Annual PTC Progress Report 2015

The Kansas City Southern Railway Company

Docket Number:
FRA-2010-0059

The Annual Positive Train Control (PTC) Progress Report is due by March 31st of each year until full PTC system implementation is complete. The Annual PTC Progress Report must cover the railroad's implementation efforts and progress from the directly previous calendar year, and must be submitted electronically to the Federal Railroad Administration (FRA) via the FRA Secure Information Repository at https://sir.fra.dot.gov.

OMB Approval Expires 9/30/2016
OMB Approval Granted 3/16/2016

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Railroad Code: KCS

Annual PTC Implementation Progress Report for: 2015

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1. Summary

Please provide a narrative summary of overall PTC implementation progress during the preceding calendar year (January 1 to December 31):

KCSR's progress with respect to Positive Train Control ("PTC") in 2015 was orchestrated via a Program governance regime which sees a formal PTC Program executed in four phases: Mobilize, Develop, Deploy, and Sustain.

- **Mobilize** – Introduction of the Program: Initial assignment of resources, budgets, etc., establishment of Program governance processes and tools, initial planning and scheduling, etc.
- **Develop** – Projects aimed at creating and enabling a PTC system: requirements, design/architecture, development, testing, process development, support planning, vendor agreements, organizational change management, training, etc.
- **Deploy** – All aspects of field construction and cutovers toward PTC Revenue Service: surveys, engineering, construction, field tests, transition to support, etc.
- **Sustain** – Ongoing support and maintenance

With the Mobilize phase completed, work in 2015 focused on Develop and Deploy.

Develop Phase

Development work saw creation, testing, and enablement of multiple Back Office environments, components, and systems, integrated with newly-enhanced signal, telecom, GIS and locomotive architectures. Beyond the creation of those systems and related components during the first half of the year, teams worked to build out and enable lab- and field test environments.

Integrated Lab testing commenced in the second half of 2015 with completion of initial phases slated for early 2016. Integrated lab tests are anticipated to continue well into 2016 as part of defect resolution and regression testing related to field integration testing, which is planned to start in late Q1 2016.

In anticipation of field integration testing ("FIT") KCSR's Signal, Telecom, and GIS teams spent much of 2015 installing wayside and telecom infrastructures and performing cutovers of relevant locations on KCSR's New Orleans subdivision. That subdivision – KCSR's choice to first perform system tests and put into revenue service demonstration ("RSD") - is anticipated to be fully cut over in Q2 2016, assuming KCSR encounters no unforeseen delays.

Certain types of employees – primarily installers and maintainers in the signal and locomotive organizations – received training in 2015 relevant to PTC and, in particular, to support the installation, cutover, and anticipated field testing of the field infrastructures on the New Orleans subdivision.

As certain PTC components were delivered, KCSR began developing and in some cases implementing related maintenance and support processes. This work is aligned to KCSR's plan to have necessary sustainment infrastructures in place in late 2016/early 2017, when KCSR's first PTC subdivisions are planned to enter into revenue service demonstration ("RSD").

Deploy Phase

Deployment of PTC components on subdivisions – specifically the installation of PTC-ready WIU components - has been underway for several years. In 2015, KCSR started installing WIU's and related hardware and software along KCSR's New Orleans subdivision, in close concert with installation of telecom base stations, wayside radios, and wayside messaging servers ("WMS"). Eight* of these completed wayside locations were cutover and considered complete at the end of 2015 as part of the plan to undertake field integration testing in late Q1 2016.

WIU and base station work was undertaken on other KCSR subdivisions as well, as detailed in Section 3.3.

KCSR addressed locomotive architecture and installation plans in 2015, with the team initiating new installation and maintenance capabilities to account for new PTC componentry. As of year-end, four ES44AC "EVO" locomotives had been fully equipped and will be used in the New Orleans subdivision field testing effort in 2016.

**Please see note (a) in Section 3.3.*

Category	Quantity Installed During Calendar Year	PTCIP Year End Goal (If Applicable)	Cumulative Quantity Installed at End of Calendar Year	Total Quantity Required for PTC Implementation
Locomotives Fully Equipped	4	4	4	614
Installation/Track Segments Completed	0	0	0	17
Radio Towers Fully Installed and Equipped	150*	150*	150*	856*
Employees Trained	529	529	529	2483
Route Miles In Testing or Revenue Service Demonstration	0	0	0	2153
Route Miles in PTC Operation	0	0	0	2153

** See note (c) in Section 3.3.*

2. Update on Spectrum Acquisition

Required content:

