

**Operator and General Audit Information**

<b>Company:</b>	<b>Name:</b>		
	<b>Mailing and Official Address (If different):</b>		
	<b>Doing Business as or Affiliation:</b>		
<b>PHMSA Operator Identification (OPID) No.</b>			
<b>Unit ID Number/ Unit Name inspected</b>			
<b>Address:</b>		<b>Lead Auditor or Inspector</b>	<b>Name:</b>
			<b>Agency:</b>
		<b>Date of Audit or Inspection:</b>	

## PHMSA Gas Control Room Management WOC 2024-1

### *Company Representatives Participating*

Key Persons	Name/Title/Mailing Address	Phone/Email Address
<b>Primary Operator or Representative Interviewed or Providing Information</b>		
<b>Others Interviewed, Providing Information or Present at Audit or Inspection:</b>		

### *Government or Other Official Representatives Participating:*

Name/Title	Office/Organization	Phone/Email Address

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# PHMSA Gas Control Room Management WOC 2024-1

## CRM, SCADA, and Leak Detection - CRM General

**1. Control Room Management Criteria** *Do procedures adequately address the process and criteria to determine which facilities are control rooms?* (CR.CRMGEN.CRMCRITERIA.P)  
192.631(a)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**3. Control Room Management** *Are procedures approved, in place, and implemented?* (CR.CRMGEN.CRMIMPLEMENT.R)  
192.631(a)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**4. Control Room Management** *Are procedures readily available to controllers in the control room?*  
(CR.CRMGEN.CRMPROCLOCATION.O)  
192.631(a)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

# PHMSA Gas Control Room Management WOC 2024-1 CRM, SCADA, and Leak Detection - CRM 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)*

192.631(b)

Sat+	Sat	Concern	Unsat	NA	NC

**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)*

192.631(b)

Sat+	Sat	Concern	Unsat	NA	NC

**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)*

192.631(b)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**4. Controller Authority (Abnormal Operations)** *Have processes been established to define the controllers' authority and responsibilities when an abnormal operating condition is detected? (CR.CRMRR.AUTHORITYABNORMAL.P)*

192.631(b)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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

192.631(b)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**6. 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)*

192.631(b)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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

192.631(b)(2) (192.619(a); 192.631(e)(1))

Sat+	Sat	Concern	Unsat	NA	NC

**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)*

192.631(b)(3) (192.615(a)(8); NTSB P-11-9)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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**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)

192.631(b)(3)

Sat+	Sat	Concern	Unsat	NA	NC

**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)

(CR.CRMRR.COMMSYSFAIL.P)

192.631(b)(3)

Sat+	Sat	Concern	Unsat	NA	NC

**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)

192.631(b)(4) (192.631(c)(5))

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**12. Shift Change Process** *Do observations indicate adequate hand-over of responsibility to the oncoming shift?* (CR.CRMRR.HANDOVER.O)

192.631(b)(4) (192.631(c)(5))

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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**13. 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)

192.631(b)(4) (192.631(c)(5))

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**14. 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)

192.631(b)(4) (192.631(c)(5))

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**15. Shift Change Process - Overlap** Do processes require the controllers to discuss recent and impending important activities ensuring adequate overlap? (CR.CRMRR.HANDOVEROVERLAP.P)

192.631(b)(4)

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**16. 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)

192.631(b)(4)

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**17. 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)

192.631(b)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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

192.631(b)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**19. Authority to Supersede Controller Action Disallowed - Controllers** *Do processes disallow others to have authority to direct or supersede the specific technical actions of a controller?* (CR.CRMRR.OTHERAUTHORITYDISALLOW.P)

192.631(b)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**20. Authority to Supersede Controller Action Disallowed - Controllers** *Do records indicate that the policy disallowing others to have authority to direct or supersede the specific technical actions of a controller has been communicated to controllers and others?* (CR.CRMRR.OTHERAUTHORITYDISALLOW.R)

192.631(b)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

## PHMSA Gas Control Room Management WOC 2024-1

**21. Authority to Supersede Controller Action Disallowed - Controllers** *Are controllers aware of, and can reference, processes that disallow others to have authority to direct or supersede the specific technical actions of a controller?* (CR.CRMRR.OTHERAUTHORITYDISALLOW.O)

