PRESSURE POINTS

The Quarterly Newsletter of HSB Global Standards Code Services

MAY 2005

ANNOUNCEMENTS

Pressure Points is BACK!

In an attempt to better connect with our clients who do not regularly visit our website, we are reintroducing the Pressure Points publication for your review and information. We hope it will peak your curiosity to visit our website at www.hsbglobalstandards.com to check out the many features available, including: PED developments, export requirements, ASME Code Interpretations, Tech Bulletins, Code Addenda Synopsis, and many more. We are working diligently to continuously update and expand the available information presented.

Have a technical Code question, and don't know who to ask? Try our "Ask the Expert" utility on the website for a painless way to gain access to technical support over the internet! Prefer talking to a human being? We now have a TOLL FREE Technical Hotline at 1-866-344-2472 (1-TOO-DIG-2HSB) just for you! Give us a call!

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Online features requested by clients:

- *Annotated Code Interpretations*
- *Automated Inspection Requests*
- *International Import Requirements*
- *PED Updates*
- *Online Bookstore*
- *Technical Bulletins*
- *Code Synopses*
- *Quick Reference Guides*
- *"Ask The Expert"*
- *Online Training*

HSB Global Standards new website plays an instrumental role in providing clients and professionals valuable insights into the pressure equipment industry.

Visit *www.hsbglobalstandards.com* today to fully experience the benefits of being an HSB Global Standards client. If you are not a current client, please visit our website to learn more about the information available.

ASME CODE NEWS

China Special Equipment Licensing

By Nino Olivares, Senior Code Consultant

Overseas manufacturers exporting boilers, pressure vessels, and pressure piping components to China are required to be accredited, and in possession of a Safety Quality License (SQL) issued by the Chinese Government. Effective January 1, 2004 a new requirement for boiler and pressure vessel manufacturer licensing took effect, replacing the Implementation Regulation of Imported Boiler and Pressure Vessel Safety Quality Licensing System administered by the former Ministry of Labor of the Peoples Republic of China. Current holders of SQL's are still authorized to export products to China within the scope and terms of its validity. New license application and renewal of the SQL made after January 1, 2004 shall be processed and administered under the Manufacturer's License Program. This article identifies a few of the administrative changes in the new licensing rules, and corresponding technical revisions that were adopted for boilers and pressure vessels.

Requirements for Boiler and Pressure Vessel Manufacturing License

Some of the major differences in the current licensing regulation are the prescriptive rules that apply to the technical staff of the manufacturer. The regulation mandates a specific technical staff ratio that a company should have for a specific license level.

The regulations currently make 4 different licensing levels (A through D) available to applicants. Each level defines the type of product and fabrication a manufacturer may be approved to produce. For example, Level A is for super high pressure vessels, field assembly of spherical vessels and medical hyperbaric type vessels, to name a few. Level B is for seamless and welded gas cylinders. Level C is for transportable type vessels (by railway and tank trucks) including those for cryogenic service. Finally, Level D is for low and medium operating pressure. Boilers also have 4 different classification levels, mainly separated by pressure, with Level A designated for unlimited or highest pressures and Level D designation for the lowest operating pressure.

Requirements for Boiler and Pressure Vessel Manufacturing License *(Continued from previous page)*

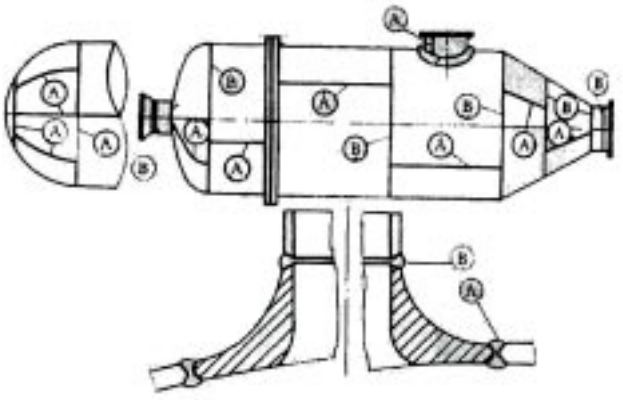
Under the new regulation, the manufacturer shall have the capability of producing the main body (shells and heads) of boilers and pressure vessels independently. The regulation considers it to be unacceptable to subcontract fabrication of boiler and pressure parts. Our interpretation of the rule is that it is prohibited to subcontract fabrication to companies that do no have a valid Chinese manufacturing licence.

