

PHMSA : Worksheet Comparing Control Room Management Language, 11/26/2008

Topic	NPRM Language (Parts 192 and 195 identical) except for 'others plans' section	Gas Industry Proposal Part 192	Most Viable Options Sample Language Part 192	Liquid Industry Proposal Part 195	Most Viable Options Sample Language Part 195
Definitions: Alarm	<i>Alarm</i> means an indication provided by SCADA or similar monitoring system that a parameter is outside normal or expected operating conditions.	<b>Alarm</b> means an audible or visible means of indicating to the operator an equipment or process is outside operator defined safety-related parameters.	Same as Gas Industry Proposal	<b>Alarm</b> means an audible and/or visible means of indicating to the controller an equipment malfunction, process deviation, important process event, atypical condition, or abnormal condition requiring a response, such as a control action or analysis or increased vigilance.	Same as Sample Language Part 192
Definitions: Control Room	<i>Control room</i> means a central location or local station at which a control panel, computerized device, or other instrument is used by a controller to monitor or control all or part of a pipeline facility or a component of a pipeline facility.	<b>Control room</b> means an operations center staffed by personnel charged with responsibility for remotely monitoring and controlling entire or multiple sections of pipeline systems.	<b>Control room</b> means a location staffed with controllers.	Same as Gas Industry Proposal	Same as Sample Language Part 192
Definitions: Controller	<i>Controller</i> means an individual who uses a control panel, computerized device, or other equipment to monitor or control all or part of a pipeline facility that the individual cannot directly observe with the naked eye. An individual who operates equipment locally, but who cannot see the equipment respond without using a closed	<b>Controller</b> means a qualified individual whose function within a shift is to remotely monitor and control the operations of entire or multiple sections of pipeline systems via a SCADA system from a pipeline control room, and who has operational authority and accountability for the daily remote operational functions of pipeline systems as defined by the	<b>Controller</b> means an individual whose function is to remotely monitor data through a SCADA system for the entire or portions of a pipeline system that are outside the boundaries (fence line) of his/her location, and who has the assigned operational authority and accountability to recognize and respond to upset, abnormal or emergency operating	<b>Controller</b> means a qualified individual whose function within a shift is to remotely monitor and/or control the operations of entire or multiple sections of pipeline systems via a SCADA system from a pipeline control room, and who has operational authority and accountability for the daily remote operational functions of pipeline systems as	Same as Sample Language Part 192

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	circuit television system or other external device, is a controller when performing this activity regardless of job title or whether actions are overseen by another controller or supervisor. An individual who performs these functions on a part time basis is considered a controller only when performing these functions.	pipeline operator.	conditions by 1) sending computerized commands or 2) alerting or dispatching other personnel to take action.	defined by the pipeline operator.	
Definitions: SCADA	<i>Supervisory Control and Data Acquisition System (SCADA)</i> means a computer-based system that gathers field data, provides a structured view of pipeline system or facility operations, and may provide a means to control pipeline operations.	<b><i>Supervisory Control and Data Acquisition System (SCADA)</i></b> means a computer-based system or systems that collects and displays information about the pipeline facilities to the Controllers in the Pipeline Gas Control Center.	<b><i>Supervisory Control and Data Acquisition System (SCADA)</i></b> means a computer-based system or systems used by Controllers in the Control Room that collects and displays information about pipeline facilities and may have the ability to send commands back to the pipeline facilities.	<b><i>Supervisory Control and Data Acquisition System (SCADA)</i></b> means a system that is a combination of computer hardware and software used [by a controller] to send commands and acquire data for the purpose of monitoring and/or controlling [entire or multiple sections of pipeline systems from a remote location].	Same as Sample Language Part 192
Applicability (added sub-paragraph)	None	(1) Applicability: control room management rule applies to any controller working in a control room who monitors AND controls all or part of a pipeline facility. These actions are limited to telemetry systems and land lines to control devices miles away from the facility.	See definition of controller	None added for liquids	None