- The amount of spectrum acquired and available for use during the applicable calendar year and the cumulative amount acquired and available for use at the end of the applicable calendar year, as compared to the amount the railroad stated would be acquired and available for use by the end of that calendar year and in total for PTC implementation, in the applicable revised PTCIP, as amended
- The basis for how the railroad is determining that the acquired spectrum is available for use by PTC radios (e.g., ensuring non-interference with other radios)

Spectrum Area or Location (E.g., county)	Spectrum Acquired and Available for Use (Owned/Leased) During Calendar Year	Cumulative Amount of Spectrum Acquired and Available for Use (Owned/Leased) at End of Calendar Year	PTCIP Year End Goal for Spectrum Acquired and Available for Use	Total Spectrum Required for PTC Implementation, as Reported in PTCIP
Spectrum Coverage Area or Location†: N/A	See Narrative Below	See Narrative Below	See Narrative Below	See Narrative Below

†Note: To add rows for additional spectrum areas or locations, click on the blue "+" symbol at the bottom right-hand corner. Please be sure to first click anywhere inside the table to activate this function.

If this function is unavailable for your document, please manually add additional rows.

Please provide any additional narrative for Spectrum Acquisition below:

An affiliate of KCSR, KCS Spectrum, Inc., is a member of PTC-220, owned equally by affiliates of each of the seven Class 1 railroads. PTC-220 holds nationwide and regionally licensed FCC spectrum for PTC implementation in the 220-222 MHz spectrum band. Access to this spectrum for KCS Spectrum, Inc. and each of the PTC-220 owner-members, and for non-members, is provided by a spectrum lease. KCSR will utilize spectrum planning tools provided by PTC-220 that will enable KCSR to coordinate its spectrum usage with other railroads to ensure adequate availability and interference mitigation in areas of overlapping operation.

PTC-220 and its member-owners believe that the licenses that PTC-220 currently holds provide spectrum sufficient for nationwide PTC implementation, including PTC implementation by KCSR. Should it prove necessary, PTC-220 would seek to acquire additional spectrum licenses.

It should also be noted that shared ownership of spectrum through PTC-220 requires coordination of spectrum usage (e.g., slot planning) among the various spectrum lessees sharing the same spectrum. The need for this coordination is particularly crucial in major urban areas where multiple railroads responsible to implement PTC operate. It is unclear at the time of this report whether this coordination process will result in delays in the ability to utilize spectrum leased from PTC-220 to cutover communications equipment along various subdivisions. If such delays appear likely or possible, KCSR may need to adjust its deployment schedule to implement PTC on subdivisions where slot assignment delays will not be encountered.

As of the date of this report, KCSR is seeing impacts as a result of this risk on its [redacted] subdivisions. KCSR is actively working with industry bodies to monitor and address the potential delays.

3. Quantity Update on Hardware Installation

Required content:

- Separated by each major hardware category and subcategory identified below, the amount of PTC hardware installed during the applicable calendar year and the cumulative quantity installed at the end of the applicable calendar year, as compared to the amount the railroad stated would be installed by the end of that calendar year and in total for PTC implementation, in the applicable revised PTCIP, as amended.

3.1. Locomotive Status

Category / Installation Feature	Quantity Installed During Calendar Year	PTCIP Year End Goal	Cumulative Quantity Installed at End of Calendar Year	Total Required for PTC Implementation, as Reported in PTCIP
Locomotive (Apparatus)[1]				
On-board Computers (e.g., Train Management Computer)	199	199	199	614
Software For Train Management and other applications	4	4	4	614
PTC Displays	398	398	398	1228
Event Recorders	100	100	100	614
Onboard Antennas and/or Transponder Readers	614	614	614	614
GPS Receivers	398	398	986	1228
Locomotive Radios – Primary Communications (e.g., 220 MHz radios)	4	4	4	614
Secondary Communications (e.g., cell or Wi-Fi communications) Equipment	4	4	4	614

[1] Railroads may elect to add categories or subcategories if more detail is desired.

Please provide any additional narrative for Locomotive Status below. If any of the information called for in Section 3.1 is unavailable to the railroad at the time it is completing and submitting this form, please insert "TBD" in the appropriate field and/or use this comment box to explain when such information will be available and when the railroad expects to submit it to FRA.

KCS Mechanical began Phase 1 provisioning of locomotives in 2011 by installing wiring harnesses, Wabtec kits, and antennas. In 2015, Phase 1 Completion Kits were fitted to the locomotives which include components such as Wabtec Train Management Computers ("TMC"), Cab Display Units ("CDU") and Crash-Hardened Memory modules ("CHM"), also referred to as PTC Event Recorders. Phase II Critical Comms installations include items such as an Ancillary Card Cages ("ACC"), wireless communications card, cellular card, and 220 MHz radio.