The regulation requires a company applying for the license to have a fully implemented quality management system suitable for the products they intend to construct. A quality program in accordance with ISO 9001, or with programmatic elements similar to an ISO 9001 supplemented by the additional attributes required by the regulation are acceptable approaches. In some cases, manufacturers have been successful in applying for and being issued the license using an ASME quality program enhanced with technical and administrative features of the regulation.

Technical Requirements for Boiler and Pressure Vessels

Foreign Manufacturer's may adopt technical codes and standards that are internationally recognized with prior approval from Boiler and Pressure Vessels Safety Supervision Administration of the General Administration of Quality Supervision Inspection and Quarantine (AQSIQ), the Peoples' Republic of China, provided that the additional requirements (material chemistry, design safety factor, joint efficiency and NDE, etc.) specified in the regulations are fully satisfied.

Table 1 (Design Safety Factor for Steels, AI, Cu, Ti and their Alloys) and Table 2 (Joint Efficiency of Welded Pressure Vessels) from the regulations are posted on our website with this edition of Pressure Points.



Scheme of Category A and Category B Welded Joints

Other design approaches such as design by stress analysis, proof test, or calculations other than those specified in the relevant standard (GB-150) of the regulation shall be registered at the Safety Supervision Administration of AQSIQ. Similar to Section VIII-1 of the ASME Code, the Chinese regulation uses the term "Category" to define the location of a weld joint as shown in the above sketch. The Category of the weld determines the amount of NDE examination for a specific weld joint, and assigns a joint efficiency.

We cannot begin to address all the changes and requirements for obtaining and applying for a Chinese manufacturing license in the space provided here. We strongly recommend the applicable regulations be used in the actual design and construction of special equipment for export into China.

Please consult our website or call Nino Olivares of our Codes and Standards staff at 860-722-5662 for further information or assistance.

PHOSPHOR IMAGING PLATE RADIOGRAPHY

by John Swezy, Senior Code Consultant

ASME Boiler and Pressure Vessel Code, Section V Nondestructive Examination, has recently adopted a new radiographic technique for use in accordance with Article 2. This technique uses a phosphor imaging plate in lieu of radiographic film. Code Case 2476 has been approved to allow the immediate use of this technique while awaiting publication in the 2005 Addenda. Most construction Codes will allow use of this radiographic examination technique by their reference to Section V, Article 2 radiographic examination.

Phosphor imaging plates are equally responsive to X-rays and gamma rays, allowing their use with X-ray machines and isotopic radiographic sources. The imaging plate is more sensitive to radiation than standard radiographic film, allowing a less intense radiation beam, and shorter exposure times for creating an acceptable radiographic image. This permits the use of a smaller radiation source, allowing a much smaller exclusion area to be established when setting up a shot (typically just a few feet), and results in significantly reduced accumulated radiation exposure doses for radiographic examiners.

Composite images may be produced in a single shot, regardless of the varied object thicknesses and densities. The processing equipment allows the image brightness to be fully adjustable, allowing the viewer to adjust the image for each thickness, including the associated IQI and the essential hole for each area of interest. Film density is not applicable to this technique.

Processing of the phosphor imaging plate has further advantages. The imaging plate processor and image handling software are PC based. While the initial cost of the imaging plate is higher than a piece of film, the imaging plate may be reused indefinitely for further exposures, potentially replacing many thousands of radiographic film pieces over its useful service life. The useful life of the imaging plate is only limited by its physical condition. There are no environmentally sensitive chemicals used when processing the imaging plate, eliminating the need for their preparation, handling and disposal. Image files may be stored in a small physical area (on a CD ROM) as compared to filing bulky film archives. Image files are easily shared or transmitted for viewing and review (as mailed CD ROMs or attachments to e-mails) without risking loss or damage to the original image. Processing equipment and image handling systems are comparable in price to automatic film development equipment.

Examination procedures and/or technique sheets must address the unique parameters for radiography using this media. Most radiographic examiners experienced with film based radiography may be quickly trained to adjust their techniques for using phosphor imaging plate technology. Special training is needed for the processing and image handling equipment. Training must be addressed by the employer's written practice. Article 2 requirements for image identification, IQI selection and placement, backscatter or film side IQI indicator placement, documentation of the radiographic image parameters, and interpretation of the image on a reader sheet remain similar to those for film based radiography.

For a more detailed technical bulletin on this information, please see our website, or contact John Swezy at 860-722-5205 more information or assistance.

