American Gas Association

March 6, 2008

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Re: Use of External Corrosion Direct Assessment on Cased Pipelines for Completion of Baseline Assessments

Dear Gentlemen:

Natural gas pipeline operators have been working towards completion of transmission pipeline integrity baseline assessments as required by 49 CFR 192 Subpart O, initially published by DOT in December 2003. Although the industry has made substantial progress in completing these assessments, an important issue has emerged in relation to integrity assessments for pipe segments in casings. Specifically, the issue of how unpiggable pipe within a casing can be assessed under the transmission pipeline integrity management rulemaking.

The transmission pipeline integrity regulations state that operators are to assess the integrity of the line pipe in each covered segment using at least one of the following technologies: Internal inspection, pressure testing, direct assessment or other technology that an operator demonstrates can provide an equivalent understanding of the condition of the line pipe. For many sections of transmission pipe operated by distribution operators, the pipe is not piggable and pressure testing is not a viable option due to the ramifications of gas supply interruptions and alternative supply considerations. It has been difficult for intrastate transmission operations to obtain state approval for "other technologies." This leaves direct assessment as the primary method used to assess unpiggable cased pipe segments.

The NACE consensus standard RP0502-2002, *"External Corrosion Direct Assessment Methodology"* is the standard used to conduct external corrosion direct assessments (ECDA), and DOT codified the standard into its transmission integrity regulations.[1] NACE RP0502 includes a table on ECDA tool selection, Table 2, which includes cased piping (see attached). In 2007, NACE provided clarification to RP0502-2002's Table 2 to affirm that RP0502 can be used to assess cased pipe (see attached). NACE stated, *"NACE*

[1] 68 FR 69777, December 15, 2003 , 69 FR 2307, December 22, 2003; 69 FR 18227, April 6, 2004; 71 FR 33402, June 8, 2006

Standard RP0502-2002 is intended to be used to assess the integrity of buried pipelines including cased pipe. ECDA is acceptable for assessing casings for the threat of external corrosion but the operator must provide an acceptable engineering assessment. The engineering assessment shall include considerations of method of construction, environment, cathodic protection and service history, evaluation of the proper above ground inspection tools that will be used for the specific case, and possible remedial actions."

PHMSA acknowledged this clarification to the NACE standard in its letter to AGA dated October 25, 2007 (attached). In the letter, PHMSA stated *"we [PHMSA] also recognize that NACE has recently clarified RP0502-2002, 'External Corrosion Direct Assessment Methodology' so that industry understands ECDA can be applied to cased pipe if the operator can provide a properly supported engineering procedure(s) and implementation plan(s) addressing cased pipeline life-cycle threats and their assessments."* After receiving this letter, AGA believed that PHMSA and AGA held a similar understanding that it was incumbent for any operator using ECDA on cased pipe segments to justify the validity of its procedure.

The central issue is whether NACE RP0502 requires Guided Wave Ultrasonics to always be used as an ECDA tool for cased pipelines. In a recent public meeting, a PHMSA representative indicated that Guided Wave Ultrasonics must be used to assess cased pipe when an operator is utilizing ECDA. NACE RP0502's Table 2 does not list Guided Wave as a tool for ECDA. The clarification NACE provided does not require the use of Guided Wave Ultrasonics when assessing cased pipe. The NACE standard does state:

> *3.4.3.1 The techniques included in Table 2 are not intended to illustrate the only inspection methods that are applicable or the capabilities of these inspections methods under all conditions. Rather, they are listed as representative examples of the types of indirect inspection methods available for an ECDA program. Other indirect inspection methods can and should be used as required by unique situations along a pipeline as new technologies are developed. In addition, the reader is cautioned to assess the capabilities of any method independently before using it in an ECDA program.*

AGA believes the ECDA standard has been very effective in providing methods to assess natural gas transmission pipelines and thereby enhancing public safety. PHMSA can initiate the rulemaking process, or pipeline operators can petition PHMSA to amend the relevant sections of 49 CFR Subpart O, if there are concerns or issues with the consensus standard. Otherwise, operators and regulators are bound by the existing rule.

