

PRESSURE POINTS

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HSB GLOBAL STANDARDS BROADENS INDIAN BOILER REGULATIONS SERVICE OFFERING IN CHINA

HSB Global Standards (HSB GS) is pleased to announce the expansion of our Indian Boiler Regulations (IBR) accreditation to now offer certification services in China as both an Inspection Authority and a Competent Authority. In the past our accreditation was for all countries with the exception of China and India. Global manufacturers have been exporting to India over the past decade and with the expansion of our accreditation, HSB GS Chinese customers will now be able to use one inspection body to support their exporting needs. The scope of services includes Design Appraisal and Certification, Material Certification, Welder Qualification Certification, Fitting/Valve Certification, and Boiler and Boiler Component Certification.

India is the world's fourth largest energy consumer after United States, China, and Russia. Currently, India is experiencing a major shortage of electricity generating capacity. The International Energy Agency estimates India will add between 600 to 1200 GW of additional new power generation capacity before 2050. At present, there are close to 150 power generation projects in India totaling \$100 billion (USD) with the majority being coal fired power stations.

HSB Global Standards has a worldwide staff of qualified and experienced Competent Persons to provide IBR Inspection Services on behalf of manufacturers, end users, owners and contractors to help assure that work is being done in accordance with the Regulation.

HSB GS THIRD PARTY INSPECTION SERVICES EXPANDED SERVICE OFFERING

From the inception of the ASME Boiler and Pressure Vessel Code in 1914, HSB Global Standards has provided third party inspection of boilers and pressure vessels. Increasingly, we are asked to extend our industry-leading experience to inspection of pressure equipment built to other pressure equipment standards and customer specifications. We are pleased to announce that we have significantly expanded our offerings to address that market need.

The Third Party services we offer include monitoring of fabrication, witnessing of pressure tests, inspection to customer specifications, supplier and vendor surveillance, expediting, witnessing of material testing, controls, evaluation, and design verification.

HSB Global Standards simultaneously verifies specification compliance while providing inspections required for formal certification to international standards. We optimize inspection resources by leveraging our familiarity with manufacturer's quality systems and procedures. We also provide effective global coordination of inspection activities and a uniform inspection approach.

All of our inspection professionals are qualified as National Board Commissioned Inspectors, with specialists qualified to additional local requirements, where those exist. All are supported through a proven and industry-leading quality structure. We can quickly provide options to our inspection staff, and you, for resolving conflicts that arise during fabrication.

We cover all the main sectors and industries for our Third Party Inspection Services including Petrochemical, Oil/Gas, Utilities, Pharmaceutical, LNG, Manufacturers, Mining, Pulp & Paper and Food Processing.

Based on nearly 150 years of inspection services and expertise as one of the largest Authorized Inspection Agencies, our staff of highly qualified inspectors and comprehensive industry knowledge uniquely position HSB Global Standards to be a provider of high quality third party inspections.

ASK THE ENGINEER

By Codes and Standards Group

Q My shop is constructing a Section VIII Division 1 vessel that uses SA-516 Grade 70 Normalized Plate Material. The Vessel is not exempted from Impact Testing. Can I use an existing PQR qualified with SA-516 Grade 70 as rolled plate to support the WPS I want to prepare to weld on this vessel ?

A The short answer to the above question is No. UG-84(h)(2)(-b) says “be in the same heat treated condition;” as one of the requirements to be fulfilled for the test plate material used to qualify the PQR with impact testing. Therefore a PQR qualified with SA-516 Grade 70 as rolled plate cannot support a WPS written to weld SA- 516 Grade 70 Normalized Plate Material.

Someone could potentially misinterpret the phrase mentioned above in quotes to be the post weld heat treatment (PWHT) instead of the heat treatment condition of the base material.

The following interpretation makes it very clear that UG-84(h)(2)(-b) refers to the base material heat treatment condition.