In late 2015, lessons learned from Phase I Provisioning enabled the Mechanical Team to begin Phase II Critical Comms installations during a single scheduled locomotive shopping event, therefore allowing for Phases I and II to occur simultaneously from 2016 onward.

Vendor recalls of 699 CHM, TMC, and CDU components are creating a challenge as already-deployed equipment must be swapped and/or updated.

3.2. Infrastructure/Back Office Status

Category / Installation Feature	Completed During Calendar Year	PTCIP Year End Goal	Cumulative Quantity Complete at End of Calendar Year	Total Required for PTC Implementation, as Reported in PTCIP
Infrastructure (Back Office)				
Dispatching Locations (installations complete)	0	0	0	2
Physical Back Office System Equipment (installations complete)	0	0	0	2

Are the Back Office Location(s) fully operable?	No
Are the Dispatching Location(s) fully operable?	No

Please provide any additional narrative for Infrastructure/Back Office Status below:

3.3. Installation/Territory Status

Category / Installation Feature	Quantity Installed During Calendar Year	PTCIP Year End Goal*	Cumulative Quantity Installed at End of Calendar Year	Total Required for PTC Implementation, as Reported in PTCIP
Infrastructure – Wayside Installations by Territory (i.e., Subdivision, District, Track Segment, Etc.)[2]				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: New Orleans Subdivision				
Wayside Interface Units†	29	29	57	57
Communication Towers or Poles†	57	57	65	65
Switch Position Monitors†	0	0	19	19
Wayside Radios†	57	57	57	57
Base Station Radios†	8	8	8	8
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† Yes				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	2	2	51	51
Communication Towers or Poles†	15	16	22	58
Switch Position Monitors†	0	0	0	0
Wayside Radios†	15	16	15	51
Base Station Radios†	6	7	6	7
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				

[2] Each railroad should report information in a manner consistent with its PTCIP. That is, if a railroad monitors implementation of track segments by territory or subdivision, it should report that way.

Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	2	2	93	94
Communication Towers or Poles†	24	29	37	107
Switch Position Monitors†	0	0	0	0
Wayside Radios†	24	29	24	94
Base Station Radios†	0	0	0	13
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	0	0	81	82
Communication Towers or Poles†	30	22	43	96
Switch Position Monitors†	0	0	0	0
Wayside Radios†	21	22	21	82
Base Station Radios†	0	0	0	14
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				

Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	2	2	38	38
Communication Towers or Poles†	24	26	28	42
Switch Position Monitors†	2	2	38	38
Wayside Radios†	24	26	24	38
Base Station Radios†	0	0	0	4
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	2	2	2	79
Communication Towers or Poles†	0	0	5	88
Switch Position Monitors†	0	0	0	0
Wayside Radios†	0	0	0	79
Base Station Radios†	0	0	0	9
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				

Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	0	0	1	69
Communication Towers or Poles†	0	0	9	78
Switch Position Monitors†	0	0	0	0
Wayside Radios†	0	0	0	69
Base Station Radios†	0	0	0	9
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	2	2	84	90
Communication Towers or Poles†	0	0	9	100
Switch Position Monitors†	0	0	0	0
Wayside Radios†	0	0	0	90
Base Station Radios†	0	0	0	10
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				

Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	0	0	7	7
Communication Towers or Poles†	0	0	2	9
Switch Position Monitors†	0	0	0	0
Wayside Radios†	0	0	0	7
Base Station Radios†	0	0	0	2
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	0	0	0	35
Communication Towers or Poles†	0	0	5	40
Switch Position Monitors†	0	0	0	0
Wayside Radios†	0	0	0	35
Base Station Radios†	0	0	0	5
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				

Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	47	47	57	57
Communication Towers or Poles†	0	0	7	64
Switch Position Monitors†	0	0	0	0
Wayside Radios†	0	0	0	57
Base Station Radios†	0	0	0	7
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	0	0	0	54
Communication Towers or Poles†	0	0	5	62
Switch Position Monitors†	0	0	0	51
Wayside Radios†	0	0	0	54
Base Station Radios†	0	0	0	8
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				

Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	5	5	5	28
Communication Towers or Poles†	0	0	4	35
Switch Position Monitors†	5	5	5	20
Wayside Radios†	0	0	0	28
Base Station Radios†	0	0	0	7
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				
Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	0	0	0	8
Communication Towers or Poles†	0	0	0	8
Switch Position Monitors†	0	0	0	8
Wayside Radios†	0	0	0	8
Base Station Radios†	0	0	0	0
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				

Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	0	0	0	24
Communication Towers or Poles†	0	0	3	27
Switch Position Monitors†	0	0	0	24
Wayside Radios†	0	0	0	24
Base Station Radios†	0	0	0	3

Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No

Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	72	72	73	73
Communication Towers or Poles†	0	0	6	79
Switch Position Monitors†	0	0	0	0
Wayside Radios†	0	0	0	73
Base Station Radios†	0	0	0	6

Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No

Identification of the Territory (i.e., Subdivision, District, Track Segment, Etc.)†: [redacted]				
Wayside Interface Units†	2	2	23	36
Communication Towers or Poles†	0	0	1	37
Switch Position Monitors†	0	0	0	0
Wayside Radios†	0	0	0	36
Base Station Radios†	0	0	0	1
Are all necessary communication backbone utilities for this track segment (including fiber, copper, ground wiring etc.) installed and ready for operation?† No				

†Note: To add rows for additional territories and associated sub-components, click on the blue "+" symbol at the bottom right-hand corner. Please be sure to first click anywhere inside the table to activate this function. If this function is unavailable for your document, please manually add additional rows.

** KCSR's revised PTCIP did not contain subdivision-by-subdivision goals for these devices.*

Please provide any additional narrative for Installation/Territory Status below. If any of the information called for in Section 3.3 is unavailable to the railroad at the time it is completing and submitting this form, please insert "TBD" in the appropriate field and/or use this comment box to explain when such information will be available and when the railroad expects to submit it to FRA.

Below is a consolidated view of the Infrastructure – Wayside Installation status as stated in KCSR's Revised PTCIP. These counts in this table have been updated in the by segment tables above. Explanations to the changes in counts follow the consolidated table below.

Category / Installation Feature	Quantity Installed 2015	PTCIP 2015 Goal*	Cumulative Quantity Installed through 2015	Total Required for PTC Implementation as Reported in PTCIP
Infrastructure – Wayside (by Installation/Track Segment)				
Infrastructure/Track Segment Identification:	Consolidated			
Wayside Interface Units	6 (a)	6	6 (a)	859 (b)
Communication Towers or Poles	150 (c)	150	150 (c)	856 (c)
Switch Position Monitors	0 (d)	0	0 (d)	885 (e)
Wayside Radios	150 (f)	150	150 (f)	856 (f)
Base Station Radios	8 (g)	8	8 (g)	116

** KCSR's revised PTCIP did not contain subdivision-by-subdivision goals for these devices*

KCSR believes that some of the questions in this annual report form are subject to multiple potential interpretations, and may be answered differently by different parties filing annual reports. In completing its annual report, KCSR has done its best to answer FRA's questions as KCSR understands those questions.

In some respects, the questions in this annual report appear to KCSR to differ from the informational requirements of the PTCIP. The following notes are intended to explain some of the areas in which KCSR understands FRA's questions in this annual report form as differing from the data that was required in the PTCIP. As discussed below, KCSR plans to file a Request for Amendment (RFA) to its January 2016 revised PTCIP to 'square up' some the data in that document with the data in this document.

a) KCSR reported in the Revised PTCIP submitted in late January six fully cut over Wayside Interface Unit locations through 2015. That number should have been 8, as shown in section 1 of this report. However, this count should have included the total number of locations constructed, rather than fully cut over. The cumulative number through 2015 should have been 572 WIU locations. We plan to submit an RFA to the Revised PTCIP to reflect this WIU count.
b) Since the submission of the PTCIP, the Rosenberg subdivision changed to CTC from TWC, thus increasing the WIU count. We plan to submit an RFA to the Revised PTCIP to reflect the new total WIU count of 882.
c) KCSR reported 150 Communication Towers or Poles constructed through 2015 in the Revised PTCIP. The total count for PTC Implementation was reported as 856. KCSR originally interpreted this metric to include only wayside locations. The metric should have been interpreted as being the number of both wayside and base station locations that required a structure for installing PTC antennas. Therefore, the total Communication Towers or Poles should have shown 251 through 2015 and a total PTC Implementation of 995. We plan to submit an RFA to the PTCIP to reflect this count of towers or poles.
d) The "switch position monitors" (SPMs) listed in the foregoing subdivision tables are dedicated SPMs. KCSR will use dedicated SPMs only in dark territory. KCSR's January 2016 revised PTCIP listed 181 total SPMs to be installed on KCSR PTC-equipped track. Since January 1, 2016, KCSR has determined that it will install CTC on the Rosenberg subdivision, reducing the total count of dedicated SPMs. As KCSR completes its planning for installation of PTC on its dark territory segments, KCSR anticipates that the number of dedicated SPMs will be reduced as unused switches are removed or as locations are consolidated or split. Currently KCSR anticipates that it will need to install a total of 160 dedicated SPMs.
e) The revised PTCIP stated that a total of 885 SPMs would be installed. That number included integrated and external WIUs. KCSR will submit an RFA which lists only dedicated SPMs, reducing the total as described in note (d), above.
f) KCSR reported in the Revised PTCIP that 150 Wayside Radios were installed through 2015 and a total of 856 radios were necessary for PTC implementation. The count should have been 141 radios installed cumulative through 2015 and the total PTC Implementation count should have been 882 (as explained in comment (b) above). We plan to submit an RFA to the PTCIP to reflect this Wayside Radio count. Delays due to having to reinstall software at wayside locations impeded reaching the goal of 150 Wayside Radios in 2015.