The key to integrity assessments by indirect methods is to follow the full technical process that requires data collection, planning, tool selection, indirect inspections, data indication and classification, and comparison of indications found to resolve discrepancies. Direct assessment is an iterative process that depends on judging the validity of the assessment as required by the NACE standard Section 6.4 *Assessment of ECDA Effectiveness*. Operators have to complete assessments and then judge the results. Regulatory actions cannot be based upon prospective opinions regarding what future assessments may produce.

It is AGA's opinion that the existing assessment process is working well. There are many safeguards for ensuring the effectiveness of assessments. Extensive auditing is being done by regulators, operators, and sometimes independent consultants. Because many of the methods employed are performance based it is reasonable for regulators to judge performance after the assessment is complete, rather than attempting to mandate which methods can be employed even before the assessment begins.

Existing Regulations for Cased Pipe Assessments

Cased pipeline segments were not given separate consideration by the stakeholders in 2001 and 2002 when the integrity management rule was being developed by DOT. Low stress pipelines and plastic transmission pipelines were identified and integrity management procedures were created that diverged from procedures for "standard" high stress steel pipe. DOT, operators and the public did not examine what would be considered effective and practicable assessments for cased pipe segments that are not conducive to either in-line-inspection or pressure testing. The cost benefit analysis submitted to the OMB acknowledged the regulatory modifications for low stress and plastic pipe, but included no extraordinary cost for assessment of cased pipelines. The casing of transmission pipelines provides an extra layer of protection from excavation damage and outside forces. The existing CFER circle analysis method does not take into account the extra protection provided by the casing.[2] These omissions may be moot issues because operators have already applied the conservative HCA determinations used for traditional line pipe and successfully applied ECDA as required by the NACE standard.

Through incorporation by reference, PHMSA establishes NACE RP0502-2002 and ASME/ANSI B31.8S as the requirements which operators must follow in using ECDA. (§ 192.923 *How is direct assessment used and for what threats* and § 192.925 *What are the requirements for using External Corrosion Direct Assessment (ECDA)?*)

The central issue at hand is whether the NACE standard requires that Guided Wave Ultrasonics always be used as an ECDA tool for cased pipelines. Guided Wave Ultrasonics is merely an "other indirect inspection method" that the NACE standard gave operators the flexibility to employ, and which in the last five years has become better understood and more available for use. AGA acknowledges that while the NACE standard does not list Guided Wave Ultrasonics as an acceptable method, it is an important tool for operators to consider incorporating within their overall ECDA procedure for cased segments. However, AGA finds no legal basis for 49 CFR 192.925 and the referenced NACE standard to be construed as requiring that Guided Wave Ultrasonics be utilized on every single cased pipe which is not otherwise assessed by in-line inspection or pressure test. NACE RP0502 expressly permits other tools to be used for cased pipe assessments.

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[2] AGA believes it is intuitively obvious that the potential impact area for cased pipelines will be much smaller on cased pipe

ECDA on Cased Pipe

ECDA is inherently a data-intensive sampling process that is designed to lead the operator to examine (and remediate, if necessary) the locations of greatest risk of external corrosion. The success of ECDA is based upon the quality of data collected from the indirect inspection tools chosen by the operator. The tools used by an operator for a particular segment are based upon a variety of factors, including pipe characteristics, pipe coating characteristics, terrain, field conditions, etc.

An ECDA process for cased pipelines is a structured 4-step process which seeks to identify areas where external corrosion may have occurred or may be occurring, just like the ECDA process for buried uncased pipelines. Fundamentally, the situations which can result in external corrosion on cased pipelines are: 1) metallic contact between pipeline and casing; 2) electrolytic contact between pipeline and casing; and 3) atmospheric corrosion on pipeline in casing.

