



U.S. Department
of Transportation

**Pipeline and
Hazardous Materials Safety
Administration**

8701 South Gessner, Suite 1110
Houston, TX 77074

**NOTICE OF PROBABLE VIOLATION
and
PROPOSED COMPLIANCE ORDER**

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

May 29, 2012

Mr. Charles Fox
Vice President of Operations
Kinder Morgan CO2
500 Dallas, Suite 1000
Houston, TX 77002

CPF 4-2012-5021

Dear Mr. Fox:

In November 2011, a representative of the Pipeline and Hazardous Materials Safety Administration (PHMSA) pursuant to Chapter 601 of 49 United States Code inspected your Cortez CO2 pipeline system across Texas, New Mexico, and Colorado.

As a result of the inspection, 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 violation(s) are:

- 1. §195.571 What criteria must I use to determine the adequacy of cathodic protection?**

Cathodic protection required by this Subpart must comply with one or more of the applicable criteria and other considerations for cathodic protection contained in paragraphs 6.2 and 6.3 of NACE SP 0169 (incorporated by reference, see § 195.3).

Kinder Morgan CO2 (KMCO2) failed to ensure that all buried piping had adequate Cathodic Protection (CP) as required by NACE SP 0169 (version 2007); specifically at Blanco Station, the CP on the station bypass piping was found to be inadequate.

Based on location descriptions from the annual CP surveys and observations made by PHMSA staff it appeared the station CP levels were recorded only at the station bypass check valve (Identified as the Station Loop Line), and outside the isolating unions at the mainline block valves. PHMSA staff identified that KMCO2 was using the -850 mV (-0.850V) or the “IR free” polarized potential criteria to evaluate CP at all locations at this station in accordance with NACE SP 0169 section 6.2.2.1.2.

The CP at Blanco station was evaluated and found to be inadequate on the bypass piping as CP levels appeared to be below the calculated ON criteria that would yield an -850 mV IR free potential. PHMSA staff then had KMCO2 personnel conduct an interrupted CP survey to determine the IR free potential. Per KM procedure, the rectifier was interrupted on a 4 second on 1 second off interval and portions of the station bypass line had IR free potentials as low as -640 mV.

PHMSA learned the station piping was electrically isolated from the mainline with buried isolation unions and that during a 2008 construction project the rectifier lead cable to the station piping had been cut. When PHMSA staff observed the configuration of the electrical connections at a rectifier junction box, it was apparent that the station bypass piping was electrically disconnected. The evidence indicates the bypass piping has inadequate CP and that the only current making it to the station bypass piping was stray cathodic current.

PHMSA staff asked KMCO2 personnel to investigate further and take mitigative actions, as well as identify on all stations where similar electrically discontinuous station piping could exist and ensure that all buried pipe has adequate CP applied.

Immediately after identifying the inadequate CP during the audit, KMCO2 personnel bonded the upstream and downstream pipeline cables making the entire system “electrically continuous.” Approximately one week after finding the low CP on the station bypass piping at Blanco Station, KMCO2 personnel added a rectifier and conventional ground bed to ensure adequate CP on the station bypass piping. KMCO2 also investigated for this condition at all of their stations where similar conditions could occur and found that all other station piping had adequate CP and that this was an isolated occurrence.

2. §195.577 What must I do to alleviate interference currents?

(a) For pipelines exposed to stray currents, you must have a program to identify, test for, and minimize the detrimental effects of such currents.

Kinder Morgan CO2 failed to test for stray currents and minimize the detrimental effects of stray currents on a portion of the Cortez system. Locations were identified along this segment where stray currents could cause detrimental effects on the pipeline, as portions paralleled high voltage Alternating Current “AC” electrical corridors. KMCO2 personnel clarified that to test for AC induced stray currents, AC reads are taken during a five (5) year Close Interval Survey “CIS.” KMCO2 then produced segment surveys performed in the past 5 years for the entirety of the Cortez CO2 Pipeline system. PHMSA staff noted in the Poquita Station to Allred Station that during August 2007 CIS that there were no AC reads listed. KMCO2 confirmed that high voltage electrical transmission lines paralleled the right-of-way and that “AC reads were not

taken because their devices didn't have the correct version of the software installed at the time to record AC reads."