g) KCSR reported in the Revised PTCIP that eight Base Station Radios were installed through 2015. The number included only the Base Station Radios installed on the New Orleans subdivision. KCSR also installed in 2015 six base station radios on the [redacted] subdivision, making the total installations to be 14. We plan to submit an RFA to the PTCIP to reflect this number of Base Station Radios installed through year-end 2015.

Signal has been installing Wayside Interface Units and Switch Position Monitors since 2011, and began configuring and enabling the PTC functionality in December 2015. Cumulatively through 2015, KCSR successfully installed 572 total WIUs and Switch Position Monitors.

In 2015, KCSR's Telecom team performed studies of radio frequency ("RF") coverages across most of KCSR's planned PTC subdivisions to identify coverage gaps, potential "green field" locations, and antenna specifics. Multiple crews worked simultaneously to install, configure, and test PTC equipment at identified base station and wayside locations.

Plans for early 2016 include the completion of wayside cutovers and support for field validations on the New Orleans subdivision, as well as install, configure, and test PTC equipment at identified base station and wayside locations on several subdivisions.

Below is a list of key Telecom activities completed in 2015:

- Set up communications lab, integrated with back office lab, locomotive lab & signal lab
- Engineered [redacted] subdivisions
- Received FCC clearance for construction on 703 sites across KCSR PTC (TCNS & Colocation exclusions)
- Installed 14 Base Station radios on the New Orleans and [redacted] subdivisions
- Installed radios and WMS components at 141 Wayside locations across [redacted] subdivisions
- Programmed and tested end-to-end connectivity over 220MHz & cellular paths between base stations, wayside locations, and back office components on KCSR's New Orleans subdivision
- Implemented tools to track assets, installation, and provide integrated reporting
- Train personnel on using & implementing PTC technologies & associated tools
- Engineer & implement key Business processes affecting Telecom engineering, Installation, Quality Management, Configuration Management, Change Management, Incident Management and many more.
- Prepare for drive test to confirm radio coverage on the New Orleans subdivision
- Plan for 2016 & 2017 Telecom deployment

4. Quantity Update on Employees Trained

Required content:

- **Separated by each employee category identified below, the number of employees trained during the applicable calendar year and the cumulative number of employees trained at the end of the applicable calendar year, as compared to the number the railroad stated would be trained by the end of that calendar year and in total, in the applicable revised PTCIP, as amended.**

Employee Category[3]	Number of Employees Trained During Calendar Year	PTCIP Year End Goal	Cumulative Number of Employees Trained at End of Calendar Year	Total Reported in PTCIP
Employees who Install, Maintain, Repair, Modify, Inspect, and Test the PTC System	11	11	11	202
Employees who Dispatch Train Operations	0	0	0	44
Train and Engine (Operations) Employees	0	0	0	1526
Roadway Worker Employees (a)	518	518	518	581
Direct Supervisors of the Above Employees (a)	0	0	0	130

Please provide any additional narrative for Employee Training below:

a) **The revised PTCIP stated that 518 Roadway Worker Employees were trained in 2015 and a total of 581 employees for that category. These numbers included 134 direct supervisor employees, which should have been included in the Direct Supervisors of the Above Employees category. KCSR will submit an RFA to reflect this update.**

[3] *See* 49 C.F.R. § 236.1041(a).

