NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 11-92

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- Subj: Guidance for Acceptance of the National Board of Boiler and Pressure Vessel Inspectors (NBBI) National Board Inspection Code (NBIC) for Repairs and Alterations to Boilers and Pressure Vessels
- 1. <u>PURPOSE</u>. This circular provides guidance for Coast Guard acceptance of the National Board Inspection Code (NBIC) used by accredited repair organizations conducting repairs and alterations to pressure vessels and boilers subject to inspection by the Coast Guard under Title 46, Code of Federal Regulations., Subchapter F - Marine Engineering (46 CFR Parts 50-64).
- 2. <u>DIRECTIVES AFFECTED</u>. None.

3. <u>DISCUSSION</u>.

- a. In 1968, the Coast Guard adopted the American Society of Mechanical Engineers' (ASME) Boiler and Pressure Vessel Code as the construction standard for pressure vessels and boilers. In 1982, adoption of the ASME Code was extended to include the ASME Code stamp to replace previous requirements for plan approval and shop inspection by the Coast Guard of class I, II, and III pressure vessels not containing hazardous substances. Later, in 1985, adoption of the ASME Code and the ASME Code stamp was expanded to include boilers. As a result, boilers and pressure vessels with the A, E, H, S, U and UM stamps are accepted with minimal Coast Guard involvement, accelerating the approval process and allowing Coast Guard inspection resources to be reinvested in other inspection areas. Current regulations require Coast Guard plan review, inspection, and testing of repairs and alterations to pressure vessels and boilers.
- b. The National Board of Boiler and Pressure Vessel Inspectors (NBBI) is composed of chief inspectors of states and municipalities in the United States and of provinces of Canada that have adopted the ASME Code. Since its organization in 1919, the NBBI has functioned to uniformly administer the rules of the Boiler and Pressure Vessel Code. The NBBI repair and alteration program was conceived as a natural follow-on to the ASME program since ASME's jurisdiction ceases at completion of initial construction. The National Board program is similar in function and parallels the ASME program for new construction. The NBBI requires repairs and alterations to be in accordance with its own standards and the ASME Code. Only accredited repair organizations may perform repairs and alterations. Most repair organizations also hold one or more ASME stamps. Accreditation includes establishment of a Quality Assurance (QA) program, and periodic audits by the National Board. At completion of the repair, the repair organization must prepare and sign a form similar to the ASME Manufacturer's Data Report. All repair work is monitored and inspected by an authorized third party inspector who must establish his/her credentials through rigorous examinations. These inspectors are the

same people who perform inspections during new construction under the ASME Boiler and Pressure Vessel Code. There are more than 2000 inspectors authorized to perform inspections. Once the repairs or alterations are given final acceptance by the inspector, the item is marked by the accredited repair organization.

c. The success of the ASME Code stamp program confirms the validity of third party inspection of boilers and pressure vessels. Pressure vessels containing hazardous materials as cargoes and pressure vessels in low temperature service are included in the NBIC acceptance program when they bear an ASME Code stamp because of their excellent performance record. Acceptance of the NBIC will streamline Coast Guard acceptance of repairs and alterations, improve efficiency, and result in manpower savings for the Coast Guard Marine Safety Center (MSC) and the local Officer-in-Charge Marine Inspection (OCMI).

4. <u>IMPLEMENTATION</u>.

- a. Coast Guard acceptance of the NBIC for repairs and alterations to boilers and pressure vessels, including pressure vessels containing hazardous materials as cargo and pressure vessels in low temperature service will be based on the guidance contained in this circular. Acceptance of the NBIC applies only to boilers and pressure vessels marked with an ASME Code stamp. Older boilers, pressure vessels, and cargo tanks marked only with the Coast Guard symbol are currently not included. [Note: G-MTH is working with the National Board to accept the Coast Guard symbol as equivalent to an ASME stamp, and thus bring older boilers, pressure vessels, and cargo tanks into the National Board program.]
- b. Plan review and inspection for repairs and alterations will continue to be conducted by the Coast Guard when specifically requested by the boiler or pressure vessel owner or user or when deemed necessary by the OCMI.
- -c. A regulatory change will be initiated to adopt the NBIC for repairs and alterations to boilers and pressure vessels inspected by the Coast Guard, including pressure vessels containing hazardous materials as cargo.