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General rqmts	(a) <i>General</i> . Each operator of a pipeline facility with at least one controller and control room must have and follow written control room management procedures that implement the requirements of this section. The procedures must be integrated, as appropriate, into the operator's written manual of operations and maintenance procedures required by Sec. 192.605, written qualification program required by Sec. 192.805, and written emergency plans required by Sec. 192.615. The operator must develop and implement the procedures no later than the dates in the following table.	(2) Each operator of a pipeline facility with at least one controller and control room must have and follow written control room management procedures that implement the requirements of this section. The procedures must be consistent with operating and emergency plans required by 192.605 and 192.615. The operator must develop the plan in 18 months and implement the procedures no later than 36 months after issuance of a final rule.	(a) <i>General</i> . Each operator of a pipeline facility with at least one controller and control room must have and follow written control room management procedures that implement the requirements of this section, except that an operator whose pipeline operations are limited to the following need only have and follow procedures that implement paragraphs (d) [fatigue], (i) [validation], and (j) [deviations] of this section: (1) distribution with less than 250,000 services; (2) regulated gathering; or (3) transmission without a compressor station. The procedures must be integrated, as appropriate, with operating and emergency plans required by 192.605 and 192.615. Operators must develop the plan in 18 months and implement the procedures no later than 36 months after issuance of a final rule.	(a) <i>General</i> . Each operator of a pipeline facility with at least one controller and control room must have and follow written control room management procedures that implement the requirements of this section. The procedures must be integrated, as appropriate, into the operator's written manuals of procedures required by § 195.402, and written qualification program required by §195.505. The operator must develop the procedures no later than 18 months after the effective date of the final rule and implement the procedures no later than 36 months after the effective date of the final rule.	(a) <i>General</i> . Each operator of a pipeline facility with at least one controller and control room must have and follow written control room management procedures that implement the requirements of this section. The procedures must be integrated, as appropriate, into the operator's written manuals of procedures required by § 195.402. The operator must develop the procedures no later than 18 months after the effective date of the final rule and implement the procedures no later than 36 months after the effective date of the final rule.
Time frames	[Varied dates in table. 12-30 months to develop, 24-30 to	See above	See above	See above	See above

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	implement				
Roles/responsibility	<p>(b) <i>Roles and responsibilities.</i> 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, each operator must define:</p> <p>(1) A controller's authority and responsibility to make decisions and take actions during normal operations.</p> <p>(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.</p> <p>(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.</p> <p>(4) A controller's responsibility</p>	<p>(b) <i>Roles and responsibilities.</i> Each operator must define the roles and responsibilities of a controller during normal, abnormal, and emergency operating conditions. Each operator must define a method of recording a shift-change or other hand-over of responsibility.</p>	<p>(b) <i>Roles and responsibilities.</i> Each operator must define the roles and responsibilities of a controller to provide a prompt and appropriate response during normal, abnormal, and emergency operating conditions. Each operator must define and implement a method of recording a shift-change and the hand-over of responsibility between controllers.</p>	<p>(b) <i>Roles and responsibilities.</i> 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, each operator must define:</p> <p>(1) A controller's authority and responsibility to make decisions and take actions during normal operations.</p> <p>(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.</p> <p>(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.</p>	<p>(b) <i>Roles and responsibilities.</i> 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, each operator must define:</p> <p>(1) A controller's authority and responsibility to make decisions and take actions during normal operations.</p> <p>(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.</p> <p>(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.</p> <p>(4) Each operator must define and</p>

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	<p>to provide timely notification and coordination with the operator of another pipeline in a common corridor when a leak or failure is suspected, including upon receipt of a notification from the public concerning a suspected leak on an asset owned or operated by the other company but located in the same common corridor or right-of-way.</p> <p>(5) A method of recording when a controller is responsible for monitoring or controlling any portion of a pipeline facility by implementing an individual console or a system log-in feature or by documenting in the shift records the time and name of each controller who assumed the responsibility during a shift-change or other hand-over of responsibility.</p>				<p>implement a method of recording a shift-change and the hand-over of responsibility between controllers.</p>
SCADA	<p>(c) <i>Provide adequate information.</i> Each operator must provide each controller with the information necessary for the controller to carry out the roles and responsibilities defined by the</p>	<p>[Delete intro paragraph]</p> <p>(c) <i>Provide adequate information.</i> Whenever a SCADA system is used, the operator should consider the implementation of the <b>general</b> requirements of API RP-1165 (incorporated by</p>	<p>[Revise intro paragraph:]</p> <p>(c) <i>Provide adequate information.</i> Each operator must provide each controller with the information, tools, processes and procedures necessary for the controller to carry out the roles and</p>	<p>[Revise intro paragraph:]</p> <p>(c) <i>Provide adequate information.</i> Each operator must provide each controller with the information, tools, processes and/or procedures necessary for the controller to carry out the roles</p>	<p>[Revise intro paragraph:]</p> <p>(c) <i>Provide adequate information.</i> Each operator must provide each controller with the information, tools, processes and procedures necessary for the controller to carry out the roles and</p>