5. Progress on Implementation Schedule/Milestones

Required content:

- Describe the extent to which the railroad or other entity is not complying with the implementation schedule it provided in its revised PTCIP, as amended

Aside from minor and typical project schedule adjustments, as of the end of 2015 KCSR was in conformance with its PTC Implementation Plan, filed in late January, 2016.

Delivery of a software component specific to the WMS, initially expected for late Q3 2015, was received approximately six weeks late. This schedule change prompted subsequent delays in completion of base- and wayside radio installs and validation, which in turn delayed wayside cutovers. Finally, this delay rippled to the start of field validation ("V&V") which slipped to Q1 2016.

This series of events adversely impacted the goal of installing 150 wayside radios in 2015.

As a standard function of KCSR's PTC program governance regime, we actively identify, document and address issues and mitigate risks.

6. Summary Update of Challenges/Risks

Required content:

- Any update to the summary of remaining technical, programmatic, operational, or other challenges that the railroad or other entity provided in its revised PTCIP, as amended, including challenges with availability of public funding, interoperability, spectrum, software, permitting, and testing, demonstration, and certification
- Schedule Risk Updates (e.g., funding, technology, agreements)

Please provide Summary Update of Challenges/Risks below:

1. System Performance

No update to Revised PTCIP

2. PTC System Progressive Installation Delay

No update to Revised PTCIP

3. Network Coverage of Fully Equipped and Operational PTC System

No update to Revised PTCIP

4. System Performance and Quality

No update to Revised PTCIP

5. System Interoperability

No update to Revised PTCIP

6. Industry Radio Slot Availability

No update to Revised PTCIP

7. Document Review Timing

Risk Description:

- Unanticipated delays to PTC implementation due to need for FRA review and/or approval of certain documents and filings due to heavy FRA workload, uniqueness of documents being submitted and related factors

Predicted Consequences:

- Schedule delays

8. BOS Delivery Timing

Risk Description:

- The vendor for KCSR's I-ETMS BOS has delivered software versions sufficient to begin field testing activity. KCSR anticipates additional software deliveries as defects and deficiencies are identified. However, given that several other railroads have successfully completed Revenue Service Demonstration activity using this same integrated suite of software components, KCSR is optimistic that the software is substantially complete.

Predicted Consequences:

- Uncertain

9. TMC Software Delivery/Complexity

Risk Description:

- KCSR is subject to delivery and quality risks as to vendor development of the onboard software that runs on the Train Management Computer (TMC). KCSR has encountered defects during lab and field testing and maintains an ongoing defect management regime with that vendor.
- KCSR is aware of industry-level concerns with respect to the TMC software and is involved at the industry level to recommend and support remediations.

Predicted Consequences:

- Safety-critical defects could continue to be identified in the onboard software during lab and field testing, as well as RSD
- Schedule slippage if critical unforeseen TMC-specific defects are not resolved in a timely manner relative to KCSR's implementation schedule

7. Progress on Revenue Service Demonstration (RSD) or Implementation

Required content:

- The total number of route miles on which PTC has been initiated for revenue service demonstration or implemented, as compared to the total number of route miles required to have a 0PTC system (see Section 1 Summary Table)
- Estimated start date (month and year) for RSD

Segment Identification[4]	Number of Route Miles in Segment	Status at End of Calendar Year Current status of installation/track segment. **Choose one**:	Estimated Start Date for Revenue Service Demonstration (if not already completed)
Segment (add additional rows for segments as necessary): New Orleans Subdivision	[redacted]	○ Not Started ○ Installing ⊙ Testing ○ Operational/Complete	2016
Segment (add additional rows for segments as necessary): [redacted]	[redacted]	○ Not Started ⊙ Installing ○ Testing ○ Operational/Complete	2017
Segment (add additional rows for segments as	[redacted]	○ Not Started ⊙ Installing ○ Testing	2017

[4] Segment identification should be consistent with segments listed in Section 3.3.

necessary): [redacted]		○ Operational/Complete	
Segment (add additional rows for segments as necessary): [redacted]	[redacted]	○ Not Started ⦿ Installing ○ Testing ○ Operational/Complete	2017
Segment (add additional rows for segments as necessary): [redacted]	[redacted]	○ Not Started ⦿ Installing ○ Testing ○ Operational/Complete	2017
Segment (add additional rows for segments as necessary): [redacted]	[redacted]	○ Not Started ⦿ Installing ○ Testing ○ Operational/Complete	2017
Segment (add additional rows for segments as necessary): [redacted]	[redacted]	○ Not Started ⦿ Installing ○ Testing ○ Operational/Complete	2017
Segment (add additional rows for segments as necessary): [redacted]	[redacted]	○ Not Started ⦿ Installing ○ Testing ○ Operational/Complete	2017/2018

