NOTICE OF PROBABLE VIOLATION
PROPOSED CIVIL PENALTY
and
PROPOSED COMPLIANCE ORDER

UPS NEXT DAY AIR

June 15, 2012

Mr. M. Dwayne Burton
Vice President, Operations and Engineering
Rockies Express Pipeline, LLC
Kinder Morgan Energy Partners, L.P.
500 Dallas Street, Suite 1000
Houston, Texas 77002

CPF 3-2012-1003

Dear Mr. Burton:

The western portion of Rockies Express Pipeline, LLC's pipeline system (REX West) is a 713-mile, 42-inch diameter pipeline that transports natural gas from Weld County, Colorado, to Audrain County, Missouri. In calendar years 2007 and 2008, Kinder Morgan Energy Partners, L.P. (KM) built and began its operation. Representatives from the Pipeline and Hazardous Materials Safety Administration (PHMSA) pursuant to Chapter 601 of 49 United States Code inspected the construction and initial operations of REX West on numerous occasions from July 2007 through January 2008.

As a result of these inspections, it appears that you have committed probable violations of the Pipeline Safety Regulations, Title 49, Code of Federal Regulations. The items inspected and the probable violations are:

1. §192.225 Welding Procedures

(a) Welding must be performed by a qualified welder in accordance with welding procedures qualified under section 5 of API 1104 (incorporated by reference, *see* §192.7) or section IX of the ASME Boiler and Pressure Vessel Code " Welding and Brazing Qualifications" (incorporated by reference, *see*

§192.7) to produce welds meeting the requirements of this subpart. The quality of the test welds used to qualify welding procedures shall be determined by destructive testing in accordance with the applicable welding standard(s).

KM did not properly qualify welding procedure RX8-01 to be utilized on REX West. KM provided welding procedure qualification records 754-P, 754-AF, 754-AL, 754-AR, and 754-AW documenting the testing performed to qualify Welding Procedure RX8-01. Test Certificate 754-P indicates one root bend test unacceptable; therefore, this procedure failed to pass all of the destructive tests as required by API 1104. After the non-compliance was observed by PHMSA on July 16, 2007, KM re-qualified Welding Procedure RX8-01 on July 23, 2007.

2. §192.225 Welding Procedures

(a) Welding must be performed by a qualified welder in accordance with welding procedures qualified under section 5 of API 1104 (incorporated by reference, *see* §192.7) or section IX of the ASME Boiler and Pressure Vessel Code " Welding and Brazing Qualifications" (incorporated by reference, *see* §192.7) to produce welds meeting the requirements of this subpart. The quality of the test welds used to qualify welding procedures shall be determined by destructive testing in accordance with the applicable welding standard(s).

KM performed welding at certain locations during the construction of REX West that was not in accordance with welding procedures it had qualified under API 1104. The deficiencies are:

Date	Description
Various	Certain weld repairs made on Spread 5 were not performed in accordance with welding procedures qualified under section 5 of API 1104. KM utilized an electrode that was not specified in its repair welding procedure. An EWI Microalloying contract welding inspector first identified this problem and informed the Oak Ridge National Laboratory (ORNL) inspector who was under contract to provide inspection services to PHMSA on the REX West project. The ORNL inspector investigated 102 girth welds that had been made with an electrode not specified in KM's repair welding procedure. The welds were later re-repaired utilizing the correct electrode.