192.631(b)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**22. Others with Authority Qualification - Controllers** *Does the process result in identification of required qualification elements for those authorized to direct or supersede the technical actions of a controller that are sufficient for those individuals to understand the implications of the scope of potential actions?* (CR.CRMRR.OTHERAUTHORITYQUAL.P)

192.631(b)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**23. Others with Authority Qualification - Controllers** *Do records indicate that others given authority to direct or supersede the specific technical actions of a controller were qualified?* (CR.CRMRR.OTHERAUTHORITYQUAL.R)

192.631(b)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**24. Others with Authority Implementation - Controllers** *Is the process defined with respect to the details of how those authorized to direct or supersede the technical actions of a controller are to implement their authority?* (CR.CRMRR.OTHERAUTHORITYIMPLEMENT.P)

192.631(b)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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**25. Others with Authority List - Controllers** *Is a list of individuals with authority to direct or supersede the technical actions of a controller readily available to controllers?* (CR.CRMRR.OTHERAUTHORITYLIST.R)

192.631(b)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**26. Others with Authority Implementation - Controllers** *Do records adequately document occurrences of when others authorized to direct or supersede the technical actions of a controller have done so?*

(CR.CRMRR.OTHERAUTHORITYIMPLEMENT.R)

192.631(b)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**27. Others with Authority Implementation - Controllers** *Do others authorized to direct or supersede the technical actions of a controller demonstrate an understanding of the process to implement this authority?*

(CR.CRMRR.OTHERAUTHORITYIMPLEMENT.O)

192.631(b)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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

**1. Adequate Information (API 1165 Compliance)** *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)

192.631(c)(1)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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**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)

192.631(c)(1)

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**3. SCADA API RP 1165 Human Factors** Has section 4 of API RP 1165 regarding human factors engineering been implemented? (CR.SCADA.1165HUMANFACTORS.O)

192.631(c)(1)

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**4. SCADA Display Objects** Has section 8 of API RP 1165 regarding display object characteristics been implemented? (CR.SCADA.DISPLAYOBJECTS.O)

192.631(c)(1)

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**5. SCADA Display Dynamics** Has section 9 of API RP 1165 regarding display object dynamics been implemented? (CR.SCADA.DISPLAYDYNAMICS.R)

192.631(c)(1)

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**6. SCADA Administration** *Have applicable paragraphs of section 11 of API RP 1165 administration been implemented?* (CR.SCADA.ADMINISTRATION.R)

192.631(c)(1)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**7. 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)

(CR.SCADA.1165IMPRACTICAL.R)

192.631(c)(1)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**8. Set Points** *Does the process adequately define safety-related points?* (CR.SCADA.SETPOINT.P)

192.631(c)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**9. Set Points** *Do records indicate safety-related points have been adequately implemented?* (CR.SCADA.SETPOINT.R)

192.631(c)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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**10. 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)

192.631(c)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**11. Point-to-Point Verification** *Have required point-to-point verifications been performed?* (CR.SCADA.POINTVERIFY.R)

192.631(c)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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

192.631(c)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**13. Point-to-Point Verification Extent** *Do records demonstrate adequate thoroughness of the point-to-point verification?* (CR.SCADA.POINTVERIFYEXTENT.R)

192.631(c)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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**14. Point-to-Point Verification Interval** *Is there an adequate process for defining when the point-to-point verification must be completed?* (CR.SCADA.POINTVERFIYINTVL.P)

192.631(c)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**15. Point-to-Point Verification Interval** *Do records indicate the point-to-point verification has been completed at the required intervals?* (CR.SCADA.POINTVERFIYINTVL.R)

192.631(c)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**16. Point-to-Point Verification** *Are point-to-point verifications performed adequately when required?* (CR.SCADA.POINTVERIFY.O)

192.631(c)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**17. 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)

192.631(c)(3)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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**18. 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)  
192.631(c)(3)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**19. Backup SCADA System** *Is there a backup SCADA system?* (CR.SCADA.BACKUPSCADA.O)  
192.631(c)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**21. Backup SCADA Testing** *Is the backup SCADA system required to be tested at least once each calendar year at intervals not to exceed 15 months?* (CR.SCADA.BACKUPSCADATEST.P)  
192.631(c)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**



