

Questions, Comments and Future FAQs
Casing Assessment Workshop
April 28, 2010, Baltimore, MD

PHMSA held a workshop to explain (and answer questions about) the newly developed *Guidelines for Integrity Assessment of Cased Pipe*, and related Frequently Asked Questions (FAQs). The workshop allowed the public, pipeline operators, trade associations, service providers, and others to address their questions and concerns with successfully using the guidelines to implement External Corrosion Direct Assessment (ECDA) to assess pipelines in casings located within High Consequence Areas (HCAs). The following is a summary of questions/comments received from attendees, along with PHMSA's reply to each item. Also, new FAQs are being posted, based on these questions/comments. Those new FAQs are also provided below.

Public Comments/Questions and PHMSA Reply

1. **Public Question:** What is the "guidance" that is being referred to?

PHMSA Response: The casing assessment guidance refers to "*Guidelines for Integrity Assessment of Cased Pipe for Gas Transmission Pipelines in HCAs*" (see <http://primis.phmsa.dot.gov/gasimp/ccdocuments.htm>).

2. **Public Question:** How do I need to get started assessing my casings?

PHMSA Response: 49 CFR 192, Subpart O, requires all natural gas pipeline operators to complete all baseline assessments by December 17, 2012, and prescribes minimum requirements for an integrity management program on any gas transmission pipeline covered under Part 192. Additional guidance on the methods and the procedures operators must follow to assess their pipelines are provided in Frequently Asked Questions (FAQs) and other information relating to Integrity Management for Natural Gas Transmission Pipelines are available at <http://primis.phmsa.dot.gov/gasimp/>. An electronic version of the regulations is also available through the Electronic Code of Federal Regulations (e-CFR) at <http://ecfr.gpoaccess.gov>.

3. **Public Question:** Does casing integrity assessment only have to be done in HCAs?

PHMSA Response: The Casing Assessment Guidance was developed to assist operators of either natural gas and hazardous liquid pipelines that are located in HCAs (which are defined as an area established by one of the methods described in paragraphs (1) or (2) of Subpart O in 49 CFR 192.903 or Appendix C I and II of 49 CFR Part 195) to comply with the applicable integrity management rules in 49 CFR Part 192, Subpart O or 49 CFR Section 195.452. PHMSA considers the guidance to represent good practices in other areas.

4. **Public Comment:** The guidance does not provide for exemptions from performing baseline assessments for cased pipe.

PHMSA Response: Under the enabling legislation, the 2002 Pipeline Safety Improvement Act, Congress mandated that all line pipe located in HCAs be assessed by December 17, 2012, for gas pipelines and December 17, 2009, for hazardous liquid pipelines. The respective integrity management regulations also mandate all line pipe in HCAs be assessed by various dates and reassessed every 5 or 7 years for a hazardous liquid or gas transmission pipeline respectively.

5. **Public Question:** Does the guidance dictate the only way to assess unpiggable cased pipe? Is the use of an alternative method a violation?

PHMSA Response: The PHMSA casing assessment guidance does not dictate that it is the only way to assess unpiggable pipelines.

PHMSA recognizes that 'Other Technology' and pressure testing are suitable alternatives to using ECDA and the guidance material. Pipeline operators can propose other methods by using the "Other Technology" notification requirement and providing technical justification to PHMSA under 49 CFR Section 192.921 (a)(4) and 49 CFR Section 192.949 180 days prior to using the technology.

6. **Public Comment:** The guidance does not allow for external corrosion (EC) threat to be considered as being eliminated, even when a segment had an acceptable baseline assessment and a quality fill and monitoring program.

PHMSA Response: A quality casing fill is considered a mitigation measure that reduces the likelihood of external corrosion, but does not necessarily eliminate it permanently (this is similar to an effective coating on direct buried pipe). Even with a quality fill, external corrosion could occur under some circumstances.

7. **Public Question:** How many incidents (historically) were from cased pipe?

Historical incident reporting did not require that the operator specify if the incident happened inside a casing. Therefore, historical incident data is inconclusive with respect to incident history inside casings.

8. **Public Question:** If you cannot meet the 18 checkpoint Go, No-Go GWUT (Guided Wave Ultrasonic Testing) requirements, does that invalidate the application of casing ECDA (External Corrosion Direct Assessment) as an indirect inspection tool?