August 7, 2007	While auditing spread 5, PHMSA personnel observed mechanized welders not following a qualified welding procedure during the startup of construction. KM developed welding procedures REX-A-WPS1 and REX-A-WPS3, which specify a 122 ºF preheat. PHMSA personnel observed workers heating the pipe to around 250 ºF and then letting it cool before welding commenced. The welders then started to weld at preheat values between 150 ºF and 200 ºF. The workers were not following the qualified welding procedure that specified a 122 ºF preheat. Welding with this procedure had started earlier that same week.
August 30, 2007	PHMSA personnel observed KM welders that were not following qualified welding procedure RX8-01A for shielded metal arc welding and flux-cored arc welding on one occasion. The welding procedure specified a gas flow rate of from 35 to 50 cfh for the gas shielded flux-cored arc welding process. PHMSA personnel observed tie-in welders utilizing the gas shielded flux-cored arc welding process with the gas flow regulators set wide open. KM subsequently investigated this and measured the gas flow with a turbine meter and it was determined that a wide-open flow meter delivers approximately 60 cfh. The welding was not being performed in accordance with the qualified welding procedure.
October 25, 2007	While auditing Spread 5, PHMSA personnel observed mechanized welding on 42" diameter, 0.555" thick Berg pipe in which welders were not following the welding procedure. The qualified welding procedure specified a maximum interpass temperature of 253 ºF. PHMSA observed welding being performed with interpass temperatures of 267 ºF and 270 ºF. When questioned, the welding inspectors, and welders were unaware of the specific requirements of welding procedure REX-A-WPS17 that was specifically developed to weld the Berg pipe. The welders did not follow the qualified procedure for welding the Berg pipe. Welding with this procedure had been performed for 3 days prior to PHMSA personnel identifying this issue.

3. §192.243 Nondestructive testing.

(a) Nondestructive testing of welds must be performed by any process, other than trepanning, that will clearly indicate defects that may affect the integrity of the weld.

KM's process for nondestructive testing of welds did not clearly indicate defects that may have affected the integrity of the welds on REX West. KM utilized radiography to examine completed manual girth welds for defects. During the construction of REX East, radiographic irregularities were identified during a review conducted by ORNL under contract to PHMSA. At PHMSA's direction, KM conducted a review of the REX West radiographs. As a result, it was determined that 859 of the 7229 radiographs reviewed were not acceptable to either API 1104 or KM's construction standards. These radiographs either had not been properly taken or were improperly interpreted.

KM then developed a program to further evaluate the deficient radiographs, obtain acceptable radiographs as necessary, and then repair or cut out the girth welds that contained defects that had not previously been identified by the nondestructive testing and repaired during the initial construction. Based on the radiographic review requested by PHMSA, 64 welds containing defects that were not found during the construction phase of REX West required repair after the pipeline facilities were placed into natural gas service.

4. §192.245 Repair or removal of defects.

(b) Each weld that is repaired must have the defect removed down to sound metal and the segment to be repaired must be <u>preheated</u> if conditions exist which would adversely affect the quality of the weld repair. After repair, the segment of the weld that was repaired must be inspected to ensure its acceptability.

For certain welds that were repaired, KM did not remove the defect down to sound metal as required for those welds that were found to be unacceptable under §192.241(c). KM identified many mechanized girth weld defects on the REX West pipeline that were discovered and repaired during construction. Nine of the repaired areas were later found to contain through-wall defects during the pipeline's hydrostatic test. These welds had not been properly repaired by removing the defect down to sound metal and preheating as necessary to prevent delayed hydrogen cracking.

In response to the defective welds found during hydrotests, KM initiated a repair weld re-inspection program that consisted of 260 welds. As a result of the additional re-inspection program KM, discovered another 7 welds that had already been placed into service that contained unacceptable defects. These welds were not removed or repaired by removing the defect down to sound metal, but were covered with a pressure containing welded sleeve. KM also failed to ensure that each repair weld on REX West was properly inspected to ensure its acceptability since these girth welds that contained unacceptable defects were not removed or repaired during the pipeline's construction.

5. §192.303 Compliance with specifications or standards.
Each transmission line or main must be constructed in accordance with comprehensive written specifications or standards that are consistent with this part.

KM did not construct REX West in accordance with written specifications in certain locations.

KM procedure C1080 Item 2.3 specifies:

> *Contractor shall be responsible for application of coating according to the Manufacturer's specifications and requirements of the Company Representative.*

KM did not apply coating to certain girth welds within the temperature range specified by the manufacturer. KM utilized 3M 6233 fusion bonded epoxy for coating girth welds on the pipeline. 3M specifies an application temperature of 425 ºF to 488 ºF. PHMSA personnel observed workers on 5 occasions through Spreads 1, 6, and 7 not heating the pipe to a level within the proper temperature range required by the manufacturer's specifications. The observations of inadequate application temperatures were made on August 10, 2007, and August 21, 2007, on Spread 1; October 16, 2007, on Spread 6; and August 14, 2007, and November 28, 2007, on Spread 7.