Segment (add additional rows for segments as necessary): [redacted]	[redacted]	○ Not Started ◉ Installing ○ Testing ○ Operational/Complete	2017/2018
Segment (add additional rows for segments as necessary): [redacted]	[redacted]	◉ Not Started ○ Installing ○ Testing ○ Operational/Complete	2018
Segment (add additional rows for segments as necessary): [redacted]	[redacted]	○ Not Started ◉ Installing ○ Testing ○ Operational/Complete	2018
Segment (add additional rows for segments as necessary): [redacted]	[redacted]	◉ Not Started ○ Installing ○ Testing ○ Operational/Complete	2018
Segment (add additional rows for segments as necessary): [redacted]	[redacted]	○ Not Started ◉ Installing ○ Testing ○ Operational/Complete	2018
Segment (add additional rows for segments as	[redacted]	◉ Not Started ○ Installing	2018

necessary): [redacted]		○ Testing ○ Operational/Complete	
Segment (add additional rows for segments as necessary): [redacted]	[redacted]	◉ Not Started ○ Installing ○ Testing ○ Operational/Complete	2018
Segment (add additional rows for segments as necessary): [redacted]	[redacted]	○ Not Started ◉ Installing ○ Testing ○ Operational/Complete	2018
Segment (add additional rows for segments as necessary): [redacted]	[redacted]	○ Not Started ◉ Installing ○ Testing ○ Operational/Complete	2018

Note: To add additional rows, click on the blue "+" symbol at the bottom right-hand corner. Please be sure to first click anywhere inside the table to activate this function.

If this function is unavailable for your document, please manually add additional rows.

Please provide any additional narrative for Revenue Service Demonstration or Implementation below:

The dates listed above in the Targeted Track Segment In-Service Year represent the year in which KCSR currently plans to enter RSD on the named segments.

Per KCSR's PTC program plan, 2015 saw the continued installation of signal and wayside components and start of lab testing of the New Orleans subdivision. Teams are moving now (early 2016) to finalize field installations and perform unofficial field tests ahead of entry into formal field testing on the New Orleans subdivision with the FRA in the second half of 2016. KCSR's plan is to complete that formal field testing and receive approval from the FRA to enter into revenue service demonstration ("RSD") circa year-end 2016.

Field installation and GIS work was performed in 2015 on three subdivisions, ahead of planned RSD on those subdivisions in the first half of 2017.

8. Update for Intercity or Commuter Rail Passenger Transportation (if applicable)

If this section is not applicable to your railroad, please mark N/A.

Required content (if applicable):

- For each entity providing regularly scheduled intercity or commuter rail passenger transportation, a description of the resources identified and allocated to implement PTC

Please provide Update for Intercity or Commuter Rail Passenger Transportation below, if applicable:

N/A

9. Update on Interoperability Progress and Other Formal Agreements

Required content:

- For host railroads: provide updates to any agreements and key milestones for all tenant operations
- For tenant railroads: provide updates to any agreements and key milestones for all operations over tracks hosted by another railroad

Host and Tenant Railroads: Please provide a general update on interoperability in the textbox below.

KCSR plans to effectuate PTC interoperability with other railroads on whose track it operates and who operate on KCSR's track (except tenants that are excepted from equipping their trains on KCSR track with PTC under KCSR's revised PTCIP) through utilization of the Wabtec I-ETMS® system. As of December 31, 2015, KCSR has not taken further steps toward interoperability planning with tenant or host railroads, nor has KCSR been approached to take action relative to other railroads' interoperability requirements.

KCSR does participate in rail industry committees which are working to develop tools needed for interoperability such as for shared spectrum, messaging, and shared facilities (base stations, waysides, etc.). Agreements with KCSR's host and tenant railroads to cooperate in establishing interoperability were signed around the time of KCSR's initial PTCIP filing in 2010, remain in force, and will be addressed when the relevant subdivisions are moving toward the revenue service demonstration phase. KCSR also will comply with requirements contained in its PTC testing waiver of notifying other railroads operating on track KCSR segments before beginning to test its PTC system on those track segments.

Host Railroads Only: For each tenant, please provide additional tenant information below.

Tenant Identification (Please add rows for additional tenants as necessary)	**Estimated Tenant Locomotive Fleet** (if the tenant does not have a separate PTCIP on file)	Current Tenant Implementation Status Choose one:
Refer to section 5 of KCSR's PTCIP for the list of KCSR's tenant railroads.	KCSR's tenants required to equip locomotives for PTC have PTCIPs on file with the FRA.	◉ Not Started ○ Installing ○ Testing ○ Operational/Complete

Note: To add additional rows, click on the blue "+" symbol at the bottom right-hand corner. Please be sure to first click anywhere inside the table to activate this function.