PHMSA Response: Under the Casing Assessment Guidance (Guidelines for Integrity Assessment of Cased Pipe for Gas Transmission Pipelines in HCAs) the "GWUT 18 Point Checklist" requirements must be met to use GWUT as an accepted indirect inspection. PHMSA is currently reviewing this requirement to determine if changes are justified, based on the comments received at the April 28, 2010, casing workshop.

9. **Public Question:** In lieu of guided wave, is the inspection from Profile Technology an acceptable tool or 'other technology'?

PHMSA Response: The use of proprietary tools developed by Profile Technologies Inc., as "other technology" would be evaluated by PHMSA upon receipt of a notification, as required by 49 CFR Part 192, Subpart O. PHMSA would evaluate the submittal to determine if the technology provides an equivalent assessment and would evaluate applicability, validation, procedures, equipment specifications, and operator and analyst training requirements. As required by 49 CFR Section 192.949 such a notification must be made to PHMSA (or a local regulator) at least 180 days prior to proposed use. "Other technology" notifications should contain sufficient information for PHMSA (or the local state regulator) to determine if such technology is valid, applicable, and procedures are available for using the technology and the individuals are properly trained and proficient in its use.

10. **Public Question:** Is guided wave a direct examination or indirect tool?

PHMSA Response: PHMSA has allowed the use of GWUT as an indirect inspection tool provided it is used in conjunction with the "GWUT 18 Point Checklist" that make up the Go, No-Go process. To be used as an "other technology" assessment method, a notification would have to be submitted to PHMSA as required in 49 CFR Sections 192.921 and 192.949.

11. **Public Question:** Is there guidance for the use of permanently installed guided wave equipment?

PHMSA Response: PHMSA has not been approached by a pipeline operator (nor has an "other technology" notification been received) regarding permanently installed GWUT collars, and thus has not prepared any guidance material for permanently installed GWUT equipment.

12. **Public Question:** As GWUT testing is very dependent on the ability of the technician, what are the qualification requirements for a GWUT technician?

PHMSA Response: The PHMSA "GWUT 18 Point Checklist" of the GWUT Go, No-Go process specifically requires training and qualification under point number 13 which states:

In the absence of an industry standard for certifying GWUT service providers, pipeline operators must require all guided wave service providers to have equipment specific training and experience for First Level and Senior Level GWUT Equipment Operators which include:

- 1. Equipment operation,*
- 2. Field data collection, and*
- 3. Data interpretation on cased and buried pipe.*

A Senior Level GWUT Equipment Operator with pipeline specific experience must provide oversight and approve the final reports of a First Level GWUT Equipment Operator. A Senior Level GWUT Equipment Operator must have additional training and experience beyond that required for the field data collection level operator, First Level GWUT Equipment Operator. This additional training must be specific to cased and buried pipe, and there must be a quality control program which conforms to Section 12 of ASME B31.8S.

Guided Wave Training and Experience Minimums – for First Level and Senior Level GWUT Equipment Operators

- Equipment Manufacturer’s minimum qualification for equipment operation and data collection with specific endorsements for casings and buried pipe*
- Training, qualification and experience in testing procedures and frequency determination*
- Training, qualification and experience in conversion of guided wave data into pipe features and estimated metal loss (estimated cross-sectional area loss and circumferential extent)*
- Equipment Manufacturer’s minimum qualification with specific endorsements for data interpretation of anomaly features for pipe within casings and buried pipe – applicable for Senior Level GWUT Equipment Operator.*

13. **Public Question:** Is a notification needed if GWUT is used as an indirect inspection tool?

PHMSA Response: PHMSA does not require a notification for GWUT used as an indirect inspection tool as part of the 4-step ECDA process, provided the “GWUT 18 Point Checklist” of the Go, No-Go process is utilized. If the GWUT tool is used as a stand-alone assessment, an “other technology” notification is required.

14. **Public Question:** Is a notification needed if GWUT is used as a direct examination tool?

PHMSA Response: As defined in both NACE RP0502-2002 and ASME B31.8S-2004, direct examination requires excavation and physical inspection by a person. GWUT may not be used to conduct a direct examination (DE), in lieu of excavation and physical inspection, as part of the ECDA process. PHMSA currently does require an “other technology” notification in accordance with 49 CFR Section 192.921 when GWUT is used as a stand-alone assessment method as “other technology.”