Interpretation: VIII-1-92-51

Subject: Section VIII, Division 1 (1989 Edition, 1991 Addenda); UG-84(h)(3)(b)

Date Issued: March 9, 1992

File: BC88-434 (BC89-465 and BC89-467)

Does the phrase “Same heat treated condition” in UG-84(h)(3)(b) of Section VIII, Division 1 mean that the following would be considered different heat treated conditions?

- as rolled
- annealed
- normalized
- normalized and tempered
- quenched and tempered

Yes.

Note: The reference to UG-84(h)(3)(b) in question is paragraph number UG-84(h)(2)(b) in the current Code.

Note that Section IX does not list the base metal heat treatment condition as a supplementary essential variable. So this is a perfect example of a construction code invoking a supplementary essential variable in addition to the ones provided in Section IX.

Another subtle point to be noted here is that a PQR qualified in accordance with Section IX rules doesn't need to show the base metal heat treatment condition in the PQR since it is not a supplementary essential variable in Section IX.

However in order to make the same PQR compliant with Section VIII Division 1 impact testing rules, base metal heat treatment condition needs to be recorded in the PQR either explicitly or by attaching a material test report of the test plate material used to qualify the PQR.

In summary, the absence of verifiable evidence about the base metal heat treatment condition can make the acceptability of an existing PQR meeting Section IX requirements questionable for Section VIII applications.

NPT CODE SYMBOL STAMP

In July of 2014 a receipt inspection of a code item showed a nameplate with NPT Code Symbol Stamp letters arranged horizontally as shown below in lieu of the NPT Code Symbol Stamp depicted and required by NCA-8000 or WA-8000. ASME Staff have confirmed that both types of NPT Symbol Stamps have been issued by ASME and that the NPT Code Symbol Stamp Letters arranged horizontally could have been provided for use since they were initially procured several years ago.

ASME Code Case N-852, “Application of the ASME NPT Stamp, Section III, Division 1,2,3 and 5,” adopted on 09FEB2015, states that the NPT Code Symbol Stamps listed below are equivalent and may be used for construction to the 2010 Edition and earlier Editions and Addenda of Section III;



Code Case N-852 will be published in the next supplement. ASME has contacted the US Nuclear Regulatory Commission (NRC) about ASME NPT Stamp equivalency. It is expected, in the next few months, that the NRC will issue a generic communication to industry, similar to RIS 13-07, documenting NRC staff position on the use of the equivalent NPT Code Symbol Stamp. For further questions about this topic please contact Paul Coco; Paul_Coco@hsbct.com

HSB ENGINEER SHEDS NEW LIGHT ON 150-YEAR-OLD MARITIME MYSTERY

What caused the largest maritime disaster in U.S. history; why was it lost to history until recently; and how is it linked to HSB?

On April 27, 2015 a new documentary “Remember the Sultana” premiered in Memphis, Tenn. This private screening commemorated the 150th anniversary of the Sultana steamboat explosion in which more than 1,700 of the 2,400 passengers crammed onboard died. The majority were soldiers recently released from Confederate prisoner of war camps and headed home.

Legally, the Sultana could only carry 376 people. This, however, was only one of many issues leading up to the explosion, as HSB Principal Engineer Pat Jennings learned. When asked to talk about the Sultana in the documentary, Pat reviewed testimony from surviving passengers and crew, as well as maintenance records on the condition of the steamboat before it left the wharf that day.

Finding discrepancies in the records and the prevailing theories of why three boilers exploded, he looked further into the design and construction of steam boilers in the 1800s, what engineers knew then, and the conditions leading up to the explosion. His efforts led to a new theory 150 years after the tragedy, which he recently shared with more than 100 employees. (See video and blog links below.)

“This disaster remains the largest maritime disaster in American history – larger than even the Titanic. Yet very few people have heard of the Sultana,” Pat told his audience.

He spoke about the early days of steam power when catastrophic boiler explosions were common events, occurring about twice per week. It was known then that boiler explosions are caused by the sudden generation of a large amount of steam. But, he said, they didn’t know what caused it.

