CRM, SCADA, and Leak Detection - General

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

192.631(a)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 1, 2.1 Lists all areas of each state covered by the plan.
The requirements in this plan apply to the Company's Gas Control Room in Spokane, Washington, which controls and monitors pipelines/systems in the states of Idaho, Oregon and Washington:

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

192.631(a)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 1, 5.3, 6.3, and 6.4.
The Company Control Room Management Plan is incorporated into the Gas Standards Manual by reference and the Plan also references related sections of the Gas Emergency and Service Handbook.

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

192.631(a)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Approved July 31, 2011, GSM January 1, 2011

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

192.631(a)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

Procedures are readily available in the control room.

CRM, SCADA, and Leak Detection - Roles and Responsibilities

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

192.631(b)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP Sec. 1, 2.1 table (one controller on each 12 hour shift).

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

192.631(b)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP- Sec. 2, 4 General
4.1.2 Access to the Gas Control Room is limited to qualified Controllers, Managers, and those with a necessary business function. The Gas Control console is located within Central Dispatch, which includes the Electric Dispatch group and 24-hour Customer Service Representatives.

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

192.631(b)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP- Sec. 4, 2.2
4) A method of recording controller shift-changes and any hand-over of responsibility between controllers.
Sec. 4, 6.1
A thorough shift change shall be performed whenever there is a transfer of responsibility between Controllers.

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

192.631(b)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec 2, 6.2

The Controller, during abnormal operations, has decision-making authority and accountability to include:

6.2.1 The Controller has the authority to direct field personnel to shut down the pipelines or pipeline segments, using qualifications, procedures, and professional judgment.

6.2.2 Be knowledgeable about the abnormal operating conditions and the proper response to those conditions.

6.2.3 Monitor for changing conditions on the pipeline system, which could result in an abnormal operating condition. This can prevent an abnormal event from occurring.

6.2.4 Controllers shall take appropriate action(s) to avoid exceeding the Maximum Allowable Operating Pressures (MAOP), which are listed in the Alarm Response Sheets display.

6.2.5 Use the guidance in the Abnormal Operating Procedures to respond correctly to the abnormal operating condition.

6.2.6 Notify a supervisor and the appropriate field personnel, as directed in the abnormal operating procedures.

6.2.7 If the Controller is not the first person to detect the abnormal operating condition, the Controller shall take appropriate actions, including notification of others.

6.2.8 Enter the abnormal operating conditions in the Event Log.

6.2.8.1 The SCADA alarm entries in the Event Log are reviewed monthly in the Alarm Review meeting to identify occurrences, develop corrective actions, and candidates to be used for controller training.

6.2.9 Complete required training on abnormal operating conditions, including review of lessons learned from DOT reportable incidents and abnormal events.

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

192.631(b)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec 4, 6.16

6.16 Transfer of Responsibility during the Shift.

6.16.1 When a transfer of responsibility is required during the shift, a shift change shall be performed to ensure the oncoming Controller is knowledgeable of the console conditions.

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

192.631(b)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec 2, 4.1.1

4.1 The Gas Control Room has one active console, and a Controller is assigned responsibilities and authority for each shift:

4.1.1 The Controller staffing the console shall not leave the room until all SCADA commands are fulfilled and/or all alarm conditions addressed.

7. Overpressure Limits (detail) *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) (detail)

192.631(b)(2) (192.619(a); 192.631(e)(1))	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 2, 6 Plan Requirements- **Abnormal Operations,**

The Controller shall be aware of the current Maximum Allowable Operating Pressures (MAOP) of all pipeline segments and shall take action to protect all pipeline segments from exceeding MAOP.

6.2.4 Controllers shall take appropriate action(s) to avoid exceeding the Maximum Allowable Operating Pressures (MAOP), which are listed in the Alarm Response Sheets display.

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

192.631(b)(3)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 2, **Emergency Operations**

6.3 The Controller, during emergency operations, maintains decision-making authority and accountability to include communicating with field personnel and directing them to take appropriate actions.

Sec. 7,

5.2 Emergency Conditions Notification:

5.2.1 The Gas Emergency and Service Handbook states that emergency calls are made to the Call Center, and the Call Center notifies the Controller in Gas Control.

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

192.631(b)(3)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 9,
6.5.4.5 Evacuation procedures
6.7.3.4 Use of Gas Control evacuation procedures

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

192.631(b)(3)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 3,
5.8 The Operations Support Manager shall develop, maintain and execute a test for the internal communication plan to be used for the manual operation of the pipeline(s) in the event of a loss of SCADA communications.

6.5 Testing and verification of the internal communications plan for the manual operation of the pipelines in the event of a loss of SCADA communications shall be conducted each calendar year, not to exceed 15 months.

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

192.631(b)(4) (192.631(c)(5))	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 4, 6.1
6.1 A thorough shift change shall be performed whenever there is a transfer of responsibility between Controllers.
6.1.1 This ensures that the Controller relieving is provided the necessary information required prior to assuming the responsibilities.
6.1.2 Both Controllers shall manage distractions that could adversely affect the exchange of information.
6.1.3 This includes anytime a controller is away from the desk for more than 20 minutes.

