ROCKPOINT
GAS STORAGE

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April 22, 2021

Terence Eng, P.E.
Program Manager
Gas Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission
505 Van Ness Avenue, 2nd Floor
San Francisco, CA 94102-3298
terence.eng@cpuc.ca.gov

VIA ELECTRONIC MAIL

RE: General Order 112-F Inspection of Lodi Gas Storage

Dear Mr. Eng:

Lodi Gas Storage, L.L.C. (LGS) submits this written response to the Safety and Enforcement Division (SED) of the California Public Utilities Commission (Commission). On behalf of the SED, Wai Yin (Franky) Chan, Michelle Wei, and Randy Fienberg conducted a comprehensive General Order 112-F inspection of LGS from December 7-18, 2020 and from February 24-26, 2021. The inspection findings identified by SED were provided to LGS on March 23, 2021. LGS addresses the inspection findings as noted by SED in the "Post-Inspection Written Preliminary Findings" in the following enclosed documents:

- **Attachment #1** – LGS Responses to "Post-Inspection Written Preliminary Findings"
- **Attachment #2** – Excerpt from Control Room Management Plan (CRMP) highlighting revisions to address Control Room Team Training
- **Attachment #3** – Appendix B-3 Operator Data Form highlighting revisions
- **Attachment #4** – Excerpt from CRMP highlighting revisions to address potential contribution of controller fatigue to incidents
- **Attachment #5** – Excerpt from CRMP highlighting revisions to address change management

If you have any questions, or require more information, please contact me at **greg.clark@rockpointgs.com** or at (209) 368-9277 x21.

Sincerely,

Gregory N. Clark
Compliance Manager

Enclosures

cc: File #S3.03
W. Chan (wai-yin.chan@cpuc.ca.gov)
M. Intably (mahmoud.intably@cpuc.ca.gov)
D. Lee (dennis.lee@cpuc.ca.gov)
A. Anderson, M. Fournier, H. Gold (via e-mail)

Attachment #1

LGS Responses to "Post-Inspection Written Preliminary Findings"

Post-Inspection Written Preliminary Findings

Unsatisfactory Results

1. **CRM, SCADA, and Leak Detection : Training (CR.CRMTRAIN)**
   References 192.631(h)(6)

   "Control room team training and exercises that include both controllers and other individuals, defined by the operator, who would reasonably be expected to operationally collaborate with controllers (control room personnel) during normal, abnormal or emergency situations. Operators must comply with the team training requirements under this paragraph by no later than January 23, 2018."

   SED reviewed Lodi Gas Storage's Control Room Management Plan and did not find any procedures or records on the Control Room Team Training requirement that became effective on January 23, 2018 per 192.631(h)(6). According to Lodi Gas Storage, they currently have the Annual Emergency Response Tabletop Exercises in place. According to section 1.2.2 of Lodi Gas Storage's Emergency Response Plan, the tabletop exercises are "meant to be a realistic simulation of an emergency response and conducted to assess the capabilities and readiness of operations personnel to respond to an emergency, interact with emergency equipment and ability to contact 3rd-party service providers that supply said equipment." Therefore, Lodi Gas Storage is in violation of 192.631(h)(6).

   SED recommends Lodi Gas Storage to update its Control Room Management Plan to include the Control Room Team Training requirement and reference to its Annual Emergency Response Tabletop Exercises if the exercises will be used to fulfill the Control Room Team Training requirement. SED also recommends Lodi Gas Storage to review the PHMSA Control Room Management Frequently Asked Questions (FAQs) H.05, H.06, H.07, H.08, H.09, and J.06 (listed below) to ensure its current Annual Emergency Response Tabletop Exercises can address all of the applicable elements in the FAQs. If the Annual Emergency Response Tabletop Exercises does not address all of the applicable elements in the FAQs, SED recommends Lodi Gas Storage to develop a new Control Room Team Training exercise or make modification to the current Annual Emergency Response Tabletop Exercises.

   LGS Response:

   Lodi Gas Storage has updated its Control Room Management Plan to explicitly address the Control Room Team Training requirement. Please see Attachment #2.

Concerns

1. **CRM, SCADA, and Leak Detection : CRM Roles and Responsibilities (CR.CRMRR)**
   References 192.631(b)(4), 192.631(c)(5)

   SED reviewed the shift change forms for 2019 and did not find evidence of probable violations. According to Lodi Gas Storage, the 12 hour shifts start at 6:00am and 6:00pm. In Appendix B-3 "Operator Data Form" of its CRM manual, the 12 hour shifts start times are stated as 5:30am and 5:30pm. SED recommends Lodi Gas Storage to clarify the discrepancies in the CRM manual or update the "Operator Data Form" in Appendix B-3.

   LGS Response:

   Lodi Gas Storage has updated Appendix B-3 in its Control Room Management Plan to correct this discrepancy. Please see Attachment #3.

