November 25, 2020

Mr. Gregory A. Ochs
Director, Central Region
U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
901 Locust Street, Suite 462
Kansas City, MO 64106

Re: CPF No. 3-2020-1009M
Notice of Amendment
Tallgrass Energy Partners, LP

Dear Mr. Ochs:

Tallgrass Energy Partners, LP (Tallgrass or the Company) has received and reviewed the Pipeline and Hazardous Materials Safety Administration's (PHMSA or the Agency) Notice of Amendment (NOA) dated October 26, 2020. The NOA cited four apparent inadequacies within Tallgrass's procedures for Control Room Management.

Tallgrass shares PHMSA's commitment to pipeline safety and continuous program improvement. To this end, Tallgrass appreciates PHMSA's feedback in this matter and the Company is taking the steps detailed below to respond to the NOA and improve its programs.

Item 1:

PHMSA allegation:

> ***49 CFR § 192.605 and 192.631(a), Tallgrass's Operation and Maintenance (O&M) manual did not provide a procedure that sets forth criteria to assess facilities that monitor and control all or part of a pipeline facility in order to determine if said facilities are control rooms and whether personnel at those facilities should be qualified controllers as defined in 49 CFR §192.3.***

PHMSA stated that Tallgrass had compressor station operators that switched the station from remote control to local mode during the day, which allowed for operations without control room direction. PHMSA found this practice allowed for compressor station control centers to operate as a control room and a qualified station operator to function as an unqualified controller. In addition, PHMSA stated that because gas plants operate on varying volumes of gathering and treated gas, the Lakewood Operational Control Center (OCC) reacts to plant flows to the pipeline rather than directing the amount of flow received from the plant, rendering the gas plant control center as a control room and the plant operators as controllers. PHMSA found that Tallgrass needs to develop and implement a procedure that provides criteria for determining what facilities qualify as a control room.

Tallgrass Item 1 Response:

Procedure O&M 1100_GL – Control Room Management (OM1100_GL) is being modified to better define the criteria used to determine whether a facility is acting as a control room.

Item 2:

PHMSA allegation:

> ***49 CFR § 192.631(b), Tallgrass's O&M did not adequately define the roles and responsibilities of a controller to describe the controller's domain of responsibility as well as other field individuals operating Tallgrass facilities.***

PHMSA indicated that Tallgrass controllers may be responding to 811 emergency dig calls and notifications from pilots performing aerial patrols, and that Tallgrass's OM1100_GL was deficient because it did not specifically list these tasks under the controller's roles and responsibilities. In addition, PHMSA stated that Tallgrass's procedure should clearly state that only one controller may control a console at a time and prohibit other controllers from acting without direction from the controller controlling the console at that time.

Tallgrass Item 2 Response:

Section 4.1.1.B of OM1100_GL provides that a controller's responsibility is to: "Continuously monitor OCC phone lines for all normal, abnormal, and emergency calls from either the public or company personnel." The Tallgrass OCC is responsible for emergency line locates between the hours of 6:00 PM and 6:00 AM as this is outside of normal business hours and the OCC is staffed 24 hours per day. Outside of those hours, emergency line locates are routed to the appropriate Damage Prevention personnel. Additionally, Tallgrass OCC controllers do not take calls directly from aerial patrol pilots. Accordingly, this is not listed as one of their responsibilities in OM1100_GL, regardless of the time of day. Any contact received from an aerial patrol contractor is forwarded to Damage Prevention personnel.

Nonetheless, Tallgrass has amended Section 4 of OM1100_GL to include clarifying language in Section 4.1.1.D that controllers are responsible for monitoring the one-call ticketing system during the hours of 6:00 PM to 6:00 AM MT and handling all unanswered field notifications and phone calls, shown in Figure 1. Additionally, language has been added to Section 4.4 of OM1100_GL to indicate that qualified leads or supervisors will not simultaneously control the pipeline with a controller at a console during normal operations, shown below in Figure 2.

Figure 1: Revised Section 4.1.1.D of Procedure 1100_GL

O&M PROCEDURE
OPERATIONS CONTROL CENTER

No. OM1100_GL
Title: Control Room Management
Revised: November 1, 2020

4.1.1. Priorities During Normal Operating Conditions

During Normal Operating Conditions, Controllers will prioritize the following activities:

A) Continuously monitor system information; investigate and respond to alarms using alarm management procedures and protocols.

B) Continuously monitor OCC phone lines for all normal, abnormal, and emergency calls from either the public or company personnel.