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

192.631(b)(4) (192.631(c)(5))	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.4, 6.3 6.3 The official method for recording shift change or transfer of responsibility is:

6.3.1 Controller relieving logs on to the system on the second, unoccupied console.

6.3.2 Controller being relieved electronically "signs" the Gas Shift Change database (GDD_BE Database) and logs off the company computer.

6.3.3 Controller relieving then signs the Gas Shift Change Database (GDD_BE Database).

6.3.4 This process is electronically documented and is the official record of hand-over of responsibility.

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

192.631(b)(4) (192.631(c)(5))	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

Hand over logs (electronic) Shift change is observed by supervision not to exceed every 3 months.

Reviewed sample of hand over logs.

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

192.631(b)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 4,
6.1 A thorough shift change shall be performed whenever there is a transfer of responsibility between Controllers.

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

192.631(b)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 4

6.16 Transfer of Responsibility during the Shift.

6.16.1 When a transfer of responsibility is required during the shift, a shift change shall be performed to ensure the oncoming Controller is knowledgeable of the console conditions.
6.16.2 The transfer of shift responsibility shall be documented with the Log On and Log Off requirement in this section.
6.16.3 It is the responsibility of both the Controller being relieved and the Controller relieving to determine the amount of turnover necessary for relief.

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

192.631(b)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 4,
6.1 A thorough shift change shall be performed whenever there is a transfer of responsibility between Controllers.

6.1.3 This includes anytime a controller is away from the desk for more than 20 minutes.

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

192.631(b)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 4,

6.3 The official method for recording shift change or transfer of responsibility is:
6.3.1 Controller relieving logs on to the system on the second, unoccupied console.
6.3.2 Controller being relieved electronically "signs" the Gas Shift Change database (GDD_BE Database) and logs off the company computer.
6.3.3 Controller relieving then signs the Gas Shift Change Database (GDD_BE Database).
6.3.4 This process is electronically documented and is the official record of hand-over of responsibility.

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

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

192.631(c)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.3 Definitions define SCADA system changes, (Added, changed, replaced).

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

192.631(c)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 3, 5 Plan Responsibilities,
5.1 The Energy Management Systems (EMS) Manager shall ensure that API RP 1165 "Recommended Practice for Pipeline SCADA Displays" is implemented when the SCADA system is added to, expanded, or replaced.

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

192.631(c)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

API 1165 response Sec.4.1, 4.2, 4.3 is implemented.

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

192.631(c)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

API 1165 response Appendix A is implemented

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

192.631(c)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
API 1165 response Sec.9 is implemented.

6. SCADA Administration (detail) *Have applicable paragraphs of section 11 of API RP 1165 administration been implemented?* (CR.SCADA.ADMINISTRATION.R) (detail)

192.631(c)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
API 1165 response Sec.11 is implemented.

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

192.631(c)(1)	Sat+	Sat	Concern	Unsat	NA	NC
					X	

Notes
N/A-Company does not call out any impracticality.

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

192.631(c)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP Sec. 3,
3.6 Safety-related point– a point located on or associated with equipment, systems or processes that have the ability to fall outside Company-defined safety-related parameters.

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

192.631(c)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
2014 Alarm sheet comparison document is used to verify engineering data base with current alarm each year to ensure status of current SCADA alarms.

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

192.631(c)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP Sec. 3,   6.3 Point-to-point verifications shall be performed between SCADA displays and related field equipment when field equipment is added or moved and when other changes that affect pipeline safety are made to field equipment or SCADA displays, according to the requirements stated below: 6.3.1 Field personnel shall contact the Controller and they will conduct the verifications together.   6.3.2 All safety-related points, including calculated points generated by software, shall be verified. Safety-related points include: 6.3.2.1 Points associated with all safety-related alarms and control points,   6.3.2.2 YZ Odorizer   6.3.2.3 Pressures and flow rates   6.3.2.4 Gas temperatures   6.3.2.5 Pressure Regulator inlet and outlet pressures   6.3.2.6 PLC/RTU Communications Status

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

192.631(c)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
Control room database, record of sites and when last point-to-points were performed and why they were performed.   Records verified in event log.

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

192.631(c)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 3,

6.3.4 The process shall verify the actual physical locations and sequences among other devices and equipment at the location.

6.3.5 The process shall verify the data value, information, and any control or alarm functions and sequence to/from the point are accurately represented on the SCADA displays provided to Controllers.

6.3.6 Test signals shall be injected at the actual device in the field.

6.3.7 Point-to-Point verifications which may involve simulations include, but are not limited to:

6.3.7.1 Mini-AT Flow Alarms

6.3.7.2 ABB Total Flow Device Flow Alarms

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

192.631(c)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

Control room database, record of sites and when last point-to-points were performed and why they were performed.

Sample of CRM records reviewed.

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

192.631(c)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 3,

6.3.8 Point-to-point verifications shall be completed prior to or within the same day the equipment is placed in service and the implementation of the change is made on the SCADA display.

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

192.631(c)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 3,

6.4 The documentation of point-to-point verification is maintained in the GDD_BE Database, located on the Avista corporate network, an access-limited drive, and shall include:

6.4.1 The recording of the actual field parameters, as measured in the field,

6.4.2 The corresponding SCADA display information, to ensure it matches the field parameters,

6.4.3 Whether the equipment was operated or simulated,

6.4.4 The date and time of the point-to-point verification,

6.4.5 The names or Company ID of the individuals involved in the verification,

6.4.6 For calibrations, the 'as found' and 'as left' values.

Sample of CRM records reviewed.