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**22. 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)*

192.631(c)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**23. Backup SCADA Verification** *Is testing required to verify adequate processes are 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.P)*

192.631(c)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**24. 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)*

192.631(c)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**25. 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.BACKUPSCADA Adequacy.R)*

192.631(c)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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

192.631(c)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**27. 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)

192.631(c)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**28. 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)

192.631(c)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**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)

192.631(d) (192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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**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)

192.631(d) (192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

**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)

192.631(d) (192.631(a); 192.631(g)(1)(i))

Sat+	Sat	Concern	Unsat	NA	NC

**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)

192.631(d) (192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**5. Scheduled 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)

192.631(d)(1) (192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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**6. Establishing Shift Length** *Does the operator factor in all time the individual is working for the company when establishing shift lengths and schedule rotations and that periods of time off that accommodates 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.SHIFTLENGTHTIME.R)

192.631(d)(1)

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**7. Scheduled Time Off Between Shifts** *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)

192.631(d)(1)

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**8. On Call Controllers** *For controllers who are on call, do processes minimize interrupting the required 8 hours of continuous sleep or require 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.P)

192.631(d) (192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**9. On Call Controllers** *For controllers who are on call, do records include shift schedules, when calls were made to the on call employee, and how long the individual worked?* (CR.CRMFM.ONCALLCONTROLLER.R)

192.631(d)(1)

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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## PHMSA Gas Control Room Management WOC 2024-1

**10. 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 a reduction of the risk associated with controller fatigue?* (CR.CRMFM.MAXHOS.P)

192.631(d)(4) (192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

**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)

192.631(d)(4) (192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**12. Time Off Following Successive Days Worked** *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)

192.631(d)(4) (192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**13. Day Only Work Hours** *For normal business hour type operations (i.e., five days per week), do records indicate shift start times no earlier than 6:00 a.m. and shift end times no later than 7:00 p.m.?* (CR.CRMFM.WORKHOURS.R)

192.631(d)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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**14. Number of Qualified Controllers** *Do operations include a sufficient number of qualified controllers?*  
(CR.CRMFM.CONTROLLERNUMBERS.O)

192.631(d)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**15. Off Duty Hours When Limits Reached** *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)

192.631(d)(4) (192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**16. Shift Holdover** *Does the daily HOS limit and shift holdover process conform to shift holdover guidelines 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.SHIFTHOLDOVER.P)

192.631(d)(4) (192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**17. Specific Fatigue Countermeasures During Times of Heightened Risk** *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)

192.631(d)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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

192.631(d)(4) (192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**19. Fatigue Education** *Does the program require that fatigue education/training is required for all controllers and control room supervisors?* (CR.CRMFM.FATIGUEEDUCATE.P)

192.631(d)(2) (192.631(d)(3); 192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**20. Review of Fatigue Education/Training Program Effectiveness** *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)

192.631(d)(2) (192.631(d)(3); 192.605(a); 192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**21. Fatigue Mitigation Strategies** *Does fatigue education address fatigue mitigation strategies (countermeasures), how off-duty activities contribute to fatigue and recognizing the effects of fatigue?* (CR.CRMFM.FATIGUESTATEGY.P)

192.631(d)(2) (192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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## PHMSA Gas Control Room Management WOC 2024-1

**22. Fatigue Education** *Is periodic fatigue education/training documented for all controllers and control room supervisors?* (CR.CRMFM.FATIGUEEDUCATE.R)  
192.631(d)(2) (192.631(d)(3))

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**23. 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)  
192.631(d)(3) (192.631(a))

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**24. Fatigue Training Content** *Has controller and supervisor training to recognize the effects of fatigue been documented?* (CR.CRMFM.FATIGUECONTENT.R)  
192.631(d)(3)

Sat+	Sat	Concern	Unsat	NA	NC

**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)  
192.631(e)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**



## PHMSA Gas Control Room Management WOC 2024-1

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

192.631(e)(1)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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

192.631(e)(1)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**4. Controller SCADA Performance** *Does the review of safety-related alarms account for console differences that could affect individual-specific controller qualification and performance?* (CR.CRMAM.CONTROLLERPERFORMANCE.P)