KM procedure C1080 Item 7.9 specifies:

> *To repair pinholes in epoxy coatings, the original coated surface shall be thoroughly cleaned and lightly abraded with sandpaper (approximate area 0.5-inch radius around pinhole). All dust shall be removed before applying a patch stick. The cleaned pipe surface shall be heated until the patch stick begins to melt when rubbed over the heated area. Material shall be applied to obtain a minimum thickness of 15 mils over the entire abraded area.*

KM procedure C1080 Item 7.10 specifies:

> *Holidays larger than 0.5 square-inch shall not be repaired using patch sticks. Contractor shall use coatings specified for large area repairs and apply coating in conformance with Manufacturer's recommendations.*

Workers failed to follow KM procedures limiting holiday repairs using patch sticks to holidays smaller than 0.5 square-inches. PHMSA personnel observed workers repairing holidays larger than 0.5 square-inches with patch sticks on 3

occasions. These observations were made on August 8, 2007, on Spread 4; and on September 19, 2007, and February 12, 2008, on Spread 6.

6. §192.305 Inspection: General.
Each transmission line or main must be inspected to ensure that it is constructed in accordance with this part.

KM did not adequately inspect the welding on its REX West transmission line at certain locations to ensure it was constructed in accordance with Part 192. KM contracted with Gulf Interstate to supply a Senior Welding Inspector and dedicated welding inspectors on each of the construction spreads. Nevertheless, as set forth in Item 2 above, PHMSA identified 3 instances of welding that had not been performed in accordance with a qualified welding procedure. In each of these cases, welding had already been performed when PHMSA personnel observed that the qualified procedures were not being followed. If KM's inspectors had adequately inspected the welding processes, the workers' failure to follow the qualified procedure would have been identified and corrected. The welding inspectors did not inspect the construction activity in a manner that ensured the transmission line was constructed in accordance with applicable requirements and Part 192.

7. §192.305 Inspection: General.
Each transmission line or main must be inspected to ensure that it is constructed in accordance with this part.

KM did not adequately inspect the coating of its transmission line at certain locations to ensure it was constructed in accordance with this part. KM hired a dedicated pipe coating inspector on each of the construction spreads. As set forth in Items 5, 11, and 12, KM did not apply or repair coating at certain locations as required. Had KM adequately inspected the coating work, the workers' failure to follow the procedure for pipe coating would have been identified and corrected. In many cases, coating work had already been performed and the problems had to be discovered by PHMSA after the fact. The coating inspectors did not inspect the coating work in a manner that ensured the transmission line was constructed in accordance with applicable requirements and Part 192.

8. §192.305 Inspection: General.
Each transmission line or main must be inspected to ensure that it is constructed in accordance with this part.

KM did not adequately inspect the nondestructive testing of its transmission line to ensure it was constructed in accordance with this part. As set forth in Item 3 above, KM failed to adequately inspect the radiographic practices and film

interpretation utilized during the construction of the Steele City, Meeker, Julesburg, Cheyenne, Turney, Wamsutter, Bertrand, Big Hole, Arlington, Arlington expansion, Echo Springs Meter, Echo Springs Lateral, Echo Springs Compressor, Echo Springs Field, Lost Creek Meter, KMIGT Meter, and NGPL Meter sections of REX West. If KM had adequately inspected the nondestructive testing of the girth welds during construction, the defective girth welds would have been identified by the inspector. KM did not inspect the construction in a manner that ensured the transmission line was constructed in accordance with applicable requirements and Part 192.

9. §192.319 Installation of pipe in a ditch
(a) When installed in a ditch, each transmission line that is to be operated at a pressure producing a hoop stress of 20 percent or more of SMYS must be installed so that the pipe fits the ditch so as to minimize stresses and protect the pipe coating from damage.

KM failed to install pipe within a ditch to minimize the stresses on the pipe by ensuring it fit properly within the ditch. During the week of November 26, 2007, PHMSA personnel observed workers on Spread 7 preparing to lower a continuous section of welded pipe into the ditch that was approximately 1-3/4 miles long. The maximum distance between open ends was greater than 5,000 feet, which is contrary to KM's written construction procedures for minimizing stresses that requires that "*open ends shall be a maximum distance of 5,000 feet apart (or less when required by terrain or land use).*" When questioned, the Chief Inspector acknowledged that line sections were lowered in as welded and no additional cuts were made or other action taken to minimize stresses during installation into the ditch.

