

Date Distributed:



**THE
NATIONAL
BOARD**
OF BOILER AND
PRESSURE VESSEL
INSPECTORS

NATIONAL BOARD TASK GROUP ON INTERPRETATIONS

AGENDA

Meeting of July 13th, 2020
Louisville, KY

The National Board of Boiler & Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, Ohio 43229-1183
Phone: (614)888-8320
FAX: (614)847-1828

1. Call to Order

8:00 AM

2. Introduction of Members and Visitors

3. Check for a Quorum

4. Awards/Special Recognition

5. Announcements

The National Board will be hosting a reception for all committee members and visitors on Wednesday evening at 5:30pm at the SKY Grand Terrace on the 16th floor of The Brown Hotel.

6. Adoption of the Agenda

7. Approval of the Minutes of the January 13th, 2020 Meeting

The minutes are available for review on the National Board website, www.nationalboard.org.

8. Review of Rosters

a. Membership Nominations

b. Membership Reappointments

9. Interpretations

Item Number: 19-26	NBIC Location: Part 3, 3.3.2	Attachment Page 2
General Description: Clarification on welding repairs on appendages		
Subgroup: Repairs and Alterations		
Task Group: P. Shanks – PM		
Explanation of Need: The original submitter of this item will sometimes need to perform a welding repair on an appendage (not on the tank itself) in order for the complete process of refurbishment to be done for their customers' expectations. There appears to be no direct reference to these types of minor welding repairs for the refurbishment process in the NBIC code.		
January 2020 Meeting Action: Mr. P. Shanks presented, and his proposal was approved by the subcommittee. The Main Committee provided several suggested changes that Mr. Shanks agreed to address for the July 2020 meeting.		

Item Number: 20-3	NBIC Location: Part 3, 3.3.4.8	Attachment Page 4
<p>General Description: Inspector involvement in Fitness-for-Service Assessments</p> <p>Subgroup: Repairs and Alterations Task Group: J. Siefert (PM)</p> <p>Explanation of Need: The below questions are intended to gain clarity as to first which Inspector (i.e. “IS” Commissioned or “R” Endorsement) signs the FFS Form NB-403 when an “R” Certificate Holder is involved with a repair in that region as well as determine what level of review of the Fitness-for-Service the Inspector is expected to complete. If it is an Inspector holding a “R” Endorsement with an AI Commission (not tested on NBIC Part 2), shouldn’t the relevant pages in NBIC Part 2 concerning Fitness for Service be included in their tested body of knowledge, so they are aware of the detailed rules?</p> <p>The Body-Of-Knowledge for National Board Inspectors holding either an “IS” Commission or “R” Endorsement does not reference ASME FFS-1/API 579 Fitness-For-Service Standard or have any expectation that the Inspector be capable of determining if the correct Fitness for Service methodology was used or that the assumptions taken by the Engineer in the analysis were the most appropriate or accurate. Clarification is also requested due to the Form NB-403 signature block stating “Verified by” for the Inspector without any other disclaimers as typically found on other Forms signed by Inspectors such as ASME MDRs and NBIC Form R-1/R-2.</p> <p>January 2020 Meeting Action: Mr. Carter presented the proposal. Mr. Galanes proposed creating a new action item to address FFS assessments in Part 3 as a way to handle this. This was a Progress Report.</p>		

New Interpretation Requests:

Item Number: 20-11	NBIC Location: Part 3, 3.3.3	Attachment Page 6
<p>General Description: Scope of Repairs</p> <p>Subgroup: Repairs and Alterations</p> <p>Task Group: None assigned.</p> <p>Explanation of Need: NBIC Part 3 lists several examples of repair but nowhere limits the scope or amount of these examples that can be utilized when performing repairs. This creates some uncertainty when performing some types of repairs, such as replacing the tubesheets of a fixed tubesheet type heat exchanger as listed in 3.3.3 e). According to ASME BPV Code Section VIII Division 1 Part UHX, Section 13, the length of the tubes is a design parameter and therefore replacing the tubesheet in accordance with its original design might require the replacement of the tubes as well to maintain the original design length.</p>		