192.631(h) (192.631(e)(1))

Sat+	Sat	Concern	Unsat	NA	NC

**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)

192.631(e)(1)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

## PHMSA Gas Control Room Management WOC 2024-1

**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)

192.631(e)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**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)

192.631(e)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**8. Alarm Point Verification** *Do records verify that monthly reviews and analysis of alarm points have been performed?*  
(CR.CRMAM.ALARMVERIFY.R)

192.631(e)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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

192.631(e)(3)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

## PHMSA Gas Control Room Management WOC 2024-1

**10. 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)  
192.631(e)(3)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**11. Alarm Value Verification** *Do records demonstrate verification of correct safety-related alarm set-point values and alarm descriptors when associated field instruments are calibrated or changed and at least once each calendar year, but at intervals not to exceed 15 months?* (CR.CRMAM.ALARMVALUEVERIFY.R)  
192.631(e)(3)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**12. 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)  
192.631(e)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**13. 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)  
192.631(e)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

## PHMSA Gas Control Room Management WOC 2024-1

**14. 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)*

192.631(e)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**15. Monitoring Work Load** *Is the process of monitoring and analyzing general activity comprehensive? (CR.CRMAM.WORKLOADMONITORING.P)*

192.631(e)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**16. 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)*

192.631(e)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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

192.631(e)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

## PHMSA Gas Control Room Management WOC 2024-1

**18. Alarm Deficiency Resolution** *Is there a process to address how deficiencies found in implementing 192.631(e)(1) through 192.631(e)(5) will be resolved?* (CR.CRMAM.DEFICIENCIES.P)

192.631(e)(6)

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**19. Alarm Management Deficiencies** *Do records indicate deficiencies found in implementing 192.631(e)(1) through 192.631(e)(5) have been resolved?* (CR.CRMAM.DEFICIENCIES.R)

192.631(e)(6)

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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## CRM, SCADA, and Leak Detection - Change Management

**1. Field Equipment Changes** *Is there a process to assure changes in field equipment that could affect control room operations are coordinated with the control room personnel?* (CR.CRMCMGT.EQUIPMENTCHANGES.P)

192.631(f)(1)

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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**2. Controller Participation in System Changes** *Are control room representative(s) required to participate in meetings where changes that could directly or indirectly affect the hydraulic performance or configuration of the pipeline (including routine maintenance and repairs) are being considered, designed and implemented?* (CR.CRMCMGT.CONTROLLERPARTICIPATE.P)

192.631(f)(1) (192.631(f)(3))

Sat+	Sat	Concern	Unsat	NA	NC

<b>Notes</b>
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## PHMSA Gas Control Room Management WOC 2024-1

**3. Controller Participation in System Changes** Do records indicate that control room representative(s) participate in meetings where changes that could directly or indirectly affect the hydraulic performance or configuration of the pipeline (including routine maintenance and repairs) are being considered, designed and implemented? (CR.CRMCMGT.CONTROLLERPARTICIPATE.R)

192.631(f)(1) (192.631(f)(3))

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**4. 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)

192.631(f)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**5. Coordination of Field Changes** Does the process require field personnel and SCADA support personnel to contact the control room when making field changes (e.g., operating a valve, O&M inspections/calibrations, RTU/PLC modifications) that affect control room operations? (CR.CRMCMGT.FIELDCONTACT.P)

192.631(f)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**6. Coordination of Field Changes** Do records indicate field personnel and SCADA support personnel contacted the control room when making field changes (e.g., operating a valve, O&M inspections/calibrations, RTU/PLC modifications) that affect control room operations? (CR.CRMCMGT.FIELDCHANGES.R)

192.631(f)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

# PHMSA Gas Control Room Management WOC 2024-1

## CRM, SCADA, and Leak Detection - Operating Experience

**1. Reportable Incident (Review)** *Is there a formal, structured approach for reviewing and critiquing reportable events to identify lessons learned?* (CR.CRMEXP.REPORTABLEINCIDENTREVIEW.P)

192.631(g)(1)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**2. Reportable Incident (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.REPORTABLEINCIDENTREVIEW.R)

192.631(g)(1)