10. §192.319 Installation of pipe in a ditch
(b) When a ditch for a transmission line or main is backfilled, it must be backfilled in a manner that:
(2) Prevents damage to the pipe and pipe coating from equipment or from the backfill material.

KM failed to prevent damage to the pipe and pipe coating from the trench and backfill material at various locations on REX West.

PHMSA personnel received reports that indicated that sections of Spread 5 pipe had been backfilled with rocks that damaged the pipe coating (and potentially the pipe). In addition, the contractor did not install rock shield around the pipe or use rock shakers (devices to separate rock from the backfill material) as required to prevent damage from rocks. KM excavated the completed pipeline at about 100 locations to remediate indications from in-line inspection (ILI) tools and Direct Current Voltage Gradient (DCVG) surveys performed after the pipeline had been

placed into service. These excavations were witnessed by PHMSA personnel and KM contract inspectors. At approximately 19 of the locations dents, rocks in the backfill, and/or pipeline in contact with solid rock were identified.

Four of the excavations also showed evidence that the pipeline was backfilled before the wet two-part epoxy that had been applied to the girth welds had completely cured, causing the coating to be a mixture of dirt and epoxy.

11. §192.461 External corrosion control: Protective coating.
(c) Each external protective coating must be inspected just prior to lowering the pipe into the ditch and backfilling, and any damage detrimental to effective corrosion control must be repaired.

KM did not inspect each protective coating just prior to lowering the pipe into the ditch during portions of the REX West construction. PHMSA personnel observed workers on Spread 3 and 5 that were not removing building insulation from the pipe. The workmen were manipulating the electronic holiday detector's spring to jump over the attached insulation. The building insulation was used to pad the pipe from the skids. Certain areas of the coating could not be visually or electronically inspected because the building insulation had not been removed. KM procedure C1080 Item 7.3 also specifies that buried coated facilities shall pass both a visual and electrical holiday detector test as the pipe is lowered into the ditch.

12. §192.461 External corrosion control: Protective coating.
(c) Each external protective coating must be inspected just prior to lowering the pipe into the ditch and backfilling, and any damage detrimental to effective corrosion control must be repaired.

KM did not repair damaged coating detrimental to effective corrosion control at certain locations during the REX West construction. During the week of August 27, 2007, PHMSA personnel observed workmen on Spread 3 that were not repairing visible coating damage that had occurred as a result of the welding bands utilized. Spread 3 utilized RMS Welding Systems' bands that were found to cause visible damage to the thin film epoxy coating on the pipe. Coating defects caused by band damage were found adjacent to 2 girth welds that had been lowered-in the ditch and 10 other girth welds that had been through the pre-jeeping process. Given the nature of the coating damage, these areas were not identified by the electrical holiday detectors so the workers were not repairing them, even though the coating damage was clearly visible.

13. §192.619 Maximum allowable operating pressure - Steel or plastic pipelines

(a) No person may operate a segment of steel or plastic pipeline at a pressure that exceeds a maximum allowable operating pressure determined under paragraph (c) or (d) of this section, or the lowest of the following:

(1) The design pressure of the weakest element in the segment, determined in accordance with subparts C and D of this part.

§192.111 Design factor for steel pipe.
(a) Except as otherwise provided in paragraphs (b), (c), and (d) of this section, the design factor to be used in the design formula in §192.105 is determined in accordance with the following table

Class location	Design factor (F)
1	0.72
2	0.60

KM established the maximum allowable operating pressure of REX West at various locations at a pressure that exceeded the design pressure of the pipe and placed the pipeline into service on or about April 28, 2008. KM used a Class 1 design factor to establish the maximum allowable operating pressure of 1480 psig in 4 pipeline segments totaling about 3500 feet of pipe that were actually located in Class 2 areas. Most of the pipe was installed near the town of Renick, Missouri in the summer of 2008. KM did not use the proper Class 2 design factor of 0.60, which would establish the maximum allowable operating pressure at 1110 psig, rather than the 1480 psig.