Item Number: 20-14	NBIC Location: Part 3, 3.3.3 & 5.12.4.1	Attachment Page 7
<p>General Description: Mechanical Repair with no welding</p> <p>Subgroup: Repairs and Alterations</p> <p>Task Group: None assigned.</p> <p>Explanation of Need: ASME Section VIII, Division 3 Code stamped "Parts" are being replaced with new ASME Code stamped "Parts" without any documentation. The original ASME Data Report listed the original "Part" serial number and will no longer be accurate if the original "Part" is replaced.</p>		
Item Number: 20-17	NBIC Location: Part 3, 3.3.3	Attachment Page 9
<p>General Description: Weld build of wasted areas with different material</p> <p>Subgroup: Repairs and Alterations</p> <p>Task Group: None assigned.</p> <p>Explanation of Need: It is common practice to weld build the wasted area of a component with original material and then to overlap with a corrosion resistant material to prevent future wasting of the component. It would be more efficient to simply restore the wasted area with the corrosion resistant material, provided that it meets or exceeds the strength requirements of the original material.</p>		
Item Number: 20-21	NBIC Location: Part 3, 4.4.1 e)	Attachment Page 10
<p>General Description: Combination of NDE methods</p> <p>Subgroup: Repairs and Alterations</p> <p>Task Group: None assigned.</p> <p>Explanation of Need: Clarification on the intent of 4.4.1 e) 1-5 when using VT and another NDE method but on separate welds.</p>		
Item Number: 20-23	NBIC Location: Part 3, 3.4.5.1 b)	Attachment Page 11
<p>General Description: Alteration of ASME Section VIII Div.2 vessels</p> <p>Subgroup: Repairs and Alterations</p> <p>Task Group: None assigned.</p> <p>Explanation of Need: Many Div.2 vessels which are in need of repair are of sufficient age whereby all of the original paperwork was paper work. Even with the best efforts such documents can become damaged or lost by the flooding event associated with the gulf coast hurricane events and or the types of refinery fires that are all too common. In a good deal of cases these vessels simply need a new B-16.5 weld neck flange or a gasket surface weld metal build up in order to allow continued leak free surface but due to some documents being unavailable the owner is left to choose between making no repair or making a repair which is not compatible with the NBIC.</p>		

Item Number: 20-24	NBIC Location: Part 3, 3.3.5.1 a) & 3.4.5.1 a)	Attachment Page 12
<p>General Description: Certification of repair or alteration plans</p> <p>Subgroup: Repairs and Alterations</p> <p>Task Group: None assigned.</p> <p>Explanation of Need: 3.4.5.1 b) allows for the UDS to be revised if a proposed alteration plan is not compatible with the original. this revised UDS must be certified by an engineer as must the Alteration plan, there currently does not appear to be a separation of the two certifying activity's which is not in the spirit of Div.2 requiring different engineers for the UDS and MDR.</p>		

Item Number: 20-29	NBIC Location: Part 3, 3.4.4	Attachment Page 13
<p>General Description: PV Cycles of operations change as an alteration</p> <p>Subgroup: Repairs and Alterations</p> <p>Task Group: None assigned.</p> <p>Explanation of Need: Isostatic Presses in particular (but found in other pressure vessels also) are restricted by the data report to a finite number of cycles. Operators of these vessels routinely use curves to modify what is considered a cycle and extend the life of the vessel. These vessels represent a substantial risk of failure and this practice is very difficult for the inservice inspector to successfully track and audit to ensure the integrity of these vessels are maintained as this is a grey area in the current code as written.</p>		