Rear Admiral, U.S. Coast Guard Chief, Office of Marine Safety, Security and Environmental Protection

- End: (1) Guide for Acceptance of the NBIC for Repairs and Alterations
 - (2) Sample Application for National Board "R" Certificate of Authorization
 - (3) Sample Certificates of Authorization
 - (4) Sample Form R-l, Report of Welded Repair or Alteration

GUIDE FOR ACCEPTANCE OF THE NBIC FOR REPAIRS AND ALTERATIONS

I. <u>DEFINITIONS</u>

- A. *Accreditation* The term *accreditation* means authorization to use the stamp bearing the official National Board Repair symbol granted by the National Board pursuant to the provisions of the National Board Inspection Code and identified by the Repair Certificate of Authorization.
- B. *Alteration* An *alteration* is any change in the item described on the original Manufacturer's Data Report which affects the pressure containing capability of the boiler or pressure vessel. Nonphysical changes such as an increase in the maximum allowable working pressure or design temperature of a boiler or pressure vessel shall be considered an alteration. A reduction in minimum temperature such that additional mechanical tests are required shall also be considered an alteration. Rerating is considered an alteration whether or not any work is performed on the boiler or pressure vessel.
- C. *Authorized Inspector* The term *Authorized Inspector* (Al) means a person who holds a valid National Board Commission and has qualified by written examination under the laws, rules and regulations of a jurisdiction of a state of the United States of America or a province of Canada and is regularly employed as an Inspector by an Authorized Inspection Agency.
- D. Authorized Inspection Agency The term Authorized Inspection Agency means a jurisdiction which has adopted and administers the ASME Boiler and Pressure Vessel Code as a legal requirement and has a representative serving as a member of the ASME Conference Committee; or an insurance company which has been licensed or registered by the appropriate authority of a state of the United States or a province of Canada to write boiler and pressure vessel insurance in such state or province. A jurisdiction in this context is a city with a population of over 1 million, a state of the United States, or a province of Canada.
- E. *Inspector* The term *Inspector* refers to an Authorized Inspector or Owner-user Inspector as defined in this circular.
- F. *National Board O£ Boiler and Pressure Vessel Inspectors (NBBI)* The NBBI is an organization comprised of Chief Inspectors of states and cities of the United States and provinces of Canada, and is organized for the purpose of promoting greater safety to life and property by securing concerted action and maintaining uniformity in the construction, installation, inspection, and repair of boilers and other pressure vessels and their appurtenances, thereby assuring acceptance and interchangeability among Jurisdictional Authorities responsible for the administration and enforcement of the various sections of the ASME Boiler and Pressure Vessel Code.
- G. *National Board Inspection Code (NBIC)* The NBIC is the manual published by the NBBI to maintain the integrity of boilers and pressure vessels built in accordance with the ASME Code after they have been placed into service by providing rules and guidelines for inspection after installation, repair, alteration and rerating.

