Notes

*** 14. Monitoring Work Load** *Is the process of monitoring and analyzing general activity comprehensive?* (CR.CRMAM.WORKLOADMONITORING.P) (detail) 195.446(e)(5)

Notes

*** 15. Controller Reaction to Incoming Alarms** *Does the process have a means of determining that the controller has sufficient time to analyze and react to incoming alarms?* (CR.CRMAM.CONTROLLERREACTION.P) (detail) 195.446(e)(5)

Notes

*** 16. Analysis of Controller Performance** *Has an analysis been performed to determine if controller(s) performance is currently adequate?* (CR.CRMAM.PERFORMANCEANALYSIS.R) (detail) 195.446(e)(5)

Notes

*** 17. Alarm Deficiency Resolution** *Is there a process to address how deficiencies found in implementing 195.446(e)(1) through 195.446(e)(5) will be resolved?* (CR.CRMAM.DEFICIENCIES.P) (detail) 195.446(e)(6)

Notes

*** 18. Alarm Management Deficiencies** *Do records indicate deficiencies found in implementing 195.446(e)(1) through 195.446(e)(5) have been resolved?* (CR.CRMAM.DEFICIENCIES.R) (detail) 195.446(e)(6)

Notes

CRM, SCADA, and Leak Detection - Change Management

*** 1. Meetings on CRM Changes** *Is there a process to mandate a control room representative will participate in meetings where changes that could directly or indirectly affect control room operations (including routine maintenance and repairs) are being considered, designed and implemented?* (CR.CRMCMGT.CHANGEMEETINGS.P) (detail) 195.446(f)(1)

Notes

*** 2. Training on CRM Changes** *Before implementing changes, do records indicate controllers were provided with notification and training to assure their ability to safely incorporate the proposed change into operations?* (CR.CRMCMGT.CHANGETRAINING.R) (detail) 195.446(f)(1)

Notes

*** 3. Emergency Contact with Control Room** *Is there a process requiring field personnel and SCADA support personnel to contact the control room when emergency conditions exist?* (CR.CRMCMGT.EMERGENCYCONTACT.P) (detail) 195.446(f)(2)

Notes

*** 4. Change Coordination** *Does the process assure changes in field equipment (for example, moving a valve) that could affect control room operations are coordinated with control room personnel?* (CR.CRMCMGT.CHANGECOORDINATION.P) (detail) 195.446(f)(1)

Notes

*** 5. Change Coordination** *Do records indicate that changes in field equipment (for example, moving a valve) that could affect control room operations were coordinated with control room personnel?* (CR.CRMCMGT.CHANGECOORDINATION.R) (detail) 195.446(f)(1)

Notes

*** 6. Coordination of Field Changes** *Does the process require field personnel and SCADA support personnel to contact the control room when making field changes (for example, moving a valve) that affect control room operations?* (CR.CRMCMGT.FIELDCONTACT.P) (detail) 195.446(f)(2)

Notes

*** 7. Coordination of Field Changes** *Do records indicate field personnel and SCADA support personnel contacted the control room when making field changes (for example, moving a valve) that affect control room operations?* (CR.CRMCMGT.FIELDCHANGES.R) (detail) 195.446(f)(2)

Notes

CRM, SCADA, and Leak Detection - Operating Experience

*** 1. Abnormal Operations (Review)** *Is there a formal, structured approach for reviewing and critiquing reportable events to identify lessons learned?* (CR.CRMEXP.ABNORMALREVIEW.P) (detail) 195.446(g)(1)

Notes

*** 2. Abnormal Operations (Review)** *Do records indicate reviews of reportable events specifically analyzed all contributing factors to determine if control room actions contributed to the event, and corrected any deficiencies?* (CR.CRMEXP.ABNORMALREVIEW.R) (detail) 195.446(g)(1)

Notes

*** 3. Lessons Learned** *Does the program require training on lessons learned from a broad range of events (reportable incidents/accidents, near misses, leaks, operational and maintenance errors, etc.), even though the control room may not have been at fault?* (CR.CRMEXP.LESSONSLEARNED.P) (detail) 195.446(g)(2)

Notes

*** 4. Lessons Learned** *Has operating experience review training been conducted on lessons learned from a broad range of events (reportable incidents/accidents, near misses, leaks, operational and maintenance errors, etc.)?* (CR.CRMEXP.LESSONSLEARNED.R) (detail) 195.446(g)(2)

Notes

CRM, SCADA, and Leak Detection - Training

*** 1. Controller Training Program** *Has a controller training program been established to provide training for each controller to carry out their roles and responsibilities?* (CR.CRMTRAIN.CONTROLLERTRAIN.P) (detail) 195.446(h)

Notes

*** 2. Controller Training Program** *Has a controller training program been implemented to provide training for each controller to carry out their roles and responsibilities?* (CR.CRMTRAIN.CONTROLLERTRAIN.R) (detail) 195.446(h)