2. **CRM, SCADA, and Leak Detection : Fatigue Management (CR.CRMFM)**
   References 192.631(d)

   SED recommends Lodi Gas Storage to reference the document (https://www.phmsa.dot.gov/pipeline/control-room-management/investigating-possible-contribution-fatigue-pipeline-mishaps-june-2011) from PHMSA's FAQ D.12 in Lodi Gas Storage's Control Room Management Plan as another method to evaluate if controller fatigue may have contributed to an incident.

   LGS Response:

   Lodi Gas Storage has updated its Control Room Management Plan to address potential contribution of controller fatigue to incidents. Please see Attachment #4.

3. CRM, SCADA, and Leak Detection : Change Management (CR.CRMCMGT)
References 192.631(f)(2)

SED reviewed Lodi Gas Storage's Control Room Management Plan and found that section 6.4 "Field Personnel Communication" references to the "LGS Field Personnel Communication Procedure (Appendix E-5)." Appendix E-5 was not found in the Control Room Management Plan. Lodi Gas Storage was also unable to provide Appendix E-5 when SED requested for it. According to Lodi Gas Storage, the other section in section 6 of the Control Room Management Plan addresses the requirement on Field Personnel Communication.

LGS Response:

Lodi Gas Storage has updated its Control Room Management Plan to address the erroneous reference to Appendix E-5. Please see Attachment #5.

Attachment #2

Excerpt from Control Room Management Plan (CRMP) highlighting revisions to address Control Room Team Training

All records associated with the above requirements are retained for 5 years in a secured server location.

7.2. LGS Incident Investigation Procedure

LGS's Incident Investigation procedure is located in Section 2.05 of the Injury and Illness Prevention Program (IIPP). All results are documented in an Incident Investigation Report and stored in the compliance files at the LGS facility where or closest to where the incident occurred or at the Lodi Office. Investigation reports are maintained for a minimum of five years.

7.3. Lessons Learned

Any lessons learned identified in meetings, via the incident investigation procedure, and any associated reporting tools provided from the industry, etc., become key discussion points during the weekly console/team meetings. The Operations Manager will ensure these discussions are documented in the meeting minutes. LGS performs Lessons Learned annual training and also retains electronic records for reference and retention purposes all Lessons Learned (for a period of five years) unless related directly to an incident.

8. Training

8.1. Rule Requirements

In accordance with the Rule requirements, LGS has established a training program that provides each Controller with the knowledge to carry out the roles and responsibilities defined by the operator, to include the following:

- Responding to AOCs likely to occur simultaneously or in sequence
- Using a computerized simulator or tabletop method for training Controllers to recognize AOCs
- Communication responsibilities under the operator's emergency response procedures
- Working knowledge of the pipeline system, especially during the development of AOCs
- Providing the opportunity for Controller to review procedures for infrequently used operating setups in advance of their application
- Control room team training and exercises that include both controllers and other LGS personnel who would reasonably be expected to operationally collaborate with controllers during normal, abnormal, or emergency situations
- Review of the program content for potential improvements at least once each calendar year but not to exceed 15 months

LGS trains Controllers in accordance with this section of the Plan and the documentation referenced herein (Appendix D). All records of training, procedural reviews, and CRMP review are retained for 5 years in a secured server location.

8.2. LGS Procedures

Appendix D provides facility-specific procedures specifically addressing the following:

- Controller communication requirements
- Flow of information required during an emergency
- General operations procedures
- AOC identification and procedures

LODI GAS STORAGE TRAINING PROGRAM

(Control Room Management)

1. TRAINING

1.1. RULE REQUIREMENTS

In accordance with the Rule, Lodi Gas Storage (LGS) must establish a training program that provides each Controller with the knowledge to carry out the roles and responsibilities defined by the operator, to include the following:

- Responding to abnormal operating conditions likely to occur simultaneously or in sequence
- Using a computerized simulator or tabletop method for training Controllers to recognize AOCs
- Communication responsibilities under the operator's emergency response procedures
- Working knowledge of the pipeline system, especially during the development of AOCs
- Providing the opportunity for Controller to review procedures for infrequently used operating setups in advance of their application
- Control room team training and exercises that include both controllers and other LGS personnel who would reasonably be expected to operationally collaborate with controllers during normal, abnormal, or emergency situations
- Review of the program content for potential improvements at least once each calendar year but not to exceed 15 months

2. ROLES AND RESPONSIBILITIES

LGS prohibits anyone who has not been trained in the provisions of this manual and procedures referenced herein, along with any additional training mentioned within this manual, from performing Controller duties. Individuals are required to log into the system using a secure logon and password received after they have been qualified to perform control duties.

Position	Responsibilities
Senior Management	♦ Provides support and approval of the program.
Operations Manager	♦ Provides management of the program. ♦ Gives continuous education on fatigue information within the industry. ♦ Reviews and tracks program effectiveness. ♦ Implements communications policies and mitigation strategies. ♦ Identifies actions required for fatigued Controller situations. ♦ Maintains the Lessons Learned policy. ♦ Develops and maintains the training curriculum. ♦ Develops and implements metrics to measure training material and method effectiveness. ♦ Conducts oral exams. ♦ Reviews written exams and covers results with Trainee.
Trainer (qualified as Train-the-Trainer)	♦ Performs all OJT training on the pipeline system. ♦ Conducts oral exams. ♦ Reviews written exams and covers results with Trainee. ♦ Meets with Operations Manager to discuss Trainee status.