With respect to cased pipelines, the effectiveness of traditional corrosion detection tools may be diminished, but not eliminated in providing valuable information on the cathodic condition of the carrier pipe. For instance, Close-Interval Survey (CIS), Pipeline Current Mapper (PCM/PCM A-Frame), and Current Voltage Gradient Surveys (DCVG/ACVG) may be useful in determining the presence of a short, either metallic or electrolytic, between carrier pipe and casing. In some instances, the tools can yield information on possible coating anomalies on the carrier pipe. Technical studies have been completed by operators and research organizations in this particular area, such as "*External Corrosion Probability Assessment for Carrier Pipes Inside Casings*" published by Gas Research Institute in 2005. Additional research is being conducted on assessment techniques used for cased pipelines, and AGA encourages PHMSA to become involved in these efforts.

For operators with multiple cased pipelines in their IMP program, a risk-based approach to support an ECDA procedure is justified. An operator might consider incorporating the use of Guided Wave Ultrasonics on those cased segments with highest risk. Subject matter experts recognize that several factors would influence a cased pipeline's risk profile, such as:

- Condition and CP history of carrier pipe, including pipe coating
- Condition, length and type of casing construction
- Presence of metallic short between casing and carrier pipe
- Presence of electrolyte between casing and carrier pipe
- Leak before rupture considerations of pipe

Economic Analysis

To use Guided Wave Ultrasonics, an operator must excavate the end(s) of the casing and get direct access in order to strap the collar onto the pipe. It should be noted that a high percentage of cased pipelines are not considered accessible due to their location. Cased pipelines are generally found crossing major roadways, waterways, railroads, bridges, etc., and are frequently in congested areas where large equipment cannot be utilized. In considering the feasibility of excavating the end of a cased pipe, one must realize there is a special reason why the casing was originally installed by the operator.

Other options such as pressure testing or a tethered pig installation are generally infeasible due to cost, safety, and/or gas supply considerations. In 2007 AGA conducted a comprehensive survey for its members on integrity assessments of cased pipe. Based upon the results of this survey:

- The average cost for excavating both ends of a pipe in casing is conservatively estimated at $20,000. This figure is the cost of excavation only and does **not** include the actual cost of performing Guided Wave Ultrasonics.

- Of the 26 companies responding to the survey, 21 indicated that of their covered pipelines under the Transmission IMP rule, only 2% or less are within a casing (using mileage as the basis). Recent discussions with AGA members indicate that many operators are expending significant resources in an attempt to address this small percent of pipe.

- AGA estimates that its members operate a total of 8,000 miles of intrastate pipelines falling under the transmission IMP Rule. Based upon the responses from the survey, AGA estimates that its members have approximately 9,300 cased pipe segments subject to Subpart O regulations. A high percentage of these cased pipe segments cannot be inspected by ILI or pressure test, and would have to be assessed by ECDA presuming the operator is not using "Other Technology".

Cost is a consideration which cannot be excluded when an operator is formulating its strategy to complete all of its integrity assessments. When conceived, the transmission IMP rule embodied a risk-based approach enabling operators and regulators to focus resources on pipelines which lie in High Consequence Areas (HCA) and pose the greatest risk to the public. This made sense in all regulatory and business aspects.

Requiring Guided Wave Ultrasonics as a tool on every cased segment as part of ECDA plan has two major obstacles. First, there is no regulatory requirement to mandate the use of the assessment method. Second, amending the rule to make the requirement mandatory would require submitting a revised or new cost benefit analysis to the Office of Management and Budget. The OMB review of the transmission integrity management rule did not include the mandatory use of Guide Wave Ultrasonics on thousands of cased pipe segments[3].

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[3] U.S. DOT/RSPA - Final Regulatory Evaluation - Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines) Docket ID PHMSA-RSPA-2000-7666-0356

Conclusion

AGA is of the belief that cased pipelines are safe. The overall failure risk is low for pipeline segments in casings as time-independent threats are largely eliminated, including outside force damage and third-party excavation. Since 1970, only six reportable incidents have occurred which have involved pipelines in casings - - two of these were attributed to corrosion and one is still under investigation.

AGA finds no legal basis for 49 CFR 192.925 and the referenced NACE standard to be construed that Guided Wave Ultrasonics must be utilized on every single cased pipe which is not otherwise assessed by in-line inspection or pressure test. There are many safeguards for ensuring the effectiveness of assessments. The safeguards are inherent in the NACE standard and 49 CFR 192.925, as they both expressly require post assessment and continuing evaluation of the assessment.