- H. *Owner-User* The term *Owner-User* refers to the organization either owning or using the pressure vessel or boiler and initiating the repair or alteration process.
- I. Owner-User Inspector The term Owner-User Inspector means a person who has qualified by written examination under the laws, rules and regulations of a jurisdiction of a state of the United States or a province of Canada, and is regularly employed as an Inspector by an Owner-User Inspection Agency.
- J. Owner-User Inspection Agency The term Owner-User Inspection Agency means an owner or user of pressure vessels or boilers that maintains a regularly established inspection department, whose organization and inspection procedures meet the requirements of the National Board rules and are acceptable to the jurisdiction wherein the owner or user are located.
- K. *"R" Stamp* The term *"R" Stamp* means the stamp applied to the nameplate of a boiler or pressure vessel repaired under the provisions of the NBIC. It is used in a manner similar to the ASME initial construction stamps. It is not applied to alterations.
- L. *Repair* This term means any work necessary to restore a boiler or pressure vessel to a safe and satisfactory operating condition, provided there is no deviation from the original design.
- M. *Repair Organization* The term *Repair Organization* refers to organizations that are:
 1. a holder of a valid National Board certificate authorizing the use of the "R" stamps; or
 - 2. the holder of a valid ASME Certificate of Authorization for use of the appropriate Code symbol stamp; or
 - 3. one which is otherwise authorized by the jurisdiction

II. <u>APPLICATION</u>

- A. This circular provides guidance for Coast Guard acceptance of the NBIC for repairs and alterations to boilers and pressure vessels inspected by the Coast Guard under Title 46, Code of Federal Regulations, Subchapter F Marine Engineering (46 CFR Parts 50-64). The NBIC augments the provisions of Part 59 Repairs to Boilers, Pressure Vessels and Appurtenances. The recommendations in this circular are not mandatory. Owner-users may elect to have plan review and inspection conducted by the Coast Guard.
- B. Adoption of the NBIC applies only to repairs and alterations to boilers and pressure vessels built and stamped in accordance with the ASME Code, including pressure vessels containing hazardous materials as cargo and pressure vessels in low temperature service. Repairs to other boilers and pressure vessels, such as those bearing only the Coast Guard Symbol, will continue to be given Coast Guard plan review and inspection.
- C. The NBIC excludes boilers and pressure vessels used by the petroleum and chemical process industries by recognizing the American Petroleum Industry Recommended Practice RP-510, "Pressure Vessel Inspection Code: Inspection, Repair and Alteration." This exclusion does not affect boilers and pressure vessels inspected by the Coast Guard. For the purposes of Coast Guard inspection, the repair and alteration procedures of the NBIC may be applied to boilers and pressure vessels aboard vessels engaged in the petroleum and chemical process industries.

D. It is the intent of this circular to encourage minimal Coast Guard involvement in the repair and alteration process conducive with the continued safety of personnel, property, and the environment.

III. <u>RESPONSIBILITIES</u>

- A. The Officer-in-Charge, Marine Inspection (OCMI) is responsible for monitoring compliance with the NBIC and Coast Guard regulations for repairs and alterations in the Marine Inspection Zone. The OCMI must determine the Coast Guard's involvement in the repair or alteration of the equipment described in this circular with consideration for ensuring safety, maintaining the expertise of marine inspectors, and complying with the intent of this program.
- B. Professional engineers shall certify repair or alteration plans in accordance with 46 CFR Parts 52 and 54, including identifying compliance with the NBIC and Part 59. Special attention should be given to Coast Guard welding requirements, including preheat and postweld heat treatment, joint details, non-destructive examination, and toughness requirements.
- C. Inspectors must be satisfied that repairs and alterations are performed in accordance with the applicable standards, witness required tests, and assure that other functions deemed necessary to comply with the repair or alteration proposal have been performed.
- D. The repair organization is responsible for providing inspection, documentation and certification of the work, and ensuring prior acceptance of the procedures for the work.
- E. Inspectors, repair organizations, professional engineers approving repair or alteration plans, and equipment owners and users must recognize the importance of their roles and responsibilities and endeavor to confirm the validity of this program by conscientiously meeting the requirements of the NBIC, ASME Code, and Part 59 with respect to repairs and alterations.