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

192.631(c)(3)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 3,

6.5 Testing and verification of the internal communications plan for the manual operation of the pipelines in the event of a loss of SCADA communications shall be conducted each calendar year, not to exceed 15 months.

6.5.1 The "Procedure for Pipeline Operations During Loss of SCADA Communications" is located on the Avista CRM SharePoint site.

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

192.631(c)(3)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 3,

6.5.2 The Operations Support Manager shall develop and schedule a testing and verification plan with the appropriate Gas Operations Managers.

6.5.3 The test shall be conducted at least once each calendar year, not to exceed 15 months.

6.5.3.1 The internal communication plan used in the test should include:

6.5.3.2 Manual operation of the pipelines,

6.5.3.3 Monitoring of the pipeline parameters by Field Personnel,

6.5.3.4 Regular and periodic status updates by Field Personnel when the pipelines are under manual operation and when the pipelines are completely shut down.

Reviewed dates tested.

18. Backup SCADA System (detail) *Is there a backup SCADA system?* (CR.SCADA.BACKUPSCADA.O) (detail)

192.631(c)	Sat+	Sat	Concern	Unsat	NA	NC
					X	

Notes

CRMP Sec. 3, Definitions;

3.2 Backup SCADA System – An independent or redundant system that provides similar functionality to the SCADA system.

6.7 There is no independent Backup SCADA system for the Spokane Gas Control Room.

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

192.631(c)(4)	Sat+	Sat	Concern	Unsat	NA	NC
					X	

Notes

CRMP Sec. 3,

6.8 The redundant SCADA system server is not used for development work.

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

192.631(c)(4)	Sat+	Sat	Concern	Unsat	NA	NC
					X	

Notes

CRMP Sec. 3

6.7 There is no independent Backup SCADA system for the Spokane Gas Control Room.

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

192.631(c)(4)	Sat+	Sat	Concern	Unsat	NA	NC
					X	

Notes

CRMP Sec. 3

6.7 There is no independent Backup SCADA system for the Spokane Gas Control Room.

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

192.631(c)(4)	Sat+	Sat	Concern	Unsat	NA	NC
					X	

Notes

CRMP Sec. 3

6.7 There is no independent Backup SCADA system for the Spokane Gas Control Room.

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

192.631(c)(4)	Sat+	Sat	Concern	Unsat	NA	NC
					X	

Notes

CRMP Sec. 3

6.7 There is no independent Backup SCADA system for the Spokane Gas Control Room.

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

192.631(c)(4)	Sat+	Sat	Concern	Unsat	NA	NC
					X	

Notes
CRMP Sec. 3
6.7 There is no independent Backup SCADA system for the Spokane Gas Control Room.

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

192.631(c)(4)	Sat+	Sat	Concern	Unsat	NA	NC
					X	

Notes
CRMP Sec. 3
6.7 There is no independent Backup SCADA system for the Spokane Gas Control Room.

CRM, SCADA, and Leak Detection - Fatigue Management

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

192.631(d)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 5,

3.2 Fatigue – a complex state characterized by a lack of alertness and reduced mental and physical performance, often accompanied by drowsiness.

6.2.3 An analysis has been performed to identify the fatigue risks specific to Gas Control. This FRMS addresses those risks in order to reduce the risks associated with Controller fatigue. These Company specific fatigue risks were identified:

6.2.3.1 Fatigue related occurrence commuting to and from work

6.2.3.2 Fatigue related occurrence during shift change process or transfer of responsibility

6.2.3.3 Fatigue related occurrence during the first hour of shift when the Controller is planning the shift, reviewing SCADA displays, and checking the system

6.2.3.4 Fatigue related occurrence at any time during the shift when Controller is communicating with field personnel or others

6.2.3.5 Fatigue related occurrence during continuous monitoring at any time during the shift

6.2.3.6 Fatigue related occurrence during preparation for shift change near the end of the shift

6.2.3.7 Fatigue related occurrence during a response to an abnormal or emergency operating condition.

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

192.631(d)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 5,

6.2.4 Fatigue countermeasures that address the specific fatigue risks have been developed and are incorporated into the FRMS.

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

192.631(d)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 5, 6.9

6.9.1 All DOT reportable incidents shall include an investigation for control room issues, Controller involvement, fatigue, and/or other human factors.

6.9.1.1 Section 4.31 "Post Incident Investigation" of the Gas Standards Manual outlines the process for reporting and investigation of DOT reportable incidents.

6.9.1.2 If a Controller is involved in a DOT reportable incident, the Controller will be interviewed by the Operations Support Manager to provide the necessary information below.

6.9.1.3 The potential contribution of fatigue shall be considered and the following items quantified as part of the investigation:

6.9.1.3.1. Hours of work for the preceding seven days,

6.9.1.3.2. Hours of sleep in the past 24 hours, past 48 Hours, past 72 hours,

6.9.1.3.3. Hours on duty at time of accident,

6.9.1.3.4. Hours since last sleep,

6.9.1.3.5. Time DOT reportable incident occurred, with particular attention if it occurred during periods of reduced alertness.