AGA and its members would welcome the opportunity to engage in further discussions on this matter with you and members of your staff. AGA believes a meeting focusing on the technical aspects of operators' ECDA procedures on cased pipe may serve to clarify some of the points made in this letter.

Respectfully submitted,

AMERICAN GAS ASSOCIATION

By: ______________________________
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3.4.2 The "indirect inspection tool selection" column in Table 1 includes items that should be considered when selecting indirect inspection tools. Those items that are shaded are most important for tool selection purposes.

3.4.3 Table 2 provides additional guidance on selecting indirect inspection tools and specifically addresses conditions under which some indirect inspection tools may not be practical or reliable. Refer to Appendix A, Paragraphs A2 to A2.1.8, for additional information on appropriate safety pre-cautions that should be observed when making electrical measurements.

Table 2: ECDA Tool Selection Matrix (A)

CONDITIONS	Close-Interval Survey (CIS)	Current Voltage Gradient Surveys (ACVG and DCVG)	Pearson[7]	Electro-magnetic	AC Current Attenuation Surveys
Coating holidays	2	1, 2	2	2	1, 2
Anodic zones on bare pipe	2	3	3	3	3
Near river or water crossing	2	3	3	2	2
Under frozen ground	3	3	3	2	1, 2
Stray currents	2	1, 2	2	2	1, 2
Shielded corrosion activity	3	3	3	3	3
Adjacent metallic structures	2	1, 2	3	2	1, 2
Near parallel pipelines	2	1, 2	3	2	1, 2
Under high-voltage alternating current (HVAC) overhead electric transmission lines	2	1, 2	2	3	3
Shorted casing	2	2	2	2	2
Under paved roads	3	3	3	2	1, 2
Uncased crossing	2	1, 2	2	2	1, 2
Cased piping	3	3	3	3	3
At deep burial locations	2	2	2	2	2
Wetlands (limited)	2	1, 2	2	2	1, 2
Rocky terrain/rock ledges/rock backfill	3	3	3	2	2

(A) **Limitations and Detection Capabilities:** All survey methods are limited in sensitivity to the type and makeup of the soil, presence of rock and rock ledges, type of coating such as high dielectric tapes, construction practices, interference currents, other structures, etc. At least two or more survey methods may be needed to obtain desired results and confidence levels required.

Shielding by Disbonded Coating: None of these survey tools is capable of detecting coating conditions that exhibit no electrically continuous pathway to the soil. If there is an electrically continuous pathway to the soil, such as through a small holiday or orifice, tools such as DCVG or electromagnetic methods may detect these defect areas. This comment pertains to only one type of shielding from disbonded coatings. Current shielding, which may or may not be detectable with the indirect inspection methods listed, can also occur from other metallic structures and from geological conditions.

Pipe Depths: All of the survey tools are sensitive in the detection of coating holidays when pipe burials exceed normal depths. Field conditions and terrain may affect depth ranges and detection sensitivity.

KEY

1 = Applicable: Small coating holidays (isolated and typically < 600 mm^2 [1 $in.^2$]) and conditions that do not cause fluctuations in CP potentials under normal operating conditions.
2 = Applicable: Large coating holidays (isolated or continuous) or conditions that cause fluctuations in CP potentials under normal operating conditions.
3 = Not Applicable: Not applicable to this tool or not applicable to this tool without additional considerations.

3.4.3.1 The techniques included in Table 2 are not intended to illustrate the **only** inspection methods that are applicable or the capabilities of these inspection methods under all conditions. Rather, they are listed as representative examples of the types of indirect inspection methods available for an ECDA program. Other indirect inspection methods can and should be used as required by the unique situations along a pipeline or as new technologies are developed. In addition, the reader is cautioned to assess the capabilities of any method independently before using it in an ECDA program.

3.4.3.2 The pipeline operator does not have to use the same indirect inspection tools at all locations along the pipeline segment. Figure 3 demonstrates how the selection of indirect inspection tools may vary along a segment.