Position	Responsibilities
Compliance – Training Coordinator	♦ Verifies Controller compliance with required training tasks and requirements. ♦ Tracks and updates all training elements, to include OJT training verification and tracking. ♦ Updates all training records online via a third-party software system (CSI)
Controller Trainee	♦ Gives his/her full attention and effort toward gaining the skills and knowledge needed to become qualified meeting OQ requirements. ♦ Conducts his/her self in a professional manner at all times and abides by the rules of conduct for the Control Room environment. ♦ Understands the authority and responsibility of a Qualified Controller to monitor, safely control, and operate LGS's pipeline systems. ♦ Completes the Fatigue Training requirements to educate themselves on effective techniques to reduce the potential for fatigue. ♦ Be trained and qualified under the OQ Program and procedures to perform control duties along the pipeline.

2.1. LGS PROCEDURES

The LGS *O&M Manual* and the LGS *Emergency Response Plan* contain procedures specifically addressing the following:

- ♦ Controller communication requirements
- ♦ Flow of information required during an emergency
- ♦ System-specific operations procedures
- ♦ General operations procedures
- ♦ AOC identification and procedures
- ♦ Emergency procedures
- ♦ Infrequently used procedures (provided for reference as needed)
- ♦ Common definitions and terminology

2.2. TRAINING METHODS

LGS uses a variety of training methods, which include the following, but is not limited to:

- Computer Based Training (CBTs)
- Classroom Training
- Performance-Based Training
- On-the-Job Training (OJT)
- Self-Study
- Exams

- Checklists
- Subject Matter Experts (SMEs)

These various methods enhance learning by providing a number of teaching tools that may better suit the Controller Trainee.

2.3. LGS TRAINING PROCESSES

LGS trains Controllers on all processes and procedures associated with their duties as a Controller to ensure that they can make critical decisions on a daily basis. This requires that they have a working knowledge of pipe specifications, product properties, and pipeline equipment.

2.4. NEW CONTROLLER TRAINING

NOTE: LGS Controllers are promoted from field positions and do not require site-specific training as they have already gathered that knowledge in their prior position. A comprehensive training program for new controllers has been developed.

LGS developed a Training Program to ensure that Controllers receive adequate training to perform all of the requirements of the position and meet expectations. LGS utilizes all methods listed in Section 2.2 above to ensure compliance with LGS and regulatory requirements for training; however, specifically focuses on the, On-the-Job Training (OJT) provided to Trainees by LGS's Train-the-Trainer qualified Controllers.

After completion of training, Trainees undergo a Readiness Interview and must pass Operator Qualification (OQ), Controller, and console-specific testing.

2.4.1. ON-THE-JOB TRAINING

OJT is an informal training method that allows Trainees to shadow qualified Controllers during shifts to learn terminology, layout of screens, system layout and functionality, and other information in preparation for testing. Trainees typically spend two to four months working with a qualified Controller (Trainer) on the console. Length of training depends on trainee background, learning style, and complexity of the console.

As the Trainee progresses, the qualified Controller will increase the number of duties they are allowed to perform under direct supervision. The qualified Controller will be available at all times during shift and will assume complete control of the system as required to respond to abnormal or emergency situations.

The Trainer documents progress on controller proficiencies weekly on the controller evaluation form. The Trainer and Trainee sign the form to acknowledge each task has been successfully performed. The Operations Managers also sign off to validate that tasks have been performed. In addition, throughout the OJT portion of training, the Operations Managers are conducting oral examinations and quizzes to verify training effectiveness and comprehension.

2.4.2. TRAINEE EVALUATION AND TESTING

2.4.2.1. PERIODIC EVALUATION

The Operations Manager performs periodic reviews of Trainee progress during Training. These evaluations are performed while the Trainee is working. These evaluations include an interview with the Trainer to discuss the Trainee's progress and overall evaluation.

2.4.2.2. READINESS INTERVIEW

The Readiness Interview is conducted at the end of the OJT phase of training and is the final validation that the Trainer and Trainee are in agreement that the Trainee is ready to perform all duties of a Controller. The following steps are performed during the Readiness Interview:

1) The Trainer and an Operations Manager interview the Trainer about the Trainee and determine whether or not the Trainee is ready to perform Controller tasks while working the console alone.
2) The Trainer and an Operations Manager interview the Trainee to determine whether they feel comfortable working alone.

2.4.2.3. TESTING

Trainees must pass written exam prior to being released to work the console independently. Trainees must successfully pass a verbal and written test of the Operations Guide Book and systems operations conducted by the evaluators. They must also pass all controller required Operator Qualification (OQ) testing. Upon successful completion of all testing and the Readiness Interview, the Trainee is qualified as a Controller and is prepared to work the console alone.

2.4.2.4. FINAL APPROVAL

The Operations Manager has the final approval about the qualification of a Trainee.