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

192.631(d)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.5, 5.2

5.2 The Operations Support Manager is responsible for managing and monitoring the FRMS. The Manager is the Company's "fatigue risk manager."

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

192.631(d)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.5   Shift length for Avista's controllers is 12 hours.

5.2.1 The Operations Support Manager shall establish a shift schedule and schedule rotations that provide sufficient off-duty time so Controllers have the opportunity for a minimum of eight hours of sleep.

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

192.631(d)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.5 6.1.2

6.1 Shift Lengths: The Gas Control uses a twelve-hour shift length.

6.1.2 The amount of time for shift change shall be the necessary amount of time to exchange relevant information and to ensure the oncoming Controller has adequate information to assume responsibility and authority.

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

192.631(d)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 5,

6.2.5 The commute times for Controllers is updated yearly and maintained on the Avista CRM SharePoint Site.

6.2.5.1 The commute times for the average commute, when combined with the twelve hours shift length and the amount of time for shift change, is a total of approximately 13 hour and 30 minutes.

Section 5: Fatigue Risk Management System

This is a controlled document. The current approved version of this document is located on the Avista intranet. It is the responsibility of the user to verify that their copy is the current approved version. 32

6.2.5.2 The commute times for the longest commute, when combined with the twelve hours shift length and the amount of time for shift changes, is a total of approximately 14 hours.

6.2.5.3 This provides all Controllers with an opportunity for eight hours of sleep between shifts.

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

192.631(d)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 5,

4.1.4 The Company shall develop on call practices that minimize interruptions during the scheduled sleep time of employees.

9. Maximum Hours of Service (detail) *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) (detail)

192.631(d)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.5,

6.8.4 The maximum number of hours worked in any seven (7) period shall be 65 and shall be followed by at least 48 hours of off-duty time. 35-hours off is used as a "reset" within any sliding 7 day period because it follows a sequence of two or more day shifts. For example, the 12-hour DDDONNN sequence is acceptable even though it appears to violate the 65-hour HOS guideline (6 days x 12 HOS per day = 72 HOS in 7 days). The day off in this sequence begins in the evening and extends 48 hours to the beginning of the next night shift, providing the opportunity for two nights of sleep.

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

192.631(d)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 5,

6.8.2 The maximum number of day shifts in a row shall be five (5), and shall be followed by at least 35 hours of off-duty time.

6.8.3 The maximum number of night shifts in a row shall be five (5), and shall be followed by at least 35 hours of off-duty time

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

192.631(d)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 5,

4.1.3 The Company shall have a system that documents and tracks all hours of work of the Controllers, including overtime and time on non-control room duties.

Reviewed sample of records

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

192.631(d)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP Sec. 5,
6.8.2 The maximum number of day shifts in a row shall be five (5), and shall be followed by at least 35 hours of off-duty time.

13. Day Only Work Hours (detail) *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) (detail)

192.631(d)(4)	Sat+	Sat	Concern	Unsat	NA	NC
					X	

Notes
N/A – No day only work hours.

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

192.631(d)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP Sec.5, 6.7
6.7.2 Fatigue countermeasures include, but are not limited to:
6.7.2.1 Standing at the console at any time during a shift for 10-15 minutes.
6.7.2.2 Strategic use of caffeine at the beginning of the shift and/or near the halfway point of the shift.
6.7.2.3 Conversations and social interactions with other Controllers or other personnel.
6.7.2.4 Breaks away from the console for brief periods of time, particularly the last four hours of a shift.
6.7.2.5 Non-strenuous exercise either at or away from the console. The exercise could be walking, use of exercise bands, stretches, exercises on the "Alertness Exercises" card, or similar exercises

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

192.631(d)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 5,

6.8.1 The maximum hours of service on one shift shall be 14, including the time for the shift exchange.

6.8.1.1 A Controller may work 14.25 hours when attendance to the Monthly Gas Controller meeting falls after their last shift prior to their scheduled time off. This allows for the timely delivery of pipeline safety related details often times communicated during these meetings.

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

192.631(d)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 5,

6.3.1 The current Controller complement is six (6) (Five Controllers in the rotating 24/7 schedule and one day Controller).

6.3.2 The Company shall perform a staffing analysis each calendar year, at intervals not to exceed 15 months.

6.3.3 The staffing analysis for the current year indicates that the Company has a sufficient number of qualified controllers.

6.3.4 The staffing analysis documentation is retained on the Avista CRM SharePoint site.

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

192.631(d)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 5,

6.8.2 The maximum number of day shifts in a row shall be five (5), and shall be followed by at least 35 hours of off-duty time.

6.8.3 The maximum number of night shifts in a row shall be five (5), and shall be followed by at least 35 hours of off-duty time.

18. Shift Holdover (detail) *Does the 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) (detail)*

192.631(d)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.5,

6.8.7 Emergency hours of service should follow these guidelines:

6.8.7.1 A Controller may work up to 16 hours, and a shift of that length shall only be worked once in a seven (7) day period.

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

192.631(d)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.5, 6.7.1

6.7.1 Controllers should select fatigue countermeasures that are effective for each individual any time during the shift, but particularly between the hours between the hours of 1400 -1800, 0200 - 0600, on the fourth night shift, and other times when fatigued.