Kinder Morgan CO2 failed to minimize the detrimental effects of stray currents identified in the Close Interval Survey of the Cortez to Blanco station line segment. To address AC induced stray current KMCO2 was using Procedure L-O&M 903 "External Corrosion Control for Buried or Submerged Pipelines." Section 3.9 "AC Voltage and Fault Current Mitigation" states:

"Pipelines operating in the same corridor or near electric high voltage transmission lines often experience high voltage levels due to a combination of conditions. These conditions can occur both during steady AC transmission system operation as well as during fault conditions. Take remedial measures to prevent the voltage level from exceeding 15 VAC-RMS."

During a follow-up meeting in February 2012, KMCO2 personnel provided PHMSA with the "Interrupted Survey Cortez CO2 Line Cortez Station to Blanco" dated May-June 2009. The CIS graphs provided did not adequately show the AC reads claimed by KMCO2 and an electronic spreadsheet was then reviewed. PHMSA staff identified approximately 109 (One hundred and nine) instances above the criteria of 15 VAC-RMS where mitigation should have taken place.

KMCO2 stated "The high reads were disregarded because they were more than likely rocks or high resistivity soils." When PHMSA staff asked how this was confirmed, KMCO2 personnel stated "They were just errant reads." Testing for AC induced stray current is crucial to ensure that no hazardous conditions exist that would impact the integrity of the pipeline. AC Values that are above 15VAC-RMS not only pose a corrosion hazard to the integrity of the pipeline, they pose a hazard to the public and KMCO2 personnel. Dismissing high values without sound engineering judgment and verification presents a significant safety risk to life and property.

The evidence demonstrates that the operator violated § 195.577 by failing to test for stray currents where they were exposed to such currents. In the event that such inspections were, in fact, performed, the evidence demonstrates the operator violated §195.589(c) by failing to maintain a record of each inspection and test required by this subpart for at least 5 years in sufficient detail to demonstrate the adequacy of corrosion control measures or that corrosion requiring control measures does not exist.

Proposed Compliance Order

With respect to items 1 and 2 pursuant to 49 United States Code § 60118, the Pipeline and Hazardous Materials Safety Administration proposes to issue a Compliance Order to Kinder Morgan CO2. 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 4-2012-5021** and for each document you submit, please provide a copy in electronic format whenever possible.

Sincerely,



R. M. Seeley
Director, Southwest 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 CO2 a Compliance Order incorporating the following remedial requirements to ensure the compliance of Kinder Morgan CO2 with the pipeline safety regulations:

1. In regard to Item Number 1 of the Notice pertaining to failing to maintain adequate cathodic protection on the Blanco Station bypass piping for a period of 3 years, Kinder Morgan must perform a review and assessment to identify any impact the lack of CP protection has had on their piping. KMCO2 shall remediate any deficiencies found.
2. In regard to Item Number 2 of the Notice pertaining to failing to test for interference currents along the pipeline from Poquita to Allred stations Kinder Morgan CO2 shall:
 - Perform a survey to test for and evaluate AC interference currents that may be induced on the Poquita to Allred station pipeline segment, and address/remediate any areas of high AC inductance as referred to in KMCO2 Protocol 14.
 - Survey the Cortez Station to Blanco station line segment in accordance with KMCO2 IMP Protocol 14 and properly address any results requiring mitigation.
 - Develop a plan to survey the remaining portions of the Cortez system in accordance with the KMCO2 Protocol 14.
3. Submit to the Region Director, Southwest Region, Pipeline and Hazardous Materials Administration, 8701 South Gessner, Suite 1110, Houston, Texas 77074:
 - Results of surveys and plans, with time tables, must be submitted to PHMSA within 30 days following receipt of the Final Order.
 - All items shall be completed within 365 days following the receipt of the Final Order.
4. It is requested (not mandated) that KMCO2 maintain documentation of the safety improvement costs associated with fulfilling this Compliance Order and submit the total to R. M. Seeley, Director, Southwest 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.