2.5. CONTROLLER REFRESHER TRAINING

LGS requires additional training and refresher training be done in accordance with all regulatory requirements and with company requirements; the detailed list of training requirements for a Controller are outlined in the LGS Training Matrix.

LGS conducts annual (not to exceed 15 months) refresher training to cover the processes and procedures listed below (refer to matrix for specific training courses required):

- Health, Safety, Security, and Environmental Training
- Control Room Management and Fatigue
- Developmental Training

Refresher Training is conducted in one of the following formats:

- One-on-one Training
- CBT exam
- Classroom Training
- Self-study

Training results are documented in the Controller's Training record and stored in the Compliance Services, Inc., online Training Manager System.

2.6. TRAINER QUALIFICATION

Only a Controller receiving Train-the-Trainer training can train and sign off on Trainee progress as the qualified individual. The OQ certification requires a qualified individual be the final approval party in the demonstration of all covered tasks performed by Pipeline System Controllers. Train-the-Trainer training is conducted in-house by Human Resource Department personnel and this certification does not expire.

2.7. ONGOING TRAINING

Periodic Training is conducted throughout the year as required and documented in each Controller's Training record. Ongoing Training could include any of the following:

- Safety Meetings
- New Facility or Facility Upgrade Training
- Field Site Visits
- Emergency Response Drills and Exercises
- Specialty Schools

2.7.1. MAINTAIN RELIEF CONTROLLER STATUS

Relief Controllers must meet the minimum standard requirement to maintain Relief Controller Status. Instances of Relief Controlling are logged and uploaded to SharePoint at regular intervals.

- Field Personnel: Must operate in the Lodi Control Room a minimum of One 8 hour shift each month.
- Kirby Operators: Must operate in the Lodi Control Room a minimum of One 8 hour shift once per rotation.
- Each relief controller will be re-evaluated annually to ensure controller proficiencies.

2.7.2. CONTROLLER RETURNING FROM EXTENDED ABSENCE

- Controllers returning from an absence of more than one day must review all console activity since the last shift worked prior to assuming control of the console.
- Controllers absent from 45 days or more are required to be re-evaluated by a qualified controller trainer prior to assuming sole control and responsibility of the console. The re-evaluation period will be determined by the qualified controller trainer.
- In either case, a Controller returning from absence must successfully qualify on any new or modified system(s) that have been implemented during the absence.

2.8. CONTROL ROOM TEAM TRAINING

LGS conducts annual (calendar year) control room team training in accordance with the following PHMSA Frequently Asked Questions (FAQs): H.05, H.06, H.07, H.08, H.09, and J.06 (see bullet list below). Training is documented on the Control Room Team Training Form, located in the LGS Control Room Management Plan, Appendix D-1.

- H.05 Who is required to participate in control room team training and exercises?

  Individuals who usually provide key information or decision-making input to controllers or otherwise influence operational control decisions during normal, abnormal, or emergency situations are required to participate in control room team training and exercises. This includes individuals with authority to direct or supersede the specific technical actions of a controller and individuals that interact with controllers remotely or face-to-face inside the control room. Operators should review ADB 2014-02 and NTSB report PAR-12/01 when identifying individuals to include in control room team training.

  [§§ 192.631(h)(6) and 195.446(h)(6)] Original: 01/16/2018

- H.06 What skills should be included in control room team training and exercises?

  Training and exercises must provide individuals, and the team as a whole, with the skills necessary to address conditions that could occur in any operational mode (normal, abnormal, or emergency conditions). Important skills include, but are not limited to, teamwork, communication, situational awareness, decision-making, leadership, professionalism, understanding roles and responsibilities (including how company leadership and executive management are involved in operational decisions), recognition and appropriate responses to emergencies, resolution of data discrepancies, error diagnostics, error management, relevant procedures, and problem solving.

  The training should specifically address scenarios when roles change, such as when an individual with authority to direct or supersede the specific technical actions of a controller assumes operational control of the pipeline, if the operator has designated such individuals.

  [§§ 192.631(h)(6) and 195.446(h)(6)] Original: 01/16/2018

- H.07 How should the training and exercises be conducted?

  Operators have flexibility regarding the means used to deliver the training. However, the effectiveness of training should be evaluated, documented and considered when preparing future training and exercises. Operators may include computer-based (CBT) training, but since the focus is on personnel interaction and teamwork, CBT alone would not be considered sufficient. Classroom training is appropriate, but classroom training alone, without an exercise, would not be considered sufficient. On-the-job (OJT) training alone is not adequate to fulfill team training expectations.

  Exercises should present realistic scenarios and situations sufficiently complex to challenge the team's collective decision-making skills. Exercises should include lessons learned from the operator's actual events, and should consider applicable events that have occurred at other oil and gas industry facilities.

  Unless amended to include team training requirements, emergency procedure training or Oil Pollution Act drills alone are likely not sufficient to account for adequate team training and exercises.

  [§§ 192.631(h)(6) and 195.446(h)(6)] Original: 01/16/2018

- H.08 When must team training and exercises be completed and how frequently must subsequent team training exercises be conducted?