15. **Public Question:** It was suggested that the guidance for GWUT on filled casings needs to be modified since filling may negate overlap (due to attenuation) and making the 18 checkpoints mandatory will push people away from filling.

PHMSA Response: Under the Casing Assessment Guidance (Guidelines for Integrity Assessment of Cased Pipe for Gas Transmission Pipelines in HCAs) the “GWUT 18 Point Checklist” requirements must be met to use GWUT as an accepted indirect inspection.

PHMSA is currently reviewing this guidance to determine if changes are justified, based on the comments received at the April 28, 2010 casing workshop.

16. **Public Question:** Please clarify when an operator needs to submit a notification regarding the use of GWUT.

PHMSA Response: GWUT, including the “GWUT 18 Point Checklist”, when used as an indirect inspection tool for ECDA does not need to have a notification provided it is one of two or more indirect inspection tools on the ECDA region. When GWUT is used as a stand-alone assessment method (not part of an ECDA assessment) a 180-day notification must be sent to PHMSA because it is considered “other technology.”

17. **Public Comment:** Please clarify the use of GWUT as an indirect inspection tool to screen cased pipe for direct examination.

PHMSA Response: GWUT can be used as an indirect inspection tool for this purpose without a notification provided it is used with at least another complementary indirect inspection tool and the “GWUT 18 Point Checklist” for Go, No-Go process are followed.

18. **Public Comment:** Revisit 18 Checkpoint GWUT Go, No-Go requirements under ‘other technology’.

PHMSA Response: PHMSA is open to improving and updating the “GWUT 18 Point Checklist” but needs input from industry to determine what has changed and what improvements have been incorporated into this technology.

19. **Public Question:** Can we get a good definition for region, and how big a role the geography plays in the definition?

PHMSA Response: The 17 points in Exhibit B – Guidelines for Establishing ECDA Regions for Cased Pipe - of the Casing Assessment Guidance (Guidelines for Integrity Assessment of Cased Pipe for Gas Transmission Pipelines in HCAs) are a listing of which parameters require separate regions (points 1 through 6 mandate separate regions, and points 7 to 17 are to be considered) and provide additional guidance for following the definition of an ECDA region per NACE RP0502: *“A section or sections of a pipeline that have similar physical characteristics and operating history and in which the same indirect inspection tools are used.”*

20. **Public Question:** Throughout the guidance the word “WAX” is used as the filler. Should we not use a more generic term such as “non-conductive filler” of just filler? There are other acceptable fill materials used in the industry.

PHMSA Response: PHMSA agrees that the term WAX should not be used as a generic term for a filler but rather just filler or non-conductive filler. All references to WAX will be removed from the casing assessment guidance.

21. **Public Question:** What are the alternatives to do ‘direct examination’ in locations where there is no access or excavations are not possible (e.g. under controlled access highways, rivers, etc.)?

PHMSA Response: In 49 CFR Section 192.921 the code recognizes several other methods to assess casings which include pressure testing, ILI and other technology. Under “other technology” there may be new methods such as a robotic eddy current tester and tethered inline inspection (ILI) devices. PHMSA believes in the situations stated above ECDA may not be effective and its use would be limited.

22. **Public Question:** Can a “direct examination” be completed by cutting off a portion of the casing (4’ to 5’ length) to examine the condition of the carrier pipe (and not the full length)? This concept would be similar to “direct examination” of uncased pipeline segments.

PHMSA Response: Currently PHMSA considers a complete direct examination when the entire carrier pipe (100% of pipe length) in the casing is examined. By only directly examining the first several feet, other areas inside the casing may be missed that could affect the integrity.

23. **Public Question:** As the end result of an immediate direct examination, can a direct metallic short that has been filled with wax be left for a monitoring program (casing remains metallically shorted after fill)? Does the wax, if it does not clear the metallic short provide a sufficient mitigation measure?

PHMSA Response: Casings located in HCAs (High Consequence Areas) and assessed under Subpart O of 49 CFR Part 192 must be cleared of all metallic shorts before they can be eligible for monitoring programs or considered assessed. If a casing is filled but remains shorted, it cannot be considered a sufficient mitigation measure unless the shorted condition is corrected. The short could hinder a complete and effective assessment of the condition of the carrier pipe, prevent accurate determination of remaining pipe wall, and prevent proper calculation of the safe operating pressure.