IV. <u>PROCEDURES</u>

A. The procedures for acceptance of the NBIC are very similar to those for the ASME Code. Once a pressure vessel or boiler is identified for repairs or alterations the owner-user should contact the repair organization, inspector, and local OCMI. Owner-users of pressure vessels and boilers should consider the capabilities of the repair organization with respect to the nature of the repair or alteration and whether it will be conducted onsite or at the repair facility. All parties should agree on the scope of work to be performed. All repair or alteration proposals, plans and calculations must be submitted to the OCMI prior to beginning work on the pressure vessel or boiler. The OCMI should use this information to determine the appropriate level of Coast Guard involvement. The OCMI must determine what additional requirements are necessary, if any, to supplement the provisions of the NBIC. The OCMI will also evaluate any proposed alternative arrangements. A written proposal bearing a registered professional engineer's certification attesting to compliance with the NBIC and 46 CFR Part 59 may be accepted, at the OCMI's discretion, without further Coast Guard review. No acceptance or approval stamp should be applied to the repair or alteration plans and calculations unless plan review is conducted by the Coast Guard. User fees will be applied in

accordance with applicable guidelines and procedures prior to Coast Guard involvement in the repair and alteration process.

- B. Acceptance of the NBIC does not limit the existing authority of the OCMI. The OCMI may, if deemed necessary, require Coast Guard inspection and plan review either by Marine Inspection personnel or the Coast Guard Marine Safety Center. The OCMI may also require any additional testing or procedures to ensure the adequacy of the work. In any case, repairs and alterations must be performed in accordance with the requirements of 46 CFR part 59.
- C. Form R-1, Report of Welded Repair or Alteration, shall be prepared, signed and submitted as detailed in the NBIC for all repairs and alterations. A registered professional engineer must prepare and certify Form R-1 submitted for all alterations as meeting the requirements of the NBIC, ASME Code, part 59 and any other conditions imposed by the OCMI (see 46 CFR 52.01-5(a) and 54.01-5(e)). [Note: A professional engineer's certification is not required for alterations to heating boilers except under the conditions described in the NBIC or when otherwise mandated by the OCMI as an additional requirement.) Form R-1 may be submitted to the OCMI as the repair or alteration proposal. In all cases, the final completed form must be signed by the inspector then forwarded to the OCMI. The OCMI will review Form R-1 for completeness and to verify the work has been accepted by the attending inspector. A copy should be retained in the Coast Guard's vessel file with all repair or alteration plans and calculations.
- D. Marking in accordance with the NBIC is required for all repairs and alterations to the pressure vessels and boilers described in this circular. Markings under the provisions of the NBIC shall be applied when the work and testing are completed to the satisfaction of the inspector and the OCMI. The "R" stamp shall be applied to repairs only. Altered boilers or pressure vessels shall be marked by either stamping new information or attaching new nameplates as described in the NBIC. Reinstallation of equipment, if necessary, must be satisfactory to the OCMI.
- E. Acceptance of the provisions of the NBIC as described in this circular does not obviate plan review requirements for shipboard systems containing boilers or pressure vessels. Modification of system operating conditions due to repair or alteration of a boiler or pressure vessel within the system necessitates plan submittal and review as described in 46 CFR Part 59.
- F. An entry must be made in the Marine Safety Information System recording the Coast Guard's inspection efforts and the nature of the repair or alteration.

V. <u>USER FEES</u>

A. The Coast Guard's involvement in the repair and alteration process remains a task for which user fees may be applied in accordance with the Omnibus Reconciliation Act of 1990.

OFFICIAL LISE ONLY

APPLICATION FOR NATIONAL BOARD "R" CERTIFICATE OF AUTHORIZATION TO REPAIR ASME AND NATIONAL BOARD STAMPED BOILERS AND PRESSURE VESSELS

The National Board of Boiler and Pressure Vessel Inspectors 1055 Crupper Avenue	Repair symbol and certificate no.	Repair symbol and certificate no.		
Columbus, Ohio 43229	(date issued)	(date renewed/revised)		
Castlemen	(date expired)	(personnel)		
(name of company)	hereby attests that it can repair a	nd can demonstrate the		
capability of repairing:		***		

and makes application for a National Board of Boiler and Pressure Vessel Inspectors Certificate of Authorization permitting the use of a National Board Repair stamp for a period to be specified.