  Operators must establish its team training program, including the objectives and content of both the training and exercises, no later than January 23, 2018. Those individuals identified as of January 23, 2018 are expected to have been trained no later than January 23, 2019. The team training program and associated written procedures must address the timely training of new or changing staff that assume roles requiring team training after January 23, 2018, due to circumstances such as newly hired employees, new or changing job assignments, or other reasons. The operator's written procedures should state the frequency of recurrence for full team training.

  Operators are reminded that interim team activities such as team discussions of event scenarios, post-operational team critiques of recent abnormal operating conditions or incidents, team what-if analysis exercises, etc. that occur between full team training intervals can enhance pipeline safety. A change in training content would not necessarily require previously trained individuals to be re-trained on the changes until the next recurrence of full team training.

  [§§ 192.631(h)(6) and 195.446(h)(6)] Original: 01/16/2018

- H.09 Does every team training exercise have to include a controller?

  At least one fully qualified controller must participate in all exercises and scenario practice. However, traditional classroom training on team concepts and soft skills could be accomplished without specific controller participation.

  [§§ 192.631(h)(6) and 195.446(h)(6)] Original: 01/16/2018

- J.06 What documentation is required for team training and exercises?

  The operator must document and retain records of training and exercises that demonstrate compliance with the requirements of §§ 192.631(h)(6) and 195.446(h)(6). This includes documentation such as attendance list, course title, date, duration, content of training including, effectiveness evaluation results, and any exercise critiques and feedback from attendees. Operators may incorporate team training into their general training program to facilitate training management, including documentation aspects of team training.

  [§§ 192.631(j)(1) and 195.446(j)(1), 192.631(j)(2) and 195.446(j)(2)] Original: 01/16/2018

2.9. EFFECTIVENESS ASSESSMENT OF THE PROGRAM

The effectiveness of the training is reviewed once each calendar year at intervals not to exceed 15 months.

2.9.1. PROGRAM EFFECTIVENESS

The Operations Team reviews the effectiveness of training methods and materials, reviewing the following to assess methods and materials:

- Controller feedback
- Trainer evaluation of Trainees
- Trainee feedback
- Test score and exam reviews
- Failure/remediation statistics
- Accident/incident review and lessons learned

The Operations Team identifies changes and recommendations to the methods and materials and communicates these to Management personnel for review and approval. The Training Point Person incorporates the approved changes into the Training Program and materials and distributes materials to Controllers as necessary. This review is documented on the Training Activity Report or equivalent form and stored in the designated network location.

2.9.2. LESSONS LEARNED

Lessons learned are identified during periodic Control Room meetings, as a result of incidents occurring during normal, abnormal, or emergency situations, or from industry documents. The Operations Manager and Compliance Manager Document lessons learned in the designated network location and distribute information to Controllers via routine safety meetings. Potential improvements to existing procedures as a result of lessons learned are documented by the Operations Manager and are included in the Training Program.

HISTORY OF REVISIONS

Date	Revision	Revised By
9/2/14	Revised Format	Jay Manding
6/5/15	Reviewed. Updated Logo, Numbering	Jay Manding
3/26/18	Updated company logo	Greg Clark
3/31/21	Added Control Room Team Training (2.8) and renumbered later sections	Greg Clark

Lodi Gas Storage, L.L.C.
A ROCKPOINT GAS STORAGE COMPANY

Control Room Team Training Form

This record is to certify that Lodi Gas Storage, L.L.C. (LGS) has conducted annual control room team training as required by 49 CFR 192.631(h)(6) and Appendix D of the LGS Control Room Management Plan (CRMP).

Date:	**Duration:**

Training/Exercise Description:

Training/Exercise Participants:

Controllers

Operations Personnel

Maintenance Personnel

Administrative Personnel

Training/Exercise Required Elements:

❑ Did the training/exercise include individuals who usually provide key information or decision-making input to controllers or otherwise influence operational control decisions during normal, abnormal, or emergency situations?

Comments:_____

_____

❑ Did the training/exercise provide individuals, and the team as whole, with the skills necessary to address conditions that could occur in any operational mode (normal, abnormal, or emergency conditions)? Important skills include:

- Teamwork
- Communication
- Situational Awareness
- Decision-making
- Leadership
- Professionalism
- Understanding roles and responsibilities (address scenarios when roles change)
- Recognition and appropriate responses to emergencies
- Resolution of data discrepancies
- Error diagnostics
- Error management
- Relevant Procedures
- Problem solving

Comments:_____

_____

❑ How was the training/exercise delivered?

- Computer-based training (CBT) – note: CBT alone is not sufficient
- Classroom training – note: classroom training w/out an exercise is not sufficient
- On-the-job training (OJT) – note: OJT alone is not sufficient

Comments:_____

_____

❑ Did the training/exercise present realistic scenarios and situations sufficiently complex to challenge the team's collective decision-making skills?

Comments:_____

_____

_____

❑ Did the training/exercise include lessons learned from the operator's actual events, and applicable events that have occurred at other oil and gas industry facilities?

Comments:_____

_____

❑ Did the training/exercise include at least one fully qualified controller?