24. **Public Question:** Regarding FAQ 248, why do the guidelines disallow leaving a shorted, contacted, coupled casing?

PHMSA Response: The intent of the integrity management rule is provide additional protections and assurance of integrity for pipelines that are in, or could affect, high consequence areas. Carrier pipes must be isolated from casings in order for these casing assessment guidelines to be considered applicable. Leaving a carrier pipe in contact with a

casing could cause a corrosion cell to form, reduce the level of cathodic protection or other effects that could adversely affect the integrity of the pipe. Thus, when establishing and applying the more restrictive ECDA criteria for identifying and directly examining indications in accordance with 49 CFR 192.925(b), all cased pipes in a region must be cleared of shorts to meet these casing assessment guidelines. A proper assessment relies on being able to accurately measure the wall loss and calculate a safe operating pressure which may not be accurately performed when shorted, contacted or coupled casings are not cleared.

25. **Public Question:** What does PHMSA consider to be the ‘minimum requirements’ of a direct examination, exposed ends; remove seals; trim ends; other requirements?

PHMSA Response: The minimum requirement that PHMSA considers a direct examination is when the actual pipe wall is exposed and examined consistent with the definition in NACE RP0502 Section 2 *“Inspections and measurements made on the pipe surface at excavations as part of ECDA”*.

26. **Public Comment:** The guidance does not explain what is considered a direct examination.

PHMSA Response: PHMSA uses NACE RP0502 language to define a direct examination in the Casing Assessment Guidance. An FAQ will be posted to familiarize everyone with the difference between a direct examination (DE) and direct assessment (DA). Basically DE is one step in the four-step DA process for a specific type of corrosion (ECDA, ICDA, SCCDA and CDA).

27. **Public Question:** Filling a casing with wax will negatively affect the propagation of guided wave. If there is presently a concern about getting 100% coverage with guided wave, and filling the casing with wax will make it worse, then why recommend filling casings with wax?

PHMSA Response: PHMSA is not specifically recommending that operators fill casings, but is providing guidance for operators who choose to fill their casings.

28. **Public Question:** Is it possible to regard the external corrosion (EC) threat as not applicable to cased pipe that has been properly filled?

PHMSA Response: PHMSA cannot consider a pipe in a filled casing as not having the EC threat. However, the cased pipe, if properly filled, should have a reduced the risk ranking that reflects the additional protection afforded by the fill material.

29. **Public Question:** Good fill should not have to be 10% volume but 15% as CASQAT and NACE suggested.

PHMSA Response: PHMSA is reviewing the issue, based on comments received at the workshop, to determine if changes to the guidance are justified. Also, see item 30, below.

30. **Public Comment:** The guidance does not provide adequate explanation for 10% volume deviation on casing filling.

PHMSA Response: PHMSA is contacting NACE to identify the technical justification (if any) developed by NACE to justify its fill volume deviation specification of 15%, as specified in NACE RP0200-2000. PHMSA is reviewing the issue, based on comments received at the workshop, to determine if changes to the guidance are justified.

31. **Public Comment:** The guidance over-extends and tries to address the quality of casing fills.

PHMSA Response: This section is intended to assist other operators on what is important when filling a casing with a non electrolyte material. PHMSA considers verification of a quality casing fill to be an additional integrity assessment activity, allowed under NACE RP0502-2002, necessary to effectively perform ECDA on cased pipe.

32. **Public Question:** Can an operator use current requirement tests instead of some of the other ECDA indirect inspection tools?

PHMSA Response: Both NACE RP0502 and 49 CFR Section 192.925 allow for indirect inspection tools not listed in Appendix A or Table 2 of NACE RP0502 in Section 3.4.3.1 and Section 925 (b)(1)(ii), respectively. Pipeline Operators should validate and document that the selected tool is suitable for its intended purpose.

33. **Public Question:** Appendix D.1.2.5 says the end seal has to be looked at, but do you not have to check the level?

