Todd I. Tullio
Manager, Regulatory Compliance
Phillips 66 Pipeline LLC
3010 Briarpark Drive
PWC 7210-07
Houston, TX 77042
Phone 832.765.1636
Fax 832.765.0126

November 4, 2013

Chris Hoidal, Director Western Region
Pipeline Hazardous Materials Safety Administration
12300 West Dakota Ave, Suite 110
Lakewood, CO 80228

RE: CPF 5-2013-5013M

Dear Mr. Hoidal:

This letter is in response to your letter dated September 3, 2012 regarding the Notice of Amendment (NOA) received by Phillips 66 Pipeline LLC (P66PL) on September 9, 2012. Between July 2012 and October 2012, representatives of the Pipeline and Hazardous Materials Safety Administration (PHMSA), inspected our Operations and Maintenance (O&M) procedures and records of the Powder River and Borger-to- Denver systems at our headquarters in Houston, Texas.

On the basis of your inspection, PHMSA identified some inadequacies within P66PL's plans and procedures, as described below. P66PL's responses to the noted inadequacies are below. We have attached supporting documentation along with procedure updates for your review as well.

PHMSA Item 1
§ 195.402 Procedural manual for operations, maintenance, and emergencies.

(a) General. Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response. For transmission lines, the manual must also include procedures for handling abnormal operations. This manual must be reviewed and updated by the operator at intervals not exceeding 15 months, but at least once each calendar year. This manual must be prepared before operations of a pipeline system commence. Appropriate parts of the manual must be kept at locations where operations and maintenance activities are conducted.

Phillips 66 Pipeline LLC (P66) did not establish adequate written procedures for non-destructive testing and inspecting, specifically the procedures for conducting "Phased Array" inspections. During the review of the integrity assessment of the Borger-to-Denver system, it was determined that Phased Array is one of the primary NDT

methods that will be used to detect pipeline or component failures, e.g. cracks or flaws. However, P66 did not include this method in the Operation and Maintenance (O&M) manual required by 195.402. Therefore, P66'S O&M procedure is inadequate because they did not clearly describe how the method will be used to meet the requirement of section 195.402(c)(3).

P66PL Response:

P66PL has developed procedure MPR-4407 Guidelines for Performing Phased Array Ultrasonic Techniques. This procedure will address the minimum steps required for a 3rd party qualified individual to follow when performing phased array testing for P66PL. This qualified individual can follow their internal procedure as long as it meets the minimum requirements found in MPR-4407.

By submitting this response, P66PL does not waive any right, privilege, or objection that it may have in any separate or subsequent proceeding related in any way to the information provided in this response.

Again, we want to assure the Western Region office that P66PL takes these field inspections seriously and our intent is to meet all applicable regulations and requirement for the safe operation of our pipelines. Should you or anyone on your staff have questions in regards to the information provided, please feel free to call or e-mail me.

Sincerely,

Todd Tullio
Manager, Regulatory Compliance

CC: C. Hoidal
D. Barney
V. Williams
H. Hguyen
T. Larson

Phillips 66
Pipeline LLC

P66PL-MPR-4407

Guidelines for Performing Phased Array Ultrasonic Techniques

Rev. 0 – Effective Date: 2013-11-01

Document Summary

This standard provides guidance on performing Phased Array Ultrasonic inspections for Phillips 66 Pipeline LLC.

Disclaimer

This standard is subject to revision at any time and will be reviewed according to the procedures of Phillips 66 Pipeline LLC and reaffirmed, revised, or withdrawn. Suggestions for improvement of this standard are welcome. They should be sent to the Standardization Engineer.

Uncontrolled unless viewed via Livelink

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Table of Contents

1. Scope, Purpose, and Application

1.1 Scope

This standard provides the minimum guidelines that should be followed when performing Phased Array Ultrasonic Techniques when performing anomaly evaluations within Phillips 66 Pipeline LLC. This document covers the following key areas:

a. Verification Imaging
b. Detection
c. Length Sizing & Radial Sizing of Planar Anomalies

1.2 Purpose

This standard provides the minimum guidelines that a qualified contractor shall follow when performing phased array ultrasonic inspection for Phillips 66 Pipeline LLC.

1.3 Application

This standard applies to phased array ultrasonic inspections done for Phillips 66 Pipeline LLC.

2. References

The listed documents are not by reference part of this procedure. Reference is made only to the paragraph or section listed and not the entire document. The industry references as incorporated in these procedures are the latest version, revision, or edition except where DOT has incorporated an earlier version, revision, or edition as found in Subpart A of 49 CFR 195.3, Matter incorporated by Reference.

2.1 International, National and Industry References

API 1160	Managing System Integrity for Hazardous Liquid Pipelines
API Std 1163	In-line Inspection Systems Qualification Standard
ASME V	Boiler & Pressure Vessel Code.
ASME B31.4	Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids

2.2 Company References

TSD-3008	Evaluation/Repair of External/Internal Pipeline Defects and Anomalies

3. Definitions

See P66 Glossary and Terminology in Wiki66.

4. Requirements

4.1. Operator/Personal Qualifications (OQ)

4.1.1 Covered Tasks

a. Personnel conducting this maintenance procedure shall possess, at a minimum, Level II or higher.

b. Personnel performing these examinations shall possess the appropriate Operator Qualifications (OQ) certifications for the tasks performed.