C) Communicate system information to field personnel and others as needed to support operations, maintenance, testing and other activities

D) Monitor the one-call ticketing system during the hours of 6PM to 6AM MT and handle all unanswered field notifications and phone calls

Figure 2: Revised Section 4.4 of Procedure 1100_GL

O&M PROCEDURE
OPERATIONS CONTROL CENTER

No. OM1100_GL
Title: Control Room Management
Revised: November 1, 2020

4.4. Intervenor/Superseder

Supervisors and Leads, who are qualified to control the pipeline, have the authority to direct or supersede the specific technical actions of a Controller and be in control of the pipeline and responsible for all operational actions taken or directed to the Controller to take (or not take). This authority can be invoked if necessary, during abnormal or emergency operating conditions or when the Controller disagrees with the order or decision of the Supervisor or Lead.

Qualified Leads or Supervisors will not simultaneously control the pipeline with a controller during normal operations. However, it may be necessary for the leads or supervisors to simultaneously control separate portions of the operation from different consoles during commissioning activities such as testing, point to point, etc. These activities will be conveyed and cleared with the controller through the maintenance, projects, MOC or commissioning processes already in place at Tallgrass.

Item 3:

PHMSA allegation:

> ***49 CFR § 192.631(c)(1), Tallgrass has inadequately implemented the specific sections of API RP 1165 identified in 192.631(c)(1) by not defining what types of changes constitutes additions, expansions or replacements to the SCADA system.***

As part of this item, PHMSA indicated that Tallgrass's O&M Procedure OM1100_GL was deficient because it provided that the referenced API RP 1165 sections would be implemented when "adding, expanding, or replacing displays", and that the Natural Gas SCADA HMI Standards document referenced in Section 5 of OM1100_GL did not provide sufficient additional guidance on what types of changes would constitute additions, expansions or replacements to the SCADA system. Moreover, PHMSA stated that the Natural Gas SCADA HMI Standards document inadequately implemented Sections 4 and 8.3 of API RP 1165 by not providing sufficient details to define symbols, font size, and other attributes of the standard symbol library. Finally, PHMSA stated that Tallgrass's SCADA display did not show units for temperature, pressure or flow, and that symbols did not differentiate manual and remote-control operation of a valve.

Tallgrass Item 3 Response:

First, it is important to clarify that the Natural Gas SCADA HMI Standards is the design manual used by the Company to provide direction for the design of displays, which provides a consistent presentation of information to controllers. Tallgrass has amended Section 5 of OM1100_GL to clarify SCADA IT will comply with the design and display standards outlined in API RP 1165, Sections 1, 4, 8, 9, 11.1, and 11.3 when adding, expanding, changing, or replacing SCADA systems, as opposed to displays. Tallgrass has also amended the Natural Gas SCADA HMI Standards to include more guidance on the types of changes that constitute additions, expansions, changes, or replacements to the SCADA system.

Second, Tallgrass provides the following responses regarding the direction provided in Gas HMI Procedure on display designs. Regarding symbols, Tallgrass will amend the Natural Gas SCADA HMI Standards document to include a library of symbols used on SCADA displays. Regarding font size, API RP 1165 Section 8.5.1 indicates that *"the selected font should be scalable without deterioration in the quality of the displayed characters. The chosen font should also have easily distinguishable 'similar' characters such as o & 0, 9 & q, X & K, S & 5, etc."*. Although API RP 1165 does not specify a minimum numeric font size required for SCADA screens, the Tallgrass Natural Gas SCADA HMI Standards document indicates in the "Alphanumeric" bullet under Section 2.6 that fonts should be viewable from approximately 24 inches from the screen. Tallgrass recognizes that there is variability amongst different controllers with regards to the specific font sizes they are comfortable using, and as a result, Tallgrass has engineered the SCADA screens such that a controller can zoom in or out as needed to read the information and text on the display as necessary. Tallgrass believes that this functionality is consistent with the principles of legibility prescribed in API RP 1165.