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	<p>operator and must verify that a controller knows the equipment, components and the effects of the controller's actions on the pipeline or pipeline facilities under the controller's control. Each operator must:</p> <p>(1) Provide a controller with accurate, adequate, and timely data concerning operation of the pipeline facility. Wherever a SCADA system is used, the operator must implement API RP-1165 (incorporated by reference, see Sec. 192.7) in its entirety, unless the operator can adequately demonstrate that a provision of API RP-1165 is not applicable or is impracticable in the SCADA system used.</p>	<p>reference, see 192.7) unless the operator can adequately demonstrate that a provision of API RP-1165 is not applicable or is impracticable in the SCADA system used. SCADA systems that were in use prior to the publication of API RP-1165 in January 2007 are exempt. To verify that SCADA displays accurately depict field configuration, each operator must:</p>	<p>responsibilities defined by the operator. Each operator must:</p> <p>(1) Implement sections 4, 8, and 9 of API RP-1165, (incorporated by reference, see § 195.3), wherever a SCADA system is used, unless the operator can demonstrate that provisions of sections 4, 8, 9 of API RP-1165 are not practical to implement in the SCADA system used.</p>	<p>and responsibilities defined by the operators. Each operator must:</p> <p>(1) Consider implementing API RP-1165 (incorporated by reference, see § 195.3) wherever a SCADA system is used, unless it is not applicable or is impracticable in the SCADA system used.</p>	<p>responsibilities defined by the operator. Each operator must:</p> <p>(1) Implement API RP-1165, (incorporated by reference, see § 195.3), wherever a SCADA system is used, unless the operator can demonstrate that provisions of API RP-1165 are not practical to implement in the SCADA system used.</p>
Verification	<p>(2) Validate that any SCADA system display accurately depicts field equipment configuration by completing all of the following:</p> <p>(i) Conduct and document a point-to-point baseline verification between field equipment and all SCADA system displays to verify 100 percent of the system displays. An operator must complete the baseline verification no later than [insert date three years after effective date of</p>	<p>(1) Conduct a point-to-point verification when any new field equipment is installed or when changes that affect pipeline safety, as determined by the operator, are made to field equipment or displays.</p>	Same as Sample Language Part 195	<p>(2) Validate that any SCADA system display accurately depicts field equipment configuration.</p>	<p>(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 could affect pipeline safety are made to field equipment or SCADA displays.</p>

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	<p>final rule] or by [insert date one year after effective date of final rule] for an operator of a pipeline system containing less than 500 miles of pipeline. An operator may use any documented point-to-point verification completed after [insert date three years before effective date of final rule] to meet some or all of this baseline verification. A point-to-point verification must include equipment locations, ranges, alarm set-point values, alarm activation, required alarm visual or audible response, and proper equipment or software response to SCADA system values.</p> <p>(ii) Verify that SCADA displays accurately depict field configuration when any modification is made to field equipment or applicable software and conduct a point-to-point verification for associated changes.</p> <p>(iii) Perform a point-to-point verification as part of implementing a SCADA system change for all portions of the pipeline system or facility affected by the change.</p> <p>(iv) Develop a plan for systematic re-verification of the accuracy of the SCADA system display.</p>				

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Backup control	(8) Periodically test and verify a backup communication system or provide adequate means for manual operation or shutdown of the affected portion of the pipeline safely.	(2) Periodically test and verify an internal communication plan to provide adequate means for manual operation or shutdown of the affected portion of the pipeline safely.	Same as Sample Language Part 195	(4) Pipeline operators should keep records of testing of backup communication systems.	(3) Test and verify an internal communication plan to provide adequate means for manual operation, start-up and shutdown of any portion of the pipeline safely at least once each calendar year but at intervals not to exceed 15 months. (4) Test backup SCADA systems at least once each calendar year but at intervals not to exceed 15 months.
Other info provisions	(3) Establish a means for timely verbal communication among a controller, management, and field personnel. (4) Identify circumstances that require field personnel to promptly notify the controller. These circumstances must include the identification by field personnel of a leak or situation that could reasonably be expected to develop into an incident if left unaddressed. (5) Define and record critical information during each shift. (6) Provide for the exchange of information when a shift changes or when another controller	None included	(5) Establish procedures for when a different controller assumes responsibility, including the content of information to be exchanged.	(3) Consider implementing API RP-1168, Section 5 (incorporated by reference, see § 195.3) for guidelines on shift turnover.	(5) Implement API RP-1168, Section 5 (incorporated by reference, see § 195.3) to establish procedures for when a different controller assumes responsibility.