If this function is unavailable for your document, please manually add additional rows.

10. Estimated PTC Safety Plan (PTCSP) Submission Date (if not already submitted)

If this section is not applicable to your railroad, please mark N/A.

PTCSP Submission Date
January 31, 2017

Please provide any additional narrative for PTCSP Submission below:

KCSR currently anticipates filing its PTC Safety Plan on January 31, 2017, following FRA approval to enter into revenue service demonstration ("RSD") on its New Orleans subdivision, anticipated at the end of 2016.

11. Testing and Integration Efforts (if applicable, laboratory, integration, and revenue service demonstration)

Please provide Update on Testing and Integration efforts below:

KCSR has successfully completed the systems development, configuration, and integration activities necessary to support and enable comprehensive end-to-end PTC testing in the lab and in the field. A test plan has been established for the PTC testing to be conducted on KCSR's New Orleans subdivision where KCSR will seek FRA qualification for Track Warrant Control (TWC) and TWC with Absolute Block Signal (ABS) methods of operation. Several test scenarios will also be executed in Centralized Traffic Control (CTC) method of operation on the New Orleans subdivision, but the scope and complexity of CTC operations within the New Orleans subdivision is not extensive enough to complete qualification for CTC. Therefore, additional qualification testing for CTC method of operation will be executed on KCSR's [redacted] subdivision following the completion of testing on KCSR's New Orleans subdivision.

Formal Laboratory Integrated End-to-End (LIEE) testing began in Q4 2015 and remains underway as of the date of this report, with multiple test cycles completed for each of KCSR's three methods of operation. And as KCSR works to satisfy the FRA's conditions of approval for the KCSR PTC field test waiver, unofficial field integration testing ("FIT") planned for Q1 2016 is in progress to validate and confirm configurations of the technology installations on the New Orleans subdivision. The messaging system, Wayside Interface Unit ("WIU"), and radio configurations are being validated for correct integration with back office systems, and hi-rail vehicles are being configured to simulate PTC-equipped locomotives in order to execute portions of the KCSR test plan and uncover as many defects and configuration problems as possible before commencing official PTC testing with equipped locomotives.

12. Updated Information That FRA Can Use to Maintain Its Geographic Information System (GIS) Database – Segments Complete and Operable

In its annual progress reports, a subject railroad or entity may submit a geographic information system (GIS) shapefile to indicate where various rail segments that must have PTC are located, as long as it includes the following fields: (1) a PTC attribute field (coded with "Y" if line segment is to have PTC installed, otherwise left blank); (2) a SUBDIV attribute field (populated with subdivision name); (3) a MONTH attribute field (populated with the month in which PTC is to be installed); and (4) a YEAR attribute field (populated with the year in which PTC is to be installed). A railroad may submit this information by means other than shapefile format.

Please provide any additional narrative for GIS Information below:

KCSR informed FRA staff on March 22, 2016 that KCSR would not be providing a shape file in response to Item 12 of this report.

The table below provides the full list of KCSR's subdivisions where PTC is required. The MONTH and YEAR columns provide a range of months and the year in which the subdivision is anticipated to enter into revenue service demonstration ("RSD"). These dates are subject to change.

Subdivision	Month	Year
New Orleans Subdivision	December	2016
[redacted]	Mar-May	2017
[redacted]	April-June	2017
[redacted]	May-July	2017
[redacted]	July-Sept	2017
[redacted]	Sept-Oct	2017
[redacted]	Nov-Dec	2017
[redacted]	Dec-Feb	2017/18
[redacted]	Dec-Feb	2017/18
[redacted]	March-May	2018
[redacted]	April-June	2018

	[redacted]	April-June	2018	
	[redacted]	June-Aug	2018	
	[redacted]	July-Sept	2018	
	[redacted]	Sept-Oct	2018	
	[redacted]	Sept-Nov	2018	
	[redacted]	Sept-Nov	2018	

Public reporting burden for this information collection is estimated to average 38.41 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. According to the Paperwork Reduction Act of 1995, a federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with, a collection of information unless it displays a currently valid OMB control number. The valid OMB control number for this information collection is **2130-0553**. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection, including suggestions for reducing this burden to OMB's Office of Information and Regulatory Affairs, Attn: FRA OMB Desk Officer.