Notes

*** 3. Training Program Review** *Have processes been established to review the controller training program content to identify potential improvements at least once each calendar year, but at intervals not to exceed 15 months?* (CR.CRMTRAIN.TRAININGREVIEW.P) (detail) 195.446(h)

Notes

*** 4. Training Program Review** *Have processes been implemented to review the controller training program content to identify potential improvements at least once each calendar year, but at intervals not to exceed 15 months?* (CR.CRMTRAIN.TRAININGREVIEW.R) (detail) 195.446(h)

Notes

*** 5. Content of Training Program** *Does training content address all required material, including training each controller to carry out the roles and responsibilities that were defined by the operator?* (CR.CRMTRAIN.TRAININGCONTENT.R) (detail) 195.446(h)

Notes

*** 6. List of AOCs for Training** *Has a list of the abnormal operating conditions that are likely to occur simultaneously or in sequence been established?* (CR.CRMTRAIN.AOCLIST.R) (detail) 195.446(h)(1)

Notes

*** 7. Controller Training and Qualification** *Does the training program provide controller training on recognizing and responding to abnormal operating conditions that are likely to occur simultaneously or in sequence?* (CR.CRMTRAIN.TRAININGABNORMAL.P) (detail) 195.446(h)(1)

Notes

*** 8. Controller Training and Qualification** *Does the training program use a simulator or tabletop exercises to train controllers how to recognize and respond to abnormal operating conditions?* (CR.CRMTRAIN.TRAINING.R) (detail) 195.446(h)(2)

Notes

*** 9. Controller Training and Qualification** *Does the training program use a simulator or tabletop exercises to train controllers how to recognize and respond to abnormal operating conditions?* (CR.CRMTRAIN.TRAINING.O) (detail) 195.446(h)(2)

Notes

*** 10. Communication Training** *Does the CRM program train controllers on their responsibilities for communication under the operator's emergency response procedures?* (CR.CRMTRAIN.COMMUNICATIONTRAINING.P) (detail) 195.446(h)(3)

Notes

*** 11. Working Knowledge of Pipeline System** *Does the training program provide controllers a working knowledge of the pipeline system, especially during the development of abnormal operating conditions?* (CR.CRMTRAIN.SYSKNOWLEDGE.P) (detail) 195.446(h)(4)

Notes

*** 12. List of Infrequently Used Pipeline Setups** *Has a list of pipeline operating setups that are periodically (but infrequently) used been established?* (CR.CRMTRAIN.INFREQOPSLIST.R) (detail) 195.446(h)(5)

Notes

*** 13. Review of Procedures Prior to Use** *Do processes specify that, for pipeline operating set-ups that are periodically (but infrequently) used, the controllers must be provided an opportunity to review relevant procedures in advance of their use?* (CR.CRMTRAIN.INFREQOPSREVIEW.P) (detail) 195.446(h)(5)

Notes

CRM, SCADA, and Leak Detection - Compliance Validation and Deviations

*** 1. Submittal of Procedures** *Are there adequate processes to assure that the operator is responsive to requests from applicable agencies to submit their CRM procedures?* (CR.CRMCOMP.SUBMITPROCEDURES.P) (detail) 195.446(i)

Notes

*** 2. Record of Procedure Submittals** *Has the operator been responsive to requests from applicable agencies to submit their CRM procedures?* (CR.CRMCOMP.SUBMITPROCEDURES.R) (detail) 195.446(i)

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*** 3. CRM Coordinator** *Is there an individual that is responsible and accountable for compliance with requests from PHMSA or other applicable agencies?* (CR.CRMCOMP.CRMCOORDINATOR.R) (detail) 195.446(i)

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*** 4. CRM Records Management** *Records management processes adequate to assure records are sufficient to demonstrate compliance with the CRM rule?* (CR.CRMCOMP.RECORDS.P) (detail) 195.446(j)(1)

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*** 5. CRM Records** *Are records sufficient to demonstrate compliance with the CRM rule?* (CR.CRMCOMP.RECORDS.R) (detail) 195.446(j)(1)

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*** 6. Electronic Records** *Are electronic records properly stored, safeguarded, and readily retrievable?* (CR.CRMCOMP.ELECTRONICRECORDS.R) (detail) 195.446(j)(1)

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*** 7. CRM Deviations** *Are there processes to demonstrate and provide a documented record that every deviation from any CRM rule requirement was necessary for safe operation?* (CR.CRMCOMP.DEVIATIONS.P) (detail) 195.446(j)(2)

Notes

*** 8. Deviation Records** *Were all deviations documented in a way that demonstrates they were necessary for safe operation?* (CR.CRMCOMP.DEVIATIONS.R) (detail) 195.446(j)(2)

Notes

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