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	<p>assumes responsibility for operations for any reason.</p> <p>(7) Establish sufficient overlap of controller shifts to permit the exchange of necessary information.</p>				
Fatigue mitigation	<p>(d) <i>Fatigue mitigation.</i> Each operator must implement methods to prevent controller fatigue that could inhibit a controller's ability to carry out the roles and responsibilities defined by the operator. To protect against the onset of fatigue, each operator must:</p> <p>(1) Establish shift lengths and schedule rotations that provide controllers off-duty time sufficient to achieve eight hours of continuous sleep;</p> <p>(2) Educate a controller and his supervisor in fatigue mitigation strategies and how off-duty activities contribute to fatigue;</p> <p>(3) Train a controller and his supervisor to recognize and mitigate the effects of fatigue;</p> <p>(4) Implement additional measures to monitor for fatigue when a single controller is on duty; and</p>	<p>(d) <i>Fatigue management.</i> Each operator must implement methods to prevent controller fatigue that could inhibit a controller's ability to carry out the roles and responsibilities defined by the operator. To protect against the onset of fatigue, each operator must:</p> <p>(1) Establish shift lengths and schedule rotations that provide controllers off-duty time sufficient to achieve eight hours of continuous sleep;</p> <p>(2) Educate a controller and his supervisor in fatigue mitigation strategies and how off-duty activities contribute to fatigue;</p> <p>(3) Train a controller and his supervisor to recognize and mitigate the effects of fatigue;</p> <p>(4) Establish a maximum limit on controller hours-of-service, which may include an exception during an emergency with appropriate</p>	Same as Gas Industry Proposal	<p>(d) <i>Fatigue management.</i> Each operator must implement methods in the Control Room to protect against the onset of fatigue and to assist the Pipeline Controller in understanding and avoiding those factors in his or her personal life that contribute fatigue. In addition, an operator should consider implementing API RP-1168, Section 6 (incorporated by reference, see § 195.3). An operator should:</p> <p>(1) Establish shift lengths and schedule rotations that provide controllers off-duty time sufficient to achieve eight hours of continuous sleep;</p> <p>(2) Educate a controller and his supervisor in fatigue mitigation strategies and how off-duty activities contribute to fatigue; and</p> <p>(3) Establish a maximum limit on controller hours-of-service, which</p>	<p>(d) <i>Fatigue management.</i> Each operator must implement methods in the Control Room to protect against the onset of fatigue. In addition, an operator should consider implementing API RP-1168, Section 6 (incorporated by reference, see § 195.3). An operator must:</p> <p>(1) Establish shift lengths and schedule rotations that provide controllers off-duty time sufficient to achieve eight hours of continuous sleep;</p> <p>(2) Educate a controller and his supervisor in fatigue mitigation strategies and how off-duty activities contribute to fatigue;</p> <p>(3) ) Train a controller and his supervisor to recognize and mitigate the effects of fatigue; and</p> <p>(4) Establish a maximum limit on controller hours-of-service, which may include an exception during</p>

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	(5) Establish a maximum limit on controller hours-of-service, which may include an exception during an emergency with appropriate management approval. An operator must specify emergency situations for which a deviation from the hours-of-service maximum limit is permitted.	management approval. An operator must specify emergency situations for which a deviation from the hours-of-service maximum limit is permitted.		may include an exception during an emergency with appropriate management approval. An operator must specify emergency situations for which a deviation from the hours-of-service maximum limit is permitted.	an emergency with appropriate management approval. An operator must specify emergency situations for which a deviation from the hours-of-service maximum limit is permitted.
alarm management	(e) <i>Alarm management.</i> Each operator using a SCADA system must assure appropriate controller response to alarms and notifications. An operator must: (1) Review SCADA operations at least once each week for: (i) Events that should have resulted in alarms or event indications that did not do so; (ii) Proper and timely controller response to alarms or events; (iii) Identification of unexplained changes in the number of alarms or controller management of alarms; (iv) Identification of nuisance alarms; (v) Verification that the number of alarms received is not excessive;	(e) <i>Alarm management.</i> Each operator using a SCADA system must have a policy for controller response to safety-related alarms and notifications. An operator must: (1) Review SCADA operations as indicated in an operating company's alarm management plan including: (i) identification of points impacting safety that have been taken off scan in the SCADA host or that have had forced or manual values for extended periods, and (ii) verification of the correct alarm set-point values on critical safety alarm set-points each calendar year, but at intervals not to exceed 15 months. (2) Review and update the	(e) <i>Alarm management.</i> Each operator using a SCADA system must have a written alarm management plan. An operator's plan must include provisions to: (1) Review SCADA alarm operations to: (i) identify points impacting safety that have been taken off scan in the SCADA host or that have had forced or manual values for extended periods on a monthly basis, and (ii) verify the correct set-point values and textual descriptions on critical safety alarm set-points when associated field instruments are calibrated or changed each calendar year, but at intervals not to exceed 15 months. (2) Review the content and	(e) <i>Alarm management.</i> Each operator using a SCADA system must have a written alarm management plan based on accepted industry practices. An operator must: (1) Review SCADA operations as indicated in an operating company's alarm management plan. The plan should detail the process the operator uses to ensure alarms presented to controllers by the SCADA system are accurate and support safe pipeline operations. The plan should detail the records maintained by the operator that demonstrate the plan is being followed. (2) Review and update the operator's alarm management	(e) <i>Alarm management.</i> Each operator using a SCADA system must have a written alarm management plan based on accepted industry practices. An operator must: (1) Review SCADA alarm operations as indicated in an operating company's alarm management plan. The plan should detail the process the operator uses to ensure alarms presented to controllers by the SCADA system are accurate and support safe pipeline operations. The plan should detail the records maintained by the operator that demonstrate the plan is being followed. (2) Identify points impacting safety that have been taken off