PHMSA Response: In the Casing Assessment Guidance, Section D.1.2.5, the monitoring requirements are as follows:

- Structural integrity of the casing and end seals (i.e., that the casing pipe and end seals are not leaking) must be monitored.
- Fill quantity and fill level must be monitored (i.e., that fill material is not leaking out or melting).
- Electrical isolation of the casing from the carrier pipe must also be monitored. The electrical isolation condition of the casing pipe to the carrier pipe must be in the clear or isolated condition. Testing techniques commonly utilized include Panhandle Eastern “B”, Internal Resistance, DCVG, ACVG, Current Attenuation, etc.

This guidance specifically states that the end seals must be checked for leakage and the level of the filled material must also be monitored.

34. **Public Question:** For cased pipes requiring significant resources to assess, can PHMSA help operators justify at what point expenditures are so great that they should be capitalized and casings considered for replacement rather than continued to be covered through operating and maintenance budgets ?

PHMSA Response: PHMSA does not have any authority to assist operators in capitalizing or rate basing replacements for casings. PHMSA's perspective is to assure pipeline integrity, safety, and environmental protection.

35. **Public Question:** If all casings are filled, why does an operator have to do excavations, and can you submit a waiver under Subpart O?

PHMSA Response: Filling a casing does not necessarily eliminate the threat of external corrosion on a permanent basis. Even if all casings are filled, some will require a direct examination under the ECDA process. Operators have the option of requesting waivers (special permits) to 49 CFR Part 192, Subpart O for this or other issues. Such waivers will be evaluated on a case-by-case basis by PHMSA.

36. **Public Comment:** It was suggested that NACE define more specific requirements for assessing cased pipe, especially in urban areas with low stress pipelines.

PHMSA Response: PHMSA recognizes that operators would like to assess low stress casings differently than high stress casings due to the likelihood of leak before rupture. However, such a change would require regulatory action. PHMSA would like to point out that, for periodic re-assessments, the existing gas integrity management rule (§192.941) provides for a special assessment method for pipe operating below 30% SMYS called "low stress reassessment." See FAQ-273.

37. **Public Question:** Based on the costs being incurred for casing assessments, the original cost benefit for the integrity rule was flawed. Can it be changed?

PHMSA Response: The cost-benefit study for the Integrity Management regulation cannot be changed. Subsequent rulemaking might require a separate cost benefit study. The original cost benefit study was prepared based on cost data input from industry.

38. **Public Question:** IMP requires 100% assessment of HCA pipe but cased pipe covers only approximately 2% of all pipe. Maybe an answer is not to require such rigorous guidance and instead defer to NACE and industry, perhaps also with ASME involvement, to work together and have a new standard developed.

PHMSA Response: PHMSA agrees that the standard writing organizations could provide some additional technical and safety guidance and possible standards, but such standards must meet the current regulatory requirements.

39. **Public Question:** The guidance needs a statement in it regarding enforceability, the tone needs to be changed, and some alternative methods should be provided.

PHMSA Response: Under Section 2 of the Casing Assessment Guidance, the following statement is provided regarding the enforceability of the material: *“These guidance materials do not create legally enforceable rights or obligations and are provided to help the public understand how to comply with the regulation.”* Operator may use alternative methods to assess cased pipe, if it demonstrates that the alternative method can provide an equivalent understanding of the condition of the line pipe. An operator choosing this option must notify the Office of Pipeline Safety (OPS) 180 days before conducting the assessment, in accordance with §192.949. Also, see the response to item 40, below.

40. **Public Comment:** The guidance has prescriptive language on criteria for classification and prioritization of indications.

PHMSA Response: The purpose of the Casing Assessment Guidance is to assist both pipeline operators and PHMSA inspectors to better understand the issues and provide a common methodology for inspecting operators in different regions. PHMSA believes that this level of specificity will help both operators and inspectors will be able to have a more transparent and uniform methodology for completing assessments and integrity inspections.

41. **Public Question:** The guidance goes too far with specifying immediate and scheduled indications.

PHMSA Response: PHMSA believes that the casing assessment guidance provides an acceptable framework to assist operators in classifying and prioritizing assessment indications using a technically justified methodology within the ECDA process.

42. **Public Question:** For a region with 10 casings and no contacts or anomalies, what is an acceptable DA (meaning direct examination, DE)?

PHMSA Response: In accordance with 49 CFR Part 192, Subpart O, operators can substitute other methods of assessment for ECDA such as In Line Inspection (ILI), Pressure Test, or “Other Technology” in accordance with 49 CFR Section 192.921.