The maximum allowable operating pressure of the pipe was calculated using a Class 1 design factor of 0.8 (PHMSA Grant of Waiver to §192.111 - Docket No. PHMSA-2006-23998). The Waiver PHMSA granted to Rockies Express authorizes the use of a design factor of 0.8 only in Class 1 areas, not in Class 2 areas. KM subsequently took the pipeline out of service and replaced the pipe using Class 2 design factors on or about September 3, 2008.

Proposed Civil Penalty

Under 49 United States Code, § 60122, you are subject to a civil penalty not to exceed $100,000 for each violation for each day the violation persists up to a maximum of $1,000,000 for any related series of violations. The Compliance Officer has reviewed the circumstances and supporting documentation involved in the above probable violations and has recommended that you be preliminarily assessed a civil penalty of $347,800 as follows:

Item number	PENALTY
2	$20,600
3	$43,700
4	$28,100
5	$23,100
6	$20,000
7	$30,000
8	$43,700
10	$60,600
11	$23,700
12	$19,300
13	$35,000

Warning Items

With respect to items 1 and 9, we have reviewed the circumstances and supporting documents involved in this case and have decided not to conduct additional enforcement action or penalty assessment proceedings at this time. We advise you to promptly correct these items. Be advised that failure to do so may result in Kinder Morgan Energy Partners, L.P. being subject to additional enforcement action.

Proposed Compliance Order

With respect to items 3, 4, 6, and 8, pursuant to 49 United States Code § 60118, the Pipeline and Hazardous Materials Safety Administration proposes to issue a Compliance Order to Kinder Morgan Energy Partners, L.P. Please refer to the *Proposed Compliance Order*, which is enclosed and made a part of this Notice.

Response to this Notice

Enclosed as part of this Notice is a document entitled *Response Options for Pipeline Operators in Compliance Proceedings*. Please refer to this document and note the response options. Be advised that all material you submit in response to this enforcement action is subject to being made publicly available. If you believe that any portion of your responsive material qualifies for confidential treatment under 5 U.S.C. 552(b), along with the complete original document you must provide a second copy of the document with the portions you believe qualify for confidential treatment redacted and an explanation of why you believe the redacted information qualifies for confidential treatment under 5 U.S.C. 552(b). If you do not respond within 30 days of receipt of this Notice, this constitutes a waiver of your right to contest the allegations in this Notice and authorizes the Associate Administrator for Pipeline Safety to find facts as alleged in this Notice without further notice to you and to issue a Final Order.

In your correspondence on this matter, please refer to **CPF 3-2012-1003** and for each document you submit, please provide a copy in electronic format whenever possible.

Sincerely,

David Barrett
Director, Central Region
Pipeline and Hazardous Materials Safety Administration

Enclosures: *Proposed Compliance Order*
Response Options for Pipeline Operators in Compliance Proceedings

PROPOSED COMPLIANCE ORDER

Pursuant to 49 United States Code § 60118, the Pipeline and Hazardous Materials Safety Administration (PHMSA) proposes to issue to Kinder Morgan Energy Partners, L.P. a Compliance Order incorporating the following remedial requirements to ensure the compliance of Rockies Express Pipeline LLC with the pipeline safety regulations:

1. In regard to Item Numbers 3 and 8 of the Notice pertaining to the quality of girth weld radiographs and to Item Numbers 4 and 6 pertaining to girth weld defects; there is a significant potential that girth weld defects remain in the pipeline, either as a result of inadequate radiography or from delayed cracking that was not identified during girth weld remediation activities. Given the threat to pipeline integrity that any remaining girth weld defects might represent to REX West, the magnetic flux leakage in-line inspections that KM runs in accordance with conditions 37 and 38 of the Waiver shall include an analysis for girth weld defects.

2. KM shall submit a plan and schedule for completing the above actions within 45 days of receiving a Final Order in this matter.

3. It is requested (not mandated) that KM maintain documentation of the safety improvement costs associated with fulfilling this Compliance Order and submit the total to David Barrett, Director, Central Region, Pipeline and Hazardous Materials Safety Administration. It is requested that these costs be reported in two categories: 1) total cost associated with preparation/revision of plans, procedures, studies and analyses, and 2) total cost associated with replacements, additions and other changes to pipeline infrastructure.