



SPOT RADIOGRAPHIC EXAMINATION

A very important requirement of spot radiographic examination that in the past has occasionally been overlooked by some fabricators is described in Section VIII Div 1, UW 52-(b)-(3). This paragraph states: "Each spot examination shall be made as soon as practicable after completion of the increment of weld to be examined." The key words in this paragraph that have been overlooked are "after completion". In other words, all the welding to be covered by a spot radiograph, must be completed before such a spot is taken. If additional welding that requires spot radiographic examination is performed after an initial spot was taken, this additional welding needs to be examined by an additional spot.

Other important requirements of spot radiographic examination are:

- One 6" spot shall be examined on each vessel for each 50 ft increment of weld.
- For multiple identical vessels each with less than 50 ft of weld, up to 50 ft of cumulative weld may be covered by one 6" spot.
- A sufficient number of spot radiographs shall be taken to examine the welding of each welder or welding operator.
- The location of the spot shall be chosen by the Authorized Inspector (A.I.), although it is a common practice to allow the NDE subcontractor to select a spot at random. However, fabricators must be aware that at any time the A.I. has the right to select the spot to be examined.

In short, one 6" spot per 50 ft of weld per vessel (or multiple identical vessels) is required for each welder/welding operator after completion of each weld increment.

IN-SERVICE PRESSURE EQUIPMENT INSPECTORS CERTIFICATE OF COMPETENCY

The Alberta Boilers Safety Association is pleased to announce a new certification program for In-Service Pressure Equipment Inspectors. The objective of this new program is to provide assurance that persons engaged in the certification of in-service pressure equipment have themselves been certified competent to acceptable Alberta standards.

A certificate of competency may be issued to candidates who satisfy the certification standards. The authority and responsibility of the certificate holder will be limited to those duties designated by his/her employer under the employer's ABS-accepted Pressure Equipment Integrity Management system (Owner-User Program).

The certification process will include an evaluation of the candidate's education, experience and qualifications. Prerequisites include certification by the Safety Codes Council, the National Board or the American Petroleum Institute. Candidates will also be required to pass an examination.

The examination will verify the candidate's knowledge of Alberta pressure-equipment-related legislation. It will also include questions about the codes and standards referenced in the legislation. Persons who hold permanent Safety Codes Officer certification will be eligible for certification without examination.

There will be two distinct types of certificates of competency issued.

Certificate of Competency In-Service Pressure Vessel Inspector

This certificate will qualify the holder to certify in-service pressure vessels. To be eligible

for certification the candidate will hold permanent certification as SCO Level III (Boiler), or API 510 certification, or will have successfully challenged the API 510 certification examination within the previous 5 years.

Certificate of Competency In-Service Boiler & Pressure Vessel Inspector

This certificate will qualify the holder to certify in-service boilers and pressure vessels. To be eligible for certification the candidate will hold permanent certification as SCO Level II (Boiler), or a National Board Commission, or will have successfully challenged the National Board Commission examination within the previous 5 years.

ABSA will begin accepting applications immediately. The first examinations will be conducted at ABSA's Edmonton offices during the week of the 26 -30 November, 2001. Thereafter, examinations will be conducted the last week of February, May, August and November. An application form, examination syllabus and reference materials will be available at our website or from any ABSA office after September 30. A \$160 certification fee is payable with the application. Certificates will be valid for 5 years from date of issue.

The pressure equipment industry in Alberta identified a need to improve the system used to certify in-service inspectors. This program was developed to satisfy that need. Certification of in-service inspectors will help enhance the high level of pressure equipment safety in Alberta. We look forward to continuing working together with industry to further develop pressure equipment safety programs.

FRAUDULENT MATERIAL ALERT

Recently, ABSA received reports of several cases regarding counterfeit fittings and illegally modified fittings.

Some examples of counterfeit or illegally modified fittings included a case where the counterfeit flanges were stamped with a facsimile of a reputable manufacturer's logo and a case where flanges were fitted with a welded sleeve to increase the flange schedule, not unlike the situation with some Chinese flanges several years ago. In some cases the counterfeiters may fake Material Test Reports (MTRs) by altering MTRs from a legitimate manufacturer. If someone goes to the trouble to try to pass his product off as being manufactured by someone else, it is a pretty safe bet that the material is not what it purports to be. The consequences of that could be very serious! A knockoff wrist watch is one thing, but steel of indeterminate chemistry being passed off as chrome-moly material is quite another.