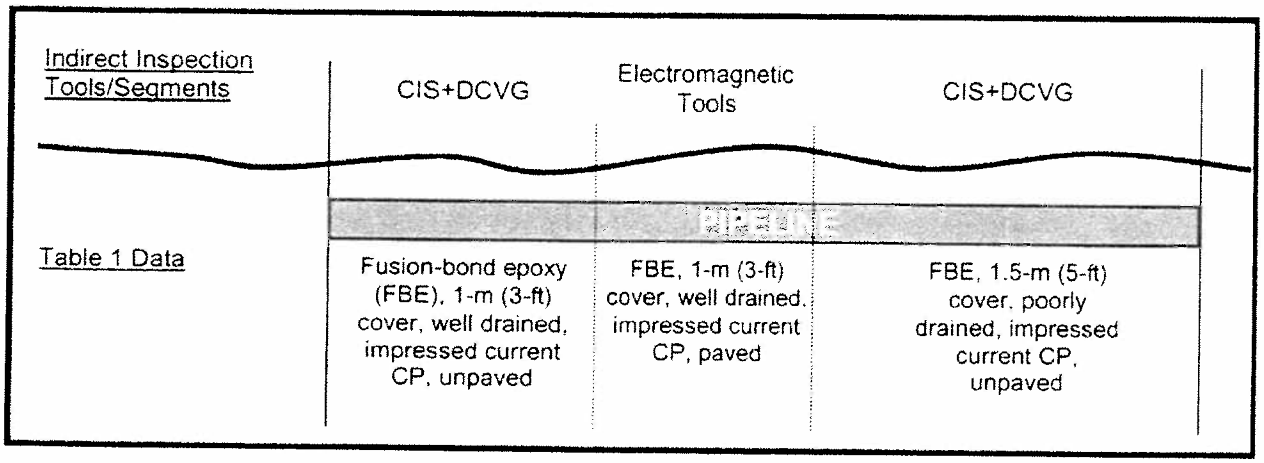

FIGURE 3: Example Selection of Indirect Inspection Tools

3.4.4 The pipeline operator must consider whether more than two indirect inspection tools are needed to detect corrosion activity reliably.

3.5 Identification of ECDA Regions

3.5.1 The pipeline operator shall analyze the data collected in the Pre-Assessment Step to identify ECDA regions.

3.5.1.1 The pipeline operator should define criteria for identifying ECDA regions.

3.5.1.1.1 An ECDA region is a portion of a pipeline segment that has similar physical characteristics, corrosion histories, expected future corrosion conditions, and that uses the same indirect inspection tools.

3.5.1.1.2 The pipeline operator should consider all conditions that could significantly affect external corrosion when defining criteria for ECDA regions. Tables 1 and 2 may be used as guidance in establishing ECDA regions.

3.5.1.2 The definitions of ECDA regions may be modified based on results from the Indirect Inspection Step and the Direct Examination Step. The definitions made at this point are preliminary and are expected to be fine tuned later in the ECDA process.

3.5.1.3 A single ECDA region does not need to be contiguous. That is, an ECDA region may be broken along the pipeline, for example, if similar conditions are encountered on either side of a river crossing.

3.5.1.4 All of the pipeline segments should be included in ECDA regions.

3.5.2 Figure 4 gives an example definition of ECDA regions for a given pipeline.

3.5.2.1 The pipeline operator defined five distinct sets of physical characteristics and histories.

3.5.2.2 Based on the choice of indirect inspection tools, the soil characteristics, and the previous history, the pipeline operator defined six ECDA regions. Note that one region, ECDA1, is not

NACE
INTERNATIONAL

May 18, 2007

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Dear Mr. Eastman:

A response team from Specific Technology Group (STG) 35 recently reviewed your inquiry on NACE Standard RP0502-2002, "External Corrosion Direct Assessment Methodology," at CORROSION/2007, and they provided the following response:

QUESTION:
Request for clarification of the intent of Note 3, Table 2, NACE Standard RP0502, "Pipeline External Corrosion Direct Assessment Methodology"

Issue: Confusion regarding the intent of the verbiage from #3 of the KEY listing under Table 2 in NACE Standard RP0502-2002 has led to some confusion about the application of the standard for the assessment of the integrity of cased pipelines.