43. **Public Question:** If there is a short at the end does the whole pipe in the casing still have to be evaluated?

PHMSA Response: Yes, the entire carrier pipe (100% of pipe length) within the casing must be directly examined even if there is a known short at one of the ends because there could be other areas of corrosion inside the casing in addition to the end. These others areas could

affect the integrity of the carrier pipe and without directly examining the entire pipe an operator will not be aware of the condition of the pipe within the casing.

44. **Public Question:** If you are using a camera and cannot get 100% coverage, is it still considered an assessment.

PHMSA Response: The purpose of a direct examination is to identify the existence and severity of any coating damage or metal loss defects to determine the predicted failure pressure and/or reassessment interval. Not being able to visually see or determine the condition of the carrier pipe within the entire casing would not meet the definition of a direct examination and thus the assessment could not be considered complete.

45. **Public Question:** The guidance has definitions for metallic shorts and electrolytic contacts but not what is considered a clear casing.

PHMSA Response: PHMSA will define a clear casing in Casing Assessment Guidance, Section C.2 as follows “Pipe that is electrically isolated from other underground metallic structures (such as casings) in accordance with 49 CFR 192.467.”

46. **Public Question:** The guidance should not be used as a method to nullify previous casing assessments that operators did in good faith before the guidance was issued. It should only be applicable for future assessments.

PHMSA Response: FAQ #271 addresses this comment. PHMSA cannot make a blanket statement regarding how ECDA integrity assessments made prior to the publication of the casing guidance will be treated. PHMSA can affirm that if the casing assessment guidance was adhered to, then the assessment is considered acceptable. Where there are differences, a situation-by-situation analysis will need to be performed and operators should be prepared to provide technical justifications for variances from the guidance.

47. **Public Question:** If you cannot do 100% inspection of a pipe, but you did another, why is that an issue?

PHMSA Response: A direct examination is a full examination of the carrier pipe in the casing. By not being able to do 100%, there may be areas on the carrier pipe wall that could affect the integrity of the pipe and thus the assessment cannot be considered complete.

48. **Public Question:** 2012 is almost here and operators need relief.

PHMSA Response: The December 12, 2012 deadline is a statutory requirement.

49. **Public Question:** Why do you need full direct examination on validation digs?

PHMSA Response: The NACE standard RP0502-2002, incorporated by reference into Subpart O, requires additional direct examination to validate the results, for the assessment to be considered complete in accordance with Section 6.4.2

50. **Public Comment:** The guidance does not address legacy casings that were installed and wax filled prior to 2002.

PHMSA Response: The legacy casing issue will have to be addressed on an individual basis if none of the casing assessment techniques are available.

51. **Public Comment:** It was suggested that the guidance be revised to be entirely consistent with CASQAT effort.

PHMSA Response: PHMSA appreciates the hard work and ideas that the CASQAT members proposed, but several of the findings/methods/conclusions were contrary to current Congressional statutory requirements and US DOT code and thus could not be used in the guidance.

52. **Public Comment:** Allow NACE to develop industry documents that govern how ECDA is applied to cased pipe.

PHMSA Response: PHMSA does not have any issues with having NACE develop consensus standards for assessing cased pipelines in HCAs with ECDA. Such standards do have to follow the requirements of the 2002 PSIA, 2006 PIPES and Subparts O and I, plus various sections of 49 CFR Part 195. The PHMSA Casing Assessment Guidance was necessitated by the lack of a consensus industry standard that adequately addresses ECDA on cased pipe. If such standards are published, PHMSA will review them to determine if a proceeding to incorporate them by reference into 49 CFR Parts 192 and 195 should be initiated.

53. **Public Comment:** Expand TIMP (Transmission Integrity Management Plan) data collected on cased pipe.

PHMSA Response: PHMSA will consider if additional data should be collected regarding cased pipe.

54. **Public Comment:** It was suggested that the guidance should consider cost, service continuity, and worker safety issues in addition to technical requirements.

PHMSA Response: The costs of conducting HCA pipe assessments were considered when integrity management was approved by Congress and implemented by regulation. Worker safety is an issue and no one in industry should be exposing their workers to unnecessary risks (i.e. when performing normal job duties such as exposing pipelines pipeline operators must

have excavation procedures.). If workers cannot perform normal duties safely, then additional procedures, training, and safety equipment would be necessary.