10. Future Meetings

January 11th – 14th, 2021 – New Orleans, LA

July 12th – 15th, 2021 – Cincinnati, OH

11. Adjournment

Respectfully submitted,

Jonathan Ellis

Jonathan Ellis
NBIC Secretary

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Interpretation IN19-26

Proposed Interpretation

Inquiry:	IN19-26
Source:	Doug Biggar
Subject:	NBIC Part 3 Section Part 3, 3.3.2
Edition:	[Current/all]
General Description:	Repair of none pressure boundary parts
Question 1:	If a welding repair is done to an appendage of a horizontal ASME LPG pressure vessel such as a faulty leg or the raised data plate holder, is this considered routine and are we exempt to have an inspector present to witness it and/or fill out a specialized form?
Reply 1:	No inspector needs to be present as the welding is not performed on any part of the pressure vessel directly related to its performance under pressure.
Question 2:	What is the minimum length of an appendage we can weld onto without being an ASME/NBIC certified welder (only a standard welding ticket)?
Reply 2:	1/4"
Committee's Question 1:	Are refurbishment activities such as shot blasting, thread cleaning and painting considered within the scope of the NBIC?
Committee's Reply 1:	No
Rationale 1:	These activities should not affect the pressure retaining integrity of the item, per the introduction to the NBIC that (maintenance) is the function of the NBIC. Reasonably these activities fall outside the scope of the NBIC
Committee's Question 2:	Do welding activities on items which have neither a pressure retaining or load bearing function fall within the scope of the NBIC
Committee's Reply 2:	No.
Rationale:2	These welds are such that typical ASME BPV construction codes would not dictate the qualification of the welders or welding operators.
NBIC Vote	

Include in response letter: **NA**

Rationale:

Having emailed the enquirer to determine the scope of their typical operations it was clear that there was a general misunderstanding about the purpose of the NBIC, the proposed questions are overly specific and as such fail to grasp the crux of the issue hence the question re-write. Q3 was added to ensure that no misunderstanding occurs. With the exception of a very hardline reading on Section 3.3.2 a) the NBIC addresses in the main body and the introduction the pressure retaining capability of the item and not work conducted elsewhere.

Sections 3.3.2 e), 3.3.3 & 3.4.4 address working (welding / replacing) on components which have a pressure retaining function. Pipes, tubes, heads, shell, and tube sheet are mentioned, integral parts without pressure retaining function such as legs and davit arms are not addressed.

Section 3.3.3 a) can be read as ~~“Weld repairs or replacement of pressure parts or of (sic) attachments that have failed in a weld or in the base material;”~~

PROPOSED INTERPRETATION

Inquiry No.	20-3
Source	Nathan Carter, HSB nathan_carter@hsb.org
Subject	<p>Inspector involvement in Fitness-for-Service Assessments</p> <p>Background: The below questions are intended to gain clarity as to first which Inspector (i.e. “IS” Commissioned or “R” Endorsement) signs the FFSA Form NB-403 when an “R” Certificate Holder is involved with a repair in that region as well as determine what level of review of the Fitness-for-Service the Inspector is expected to complete. If it is an Inspector holding a “R” Endorsement with an AI Commission (not tested on NBIC Part 2), shouldn’t the relevant pages in NBIC Part 2 concerning Fitness for Service be included in their tested body of knowledge, so they are aware of the detailed rules?</p> <p>The Body-Of-Knowledge for National Board Inspectors holding either an “IS” Commission or “R” Endorsement does not reference ASME FFS-1/API 579 Fitness-For-Service Standard or have any expectation that the Inspector be capable of determining if the correct Fitness for Service methodology was used or that the assumptions taken by the Engineer in the analysis were the most appropriate or accurate. Clarification is also requested due to the Form NB-403 signature block stating “Verified by” for the Inspector without any other disclaimers as typically found on other Forms signed by Inspectors such as ASME MDRs and NBIC Form R-1/R-2.</p> <p>An example is a R-Certificate holder was hired to repair a weld seam. It was discovered during a repair that multiple base metal laminations existed adjacent to the repair location. A Fitness for Services Evaluation was subsequently performed. The first question is whether or not it is the responsibility of the Repair Inspector to sign the FFSA form once everything has been properly vetted, since the defect being left in place is not necessarily within the scope of the initial repair being performed by the “R” Certificate Holder, or should this be signed off by a Commissioned Inservice Inspector, since they are examined on the rules of NBIC Part 2? Also, Form NB-403 is vague in the signature block region for the scope of what the Inspector is signed for. It could be alluded that without a statement, such as those found on the R-1 and R-2 forms, the Inspector is signing off on the appropriateness and adequacy of the Fitness-For-Service methodology performed by the Engineer.</p>
Edition	<p>2019; Part: Repairs and Alterations; Section: 3; Paragraph: 3.3.4.8</p> <p>2019; Part: Inspection; Section: 4; Paragraph: 4.4</p>
Question	<p>Question 1: In accordance with NBIC Part 3, 3.3.4.8, a fitness-for-service condition assessment as described in NBIC Part 2, 4.4 shall be completed and adequately documented on the FFSA Form NB-403. Once Form NB-403 is completed, is it required that the Inspector signing this Form hold a National Board “R” Endorsement as described in RCI-1/NB-263?</p> <p>Question 2: NBIC Part 2 4.4.1 d) states that the Inspector shall indicate acceptance of the Report of FFSA by signing. Paragraph 4.4.3 b) states that the Inspector shall review the condition assessment methodology and ensure that the inspection data and documentation are in accordance with Part 2. Is the Inspector’s signature on Form NB-403 an indication that the condition assessment and recommendations completed by the Engineer have been fully reviewed for appropriateness and accuracy by the Inspector?</p>