Background: Over the last year I have been involved in numerous discussions with Pipeline and Hazardous Material Safety Administration (PHMSA), Operators, and industry technical professionals regarding the application of RP0502 for assessing the integrity of cased pipelines. Here is a quick summary of the more important aspects of these conversations.

- Key PHMSA personnel believe that RP0502 cannot be used for assessing the integrity of cased pipelines. They cite verbiage from #3 of the KEY listing under Table 2 as the reason for their assertion that the standard specifically states it is not applicable to cased pipelines.
- Per DOT Part 192.921, DA can be used to assess the integrity of gas transmission pipelines for the external, internal, and stress corrosion cracking integrity threats.
- Per DOT Part 192.921, DA must be performed in accordance with 192.923, 192.925, 192.927, and 192.929. These code sections basically require DA to be performed according to the requirements of ASME B31.8S and NACE Standard RP0502.
- RP0502 contains specific requirements when it is applied to cased crossings, including Table 1 requiring cased crossings to be a separate ECDA Region, in verbiage from #2 of the KEY listing under Table 2 for shorted casings (meaning the indirect inspection tools [IITs] are applicable), and in verbiage from #3 of the KEY listing under Table 2 for cased pipelines (meaning the IITs are not applicable without additional considerations).

Based on my understanding of the rule, ASME B31.8s, and NACE Standard RP0502, and my experience with pipeline integrity and corrosion engineering principles, the following is what I have concluded.

- The rule allows the use of DA (specifically ECDA for the external corrosion threat) for assessing the integrity of cased pipelines. PHMSA can exercise regulatory authority and express concern regarding specific protocols established by individual operators, but they do not have the ability to prevent the use of DA in assessing the integrity of cased crossings.
- Verbiage from #3 of the KEY listing under Table 2 in NACE Standard RP0502 was never intended to preclude the use of applying the standard to assess the integrity of cased pipelines for external corrosion. This same note was used for other applications of the IITs, such as the use of close-interval survey under paved roads or the use of the direct current voltage gradient survey method near rivers or water crossings.
- I concur with numerous original authors of the standard that the note was intended to alert the user that special procedural protocols need to be considered for the application since additional complexity and potential limitations exist when applying the IITs to the referenced applications.
- I share the technical consensus that IITs can be successfully used in many situations to identify conditions where a potential corrosive condition may exist on a cased pipeline. In its simplicity, tools exist that have the ability to determine whether the 4 elements of a corrosion cell potentially exist, including the presence of an anode, cathode, metallic and electrolytic path.
- As stated in RP0502, ECDA is a 4-step structured process that is "intended to improve safety by assessing and reducing the impact of external corrosion on pipeline integrity."

In my recent discussions with key PHMSA technical personnel, as well as with key leaders in the technical community, there is agreement that RP0502 may be used by operators to establish procedural protocols to use the ECDA process to assess the integrity of cased pipelines. Additionally, there is agreement that verbiage from #3 of the KEY listing under Table 2 was never intended to preclude the application of the standard to cased pipelines.

Proposed Action: I respectfully request the committee (TG 041) to consider issuing a clarification of verbiage from #3 of the KEY listing under Table 2.

Result of Clarification: by issuing this clarification, confusion regarding the intent of verbiage from #3 of the KEY listing under Table 2 of RP0502 will no longer exist.

It will allow operators, regulators, and the technical community to focus on establishing test practices in applying the standard to assess the integrity of cased pipelines for the external corrosion threat.