55. **Public Comment:** The guidance contains practices and requirements that exceed the language in the federal code and referenced standards.

PHMSA Response: Section 2 of the Casing Assessment Guidance states that this document is not considered enforceable and is meant as explanatory material to assist pipeline operators in achieving compliance with the regulations. However, a pipeline operator that is able to demonstrate compliance with the Casing Assessment Guidance is likely to be able to demonstrate compliance with the relevant 49 CFR Part 192 and 195 integrity management regulations.

56. **Public Question:** The risk factors for each casing are different and the requirement for direct examination should be determined necessary by ECDA rather than being arbitrarily imposed.

PHMSA Response: PHMSA agrees that the risk factors for individual casings can be different and that only the highest risk (based on a likelihood of failure times the consequence of failure) must be excavated and directly examined. However, sufficient numbers of excavations and direct examinations must take place to meet the minimum requirements per NACE RP0502, Section 5.10 (and Guidance Section 3.3) when using ECDA as the method of assessing the casings. These minimums, plus the required validation excavations in NACE RP0502 Section 6.4.2, depend on the number of casings with immediate, scheduled and monitored indications.

New FAQs Based on Questions Received at the April 28, 2010 Workshop

FAQs will be posted on the Gas Integrity Management website.

269. What are the definitions of DA, Direct Assessment and DE, Direct Examination?

DA – Direct Assessment

DA is a method of assessing the integrity of pipelines with regard to the corrosion threat. It is a four step process (pre-assessment, indirect inspection, direct examination, and post assessment) that must be followed in its entirety and was approved as a method in the 2002 Pipeline Safety Improvement Act (PSIA) which was signed into law on 12/17/2002. Currently PHMSA recognizes four DA processes: External Corrosion Direct Assessment (ECDA); Dry Gas Internal Corrosion Direct Assessment (DG-ICDA); Stress Corrosion Cracking Direct Assessment (SCCDA); and Confirmatory Direct Assessment (CDA). NACE has approved or is working on standards for the following DA processes: ECDA; DG- ICDA; SCCDA; CDA; Wet Gas Internal Corrosion Direct Assessment (WG- ICDA); and Internal Corrosion Direct Assessment for Liquid Petroleum Pipelines. NACE defines DA as *'A structured process that combines pre-assessment, indirect inspections, direct examination, and post assessment to evaluate the impact of predictable pipeline integrity threats such as corrosion.'* Subpart O of 49 CFR 192.903 defines DA as *'Direct assessment is an integrity assessment method that utilizes a process to evaluate certain threats (i.e., external corrosion, internal corrosion and stress corrosion cracking) to a covered pipeline segment's integrity. The process includes the gathering and integration of risk factor data, indirect examination or analysis to identify areas of suspected corrosion, direct examination of the pipeline in these areas, and post assessment evaluation.'*

DE – Direct Examination

NACE defines DE in the ECDA standards as *'Inspections and measurements made on the pipe surface at excavations as part of ECDA'* or in the SCCDA standard as *'Inspections and measurements made on the pipe surface at excavations as part of direct assessment'*. The DG-ICDA standard has a similar definition (*Examination of the pipe wall at a specific location to determine whether metal loss from internal corrosion has occurred. This may be performed using visual, ultrasonic, radiographic, or other means*).

270. If no casings with a region (hazardous liquids) test as electrically shorted to the carrier pipe but there is one DCVG indication near one of the casing ends - what direct exams are required? Of course, the end of the casing that might contain the DCVG indication should be one direct exam and the other end of that same casing should be another direct exam. But, for the rest of the casings that have no indications nearby, does examining both ends of one casing constitute one direct exam or is excavation of each end of a casing considered as two direct exams?

PHMSA does not agree that only the end(s) of the casing need be directly examined. Rather the entire casing would need to be evaluated under current requirements. An indication at

the end could mask indications inside the casing or that past shorts or couples/contacts could have existed which may have affected the integrity of the carrier pipe further inside the casings. PHMSA would expect operators to use all of the indirect inspection tools available including GWUT (including the "GWUT 18 Point Checklist") to determine the integrity of carrier pipe and then select the casing(s) with the highest priority to be directly examined in their entirety.