Similarly, API RP 1165 Section 8.5.1 does not specify a mandatory font type that must be used, but instead offers examples of fonts that appear to have more clarity, such as "*simple sans serif font families like Arial, Helvetica, or Verdana, with straight lines and clear definition".* Tallgrass interprets this to indicate that the operator may choose a font type satisfactory to its individual operation, provided that such font is legible and clear to controllers. The Tallgrass Natural Gas SCADA HMI Standards document addresses this in Section 2.6 in the "Alphanumeric" bullet stating: "*All alphanumeric information should be presented in a consistent and easy to read manner throughout the HMI.*" Section 2.6 of the Natural Gas SCADA HMI Standards document also provides specifications for selecting colors, backgrounds, lines, trends, etc. Table 1 on p. 11 of the Natural Gas SCADA HMI Standards document contains a visual representation, shown in Figure 3 below:

Figure 3: Natural Gas SCADA HMI Standards, Table 1, Natural Gas Pipeline Color Table

Term		Sample
Alarm List Background (Dark Gray)		ALARM
Navigation Hotspot		NAVIGATION TO
Background (Grey)		
Button (Gray)		BUTTON LABEL
Closed (White Filled)		
Open (White Outline)		
Pipe (White)		
On/Running		
Off/Not Running		
Lines (Black)		
Label/Text (Black)		PUMP
Alarm Critical (Red)		ALARM
Alarm High (Orange)		ALARM
Alarm Medium (Yellow)		ALARM
Alarm Low (Cyan)		ALARM
Data Quality (Magenta)		DATA QUALITY
Value		1050
Value (Flow)		1050
Set Point		1440
Set Point (Flow)		35500

Table 1 NG Pipeline Color Table

Regarding the hierarchy of screens, Section 2.4 of the Natural Gas SCADA HMI Standards, "Display Hierarchy", contains this information with the four levels of displays, shown in Figure 4 below:

Figure 4: Section 2.4 of Natural Gas SCADA HMI Standards Document

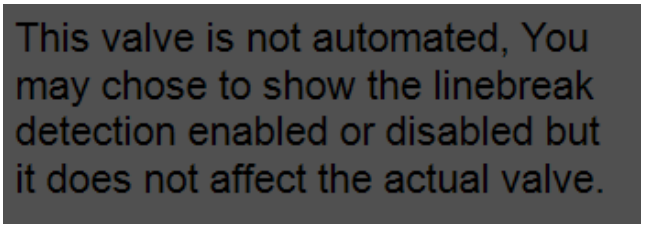
2.4. Display Hierarchy

- Level 1 Operation Overview
  Level 1 is the Pipeline Controller's primary operating overview display. The overview display will show the broadest available view of the facilities available under a single Pipeline Controller's control. It is a "big picture" view of the process and facilities. It provides clear indication of the current performance of the process by tracking key performance indications. (Figure 1)
- Level 2 Process Component Control
  A level 2 display should contain all the information and controls required to perform most operator tasks associated with a specific plant unit from a single display. Both routine changes and abnormal situation interventions should be possible. (Figure 2)
- Level 3 Process Component Detail
  Level 3 displays contain all control loops (controllers, indicators, alarms, status switches, etc.). (Figure 3)
- Level 4 Process Unit Support Displays
  Level 4 displays provide the most detail of subsystems, individual sensors, or components. They show the most detailed possible diagnostic or miscellaneous information. The dividing line between Level 3 and Level 4 displays can be somewhat gray. (Bill Hollifield 2008) (Figure 4)

Tallgrass believes that these components of the Natural Gas SCADA HMI Standards document are adequate to meet the specifications prescribed under API RP 1165.

Although PHMSA notes in the NOA that Tallgrass uses a "Trailblazer MLV 1.2.4 system, by way of clarification, Tallgrass in fact does not have an MLV 1.2.4 on the Trailblazer system. Rather, the Trailblazer system consists of 24 mainline valves labeled MLV001-MLV024. These valves are not controlled by the Lakewood OCC, and controllers located within cannot issue an open or close command for them. Controllers in the Lakewood OCC can, however, see the status of these valves at all times. This limitation is clearly noted on all Trailblazer mainline valve faceplates, as shown in Figure 5:

Figure 5: Non-Automated Mainline Valve Faceplate Notification



As described in the NOA, Tallgrass indeed copies the SCADA layout from display to display so that the information is in the proper order and displayed correctly. This verifies that displays remain consistent and the controllers do not get confused when an addition is made. Such

consistency between displays is a recommendation made throughout API RP 1165 (see, e.g., Sections 4.4 and 8.5.1).

With respect to PHMSA's concern that there are no units displayed for temperature, pressure or flow, Tallgrass acknowledges that such units are not displayed on overview screens. The rationale for this is that we believe that including them could become redundant and crowd the screen with unnecessary data. Instead, Tallgrass's system allows a controller to hover their mouse over a point on the screen which will pop up additional information for that point. Units will be added to the symbol library in the Natural Gas SCADA HMI Standards document.