Comments:_____

_____

❑ Did the training/exercise include an evaluation of effectiveness? Attach any exercise critiques and feedback from attendees, as applicable.

Comments:_____

_____

Attachment #3

Excerpt from Control Room Management Plan (CRMP) highlighting revisions to Appendix B-3 Operator Data Form

Lodi Gas Storage, L.L.C.
A ROCKPOINT GAS STORAGE COMPANY

Control Room Operator Data

Operator:	Lodi Gas Storage, L.L.C.
Facility Name:	Lodi Compressor Station
Facility Address:	23265 Highway 99 Frontage Road West
Facility Security:	Gated

No. of Management Staff:		**No. of Qualified Controllers:**	
Qualified Manager:	1	Full Time:	4
Qualified Supervisor:	1	Relief:	1
Administrative Manager:	0	Individuals in Training:	0
Administrative Supervisor:	0		

SYSTEM INFORMATION

Type of System	**Pipeline Information**		**Total No. of Customers**	**Total Mileage**
☐ Liquid Distribution (LD)	Number of Pipelines	7		
☑ Gas Transmission (GT)	Length of Pipelines	44.98		
☐ Gas Gathering (GG)	Products			
☐ Hazardous Liquids (HL)				
☐ Hazardous Liquid Gas (HLG)	Natural Gas			

OPERATIONS INFORMATION

No. of Consoles:	1	Maximum Hours of Service:	68
No. of Remotes:	4 HMIs in the plants	Minimum Hours Off-Shift:	48
Schedule Type:	Fast-Rotating 8 and 12 Schedule	Shift Rotation:	
Hours per Day:	24	7 nights (64 hours worked)	70 hours off
Days per Week:	7	7 days (66 hours worked)	54 hours off
Shift Length:	8 and 12 hours	5 days (46 hours worked)	150 hours off
Shift Start Time:	8 hour shifts: 6 A.M.; 2 P.M.; 10 P.M. – 12 hour shifts: 6:00 A.M. and 6:00 P.M.		

SCADA SYSTEM

No. of SCADA Systems:	**2**	System Name:	Proficy iFix	Development System:	**Yes**

	System #1	**System #2**	**System #3**	**System #4**
Year Installed:	2002	**2006**		
Year Last Upgraded:	2018	**2019**		
Pending Upgrade:	Yes	Yes		
SCADA Redundancy:	Total	Total		
SCADA Comments:				

ALL SCADA POINTS

No. All Input Pts	**No. Software Calculated Pts**	**No. Output Control Pts**
3902	79	1211

SAFETY-RELATED SCADA POINTS

No. All Input Pts	**No. Software Calculated Pts**	**No. Output Control Pts**
109	0	88

Control Room Operator Data

FACILITY DESCRIPTION									
Break Area:	☑	Yes	☐	No	Exercise Equipment:	☐	Yes	☑	No
Coffee Pot	☑	Yes	☐	No	Computers:	☑	Yes	☐	No
Soda Machine	☐	Yes	☑	No	Thermostat Regulated:	☐	Yes	☑	No
Snacks/Vending	☐	Yes	☑	No	Smoking Area:	☑	Yes	☐	No
Microwave	☑	Yes	☐	No	Quiet Room:	☐	Yes	☑	No
Refrigerator	☑	Yes	☐	No	Windows:	☑	Yes	☐	No
Drinking Water	☑	Yes	☐	No	Adjustable Desk:	☑	Yes	☐	No
Television:	☑	Yes	☐	No	Ergonomic Chair:	☑	Yes	☐	No
Cordless Phone:	☐	Yes	☑	No	Variable Lighting:	☐	Yes	☑	No
Handheld Radio:	☑	Yes	☐	No	Access to Outside:	☑	Yes	☐	No
Security Screens:	☑	Yes	☐	No	Handheld Alarm Device:	☑	Yes	☐	No

FATIGUE MITIGATIVE STRATEGIES				
Communication Opportunities:				
Multiple People in Control Room (all shifts)	☐	Yes	☑	No
Scheduled Check-In Calls	☐	Yes	☑	No
Alerts in System requiring Controller Response	☑	Yes	☐	No
Console/Operations Meetings	☑	Yes	☐	No
Discussions with schedulers, other control centers, refinery pumpers, etc.	☑	Yes	☐	No
Training:				
Third-Party Classroom	☑	Yes	☐	No
Third-Party CBTs	☑	Yes	☐	No
In-House Classroom	☑	Yes	☐	No
In-House CBTs	☐	Yes	☑	No
In-House Presentations	☑	Yes	☐	No
Education Opportunities:				
Conference Attendance	☐	Yes	☑	No
Newsletters and Handouts	☑	Yes	☐	No
Third-Party Materials for Self-Study	☑	Yes	☐	No
Calendars	☑	Yes	☐	No
Family Orientation	☐	Yes	☑	No
Safety:				
Drug and Alcohol Policy	☑	Yes	☐	No
Standardized Safety Moments at Meetings	☑	Yes	☐	No
Emergency Contact Lists Posted	☑	Yes	☐	No
Fatigued Controller Policy	☑	Yes	☐	No
Rounds	☑	Yes	☐	No

Control Room Operator Data

CONTROLLER TASKS

Start up and shut down of compressors and pipeline; Monitor wells, pressures and flow rates in order to meet scheduled daily nominations. Maintain pressures within the MAOP limits; Monitor the facility equipment in order to maintain correct operating conditions; Maintain log books and daily reports; Communicate and track operation details with PG&Eand Kirby Hills; Monitor facilities for safety and security; Monitor and maintain fluid and chemical levels; Act as first responders in the event of an accident; Communicate with venders and contractors regarding daily activities and projects.