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	<p>(vi) Identification of instances in which alarms were acknowledged but associated response actions were inadequate or untimely;</p> <p>(vii) Identification of abnormal or emergency operating conditions and a review of controller response actions;</p> <p>(viii) Identification of system maintenance issues;</p> <p>(ix) Identification of systemic problems, server load, or communication problems;</p> <p>(x) Identification of points that have been taken off scan or that have had forced or manual values for extended periods; and</p> <p>(xi) Comparison of controller logs or shift notes to SCADA alarm records to identify maintenance requirements or training needs.</p> <p>(2) Review SCADA configuration and alarm management operations at least once each calendar year but at intervals not to exceed 15 months. At a minimum, reviews must include consideration of the following factors:</p> <p>(i) Number of alarms;</p> <p>(ii) Potential systemic issues;</p>	<p>operator's alarm management plan each calendar year, not to exceed 15 months to determine the effectiveness of the plan. This review shall include safety-related SCADA alarms and alarm indications of emergency conditions as included in the alarm management plan.</p> <p>(3) Address all deficiencies identified in the annual alarm management plan review.</p>	<p>volume of non-alarm activity being directed to each controller to assure controllers have sufficient time to analyze and react to incoming alarms.</p> <p>(3) Review and update the operator's alarm management plan each calendar year, not to exceed 15 months to determine the effectiveness of the plan. This review shall include safety-related SCADA alarms and alarm indications of emergency conditions as included in the alarm management plan.</p> <p>(4) Address all deficiencies identified in the annual alarm management plan review.</p>	<p>plan each calendar year, not to exceed 15 months to determine the effectiveness of the plan.</p> <p>(3) Address all deficiencies identified in the annual alarm management plan reviews</p>	<p>scan in the SCADA host or that have had forced or manual values for extended periods on a monthly basis.</p> <p>(3) Verify the correct set-point values and textual descriptions on critical safety alarm set-points when associated field instruments are calibrated or changed each calendar year, but at intervals not to exceed 15 months.</p> <p>(4) Review and update the operator's alarm management plan each calendar year, not to exceed 15 months to determine the effectiveness of the plan.</p> <p>(5) Review the content and volume of non-alarm activity being directed to each controller to assure controllers have sufficient time to analyze and react to incoming alarms.</p> <p>(6) Address all deficiencies identified in the annual alarm management plan reviews.</p>

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	<p>(iii) Unnecessary alarms;            (iv) Individual controller's performance changes over time regarding alarm or event response;            (v) Alarm indications of abnormal operating conditions;            (vi) Recurring combinations of abnormal operating conditions and the inclusion of such combinations in controller training;            (vii) Alarm indications of emergency conditions;            (viii) Individual controller workload;            (ix) Clarity of alarm descriptors to the controllers so controllers fully understand the meaning and nature of each alarm; and            (x) Verification of correct alarm set-point values.            (3) Promptly address all deficiencies identified in the weekly and calendar year SCADA reviews.</p>				
Change management	(f) <i>Change management.</i> Each operator must establish thorough and frequent communications between a controller,	(f) <i>Change Management.</i> Each operator must establish communications between a controller, management, and field	(f) <i>Change Management.</i> Each operator must establish communications between control room representatives,	(f) <i>Change management.</i> Each operator should consider implementing API RP-1168, Section 7 (incorporated by	(f) <i>Change management.</i> Each operator shall implement API RP-1168, Section 7 (incorporated by reference, see § 195.3.)