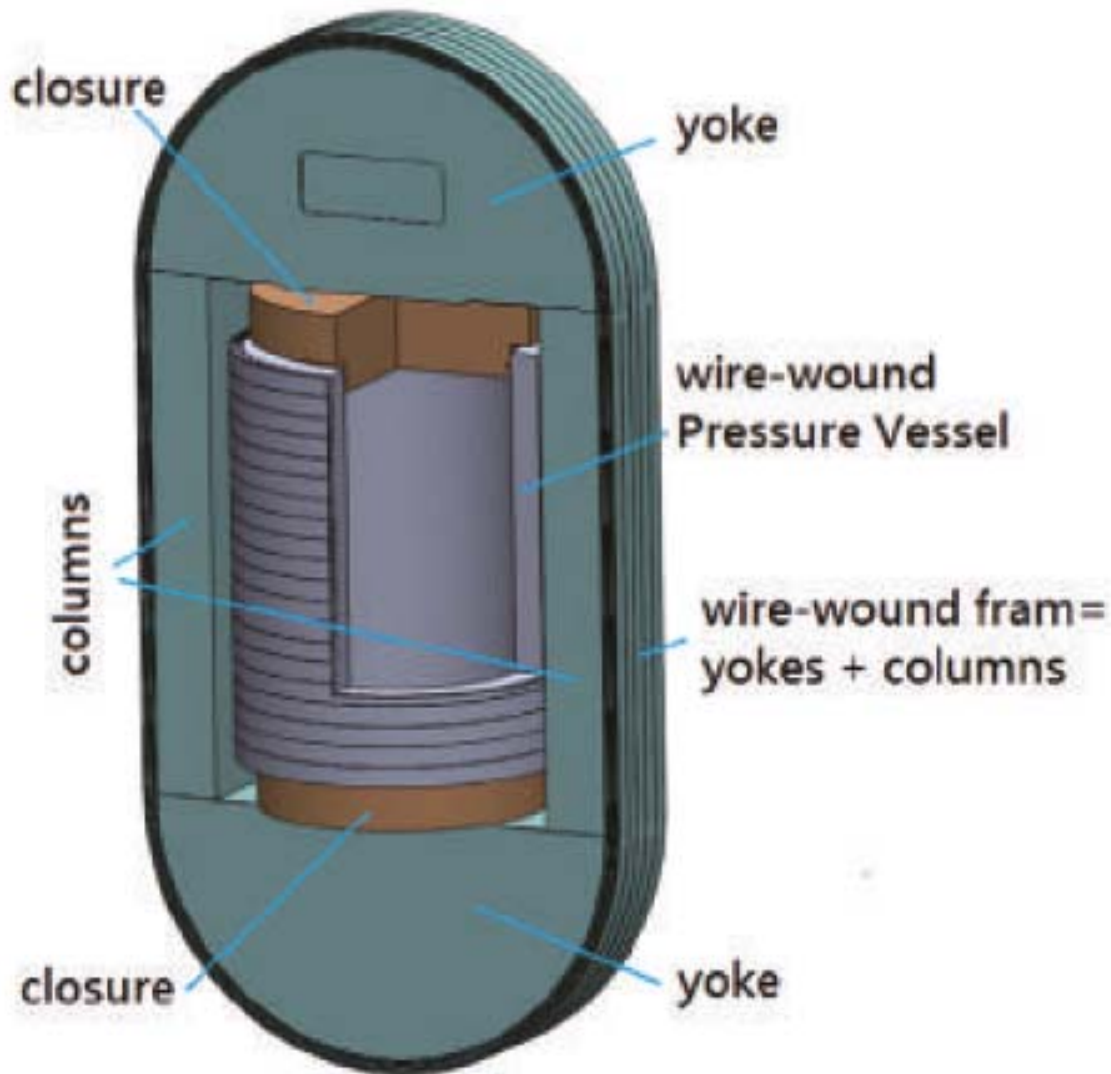
	Question 3: If the answer to Question 2 is No, is the Inspector's signature on Form NB-403 an indication of acceptance solely on the basis of review of the Form for completeness and verification that the requirements outlined in 4.4 were addressed?
Reply	Proposed Reply 1: Yes Proposed Reply 2: No Proposed Reply 3: Yes
Committee's Question	
Committee's Reply	
Rationale	