271. How will PHMSA handle casing assessments made before the guidance material was made public (when operators used ECDA but may not have followed the guidelines entirely)?

PHMSA cannot make a blanket statement regarding how it views ECDA integrity assessments made prior to the publication of the casing guidance. It can affirm that if the guidance was adhered to, then the assessment is considered acceptable. Where there are differences, a situation by situation analysis will need to be performed and technical justifications for variances to the guidance provided.

272. How would one handle a cased segment that has the attributes of Item 1 and Item 4 (from Exhibit B)? For example, a casing that has an attribute of Item 1, no attributes of Items 2-6, and perhaps some attributes from Items 7-17, could be placed in, say, Region A. Another casing that has an attribute of Item 4, no attributes of Items 2-6, and perhaps some attributes from Items 7-17, would be required per the guidance to be placed into a different region, say, Region B. How then would one regionalize a cased segment that has the attributes of Items 1 and 4, no attributes of Items 2, 3, 5, or 6, and then perhaps some attributes from Items 7-17? Should this segment be considered as Region A, Region B, or a whole new region, say, Region C? If each different combination of Items 1-6 required a new region to be established, this could then entail a million different regions before one even begins considering the "C" attributes from Items 7-17.

In Exhibit B, PHMSA requires that if casings have different attributes in items 1 through 6 that they should be in separate regions. When casings have various combinations of these 6, they may have to be in separate regions but there may be situations that they could be combined, such as when one attribute is the determinate for how a casing is going to be assessed and the other attributes are minor. Thus in the example above, when multiple casings have the same attributes 1 and 4 plus others of minor consequence of 7 to 17, they could be combined into one region. Also when one casing has different attributes 1 and 2 and another has different 1 and 4, these may have to be in separate regions regardless of whether attributes 7 to 17 are identical. Operators are expected to have a technical justification for how they place casings into different or the same ECDA regions. Such justification should be the same for each segment and pipeline and not change based on non technical issues.

273. If an operator has a pipeline system that operates at pressures less than 30% SMYS, and conducts a baseline assessment for external corrosion on all cased pipe using ECDA, can

subsequent re-assessments be conducted using the low stress reassessment method (49 CFR 192.941), even though all of the casings were not directly examined during the baseline assessment?

Yes. As long as the baseline assessment complies with NACE RP0502-2002 (as required by 49 CFR Section 192.925) and the direct examinations required by NACE RP0502-2002 were successfully completed, then all of the casings have had a successful baseline assessment. Subsequent re-assessments may be performed using the low stress reassessment method in 49 CFR Section 192.941 for all of the casings, as long as the operating pressure remains below 30% SMYS during the assessment and reassessment intervals.

274. Must an operator always perform a 100% direct examination inspection of the carrier pipe within the casing under Step 3, Direct Examination, when doing an ECDA assessment?

Yes. In the ECDA assessment process in Step 3, Direct Examination, in accordance with NACE RP0502-2002, Section 5, and 49 CFR Section 192.925, pipeline operators must do a full, 100% direct examination of the carrier pipe within the casing to ensure that no indications have been missed by any of the indirect inspection tools. Many of these indirect inspection tools cannot 'see' inside the casings but do infer by their readings that an indication may be located somewhere inside the casing. Because many of the indirect inspection tools can not accurately locate nor categorize the specific indication, a 100% direct examination of the carrier pipe is necessary.

Contemplated Adjustments to the Guidelines

Based on the comments and questions received at the workshop, PHMSA is considering some adjustments to the *Guidelines for Integrity Assessment of Cased Pipe for Gas Transmission Pipelines in HCAs*.

There are two outstanding issues that are still being considered. (1) PHMSA is currently studying the fill deviation specification of 10%. PHMSA has been in contact with NACE in an attempt to identify the technical basis for specification contained in NACE RP0200-2000. PHMSA may reconsider this requirement if it is in agreement with the NACE technical justification. (2) In addition, PHMSA is studying additional information with respect to GWUT sensitivity to determine if the requirements associated with the GWUT "18-point checklist" can be adjusted.

PHMSA anticipates completing this review by the end of June 2010. If any adjustments to the guidelines are approved, a revision to the guidelines will be posted shortly thereafter.