In consideration of receipt of said Repair ("R") steep, the company agrees that the stamp shall be used only by the named company and in the manner prescribed in the National Board Inspection Code. The company further agrees to surrender the stamp and certificate immediately at any time the National Board may request. Further, the company agrees to surrender said stamp should it discontinue the above mentioned repair activities or no longer have a valid Certificate of Authorization in its possesion. The company further agrees to pay any and all legal fees and National Board costs incurred in the recovery of said stamp and certificate if the above is not complied with and action is necessary. Further it is agreed that the authorized jurisdiction or the National Board may make audits or unannounced visits as deemed necessary to assure compliance with the rules of The National Board of Boiler and Pressure Vessel Inspectors.

UNDER NO CIRCUMSTANCES SHALL THE NATIONAL BOARD REPAIR SYMBOL STAMP BE USED WITHOUT THE ACCEPTANCE OF AN AUTHORIZED INSPECTOR.

IMPORTANT

The name and address of the Authorized Inspection Agency performing the company repair inspection service is:

	Title Date
	Authorized representative
Signed:	
	Authorized representative
Print or type:	
	(if different from physical address)
	Mailing city, state or province, country, zip code
	Mailing address (if applicable)
repairs are to be carried out in your shop and at field sites.	City state or province country zip codes (as to be issued)
heat treatment , NDE, etc. Also indicate if such	Address (physical) (as to be issued)
"In this space describe the scope of your repair	Company or corporate name (as to be issued)
*In this space describe the scope of your repair	Company or corporate name (as to be issued)



Excerpts from the National Board Bylaws

ARTICLE V NATIONAL BOARD CERTIFICATES OF AUTHORIZATION

SECTION 5.1 SCOPE OF CERTIFICATES OF AUTHORIZATION

In order to maintain the integrity of nuclear components, ASME boilers, pressure vessels, and pressure relief valves which require repair, modification or replacement, the National Board may issue certificates of authorization to organizations as follows:

5.1.1 "R" Repair Stamp.

A certificate of authorization to repair ASME stamped boilers or pressure vessels constructed under the provisions of Sections I, IV or VIII (Divisions 1 and 2) may be issued to qualified organizations. Repairs shall be carried out in accordance with the requirements of the National Board Inspection Code.

SECTION 5.3 SUSPENSION OF CERTIFICATES OF AUTHORIZATION.

A National Board Certificate of Authorization may be suspended or withdrawn by the Executive Director of the National Board if, after investigation, it has been established that the organization to which such certificate was issued has failed to follow the requirement of these Bylaws and applicable rules.

SECTION 5.4 RECONSIDERATION AND APPEALS.

An applicant for or a holder of a National Board Certificate of Authorization may request reconsideration by the Executive Director and may appeal the original or any reconsidered decision regarding the issuance, suspension or withdrawal of such certificate to the National Board Board of Trustees whose decision on appeal shall be final. At the time of such appeal, the appellant may appear in person; may be represented by the person of his choice; and at his own expense may make a stenographic record of the proceeding, a copy of which shall be furnished to the National Board at no cost.

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THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS
Certificate of Authorization
Number - R
is hereby authorized to use the
in accordance with the applicable rules of The National Board of Boiler and Pressure Vessel Inspectors. The use of the Repair symbol and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the ap- plication. Any repair stamped with this symbol shall have been made strictly in accordance with the provisions of the National Board Inspection Code. THIS AUTHORISATION issued or renewed on by
THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS Chairman Rogn A. Correct Executive Director A. M. Jonal
Secretary_Slotu Church