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

192.631(d)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 5,

6.8.9 The Operations Support Manager shall approve all deviations in writing, using the "Compliance Deviation" form.

6.8.9.1 If the emergency conditions do not allow time for written approval, the Operations Support Manager shall complete the written explanation and approval when the emergency is over.

6.8.9.2 Emergency deviations shall be documented and stored at the Avista CRM SharePoint site.

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

192.631(d)(2) (192.631(d)(3))	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 5,

6.4.1 The Company shall provide initial fatigue management training, which will educate Controllers and Gas Control Room Management in fatigue mitigation, strategies, how off-duty activities contribute to fatigue, and how to recognize the effects of fatigue.

6.5.1 Avista shall provide educational materials to Controllers and Control Room Supervisors about subjects related to sleep, sleep disorders and treatments, shiftwork, fatigue types, and fatigue countermeasures.

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

192.631(d)(2) (192.631(d)(3))	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 5,

6.4.8 Documentation of the training and completion dates shall be stored on the ALN.

Reviewed controller training dates.

23. Fatigue Education Refresher (detail) *Is refresher fatigue education provided at regular intervals?* (CR.CRMFM.FATIGUEREFRESHER.R) (detail)

192.631(d)(2) (192.631(d)(3))	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.5, 6.4.4

6.4.4 Refresher training shall be provided each calendar year, at intervals not to exceed 15 months, for all Controllers and Gas Control Management

Reviewed controller training dates.

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

192.631(d)(2) (192.631(d)(3))	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 5,

4.1.5 The Company shall review the effectiveness of the FRMS at least once each calendar year, at intervals not to exceed 15 months.

5.2.9 The Operations Support Manager shall evaluate the effectiveness of the FRMS at least once each calendar year, at intervals not to exceed 15 months, and provide the results to the Director.

5.2.9.1 The evaluation shall include a review of the fatigue management training and education.

6.4.5 The effectiveness of the fatigue management training shall be evaluated at least once each calendar year, at intervals not to exceed 15 months.

6.13.3 The FRMS Effectiveness Evaluation Checklist shall be used for the evaluation and shall be retained on the Avista CRM SharePoint site.

25. Fatigue Mitigation Strategies (detail) *Does fatigue education address fatigue mitigation strategies (countermeasures)? (CR.CRMFM.FATIGUESTRATEGY.P) (detail)*

192.631(d)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.5, 6.4.7.8

6.4.7 The following topics shall be included in the fatigue management training and education programs:

6.4.7.8 Fatigue countermeasures and times they shall be used

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

192.631(d)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.5, 6.4.7

6.4.7 The following topics shall be included in the fatigue management training and education programs:

6.4.7.11 How off-duty activities contribute to fatigue

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

192.631(d)(3)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
Fatigue training content appears to be adequate.

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

192.631(d)(3)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
Reviewed records for current certifications.

CRM, SCADA, and Leak Detection - Alarm Management

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

192.631(e)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP Sec. 6 Alarm Management plan.

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

192.631(e)(1)	**Sat+**	**Sat**	**Concern**	**Unsat**	**NA**	**NC**
		X				

Notes

CRMP Sec. 6., 6.8.1

6.8.1 Inaccurate or malfunctioning alarms shall be handled according to the following steps:

6.8.1.1 Controller documents the issue in the Event Log,

6.8.1.2 Controller notifies Gas Control Management via email.

6.8.1.3 Gas Control Management will review the issue and if necessary will initiate an MOC "work process", which will involve the appropriate Engineering, SCADA and/or Field personnel. Additional communication may be required when third party personnel own or maintain the affected equipment.

6.8.1.4 SCADA, Engineering, and/or Field or third party personnel will promptly correct the malfunction and notify Gas Control of corrective actions taken.

6.8.1.5 The Alarm Management Champion will assemble a summary report of these issues monthly for the review.

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

192.631(e)(1)	**Sat+**	**Sat**	**Concern**	**Unsat**	**NA**	**NC**
		X				

Notes

CRMP Sec. 6,

3.21 Safety-related alarms – Alarms that specifically indicate that equipment, systems, or processes are outside Company-defined safety-related parameters.

3.22 SCADA System Alarm – Safety-related alarm that originates within the SCADA system and requires controller response.

6.8.4 Alarm inhibition/uncommission and SCADA system alarm set point changes shall be controlled to ensure proper and timely reactivation.

Sec. 3,

6.3.2 All safety-related points, including calculated points generated by software, shall be verified. Safety-related points include:

6.3.2.1 Points associated with all safety-related alarms and control points,

6.3.2.2 YZ Odorizer

6.3.2.3 Pressures and flow rates

6.3.2.4 Gas temperatures

6.3.2.5 Pressure Regulator inlet and outlet pressures

6.3.2.6 PLC/RTU Communications Status

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

192.631(e)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP Sec. 6, OQ Knowledge and OQ evaluation

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

192.631(e)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP Sec.6, 6.8.2 6.8.1 Inaccurate or malfunctioning alarms shall be handled according to the following steps: 6.8.2 Chattering, frequent, stale, out-of-service, and other nuisance alarms shall be analyzed and repaired.