PROPOSED INTERPRETATION

Inquiry No.	20-11
Source	Hugh-Jean Nel, Sasol Hugh-Jean.Nel@sasol.com
Subject	<p>Scope of Repairs</p> <p>Background: Historically NBIC has not defined limitations on the scope of repair provided the entire item is being rebuilt, see Question & Reply 2 & 3 in Interpretation 98-28. NBIC Part 3 lists several examples of repair but nowhere limits the scope or amount of these examples that can be utilized when performing repairs. This creates some uncertainty when performing some types of repairs, such as replacing the tubesheets of a fixed tubesheet type heat exchanger as listed in 3.3.3 e). According to ASME BPV Code Section VIII Division 1 Part UHX, Section 13, the length of the tubes is a design parameter and therefore replacing the tubesheet in accordance with its original design might require the replacement of the tubes as well to maintain the original design length.</p>
Edition	2019; Part: Repairs and Alterations; Section: 3; Paragraph: 3.3.3 Examples of Repairs
Question	Question: Is it permissible for repair activities performed on pressure retaining equipment to have more than one activity listed in 3.3.3 with the scope of repair?
Reply	Proposed Reply: Yes, provided that the scope of repairs has been approved by the Inspector, and when required, by the Jurisdiction.
Committee's Question	
Committee's Reply	
Rationale	

Proposed inquiry to NBIC from Monte Bost (monte_bost@hsb.com)

Background: A Section VIII, Division 3 pressure vessel is made from machined forgings with no welding. The pressure retaining items are a cylinder, end closures and a frame that holds the end closures in place. A sketch is provided.



Inquiry

Subject: National Board Inspection Code 2019 Edition, Part 3, 3.3.3 and 5.12.4.1

Question 1: A Section VIII, Division 3 pressure vessel is made without welding from machined forgings. The pressure retaining components consist of a cylinder, end closures and a frame that holds the end closures in place. If one of the pressure retaining components is replaced with a new ASME-stamped "Part", is this activity considered a repair?

Proposed Reply (1): Yes.

Question 2: For the repair described in Question (1) above, how shall Line 7, "REPAIR TYPE" be indicated on the Form R-1, *Report of Repair*?

Proposed Reply (2): Indicate "Type of Repair: Mechanical" in Line 10 "Remarks".