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	<p>management, and field personnel when planning and implementing physical changes to pipeline equipment and configuration. Field personnel must be required to promptly notify a controller when emergency conditions exist or when performing maintenance and making field changes.</p> <p>(1) Maintenance procedures must include tracking and repair of controller-identified problems with the SCADA system or field instrumentation to provide for prompt response.</p> <p>(2) SCADA system modifications must be coordinated in advance to allow enough time for adequate controller training and familiarization unless such modifications are made during an emergency response or recovery operation.</p> <p>(3) An operator shall seek control room participation when pipeline hydraulic or configuration changes are being considered.</p> <p>(4) Merger, acquisition, and divestiture plans must be developed and used to establish and conduct controller training</p>	<p>personnel when planning and implementing physical changes to pipeline equipment and configuration. Field personnel must be required to notify a controller when emergency conditions exist or when making field changes.</p> <p>(1) An operator shall seek control room or control room management participation when significant pipeline hydraulic or configuration changes are being considered.</p> <p>(2) An operator must document each of these occurrences and keep records for a minimum of five years.</p>	<p>management, and field personnel when planning and implementing physical changes to pipeline equipment or configuration. Field personnel must be required to notify the controller when emergency conditions exist and when making field changes.</p> <p>(1) An operator shall seek control room or control room management participation when significant pipeline hydraulic or configuration changes are being considered.</p> <p>(2) An operator must document each of these occurrences and keep records for a minimum of five years.</p>	<p>reference, see § 195.3.)</p>	

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	<p>and qualification prior to the implementation of any changes to the controller's responsibilities.</p> <p>(5) Changes to alarm set-point values, automated routine software, and relief valve settings must be communicated to the controller prior to implementation.</p> <p>(6) An operator must thoroughly document and keep records for each of these occurrences.</p>				
Operating experience	<p>(g) <i>Operating experience.</i></p> <p>(1) Each operator must review control room operations following any event that must be reported as an incident pursuant to 49 CFR part 191 to determine and correct, where necessary, deficiencies related to:</p> <ul style="list-style-type: none"> <li>(i) Controller fatigue;</li> <li>(ii) Field equipment;</li> <li>(iii) The operation of any relief device;</li> <li>(iv) Procedures;</li> <li>(v) SCADA system configuration;</li> <li>(vi) SCADA system performance;</li> <li>(vii) Accuracy, timeliness, and portrayal of field information on</li> </ul>	<p>(g) <i>Operating Experience.</i></p> <p>(1) Each operator must review control room operations following any event that must be reported as an incident pursuant to 49 CFR part 191 to determine and correct, where necessary, deficiencies related to:</p> <ul style="list-style-type: none"> <li>i. Controller fatigue;</li> <li>ii. Field equipment;</li> <li>iii. The operation of any relief device;</li> <li>iv. Procedures;</li> <li>v. SCADA system configuration;</li> <li>vi. SCADA system performance</li> </ul> <p>(2) Each operator must incorporate lessons learned into</p>	<p>(g) <i>Operating Experience.</i></p> <p>(1) Each operator must review control room operations following any event that must be reported as an incident pursuant to 49 CFR part 191 to determine and correct, where necessary, deficiencies related to:</p> <ul style="list-style-type: none"> <li>i. Controller fatigue;</li> <li>ii. Field equipment;</li> <li>iii. The operation of any relief device;</li> <li>iv. Procedures;</li> <li>v. SCADA system configuration;</li> </ul> <p>and</p> <p>vi. SCADA system performance</p> <p>(2) Each operator must consider</p>	Same as Gas Industry Proposal	<p>(g) <i>Operating Experience.</i></p> <p>(1) Each operator must review control room operations following any event that must be reported as an accident pursuant to 49 CFR 195.52 to determine and correct, where necessary, deficiencies related to:</p> <ul style="list-style-type: none"> <li>i. Controller fatigue;</li> <li>ii. Field equipment;</li> <li>iii. The operation of any relief device;</li> <li>iv. Procedures;</li> <li>v. SCADA system configuration;</li> </ul> <p>and</p> <p>vi. SCADA system performance</p> <p>(2) Each operator must consider</p>

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	<p>SCADA displays; and (viii) Simulator or non-simulator training programs. (2) Each operator must establish a definition or threshold for close-call events to evaluate event significance. For those events the operator determines to be significant, the operator must conduct the review required by paragraph (g)(1) of this section and the operator must share the information with all controllers. (3) Each operator must review the accuracy and timeliness of SCADA data and how it is portrayed on displays.</p>	<p>training programs, whether the training programs are simulator or non-simulator based.</p>	<p>events not meeting the reporting criteria in 49 CFR part 191 when developing material for lessons learned training programs. (3) Each operator must include lessons learned into their training program, whether the training programs are simulator or non-simulator based.</p>		<p>events not meeting the reporting criteria in 49 CFR 195.52 when developing material for lessons learned training programs. (3) Each operator must include lessons learned into their training programs, whether the training programs are simulator or non-simulator based.</p>
Training	<p>(h) <i>Training</i>. Each operator must establish a 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 must train 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.</p>	<p>(h) <i>Training</i>. Each operator must establish a 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 must train 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</p>	<p>(h) <i>Training</i>. Each operator must establish a 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 must train 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</p>	Same as Gas Industry Proposal	<p>(h) <i>Training</i>. Each operator must establish a 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 must train 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</p>