6. Monthly Analysis of SCADA Data (detail) *Do processes require the monthly identification, recording, review, and analysis of points that have been taken off scan, have had alarms inhibited, generated false alarms, or that have had forced or manual values for periods of time exceeding that required for associated maintenance or operating activities?* (CR.CRMAM.MONTHLYANALYSIS.P) (detail)

192.631(e)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP Sec 6, 6.7.2 The monthly report is maintained on the Avista CRM SharePoint site and shall include the KPIs and, at a minimum, this information from the alarm system: 6.7.2.1 Safety-related alarm points taken off scan in the SCADA host, 6.7.2.2 Inhibited alarms, 6.7.2.3 False alarms, 6.7.2.4 Alarms with forced or manual values. 6.7.3 The report and related documentation should include: 6.7.3.1 Dates and times points were taken off scan and restored, 6.7.3.2 Dates, times, and duration of inhibited, false, forced, or manual values, 6.7.3.3 Analysis of reasons and corrective actions completed.

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

192.631(e)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.6, 6.8

6.8.1.4 SCADA, Engineering, and/or Field or third party personnel will promptly correct the malfunction and notify Gas Control of corrective actions taken.

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

192.631(e)(3)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 6,

5.4.6 The Operations Support Manager ensures the correct safety-related alarm set-point values and alarm descriptions are verified at least once each calendar year, but at intervals not to exceed 15 months.

5.5.6 The Controller shall conduct the verification process for the correct safety-related alarm set-point values and alarm descriptions. The verification documentation is maintained in the Event Log (GDD_BE Database) located on the Avista corporate network, an access-limited drive.

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

192.631(e)(3)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 6,

6.8.4 Alarm inhibition/uncommission and SCADA system alarm set point changes shall be controlled to ensure proper and timely reactivation.

6.8.4.1 Changes to alarm set points shall follow the MOC process.

6.8.4.2 Controllers shall not independently inhibit/uncommission safety-related alarms or change SCADA system alarm set points.

6.8.4.3 Controllers must request approval from the Operations Support Manager/Senior Controller to inhibit/uncommission safety-related alarms.

6.8.4.4 The Operations Support Manager or Senior Controller shall approve the safety-related alarm inhibition/uncommission.

6.8.4.5 When the reason for the alarm inhibition/uncommission ends, the Controller shall note the date and time in the event log and the Shift Change Database.

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

192.631(e)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 6., 5.4.7
5.4.7 The Operations Support Manager shall ensure that a review of the Alarm Management Plan and related reports is performed at least once each calendar year, not to exceed 15 months.

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

192.631(e)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

Reviewed dates for annual Alarm Management Plan Reviews

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

192.631(e)(5)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 11, 4
4.1 Activity review should be done using a structured process that accounts for all job requirements of a Controller and the tasks they perform.

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

192.631(e)(5)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.11,

6.2 ACTIVITY REVIEW

6.2.1 Peak Gas Control workload data was aggregated hourly based on the data gathered in 6.1.2 above. Because most Controller activities do not have computer-generated start and end timestamps, the following method was used to account for Controller activity:

6.2.1.1 All controller activities have an average duration time. Once determined, the average duration, or measured duration if available, time was applied to the associated hour in which the activity started. If for a particular activity there were no start timestamps available a typical start time was used.

6.2.1.2 There were three levels of priority identified in the activity review process.

6.2.1.2.1. Level 1 represents those activities related to responding to abnormal conditions or anticipated abnormal conditions. These activities are expected to be completed before a controller performs any other lesser tasks.

6.2.1.2.2. Level 2 represents those activities that are required of the controllers, such as fatigue mitigation, which can be performed during times when the workload is non-peak.

6.2.1.2.3. Level 3 represents all other activities that are optional from a Control Room Rule standpoint, but which Avista deems important.

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

192.631(e)(5)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 6,

4.1.2 Alarms are located for timely access and are presented at a rate that the Controller can effectively analyze and address.

Sec. 11,

5.2 The Controller is responsible for participation in the activity review process.

5.2.1 The Controller shall participate in activities to identify, measure, analyze, and improve controller activity so that there is adequate time to respond to alarms.

6.4 ACTIVITY REVIEW PROCESS REPORT

6.4.1 The report shall include a determination on whether or not a Controller is overloaded.

6.4.2 This determination is based on these criteria:

6.4.2.1 The alarm performance targets, as defined in the Alarm Management Plan, are met.

6.4.2.2 The average workload for each hour during a week does not exceed 100%.

6.4.3 The report should provide a conclusion, based on the data, whether or not Controllers have sufficient time to analyze and react to incoming alarms.

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

192.631(e)(5)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 11,

6.5 ANNUAL REVIEW OF CONTROLLER ACTIVITY

6.5.1 The "Activity Review Process" shall be completed at least once each calendar year, not to exceed 15 months.

16. Alarm Deficiency Resolution (detail) *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) (detail)

192.631(e)(6)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 1,

4.3 The Operations Support Manager shall review and evaluate the Control Room Management Plan each calendar year, not to exceed 15 months, to:

4.3.1 Ensure it meets the current requirements.

4.3.2 Identify any deficiencies and opportunities for improvement.

4.3.3 Develop and implement action items for improvement of the plan.

Sec. 6 Alarm Performance Metrics Table, page 51.

6.10.2.2 Deficiencies identified through periodic audits and the annual review shall be assigned to an individual for analysis and correction in a timely manner.