The most common theory for the Sultana explosion points to the steamboat careening and low water sloshing on red hot iron in the boilers, which created a sudden burst of steam and caused the explosion. But, said Pat, “There are big discrepancies in this theory. Only one of these experts (who testified that this was the cause) was on the boat, and he was sleeping at the time. No survivors including the pilot mentioned any rocking of the boat prior to the explosion.”

While reading through pages of direct testimony, Pat noted that the boiler sheets were burned and a temporary repair had been made. But, he said, that was not the root cause of the explosion.

He attributes the tragedy to three factors: the iron used

for boilers was brittle – especially when overheated; the muddy Mississippi River water taken into the boilers; and the Tubular boiler design, which was hard to clean and developed incrustation.

Remembering the Sultana

Pat also pointed to greed and corruption as a cause for the high number of deaths. He told how two additional boats had left the wharf empty that same day. “The boat captains were paid \$5 for enlisted men and \$10 per officer. This was a big incentive for bribery.” In the end, he said, no one was held accountable. With the Civil War having just ended and President Lincoln assassinated, people were tired of war and death and they barely acknowledged this tragedy.

Two men, however, used it as a catalyst to found The Hartford Steam Boiler Inspection and Insurance Company (HSB) one year later on June 30, 1866. The “Hartford Standards” were developed in 1889 and became the specifications for boiler design, manufacture and maintenance. In 1914 these standards were incorporated into the original ASME code.

Today, HSB is a sponsor of the Sultana documentary which premiered in Tennessee on April 27. Late last year, the camera crew visited HSB to talk with Pat Jennings, CEO and President Greg Barats, and Denis O’Shea. For more information about the documentary and to see excerpts of interviews with descendants of both the victims and survivors, visit <http://www.sultanadocumentary.com/>.

Pat Jennings also presented his conclusion to the 150-year-old mystery of what caused the largest maritime disaster in U.S. history on April 27 at the National Board of Boiler and Pressure Vessel Inspector’s 2015 General Meeting.

“It was fun, interesting, and personally rewarding to dig into the history and find something that no one had noticed before,” said Pat. “That unknown being what the engineers did not know and how the incorrect testimony influenced people for 150 years into a wrong conclusion. I thoroughly enjoyed

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the experience and met some interesting people who are passionate about the history of the Sultana.”

A video of Pat’s Sultana employee presentation is available online. You can also follow Pat’s blog: “The Sultana: A story of greed, chaos and fire” at <http://blog.hsb.com/2015/03/30/sultana/>. Subscribe to HSB’s blog if you would like to be notified by email whenever a new article is published. Enter your email address in the form on the right column of the blog (or the pop-up in the bottom right), click follow, and then confirm via the link sent to your email.

BOB WIELGOSZINSKI HSB GLOBAL STANDARDS RECEIVES ASME GRADE OF FELLOW

Bob Wielgoszinski, HSB Global Standards, recently received the ASME grade of Fellow in recognition of his significant contributions to American Society of Mechanical Engineers (ASME) as well as his 42 years of service.

There are over 100,000 ASME members worldwide, and only 3% of them are Fellows. Bob was nominated by his peers from the Section I Boiler and Pressure Vessel Code committee in recognition of his dedication, achievements, and longevity within ASME Code Committees.

The ASME Committee of Past Presidents confers the Fellow grade of membership on worthy candidates to recognize their outstanding engineering achievements. Nominated by ASME Members and Fellows, an ASME Member must have 10 or more years of active practice and at least 10 years of active corporate membership in ASME.

In 1983, Bob joined ASME. He is very active within the group and serves on numerous Code committees. Some of the Committees and Boards Bob serves on include Section I Power Boilers, Section IV Heating Boilers, Qualification for Authorized Inspection (QAI), Committee on BPV Conformity Assessment, and Subcommittee on Accreditation for QAI.

Bob has an extensive background in engineering and boiler operations. His career initially started out in the US Navy where he operated boilers and main propulsion machinery equipment. He then worked as an inspector, quickly moving his way up to Supervisor, and QA Manager. He joined HSB Global Standards in 1998, and currently holds the title of Principal Code Consultant.