1) Controller Tools:
- Survey Monkey
- Leaknet Leak Monitoring/Detection application
- Instant Messaging application
- Shift Change Checklist form
- Control Room Log Book
- Skillsoft and Compliance Services, Inc. computer based training applications
- BtuMMI Chromatograph Interface
- Sand Monitoring System

2) Controller Forms:
- InfoPath forms
- MOC paper forms
- Initial Notification Document
- First Responder On Scene Checklist
- Agency Notification Log
- LGS Pipeline Company Notification Log
- Emergency Log of Miscellaneous Activities
- Incident Command System Checklist by ICS Job Title
- Post Incident Response Critique Checklist
- Emergency Drill Documentation
- Emergency Plan Notification Record
- Safety Related Condition Report
- Telephone Report of Incidents
- Follow Up Written Incident Report
- Annual Report
- Training Documentation

Multi Trend Sand Monitoring, MSI Leak Detection, BTUMMI, Proficy iFix, Bristol ObjectServer, Bristol OPC Server, Proficy Historian, WIN-911, IntraVue, ControlWave Designer

GENERAL COMMENTS

We do have speakers outside, so we can hear the alarms. We have an automatic notification system that calls the Controller and then calls the Supervisor if no response from the Controller within a certain timeframe.

Lodi Gas Storage, L.L.C.
A ROCKPOINT GAS STORAGE COMPANY

Controller Commute Information

Employee	Miles	Estimated Time
Controller 1	12	17 minutes
Controller 2	17	28 minutes
Controller 3	6	11 minutes
Controller 4	8	16 minutes
Relief Controller	48	54 minutes

Attachment #4

Excerpt from Control Room Management Plan (CRMP) highlighting revisions to address potential contribution of controller fatigue to incidents

necessary to operate the system manually, LGS will develop and implement a situation-specific plan and procedures (approved by the Operations Manager). All procedures associated with manual shutdown are located in the manuals listed in Appendix C.

3.5. Backup Systems Testing

LGS tests their Emergency Response activities and backup system annually (where applicable) in accordance with the LGS Emergency Response Plans and procedures and the LGS SCADA Operations Manual to ensure effectiveness and identify potential improvements.

3.6. API RP 1168 Implementation

The facility-specific Shift Turnover procedures define the detailed process and procedure for effectively meeting Section 5 of API RP 1168 requirements as follows:

- Shift Turnover Meetings and Procedure
- Information to Exchange
- Emergency/AOC (Safety Condition)
- Daily Operation Information
- Status of Scheduled/Unscheduled Maintenance Activities
- Incident Information
- Changes to Physical Assets, Procedures, and/or Responsibilities
- Alarm Reviews
- Third-party Incidents Potentially Impacting Operations

4. Fatigue Mitigation

4.1. Rule Requirements

In accordance with the Rule requirements, LGS implemented methods in the Control Center to protect against the onset of fatigue. The Rule requires Operators to specifically identify and implement the following:

- Effective shift length and schedule rotation that allow sufficient time off to achieve 8 hours of rest
- Fatigue Mitigation Education for Controllers and supervisors, to include addressing off-duty activities
- Fatigue Recognition Training for Controllers and supervisors
- Maximum limit to hours-of-service with identified exceptions for emergency condition(s)

LGS trains Controllers on fatigue and fatigue mitigation in accordance with the LGS Fatigue Management Program (Appendix G) and the documentation referenced therein. All records of training and procedural reviews are retained 5 years in a secured server location.

4.2. LGS Fatigue Risk Management (FRM) Plan

LGS developed an FRM Plan for its Control Center facilities as to various methods, tools, strategies, and educational options for implementation to manage fatigue concerns in their specific environments.

Refer to the LGS Fatigue Risk Management Program (Appendix G) for the detailed Fatigue Management Program, which outlines the following:

- Program Goals and Requirements

- Responsibilities
- Work Schedule Requirements:
- Schedule Types
- Shift Lengths
- Shift Rotations
- Maximum Hours of Service (HOS)
- Control Center Environments
- Risk Assessment and Risk Management Tools
- Mitigation Strategies
- Safety Strategies
- Education and Training Methods
- Continuous Improvements
- Fatigued Controller Policy
- Program Management

NOTE:

- The white paper by James C. Miller titled "Investigating the Possible Contribution of Fatigue to Pipeline Mishaps" from PHMSA's FAQ D.12 should be used to evaluate if controller fatigue may have contributed to an incident.
- LGS Controller work schedules were assessed and meet the guidelines of the regulations (Appendix F).
- LGS fatigue data is documented in the LGS Fatigue Risk Management Program and captured on the LGS Operator Data Form (Appendix B-3).