17. Alarm Management Deficiencies (detail) *Do records indicate deficiencies found in implementing 192.631(e)(1) through 192.631(e)(5) have been resolved?* (CR.CRMAM.DEFICIENCIES.R) (detail)

192.631(e)(6)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

Reviewed Alarm Reviews for 2013-2016

CRM, SCADA, and Leak Detection - Change Management

1. Field Equipment Changes (detail) *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) (detail)

192.631(f)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

2. Controller Participation in System Changes (detail) *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) (detail)

192.631(f)(1) (192.631(f)(3))	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP Sec. 7,   4.1.5 The Operations Support Manager should select representatives from Gas Control and other subject matter experts as members of the MOC Review Team.

3. Controller Participation in System Changes (detail) *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) (detail)

192.631(f)(1) (192.631(f)(3))	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP Sec. 7,   4.5 The Controllers are responsible for completing all required action items before changes that affect pipeline operations are implemented.   4.5.1 The Controller shall participate in MOC reviews, when requested, as a representative of Gas Control.   4.5.2 The Controller shall review changes to Gas Control procedures and ensure the procedures are accurate.   4.5.3 The Controller shall complete all required training or other actions before the change is implemented in Gas Control.

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

192.631(f)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.7,

4.4.3 Notifying Gas Control when emergency conditions exist.

5.2 Emergency Conditions Notification:

5.2.1 The Gas Emergency and Service Handbook states that emergency calls are made to the Call Center, and the Call Center notifies the Controller in Gas Control.

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

192.631(f)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 7,

5.3 Notifications By Field Personnel:

5.3.1 Field personnel perform regular maintenance or construction activities that might affect Gas Control. This may include activities at gate stations, regulator stations, industrial meter sets, master meter sets, or other facility with telemetry.

5.3.2 Any person responsible for maintenance that affects Gas Control operations shall provide notifications to the Gas Control Room prior to performing maintenance activities or conducting construction activities.

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

192.631(f)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.7,

4.4 Field personnel, including Technicians are responsible for:

4.4.1 Complying with Company MOC processes.

4.4.2 Notifying Gas Control prior to entering facilities with telemetry in order to make field changes that might affect pipeline operations.

4.4.3 Notifying Gas Control when emergency conditions exist.

4.4.4 Notifying Gas Control prior to performing maintenance or repairs that might affect pipeline operations.

Reviewed event log examples of Field Changes.

CRM, SCADA, and Leak Detection - Operating Experience

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

192.631(g)(1)

Sat+	Sat	Concern	Unsat	NA	NC
	X				

Notes

CRMP Sec. 8,

4.2.3 The Operations Support Manager shall be trained in at least one method of root cause analysis.

5.2.4 A causal analysis technique is used to determine root causes and develop corrective actions.

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

192.631(g)(1)

Sat+	Sat	Concern	Unsat	NA	NC
				X	

Notes

None for WA – N/A

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

192.631(g)(2)

Sat+	Sat	Concern	Unsat	NA	NC
	X				

Notes

CRMP Sec. 8, 5.2.9

5.2.9 Lessons learned from all incidents may be communicated to Controllers in any of these ways:

5.2.9.1 E-mailed to Controllers from the Operations Support Manager

5.2.9.2 Reviewed in meetings with Controllers

5.2.9.3 Placed in "Required Reading" for review by Controllers.

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

192.631(g)(2)

Sat+	Sat	Concern	Unsat	NA	NC
	X				

Notes

Reviewed CRM Lessons Learned Program, reviewed sample of documents.

CRM, SCADA, and Leak Detection - Training

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

192.631(h)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP Sec. 9,
1.1 This section of the Avista Utilities (Company) Control Room Management (CRM) Plan outlines the process for the training of Gas Control personnel on their roles and responsibilities, and other duties required by the Company.

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

192.631(h)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
Reviewed training modules and training records.

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

192.631(h)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
CRMP Sec. 9,
5.5 The Operations Support Manager shall:
5.5.1 Review and evaluate the training program content each calendar year, at intervals not to exceed 15 months,
5.5.2 Identify opportunities for improvement,
5.5.3 Develop action items to implement the improvements,
5.5.4 Track and document the completion of action items in the Company CRM SharePoint site on the Avista intranet

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

192.631(h)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 9,

5.5 The Operations Support Manager shall:

5.5.1 Review and evaluate the training program content each calendar year, at intervals not to exceed 15 months.

Reviewed records of annual review.

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

192.631(h)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 9,

6.9 CRM related training will be accomplished with different methods that include classroom training, online training, scenarios, Required Reading, computer based training and discussions in monthly meetings. The subjects to be covered include:

6.9.1 Roles and responsibilities

6.9.2 SCADA processes

6.9.3 Proper shift change methods

6.9.4 Fatigue management education

6.9.5 Alarm management

6.9.6 Incident investigation

6.9.7 Management of Change

6.9.8 Lessons Learned process

6.9.9 Abnormal operating conditions, with written scenarios

6.9.10 Emergency notification drills

6.9.11 Communication exercises with field

6.9.12 Lessons Learned from DOT reportable incidents

6.9.13 Operating setups that occur infrequently, but do occur periodically

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

192.631(h)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 9,

6.4.4.15 Abnormal operations recognition and response.

6.9 CRM related training will be accomplished with different methods that include classroom training, online training, scenarios, Required Reading, computer based training and discussions in monthly meetings. The subjects to be covered include:

6.9.9 Abnormal operating conditions, with written scenarios

Reviewed Avista Emergency and Abnormal Operating Conditions List June 9, 2015 Rev 1

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

192.631(h)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 9, 6.5.4

6.5.4 The trainer shall cover the roles and responsibilities of the controller during:

6.5.4.2 Abnormal operations

8. Controller Training and Qualification (detail) *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) (detail)

192.631(h)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 9,

6.7.3.3 Controllers shall demonstrate proficiency in recognition and response to abnormal operating conditions by completion of a written scenario, which is evaluated by the Operations Support Manager.