Fabricators, contractors, users and inspectors of pressure equipment should always be on the alert for possible counterfeit or illegally modified fittings or MTRs. Perhaps the stamping on the fitting doesn't look as professional as one would normally expect from that manufacturer or the typeface or alignment on the MTR looks a bit irregular. Fittings or documentation that looks suspicious should be investigated and not just accepted because the fittings are stamped or an MTR is available. If it is suspected that fittings or documentation may be counterfeit, it is recommended that the identified manufacturer be contacted to confirm that the items in question are genuine. Confirmed cases of counterfeit or illegally modified fittings or documentation should be reported as soon as possible to the local jurisdictional authorities (ABSA in Alberta). The jurisdictional authorities will then be able to alert the entire industry.

It should be noted that a common modification of flanges that is acceptable to ABSA is the taper boring of the flange to reduce the schedule. After machining, the

PRESSURE RELIEF VALVE INSTALLATIONS

There are many factors that need to be considered when reviewing the installation of a pressure relief valve (PRV). Specific requirements are outlined in the applicable codes and standards. The National Board has a relevant section in "Inspection Code NB-23" and has published numerous articles on this topic. The codes and standards, however, give you minimum requirements only.

Recently, dangerous incidents relating to PRV installations have occurred. On two occasions PRVs were either torn from their mountings or had their mounting severely distorted when they actuated.

The codes and standards repeatedly recommend that PRV discharge lines be as short and direct as possible and that they discharge to atmosphere. This is not always possible due to requirements of containment or the possibility of personal injury. For those reasons, discharge lines will often tie into vent headers or be of considerable length to clear pipe racks or buildings.

A few points to consider whenever reviewing a PRV installation:

- a. Will the vent line provide enough capacity to avoid undue back

pressure. If not, do you have the proper valve?

- b. Have elbows been introduced in the discharge line? If so, are they long radius? Have all the moments been considered and is the line anchored to withstand those forces?
- c. Has the shock loading occurring when the valve first opens been considered?
- d. Is the discharged fluid all vapour or liquid or a combination of vapour and liquid? Do you have the correct valve for the service?
- e. Does the extended discharge line add stresses to the pressure relief valve body? Discharge lines are to be independently supported. Stresses on the valve body may cause the valve to malfunction.

The designers, installers, inspectors, and plant operators all play key roles in the pressure relief system. Be alert, as the proper operation of pressure relief valves will be affected by a variety of conditions and installations. PRVs are your last line of defense against overpressure in boilers, pressure vessels and pressure piping and possible disastrous consequences.

ELECTRONIC HANDLING OF DESIGN SUBMISSIONS

ABSA is interested in establishing an industry group to discuss how designs might better be processed electronically. If you have some expertise in the handling of design data electronically and would like to share that information, we would like to hear from you.

Please contact Bruce McWhirter, Manager, Design Survey & Engineering, by phone, (780) 433-0281 Ext. 328, or by e-mail, mcwhirter@albertaboilers.com.

flanges are to be re-stamped with the applicable new schedule. Users receiving these modified flanges should confirm that the re-machined flange bore meets the dimensional requirements of the applicable standard and that the taper is no steeper than 3:1.

When inspecting and accepting flanges for your pressure equipment, remember that all ASME B16.5 flanges must be stamped "B16". If they are not stamped "B16", the flanges cannot be accepted as B16.5 flanges.

ABSA UPDATE SEMINAR November 20-Calgary November 22-Edmonton

It's that time of year again! New ASME Boiler and Pressure Vessel Codes (the 2001 Edition) have been published, and ABSA is planning its annual presentation on the effects of the Code changes on designers, quality control inspectors and other users of the Codes.

The meetings have been set for November 20 at the Blackfoot Inn in Calgary, and November 22 at the Nisku Inn in Edmonton.

Once again, we will take this opportunity to discuss findings from recent design surveys and ASME reviews to highlight areas that are causing problems for you and for us. If there are specific questions that you would like addressed at these meetings, please e-mail them to ds@albertaboilers.com or fax them to Cynthia at Design Survey, (780) 437-7787, as soon as possible to allow preparation time for the response. The last date for questions to be submitted will be November 12.

As seating is limited, we would request that the number of attendees from any one company be restricted to two. More openings may be available closer to the meeting dates. Registrations will be accepted on a first-come, first-served basis. Applications may be obtained from your nearest ABSA office or from our website. The deadlines for registration will be Nov. 13 for Calgary and Nov. 15 for Edmonton.

TRENDS IN THE WELDING INDUSTRY

ABSA is seeing an increased use of welding in the fabrication of small diameter pipe and tubing systems. This is specifically in the areas of instrumentation and tracing systems that traditionally have been assembled using threaded or compression fittings.