The SCADA/Systems Engineering group is the only group with access to modify a screen. For a display change to occur, a formal Management of Change would have to be issued and various controls would be put in place along with necessary controller training to verify an adequate transition. Display numbers are listed on the overview with different parameters (pressures, flows, etc.) corresponding to different colors. Also, as explained above, a controller can hover their mouse over all display points to view additional information, including temperature, etc. Because Tallgrass's SCADA Engineering group has control over the screen design, controllers are not able to change the order of how items are displayed. However, as noted above, Tallgrass will nonetheless add guidance containing a library of symbols to confirm uniformity and universal understandability among its controllers.

Item 4:

PHMSA allegation:

> ***49 CFR § 192.631(c)(2), Tallgrass's O&M did not include adequate written procedures for conducting point-to-point verifications between SCADA displays and related field equipment in accordance with §192.631(c)(2).***

As part of this item, PHMSA stated that Tallgrass's Procedure OM1100_GL does not have a written procedure that describes the process used when adding a new station to SCADA, and that it was unable to determine, as part of point-to-point tests, whether the field end device was where data was collected, and if such data was applied or real-time.

Tallgrass Item 4 Response:

Prior to receiving the NOA Tallgrass addressed this issue by creating the procedures listed below, which are included in our Operating Standards library and are attached for reference:

- E1800 Automation
- E1801 Site Acceptance Testing
- E1801-01 Site Acceptance Testing Checklist

As noted in the NOA, Section 6 of Procedure OM1100_GL provides a general overview of point-to-point verification. The addition of E1800, E1801 and E1801-01 supplement the

OM1100_GL procedure by providing a more detailed explanation of the steps involved when adding new stations as well a checklist to confirm that all steps have been completed. Tallgrass believes that these new procedures, along with modifications that will be made to OM1100_GL by year end will satisfy the requirements of § 192.631(c)(2).

Item 5:

PHMSA allegation:

> ***49 CFR § 192.631(h), Tallgrass did not establish adequate written procedures for reviewing its training program content to identify potential improvements at least once each calendar year, but at intervals not to exceed 15 months.***

As part of this item, PHMSA stated that Sections 10.6 and 13.8 of Procedure OM1100_GL did not adequately detail procedures for review, namely, what is to be reviewed, how it is to be reviewed, and how findings are documented.

Tallgrass Item 5 Response:

The annual review of the controller training program is a task in the Enablon system, which is notated once the review has been completed for the respective calendar year. Tallgrass amended OM1100_GL prior to the issuance of the NOA to include the use of the Enablon system in performing the annual review of the controller training program and to detail what types of information are to be reviewed. A screenshot of the revised procedure is below:

Figure 6: Revised Section 13 of Procedure 1100_GL

TALLGRASS ENERGY

O&M PROCEDURE	**No.**	**OM1100_GL**
OPERATIONS CONTROL CENTER	**Title:**	**Control Room Management**
	Revised:	**November 1, 2020**

13. Controller Training Program and Annual Program Review

The Controller Training Program (outlined below) is designed to ensure that new and qualified Controllers have the knowledge and skills to perform the Controller Roles and Responsibilities outlined in this Plan during normal, abnormal, and emergency operating conditions. The training program also ensures that Controllers and other OCC personnel regularly practice operational procedures with others who contribute to operational decisions.

A Controller Training Program Checklist for gas and liquids will be utilized to track and document new Controller training progress, as well as to ensure that all required knowledge and skills of qualified Controllers are covered throughout the Controller Training Program. Upon completion of the Controller Training Program, Controllers will have a thorough understanding of the following:

A) Recognizing and responding to abnormal operations (both stand-alone and those that are likely to occur simultaneously or in sequence)

B) Responsibilities for communication under Emergency Response Procedures

C) Working knowledge of the pipeline system (normal and abnormal/emergency operating conditions)

D) Operating set ups and infrequent operations

E) Fatigue awareness and mitigation strategies

F) Lessons Learned and other topics

The Controller Training Program will be reviewed annually, not to exceed 15 months, to determine its effectiveness and to identify and address program updates or improvements. Effectiveness of the Controller Training Program will be evaluated by reviewing all training manuals, modules, checklists, and tabletop training exercises. Documentation of this review will be retained in the Enablon Compliance Task site for a minimum of three years and corrective actions will be implemented as needed.

Tallgrass appreciates PHMSA's input regarding its procedures. We are confident that the amendments we have made, and which are in progress, will resolve the issues PHMSA raised in the NOA. Please let me know if you have any questions or would like to discuss this matter further.

Sincerely,

Jennifer R Eckels

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