ANSWER:
Based on our understanding of NACE Standard RP0502, ASME B31.8S, and our own experience with corrosion and pipeline integrity-related issues, we suggest including the following clarification of verbiage from #3 of the KEY listing under Table 2 and in Table 1 in the section on construction-related data elements of the above-mentioned standard:

a) *The external corrosion direct assessment (ECDA) process described in NACE Standard RP0502 is a structural process that is intended to* *improve safety by assessing and reducing the impact of external corrosion on pipeline integrity. ECDA is a continuous improvement process targeted to identify and address locations where corrosion activity has occurred, is occurring, or may occur.*

b) *NACE Standard RP0502-2002, "Pipeline External Corrosion Direct Assessment Methodology," is intended to be used to assess the integrity of buried pipelines including cased pipe. ECDA is acceptable for assessing casings for the threat of external corrosion but the operator must provide an acceptable engineering assessment. The engineering assessment shall include considerations of method of construction, environment, cathodic protection and service history, evaluation of the proper aboveground inspections tools that will be used for the specific case, and possible remedial actions.*

The NACE Task Group in charge of the review of RP0502 will modify verbiage from #3 of the KEY listing under Tables 1 and 2 in the next revision as follows:

"3 = Applicable if the operator can provide a properly supported engineering procedure(s) and implementation plan(s).

Note: NACE Standard RP0502 describes a structural process that is intended to improve safety by assessing and reducing the impact of external corrosion on pipeline integrity. ECDA is a continuous improvement process targeted to identify and address locations where corrosion activity has occurred, is occurring, or may occur."

NACE Standard RP0502-2002, "Pipeline External Corrosion Direct Assessment Methodology," is intended to be used to assess the integrity of buried pipelines including cased pipe and tape coated pipe for the threat of external corrosion with the properly designed procedure.

The intent of this clarification is to allow operators, regulators, and the technical community to focus on establishing best practices in applying the NACE standard to assess the integrity of their pipelines.

Thank you for your interest in this standard.

Sincerely,

Linda Goldberg
Director, Technical Activities

cc: Kevin Parker, STG 35 Chair and C2 Technology Coordinator
Bob Fassett, TG 041 Chair
Aida Lopez-Garrity, Past TG 041 Chair
Norm Moriber

U.S. Department
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October 25, 2007

Mr. Andrew Lu
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Dear Mr. Lu:

Thank you for your correspondence dated April 18, 2007 concerning casing assessment issues brought forward by your membership. We are in agreement our priority is for assuring the safety of the nation's pipeline infrastructure by focusing baseline assessment efforts on the highest risk pipeline mileage. I offer the following in regard to your observations and questions:

> We recognize the risk for cased pipelines is predominately low and it is appropriate to assess them after the December 17, 2007 date for completing assessments. However, if an individual cased pipe segment presents a significant risk, based on operator specific information, then that particular segment should be ranked appropriately.
>
> For reporting of baseline mileage for compliance with the December 17, 2007 date, the operator should include mileage with completed baseline assessments for all the applicable threats specific to that mileage. With regard to your particular example involving casings, PHMSA agrees operators should not conclude that a 3-mile assessment should be reported as 0 miles assessed, simply because one or more 100-ft. sections of cased pipeline within that particular segment are not yet completed. Instead, the operator should take credit for the mileage of pipe within that segment that has been fully assessed.
>
> We continue to support several projects for improving the application of guided wave for assessing casings. As a result of these efforts we have posted, on the Gas Integrity Management Public Website, detailed guidance assisting operators in achieving a successful response to their notification to use guided wave as "Other Technology." We continue to work with industry for guided wave equivalency and accuracy comparable to other assessment methodologies. We also recognize that NACE has recently clarified RP0502-2002, "External Corrosion Direct Assessment Methodology," so that industry understands ECDA can be applied to cased pipe if the operator can provide a properly supported engineering procedure(s) and implementation plan(s) addressing cased pipeline life-cycle threats and their assessments. These engineering procedures and implementation plans must demonstrate the applicability, validation

basis, equipment used, application procedure, and utilization of data for the inspection method. We believe these initiatives are resulting in credible results improving assessments of casings by all methodologies.

I appreciate you bringing these issues to our attention on behalf of your members. If you have any questions regarding this correspondence please do not hesitate to contact Zach Barrett, of my staff, at (202) 366-4564.

Sincerely,

Jeff Wiese
Associate Administrator for Pipeline Safety