Reviewed training records.

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

192.631(h)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 9,

6.7.3.3 Controllers shall demonstrate proficiency in recognition and response to abnormal operating conditions by completion of a written scenario, which is evaluated by the Operations Support Manager.

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

192.631(h)(3)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 9,

6.5.4 The trainer shall cover the roles and responsibilities of the controller during:

6.5.4.3 Emergency operations, including emergency response

6.9 CRM related training will be accomplished with different methods that include classroom training, online training, scenarios, Required Reading, computer based training and discussions in monthly meetings. The subjects to be covered include:

6.9.10 Emergency notification drills

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

192.631(h)(4)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.9,

6.4.4 New controllers should receive an orientation to field operations, including these subjects:

6.4.4.1 Safety orientation

6.4.4.2 Roles and responsibilities of field personnel

6.4.4.3 Facility orientation

6.4.4.4 Station flow diagrams

6.4.4.5 Accident prevention and safety

6.4.4.6 Emergency operations, including communication requirements

6.4.4.7 Valve operation

6.4.4.8 Instrumentation and controls

6.4.4.9 Odorant tanks

6.4.4.10 Safety devices and abnormal operations

6.4.4.11 Meters and measurement

6.4.4.12 Quality assurance

6.4.4.13 Public awareness

6.4.4.14 Electrical power systems

6.4.4.15 Abnormal operations recognition and response.

6.5 Training in Pipeline Operations

6.5.1 All Controllers shall complete training in pipeline operations.

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

192.631(h)(5)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 9,

3.4 "Periodically but infrequently performed pipeline operating setups" – operating setups that are performed at quarterly or greater intervals.

6.9 CRM related training will be accomplished with different methods that include classroom training, online training, scenarios, Required Reading, computer based training and discussions in monthly meetings. The subjects to be covered include:
6.9.13 Operating setups that occur infrequently, but do occur periodically
6.9.13.1 Procedures for these setups will be placed in Required Reading, and reviewed before the setup is performed.
6.9.13.2 These operating setups include, but are not limited to:
6.9.13.2.1. Instrument tool runs (PIGS)

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

192.631(h)(5)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec.9,
6.9.13.1 Procedures for these setups will be placed in Required Reading, and reviewed before the setup is performed

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

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

192.631(i)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 10, 5.1

5.1 Requests from PHMSA and/or any applicable state agencies for Control Room Management documents will be handled in a timely manner by the Manager, Pipeline Integrity & Compliance and the Operations Support Manager.

5.1.1 Records of Company responses to regulators' requests will be maintained.

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

192.631(i)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRM manual was submitted to WUTC on 9/5/2017 as requested.

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

192.631(i)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 10,

5.1 Requests from PHMSA and/or any applicable state agencies for Control Room Management documents will be handled in a timely manner by the Manager, Pipeline Integrity & Compliance and the Operations Support Manager.

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

192.631(j)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

5.4 Compliance records shall be maintained according to the requirements specified in each Section of the Company Control Room Management Plan.

5.4.1 The records shall contain at least the following information, where applicable:

5.4.1.1 Date

5.4.1.2 Location

5.4.1.3 Name(s) and company ID(s) of people involved

5.4.1.4 Nature of work

5.4.1.5 Notes on any errant condition found and corrected

5.4.1.6 Calibrations should include as found and as left values

5.4.2 Records shall be properly stored, safeguarded, and readily retrievable.

5.4.3 Electronic documentation shall be backed up in order to have redundant copies of records.

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

192.631(j)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
Records appear to be adequate to demonstrate compliance.

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

192.631(j)(1)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

5.4.3 Electronic documentation shall be backed up in order to have redundant copies of records.

Electronic record storage appears adequate.

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

192.631(j)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes

CRMP Sec. 10,

5.2 Deviations from the Control Room Management Plan shall be documented on the forms and/or records for each section.

5.2.1 Records of deviations shall include:

5.2.1.1 Reason the deviation was necessary for safe operation.

5.2.1.2 Criteria for allowing the deviation.

5.2.2 Records of deviations shall be reviewed at least once each calendar year, at intervals not to exceed 15 months, by the Operations Support Manager to identify possible trends that should be addressed.

5.2.2.1 The review should be conducted by, at a minimum, representatives from: Gas Control, Pipeline Integrity & Compliance.

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

192.631(j)(2)	Sat+	Sat	Concern	Unsat	NA	NC
		X				

Notes
Reviewed deviation in hours for 5/16/2017 and 5/22/2017.