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	<p>(2) Use of a simulator or non-computerized (tabletop) method to train controllers to recognize abnormal operating conditions, in particular leak and failure events. Simulations and tabletop exercises must include representative communications between controllers and individuals that operators would expect to be involved during actual events. Controllers will participate in improvement and development of tabletop or simulation training scenarios.</p> <p>(3) Providing appropriate information to the public and emergency response personnel during emergency situations, and informing controllers of the information being provided to the public or emergency responders under Sec. 192.616 so that the controllers can understand the context in which this information will be received.</p> <p>(4) On-site visits by controllers to a representative sampling of field installations similar to those for which each controller is responsible to familiarize themselves with the equipment and with station personnel functions.</p> <p>(5) Review of procedures for pipeline operating setups that are</p>	<p>operating conditions likely to occur simultaneously or in sequence.</p> <p>(2) Use of a computerized or non-computerized (tabletop) method to train controllers to recognize abnormal operating conditions.</p> <p>(3) Train controllers on their responsibilities for communication under the operator's emergency response procedures.</p> <p>(4) Training that is sufficient to obtain a working knowledge of the pipeline system, especially during the development of abnormal operating conditions.</p>	<p>operating conditions likely to occur simultaneously or in sequence.</p> <p>(2) Use of a computerized or non-computerized (tabletop) method to train controllers to recognize abnormal operating conditions.</p> <p>(3) Training controllers on their responsibilities for communication under the operator's emergency response procedures.</p> <p>(4) Training that is sufficient to obtain a working knowledge of the pipeline system, especially during the development of abnormal operating conditions.</p> <p>(5) Training to recognize field equipment failure modes.</p> <p>(6) For pipeline operating setups that are periodically, but infrequently used, provide an opportunity to review procedures in advance of application.</p>		<p>operating conditions likely to occur simultaneously or in sequence.</p> <p>(2) Use of a computerized or non-computerized (tabletop) method to train controllers to recognize abnormal operating conditions, in particular leak events.</p> <p>(3) Training controllers on their responsibilities for communication under the operator's emergency response procedures.</p> <p>(4) Training that is sufficient to obtain a working knowledge of the pipeline system, especially during the development of abnormal operating conditions.</p> <p>(5) Training to recognize field equipment failure modes.</p> <p>(6) For pipeline operating setups that are periodically, but infrequently used, provide an opportunity to review procedures in advance of application.</p>

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	<p>periodically, but infrequently used.</p> <p>(6) Hydraulic pipeline training that is sufficient to obtain a thorough knowledge of the pipeline system, especially during the development of abnormal operating conditions.</p> <p>(7) Site specific training on equipment failure modes.</p> <p>(8) Specific training on system tools available to determine a leak or significant failure and specific training on other operator contact protocols when there is reason to suspect a leak in a common pipeline corridor or right-of-way.</p>				
Qualification	<p>(i) <i>Qualification.</i> An operator must have a program in accordance with subpart N of this part to determine that each controller is qualified. An operator's procedures for the qualification of controllers must include provisions to:</p> <p>(1) Measure and verify a controller's performance including the controller's ability to detect abnormal and emergency conditions promptly and to respond appropriately.</p> <p>(2) Evaluate a controller's physical abilities, including hearing, colorblindness (color perception), and visual acuity, which could affect the controller's ability to perform the assigned duties.</p>	None included	None included	None included	None included

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	<p>(3) Evaluate a controller's qualifications at least once each calendar year, but at intervals not to exceed 15 months.</p> <p>(4) Implement methods to address gradual degradation in performance or physical abilities in a controller.</p> <p>(5) Revoke a controller's qualification for extended time off-duty or absence (of a duration determined by the operator based on the complexity and significance of the controller's role), inadequate performance, impaired physical ability beyond what the operator can accommodate, influence of drugs or alcohol, or any other reason determined by the operator to be necessary to support the safe operation of a pipeline facility.</p> <p>(6) Restore a revoked qualification by specifying the circumstances for which a complete re-qualification is required, and the circumstances for which other means of restoration may be used, such as a period of review, shadowing, retraining, or all of these.</p> <p>(7) Document when an oral examination is used as the means of evaluation, including the topics covered.</p> <p>(8) Prohibit individuals without a current controller qualification from</p>				