4.1.2 Abnormal Operating Conditions

a. The following are the abnormal operating conditions (AOCs) that could be encountered while performing this procedure:

Physical damage of a pipeline facility or component

b. The appropriate response to the AOC can be found in Appendix E Abnormal Operating Conditions (AOCs) of the P66PL Operator Qualification Plan.

4.2. Training

a. Personnel may be required by the owner or operator to demonstrate the ability of this procedure to detect flaws of concern and their ability to correctly interpret the results.

b. Personnel have training and experience in the operation of the equipment and techniques; however, their training may be limited to actual job responsibilities (i.e., data acquisition, data analysis).

5. Safety

5.1. Follow all company safety precautions when on site for evaluation of the conditions or conducting testing and inspections.

5.2. The following safety precautions may be required depending upon site conditions.

5.2.1 Excavations

Excavations and other work shall conform to the applicable jurisdictional safety standards.

NOTE: For example. A pipeline ditch bottom shall provide stable footing and, if required, dry conditions shall be provided for the technician to work underneath the pipe.

5.2.2 Platforms

If a platform is required to access a component, the platform shall conform to all company safety standards.

5.2.3 Illumination

Adequate illumination shall be set up in order to safely perform the task and to interpret equipment displays.

NOTE: In outdoor situations additional shading such as tents, umbrellas, or screens may be required in order to properly interpret equipment displays.

6. Procedure

6.1. Surface Preparation:

6.1.1. Coating shall be removed well beyond the area to be examined.

6.1.2. Surfaces where coating has been removed in accordance with the above shall be further prepared for inspection by abrasive blast cleaning.

6.2. Equipment:

6.2.1 Flaw Detector:

a. Phased Array capable of Acquiring and Storing digital Phased Array Data.

NOTE: Setup for Flaw Detector equipment being used for Phased Array:
- **a.** Frequency: 2 to 10 MHz
- **b.** PRF: Optimum
- **c.** Reject: 0
- **d.** Scan Type: Sectorial and/or Linear arrays
- **e.** Angle Step: As determined by acceptable calibrations

6.2.2 Transducers for Encoded Phased Array:
- **a.** Phased Array 5 to10MHz.
- **b.** Number of elements for Angle Beam Wedges determined by acceptation calibration/qualification.

NOTE: Setup for Transducers
- **a.** Type: Phased Array
- **b.** Mode: Longitudinal or Shear
- **c.** Angle: 35° to 85°
- **d.** Frequency: 2.0 to 10 MHz
- **e.** Focus: Determined by area of interest.
- **f.** Bandwidth: 30% or more

6.3. Encoders:

6.3.1 A commercially available encoding unit compatible with the phased array flaw detector.

NOTE: Calibration of the encoder **must** be verified prior to the examination **and** verified on the component during the encoded scan.

6.4. Phased Array Calibration

6.4.1 Initial:
- **a.** Sweep: Obtain linear screen for adequate depth.
- **b.** Screen range calibration: determine by technique.

6.4.2 Sensitivity:
- **a.** Reflector depth: equivalent to the thickness of the material being examined, ± any transfer values.

6.4.3 Calibration Verification:
- **a.** Calibrations shall be verified at the start and at the conclusion of examinations each day.

6.5. Scanning Procedure:

NOTE: All scans **shall** be carried out from both sides of the weld.

6.5.1 Prior to scan: a scanning length shall be determined which provides adequate overlap to verify the entire indication area has been imaged.

6.5.2 During the scan: encoder calibration must be verified by physical measurement (expected end point is achieved as expected).

6.5.3 Scans which do not achieve the expected end point shall be re-scanned until proper coverage is achieved.

NOTE: Unexpected results may require additional surface conditioning or re-calibration of the encoder.

6.5.4 Ensure the proper coverage has been achieved to image the indication area.

NOTE: Depending on the indication depth, adjustment to the magnetic strip may be required to properly image the anomaly

6.6 Encoded Phased Array Data Acquisition:

6.6.1 Determine the exit point of the transducer to the weld ID centerline based upon the radial depth of the indication, and heat affected zone.

6.6.2 Scan laterally for at least 2 inches on both sides of the ILI call area or imaged indication.

6.6.3 Ensure the proper coverage has been achieved to image the indication area.

NOTE: Depending on the indication depth, adjustment of the scan pattern may be required to properly image the anomaly area.

7. Documentation

7.1 Evaluation, Interpretation and Recording of Results:

7.1.1 Data Recording

The minimum anomaly information required is:

a. The axial anomalies start point in feet and decimal feet, referenced to the upstream girth weld or reference point.

b. TDC location. The circumferential anomaly location in o'clock units, from Top Dead Center. The clock shall be referenced looking downstream.

c. Axial length and circumferential width

d. Anomaly depth in percent of wall thickness rounded up to the nearest 5%.

e. Radial Zone(s) affected by the anomaly,(ID, Middle, OD).

f. Is anomaly Planar or Volumetric?

g. Is anomaly Crack-like?

h. Does the anomaly break the ID or OD surface?

i. Interpretation of the anomaly type.

7.2 Reporting

a. A verbal report may be required at the completion of the examination.

b. Each report shall be accompanied by a graphical representation of the results.

(End of Document)

Revision/Approval Log

Revision/Approval Log				
Rev. No.	**Date**	**Action**	**Revision by**	**Approval by**
0	2013-11-01	Initial issue.	Dave Wilson	Matt Nelson