Sat+	Sat	Concern	Unsat	NA	NC

**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)

192.631(g)(2) (192.631(b)(5))

Sat+	Sat	Concern	Unsat	NA	NC

**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)

192.631(g)(2) (192.631(b)(5))

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

# PHMSA Gas Control Room Management WOC 2024-1 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)*

192.631(h)

Sat+	Sat	Concern	Unsat	NA	NC

**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)*

192.631(h)

Sat+	Sat	Concern	Unsat	NA	NC

**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)*

192.631(h)

Sat+	Sat	Concern	Unsat	NA	NC

**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)*

192.631(h)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**



## PHMSA Gas Control Room Management WOC 2024-1

**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)*

192.631(h)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**6. List of AOCs for Training** *Has training been conducted on the abnormal operating conditions that are likely to occur simultaneously or in sequence identified by the operator? (CR.CRMTRAIN.AOCLIST.R)*

192.631(h)(1)

Sat+	Sat	Concern	Unsat	NA	NC

**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)

192.631(h)(1)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**8. Controller Training and Qualification** *Do records indicate the training program used a simulator or tabletop exercises to train controllers how to recognize and respond to abnormal operating conditions? (CR.CRMTRAIN.TRAINING.R)*

192.631(h)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

# PHMSA Gas Control Room Management WOC 2024-1

**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)

192.631(h)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**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)

192.631(h)(3)

Sat+	Sat	Concern	Unsat	NA	NC

**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)

192.631(h)(4)

Sat+	Sat	Concern	Unsat	NA	NC

**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.INFREQOPLIST.R)

192.631(h)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

## PHMSA Gas Control Room Management WOC 2024-1

**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)

192.631(h)(5)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**14. Control Room Team Training - Personnel** *Do processes establish who, regardless of location, operationally collaborates with control room personnel?* (CR.CRMTRAIN.TEAMTRAINPERSONNEL.P)

192.631(h)(6)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**15. Control Room Team Training - Frequency** *Do processes define the frequency of new and recurring team training?* (CR.CRMTRAIN.TEAMTRAINFREQ.P)

192.631(h)(6)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**16. Control Room Team Training - Completeness** *Do processes address all operational modes and operational collaboration/control?* (CR.CRMTRAIN.TEAMTRAINCOMPLETE.P)

192.631(h)(6) (ADB-2014-02)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

## PHMSA Gas Control Room Management WOC 2024-1

**17. Control Room Team Training - Operational Experience** *Do processes include incorporation of lessons learned from actual historical events and other oil-gas industry events?* (CR.CRMTRAIN.TEAMTRAINEXPERIENCE.P)

192.631(h)(6)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**18. Control Room Team Training - Exercises** *Do records indicate that training exercises were adequate and involved at least one qualified controller?* (CR.CRMTRAIN.TEAMTRAINEXERCISE.R)

192.631(h)(6)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**19. Control Room Team Training - Exercises** *Does implementation of a control room team exercise demonstrate performance in accordance with regulatory and process requirements?* (CR.CRMTRAIN.TEAMTRAINEXERCISE.O)

192.631(h)(6)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**20. Control Room Team Training - Identified Individuals** *Do records demonstrate that individuals identified as of January 23, 2018 received team training by January 23, 2019?* (CR.CRMTRAIN.TEAMTRAINIDENTINDIVIDUAL.R)

192.631(h)(6)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

# PHMSA Gas Control Room Management WOC 2024-1

## 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)*

192.631(i)

Sat+	Sat	Concern	Unsat	NA	NC

**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)*

192.631(i)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

**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.P)*

192.631(i)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

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

192.631(j)(1)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

# PHMSA Gas Control Room Management WOC 2024-1

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

192.631(j)(1)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

## 6. Electronic Records *Are electronic records properly stored, safeguarded, and readily retrievable?*

(CR.CRMCOMP.ELECTRONICRECORDS.R)

192.631(j)(1)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

## 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)*

192.631(j)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**

## 8. Deviation Records *Were all deviations documented in a way that demonstrates they were necessary for safe operation?*

(CR.CRMCOMP.DEVIATIONS.R)

192.631(j)(2)

Sat+	Sat	Concern	Unsat	NA	NC

**Notes**