PROPOSED INTERPRETATION

Inquiry No.	20-17
Source	Roy Darby, Chevron Products Company roy.darby@chevron.com
Subject	Weld build of wasted areas with different material Background: It is common practice to weld build the wasted area of a component with original material and then to overlap with a corrosion resistant material to prevent future wasting of the component. It would be more efficient to simply restore the wasted area with the corrosion resistant material, provided that it meets or exceeds the strength requirements of the original material. This represents cost savings for industry with no expected downside.
Edition	2019; Part: Repairs and Alterations; Section: 3; Paragraph: 3.3.3 Examples of Repairs
Question	Question: Would it be acceptable as a repair to weld build wasted areas with a material of different nominal composition and, equal to or greater in ultimate stress from that used in the original design, provided the replacement material satisfies the material and design requirements of the original code of construction under which the vessel was built? The minimum required thickness would be at least equal to the thickness stated on the original Manufacturer's Data Report. This would be an amalgamation of 3.3.3 (c),(d), and (r) into a single activity.
Reply	Proposed Reply: Yes.
Committee's Question	
Committee's Reply	
Rationale	

PROPOSED INTERPRETATION

Inquiry No.	20-21
Source	Eric Feeney, TEI Construction Services efeeney@teiservices.com
Subject	<p>Nondestructive Examination</p> <p>Background: When a boiler outage is being performed, there may be 50-10,000+ welds made. We are accustomed to performing 100% volumetric examination when a hydrostatic test is not being performed.</p> <p>Some of our inspectors suggest that we can perform a portion of the NDE as volumetric and the remainder as VT.</p> <p>When I read 4.4.1 e) it seems to have validity, but I generally have understood paragraph e) to have been referring to each individual weld and not the repair as a whole. This is what I would like clarification on.</p>
Edition	2019; Part: Repairs and Alterations; Section: 4; Paragraph: 4.4.1 e)
Question	Question: May a portion of a repair be subject to NDE other than visual, and the remainder of the repair be subject to exclusive use of VT in accordance with Part 3, 4.4.1 e)?
Reply	Proposed Reply: Yes.
Committee's Question	
Committee's Reply	
Rationale	

PROPOSED INTERPRETATION

Inquiry No.	20-23
Source	Paul Shanks, OneCIS Paul.shanks@onecis.com
Subject	<p>Alteration of ASME Section VIII Div.2 vessels</p> <p>Background: Many Div.2 vessels which are in need of repair are of sufficient age whereby all of the original paperwork was paper work. Even with the best efforts such documents can become damaged or lost by the flooding event associated with the gulf coast hurricane events and or the types of refinery fires that are all too common. In a good deal of cases these vessels simply need a new B-16.5 weld neck flange or a gasket surface weld metal build up in order to allow continued leak free surface but due to some documents being unavailable the owner is left to choose between making no repair or making a repair which is not compatible with the NBIC.</p> <p>Explanation of Need: 3.3.5.2 & 3.4.5.1 both require that a repair or alteration for div.2 vessels are checked for compatibility with the original UDS which is clearly best practice for these higher stressed vessels, however a great deal of work needed on these vessels no doubt due to the higher level of engineering examination during initial fabrication is limited to fixing the problems that come from leaking gaskets i.e. corrosion on gasket faces which may require weld metal build up less than 20"2 or replacement of an ASME standard flange like for like. The professional engineer whom must review and sign for repair plans is qualified to review the service history and/or whatever original documentation is available and determine if a simple flange replacement or weld metal build up is acceptable or not.</p>
Edition	2019 NBIC, Part 3, 3.4.5.1 b)
Question	Question: Given that Paragraph 3.4.5.1 b) allows for the User Design Specification (UDS) to be revised in the case where a proposed alteration is not compatible with the existing UDS is it unacceptable in cases where the original UDS is not available to generate a new UDS which is compatible with the design load case included with the original Manufactures Design Report?
Reply	Proposed Reply: No.
Committee's Question	
Committee's Reply	
Rationale	

PROPOSED INTERPRETATION

Inquiry No.	20-24
Source	Paul Shanks, OneCIS Paul.shanks@onecis.com
Subject	Certification of repair or alteration plans Background: 3.4.5.1 b) allows for the UDS to be revised if a proposed alteration plan is not compatible with the original. this revised UDS must be certified by an engineer as must the Alteration plan, there currently does not appear to be a separation of the two certifying activity's which is not in the spirit of Div.2 requiring different engineers for the UDS and MDR.
Edition	2019 NBIC, Part 3, 3.4.5.1 b)
Question	Question: Is it acceptable for the Repair/alteration plan to be certified by one of the same engineers that certified the UDS, Revised UDS or MDR?
Reply	Proposed Reply: No.
Committee's Question	
Committee's Reply	
Rationale	