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B B B -
THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS
Certificate of Authorization
Number · R
is hereby authorized to use the of The National Board of Boiler and Pressure Vessel Inspectors for "NATIONAL BOARD CODE REPAIR AT THE ABOVE LOCATION AND EXTENDED FOR FIFLD REPAIRS CONTROLLED BY THIS LOCATION"
in accordance with the applicable rules of The National Board of Boiler and Pressure Vessel Inspectors. The use of the Repair symbol and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the ap- plication. Any repair stamped with this symbol shall have been made strictly in accordance with the provisions of the National Board Inspection Code.
THIS AUTHORIZATION issued or renewed on
and expires on by THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS Chairman Rogn A. Commu Executive Director A. M. Monall Secretary Secretary

	Enclosure (4) to NVIC
FORM R-1, REPORT OF WELDED U REPAIR OF	
as required by the provisions of the National Boar	rd inspection Code $\mathbf{I} \mathbf{I} = 92$

Work performed by	(name of repair or alteration	organization)	۹)	O. no., job no., etc.)
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Owner				
	(30	Idress)	<u> </u>	<u></u>
Location of installation	me)			
	(ac	Idress)		
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Identifying nos.:(mtris. serial no.)	(original National Board.no.)	(jurisdiction no.)	(other)	(year built)
Description of work:	k, separate sheet, or:sketch if necessary	†	· · · · · · · · · · · · · · · · · · ·	
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		<u> </u>	Pressure test, if ap	plied ps
	(name of part, item number, r	mfris. name and identifying sta	amp)	
	(name of part, item number, r	mfris. name and identifying sta	amp)	
Remarks:	(name of part, item number, r	nfris. name and identifying sta	amp)	
Remarks:	(name of part, item number, r	nfris. name and identifying sta	smp)	
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N8-66 This form may be obtained from The National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Ave., Columbus, OH 43229 Rev 5

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	made in this report are correct and	that the design changes described in	this report conform
The undersigned certifies that the statements i	hade in find report of or other		
to the requirements of the National Board mat	to use the	symbol expires	, 19
ASME Certificate of Authorization no.			н. ,
10		Signed	
Date 19	(name of organization)	lauthorized	representative)
C	ERTIFICATE OF REVIEW OF DESI	GN CHANGE	
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The undersigned, holding a valid commission is	and employed	by	
petency issued by the state of province of	has examined	the design change as described in th	s report and verifies
the test of his boowledge and belief suc	th change complies with the applic	able requirements of the National Bo	ird Inspection Code.
that to the best of his knowledge and bend of	signed nor his employer makes a	ny warranty, expressed or implied, o	oncerning the work
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described in this report. Furthermore, hermici	m or connected with this inspectio	n, except such liability as may be prov	ded in a policy of in-
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surance which the undersigned similarice co			
- AD Signed	.	Commissions	
Date 19 Signed	(Authorized Inspector)	(National Board (incl. endorser	nents), state, prov. and no)
	CONSTRUCTION CERTIFIC	ATION	
The undersigned certifies that the statement	nts made in this report are corr	ect and that all construction and w	orkmansnip on this
conform to the	National Board Inspection Code.		
(repair or alteration)			19
Certificate of Authorization no.	to use the	symbol expires	
		Signod	
Date, 19	trepair or alteration organization)	authorize (authorize	representative)
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	CERTIFICATE OF INSPEC	nier and Pressure Vessel Inspectors a	nd certificate of com-
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petency issued by the state or province of	and employe	cribed in this report on	
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and state that to the best of my knowledge a	nd belief this work has been done	any warranty expressed or implied.	concerning the work
By signing this certificate, neither the under	rsigned nor my employer makes	any warranty, expresses of implied,	any personal injury.
described in this report. Furthermore, neithe	er the undersigned nor my emplo	yer shall be hable in any marine for	ided in a policy of in-
property damage or loss of any kind arising fro	om or connected with this inspecti	on, except such hadness as may be pro	terms of said policy.
surance which the undersigned's insurance co	ompany may issue upon said objec	a and men only in accordance with the	
		Committeinnt	
Date 19 Signed	(Authorized Inspector)	(National Board (incl. endorse	ments), state, prov., and no.)