5. Alarm Management

5.1. Rule Requirements

In accordance with the Rule requirements, LGS developed a written alarm management plan to provide for effective Controller response to alarms, to include the following:

- Review of SCADA safety-related alarm operations using a process that ensures alarms are accurate and support safe operations.
- Review of the alarm management plan at least once each calendar year but not exceed 15 months to determine effectiveness.
- Monitoring the content and volume of general activity being directed to and required of each Controller at least once each calendar year but not to exceed 15 months.
- Addressing any deficiencies identified through the implementation of this section.

LGS trains Controllers on all Alarm Management requirements and expectations in accordance with the LGS Alarm Management Philosophy (Appendix I-1). All records of training, procedural reviews, and CRMP review are retained for 5 years in a secured server location.

Attachment #5

Excerpt from Control Room Management Plan (CRMP) highlighting revisions to address change management

The software application used to support the Alarm Management Program is Proficy Historian. The LGS Alarm Management Program will be reviewed annually, not to exceed 15 months, by the Alarm Management Team to address on-going program activities.

The Alarm Management Team can include, but is not limited to, the following:

- Controller
- SCADA Representative
- LGS Work Team Representative
- Compliance Manager
- Operations Manager

5.3. Workload Analysis

LGS investigated several methods for conducting a thorough workload analysis. To meet the August 1, 2012, deadline, LGS hired a third-party specialist to develop the baseline acceptable workload levels for their Controllers and provide recommended actions for future task assessment (Appendix J-1). Using this third-party analysis as the baseline, LGS will complete an internal review of alarm data and console/facility tasks each calendar year not to exceed 15 months to determine the increase and/or decrease in workload to ensure Controller performance meets the minimum performance standards in accordance with the LGS Workload Analysis Form (Appendix J-2).

6. Change Management

6.1. Rule Requirements

In accordance with the Rule requirements, LGS assures that changes potentially affecting the Control Center operations are coordinated with Control Center personnel, to include the following:

- Implementing Section 7 of API RP 1168 for Control Center management change, to include coordination among Control Center representatives, operator's management, and associated field personnel when planning and implementing physical changes to pipeline equipment or configuration
- Requiring field personnel to contact the Control Center when emergency conditions exist and when making field changes that affect Control Center operations

All records associated with the above requirements are retained for 5 years in a secured server location.

6.2. API RP 1168 Requirements

Section 7 of API RP 1168 requires the following:

- Inclusion of Pipeline Control Center Personnel

  Change must be managed and governed by effective processes and procedures. For MOC to be effective, affected personnel should be a part of the decision and implementation process.

  Pipeline Control Center personnel should be included in the project or change design and planning process. Adequate notification, time, and resources should be devoted to training Control Center personnel on the impact of the change to operations.
- System/Processes Undergoing Change

  Pipeline operators should consider defining which systems/processes will be governed by MOC policies. Among the activities to consider are changes that include, but are not limited to:
- Purchase or sale of physical assets

- New equipment coming online or retired equipment going offline
- O&M Manuals; procedures; training updates, etc.
- Operating responsibilities between pipeline Controllers and field personnel or third-party operations
- Field maintenance activity affecting pipeline Control Center operations
- Control system changes and/or SCADA system changes
- Notification and Training of Control Center Personnel prior to implementation
- Emergency MOCs – immediate change implementation to address safety, operational, health, or environmental concern

6.3. LGS Management of Change Process

LGS has established an MOC procedure that addresses all requirements listed in Section 6.2 of this CRMP. This procedure includes detailed instructions on the provided tools, procedural requirements, approval processes, training requirements, and document control and retention. This procedure also includes detailed instructions for how to handle emergency changes and clearly defines the roles and responsibilities associated with all affected parties. The LGS MOC procedure is located in the Lodi O&M Manual (refer to section 17.11).

All LGS MOCs are reviewed on a quarterly basis by CC Management and/or designees to determine that all actions required have been completed and to identify any outstanding items/issues. Once the review is complete, CC Management and/or designee will sign a cover page stating that all MOCs have been reviewed and issues handled.

6.4. Field Personnel Communication

LGS maintains open communications with field personnel at all times to ensure that changes and/or activities, planned and unplanned, are clearly communicated to the Control Center prior to action taking place. The LGS MOC procedure identifies when and how this communication should happen and how the Control Center tracks and records this communication before, during, and after the changes/actions take place.

7. Operating Experience

7.1. Rule Requirements

In accordance with the Rule requirements, LGS assures that lessons learned from operating experience are incorporated into procedures, to include the following:

- Review of incidents that must be reported pursuant to 191.5 and 191.15, to determine if Control Center actions contributed to the event and, if so, correct deficiencies related to the following:
- Controller fatigue
- Field equipment
- Operation of any relief device
- Procedures
- SCADA system configuration
- SCADA system performance
- Revision of training programs to include lessons learned from the operator's experience