PROPOSED INTERPRETATION

Inquiry No.	20-29
Source	Craig Bierl, Chubb Limited craig.bierl@chubb.com
Subject	<p>PV Cycles of operations change as an alteration</p> <p>Background: Isostatic Presses in particular (but found in other pressure vessels also) are restricted by the data report to a finite number of cycles. Operators of these vessels routinely use curves to modify what is considered a cycle and extend the life of the vessel. These vessels represent a substantial risk of failure and this practice is very difficult for the inservice inspector to successfully track and audit to ensure the integrity of these vessels are maintained as this is a grey area in the current code as written.</p> <p>This is the real life scenario that has appeared on 7 of these vessels in the last 6 months (that is every one that I have been involved in evaluating for insurance coverage).</p> <ol style="list-style-type: none"> 1. ASME data report says X cycles. Normally around 15-25,000. 2. Vessel is 20+ years old 3. You ask about operation and the vessel operates 330 days per year and has 5 operating cycles per day (some are 2 some are more, just throwing a number up to illustrate). So, simple math says $330 \times 5 = 1650$ cycles per year $25,000 / 1650 = 15.15$ years of life 4. You ask for records of the operation <ol style="list-style-type: none"> a. You are presented with a degraded cycle curve b. “we don’t operate at maximum temp (and/or) pressure” so we aren’t taking a full cycle c. So now the same vessel shows that it only has 650 cycles on it or 1200 (instead of 30,000) 5. Their argument is that they are below the “design cycles”, well there is no rational that the inspector can adequately track the design cycles to a degree of comfort. <ol style="list-style-type: none"> a. I attached one of the better design cycle tracking mechanism’s I have seen, however it is still lacking <p>Bottom line, the “operational cycle” is easily trackable. The use of curves to increase the operational cycle count beyond the ASME data report cycle maximum appears to be in conflict and lacks standardization, which makes it difficult to audit and ensure uniform measures are being taken. The cycle count appears on the data report as a criteria, if that criteria is intended to limit the operational cycle, than the use of a curve to extend that cycle should be considered an alteration and rerating of the vessel.</p> <p>If the cycle count on the data report is not intended to be limited by the operating cycle, then some form of standard should be created for the different types of variances that are used to extend this cycle count (by temperature, pressure, etc).</p>
Edition	2019 NBIC, Part 3, 3.4.4 2019 NBIC, Part 2, 2.3.6.8 & 2.3.6.10
Question	Question: Should the use of a curve to extend the number of operating cycles beyond the number of cycles indicated on the ASME data report be considered an alteration/re rating of a pressure vessel (ASME Section 8 Part 3)?

Reply	Proposed Reply: Yes. The use of a curve to extend the number of operating cycles is a change in the material data on the ASME data report and is therefore an alteration of the vessel and should be considered as such through a formal re-rating process.
Committee's Question	
Committee's Reply	
Rationale	

Item 20-9
Define "Verify" in the NBIC Glossary
Part 3, 9.1
Submitted by: Terry Hellman

Explanation of Need: Defining "Verify" in the NBIC Part 1, 2, 3, and 4 to align with the definition in NB-263, RCI-1, Rules for Commissioned Inspectors.

Background Information: The need for the definition of "verify" was initiated from Interpretation Item 18-03, which addresses which Inspector (i.e. "IS" Commissioned or "R" Endorsement) signs the FFSA Form NB-403 when an "R" Certificate Holder is involved with a repair in that region as well as determine what level of review of the Fitness-for-Service the Inspector is expected to complete.

Proposed Change:
9.1 DEFINITIONS

Verify – To determine that a particular action has been performed in accordance with the requirements either by witnessing the action or reviewing records.