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	performing the duties of a controller.				
Executive validation	(j) <i>Validation</i> . An operator must have a senior executive officer validate by signature not later than the date by which control room management procedures must be implemented (see paragraph (a) of this section), and annually thereafter by March 15 of each year, that the operator has: (1) Conducted a review of controller qualification and training programs and has determined both programs to be adequate; (2) Permitted only qualified controllers to operate the pipeline; (3) Implemented the requirements of this section; (4) Continued to address ergonomic and fatigue factors; and (5) Involved controllers in finding ways to sustain and improve safety and pipeline integrity through control room management.	None included	Same as Sample Language Part 195	(i) <i>Validation</i> . Upon request, operators must submit their completed programs to PHMSA or, in the case of an intrastate pipeline facility operator, the appropriate State agency.	(i) <i>Validation</i> . Upon request, operators must submit their completed programs to PHMSA or, in the case of an intrastate pipeline facility regulated by a State, to the appropriate State agency.
Compliance and Deviations	(k) <i>Compliance and deviations</i> . An operator must maintain for review during inspection: (1) Records that demonstrate compliance with the requirements of this section; and (2) Documentation of decisions and analyses to support any	(i) <i>Compliance and deviations</i> . An operator must maintain for review during inspection: (1) Records that demonstrate compliance with the requirements of this section; and (2) Documentation of decisions and analyses to support any	(i) <i>Compliance and deviations</i> . An operator must maintain for review during inspection: (1) Records that demonstrate compliance with the requirements of this section; and (2) Documentation of decisions and analyses to support any	Same as Gas Industry Proposal	Same as Sample Language Part 192

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	deviation from the procedures required by this section. An operator must report any such deviation to PHMSA upon request, or in the case of an intrastate pipeline facility regulated by a state, upon request by the state pipeline safety authority.	deviation from the procedures required by this section. An operator must report any such deviation to PHMSA upon request, or in the case of an intrastate pipeline facility regulated by a state, upon request by the state pipeline safety authority.	deviation from the procedures required by this section. Upon request, an operator must report any such deviation to PHMSA, or in the case of an intrastate pipelines facility regulated by a State, to the appropriate State agency.		
Other plans	<p>4. Amend Sec. 192.605 by adding paragraph (b)(12) to read as follows:</p> <p>Sec. 192.605 Procedural manual for operations, maintenance, and emergencies.</p> <p>* * * * *</p> <p>(b) * * *</p> <p>(12) Implementing the applicable control room management procedures required by Sec. 192.631.</p> <p>* * * * *</p> <p>5. Amend Sec. 192.615 by adding paragraph (a)(11) to read as follows:</p> <p>Sec. 192.615 Emergency plans.</p>	None. Delete requirements to implement CRM actions in OQ plans	<p>4. Amend Sec. 192.605 by adding paragraph (b)(12) to read as follows:</p> <p>Sec. 192.605 Procedural manual for operations, maintenance, and emergencies.</p> <p>* * * * *</p> <p>(b) * * *</p> <p>(12) Implementing the applicable control room management procedures required by Sec. 192.631.</p> <p>* * * * *</p> <p>5. Amend Sec. 192.615 by adding paragraph (a)(11) to read as follows:</p> <p>Sec. 192.615 Emergency plans.</p>	Same as NPRM	<p>19. Amend Sec. 195.402 by adding paragraphs (c)(15) and (e)(10) to read as follows:</p> <p>Sec. 195.402 Procedural manual for operations, maintenance, and emergencies.</p> <p>* * * * *</p> <p>(c) * * *</p> <p>(15) Implementing the applicable control room management procedures required by Sec. 195.454.</p> <p>* * * * *</p> <p>(e) * * *</p> <p>(10) Implementing actions required to be taken by a controller during an emergency, in accordance with Sec. 195.454.</p>

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	<p>(a) * * *</p> <p>(11) Actions required to be taken by a controller during an emergency in accordance with Sec. 192.631.</p> <p>7. Amend Sec. 192.805 by adding paragraph (j) to read as follows:</p> <p>Sec. 192.805 Qualification program.</p> <p>* * * * *</p> <p>(j) Incorporate requirements applicable to controller qualification in accordance with Sec. 192.631.</p>		<p>(a) * * *</p> <p>(11) Actions required to be taken by a controller during an emergency in accordance with Sec. 192.631.</p>		
Incorporation by ref	Incorporates API RP-1165	No change	Incorporate API-1165	Incorporate API-1165 and 1168	Same as Liquid Industry Proposal