PED Guideline Developments

By Alex Garbolevsky, Senior Code Consultant

To promote a more uniform application of the Pressure Equipment Directive, concensus Guidelines are established within the European Commission's Working Group "Pressure" (WGP). The working group assembles representatives of European Union Member States, European Federations, the Notified Bodies Forum and CEN (European Committee for Standardization), and is chaired by a representative of the European Commission services.

PED Guidelines are "…not a legally binding interpretation of the Directive." The legally binding text remains that of Directive 97/

PED Guideline 6/13 – NDE Personnel Qualifications

Approval of Nondestructive Examination (NDE) personnel for PED Categories III & IV need not be according to the de facto "harmonized standard" EN 473, but may be according to a program accepted and audited by a competent Recognized Third Party Organization (RTPO) for NDE. In March 2004, the European Working Group "Pressure" published PED Guideline 6/13 on the approval of NDE personnel, stating that "[NDE] personnel certified under standards other than the harmonized standards may be approved by an RTPO, provided it is satisfied that certification criteria equivalent to the harmonized standards (i.e., EN 473) have been met".

RTPOs have agreed to a "Code of Practice" which will ensure a uniform approach to approving NDE personnel. When assessing personnel not certified under the harmonized standard EN 473, the RTPO must directly assess each individual for approval in each of the desired NDE methods. The assessment shall consist, as a minimum, of witnessing the application of appropriate NDE procedures by the candidate to examine permanent joints in pressure equipment.

The emphasis is therefore moved away from a system audit against the criteria of, for example, SNT-TC-1A, towards an individual competence based assessment taking into consideration the criteria of European standard EN 473 (General Criteria for Qualification and Certification of NDT Personnel). However, it is emphasized that the resulting NDE approval is not an EN 473 certificate of competence and will not satisfy the requirements of a number of harmonized standards.

Proposed PED Guideline 8/16 – Pneumatic Pressure Test

Proposed PED Guideline 8/16 reinforces the need to consult with the responsible Notified Body prior to applying the substitute test. It also clearly states that when such a substitution is made, "additional measures", (i.e.; supplementary NDE) must be taken, and the Member State's jurisdictional authorities should be consulted.

Welder Approval "Prolongation":

"Prolongation" (or "extension") of welder qualifications has been affected by publication of the revised "harmonized" reference for welder qualifications, EN 287-1: 2004. The PED "approval" process for welders establishes an initial 2-year validity period which is subject to "prolongation" (or "extension"). The validity of the approval certificate may be

PED Guideline Developments *(continue from previous page)*

prolonged for additional periods of two years, provided the production welds deposited by the welder are of the required quality and there is no specific reason to question the welder's skill and knowledge.

The pressure equipment manufacturer has to confirm every six months that the welder has been working within the initial range of the approval, and retain supporting documents on file for two years. The associated requirements are as follows:

The following variables must be confirmed and traceable for prolongation:

- Welding processes
- Product type (pipe, plate)
- Type of weld
- Material group
- Welding consumable designation
- Material thickness (may vary within approval range)
- Outside diameter (may vary +/- 50% from initial test piece)
- Welding position
- Weld details

Prolongation at each two-year period is possible when:

- Records supporting prolongation are traceable to the welder and WPS(s) used.
- Documentation includes volumetric NDE (RT or UT) or destructive testing (fracture or bend test) made on 2 welds within a 6 month period prior to the end of the validity period.
- Test specimens have met the requirements of Clause 7 of EN 287-1 (ISO 5817). Alternatively, acceptance standards from the fabrication code may be used, if acceptable to the Noti fied Body.
- Test results demonstrate the welder has reproduced the original test conditions, except for thickness and pipe OD.
- One weld may cover several qualifications where the ranges overlap
- Combined process welds may support multiple prolongations, e.g. a combination weld of GTAW and SMAW could prolong both GTAW and SMAW qualifications (approvals).

Please consult our website or call Alex Garbolevsky of our Codes and Standards staff at 860-722-5098 for further information or assistance.

LATEST NEWS

Error in 2004 Edition of Section VIII, Division 1:

The 2004 Edition of Section VIII, Division 1 has erroneously changed the PWHT holding temperature for P-No. 1 and P-No. 10B from 1100F to 1200F. DO NOT use the PWHT holding temperatures for P-No. 1 and P-10B found in Table UCS-56 of Section VIII, Division 1 in the 2004 Edition. Use the previously published values of 1100F.

This change was not the result of a voted action, but a publishing error. ASME has acknowledged this error and has committed to issuing an errata correction prior to the mandatory implementation date of March 31, 2005.