Advances in gas tungsten arc welding (GTAW), also known as TIG (tungsten inert gas) welding, appear to be the primary reason for this trend. To briefly review this welding process, a welding arc is established between a tungsten electrode and the parts to be welded. The metal of the parts is melted by the intense heat of the arc and then fuses together. This can be accomplished with or without the use of any additional filler metal.

With the advances in power supplies and programmable controls, portable orbital TIG welding systems are now available. Orbital systems are designed to be used in applications where the pipe or tubing cannot be rotated or where space restrictions limit the size of the welding device. In this process, tubes/pipes are clamped in place and an orbital weldhead automatically rotates the electrode to make the required weld. Due to their portability and being available for rent, more of these orbital welding systems are being used at field sites.

Information Not Valid
Traditionally ABSA has not required certification of pressure piping systems assembled using only threaded or compression fittings, provided that only certified fittings and acceptable pipe/tubing are used. When pressure piping/tubing systems (regardless of size) are fabricated using welding, they need to be certified by an organization that has a quality system registered with ABSA. As with all ASME Code welding, the certified organization is also required to have their welding procedures registered and to only employ welders/operators that have valid certification. With automatic TIG welding (adjustments during welding are not required), the minimum Certification required for the Welding Operator, is a "Machine Welders Certificate of Competency". A Certified Alberta Pressure Welder may contact any ABSA Authorized Recertification Organization directly to obtain the Machine Welding Performance Qualification. If however, the person intending to operate an automatic welding machine does not have an Alberta Pressure Welders Certificate of Competency, they must contact ABSA to arrange the qualification test. For more information on the how to apply for a "Machine Welder's Certificate of Competency" please contact your local ABSA office.

PRVs IN COOLING WATER SERVICE

Since cooling water is a non-expansible fluid when the design temperature is below 100° C, pressure relief valves (PRVs) on the cooling-water side of such heat exchangers are not subject to the requirements of the Safety Codes Act. ABSA has no requirement for these devices. If an owner wishes to apply the provisions of API RP 521 for determining whether a PRV is necessary or not in this case, that is his choice. Note that RP 521 takes into consideration whether a tube failure is a pinhole leak or a complete tube rupture.

On the other hand, when the fluid stream is subject to the Safety Codes Act, i. e. it is expansible, the

requirement of the regulations is for the pressure vessel (or heat exchanger compartment) to be protected by a PRV set at a pressure no higher than the MAWP of that vessel or compartment. At this time, there is no intention of removing this regulatory requirement.

There may be circumstances where it is not feasible to install PRVs on both sides of a heat exchanger in expansible fluid service and the owner might need to consider applying the API RP 521 approach to the over-pressure protection of the heat exchanger. Under these situations, owner should apply to the Administrator (Chief Inspector) for a variance.

BEWARE OF EXPLODING DISHWASHERS!

From the Chief Inspector:

Normally articles about boiler explosions arrive on my desk, but recently an article on an exploding dishwasher arrived, which I thought would interest everybody.

A person was checking vacant housing units and started the dishwasher as part of the inspection. A few minutes later the dishwasher exploded, doing considerable damage to the housing unit. Nobody was hurt in this incident but the potential was there.

At first it was assumed that sewer gas had entered via the drain connection but no evidence of sewer gas could be found in other similar vacant housing units. The dishwasher owner's manual provided the answer "...under certain conditions, hydrogen gas may be produced in a hot water system that has not been used for two weeks or more. If the hot-water system has not been used for such a period, before using the dishwasher, turn on all hot-water faucets and let the water flow."

Tests were carried out on the water lines and extremely high hydrogen readings were found.

Just as operators would not assume that other abandoned piping was safe to work on without checking for explosive contents, even non-flowing hot water lines can be seen to pose a significant hazard potentially.

OPERATOR SCALDED

While performing annual preventive maintenance on a hot water boiler, an operator was scalded when water being drained from the operating boiler gushed out of a riser in an open drain pipe.

Had the valve been opened more slowly, the backup, if it occurred, would not have been so violent and the operator would not have been injured. Fortunately, the injury was relatively minor in this case.

Operators are reminded to always be aware of the consequences of opening a valve and to open valves carefully.

Notice

The Technical Standards & Safety Authority (TSSA) advises that Ontario requires an Ontario-registered professional engineer's stamp on all boiler and pressure vessel designs.

Manufacturers shipping boilers and pressure vessels to Ontario must be aware of this requirement.

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CONTENTS

Spot Radiographic Examination	1
In-Service Pressure Equipment	
Inspectors Certificate of Competency	1
Fraudulent Material Alert	2
Pressure Relief Valve Installations	2
Electronic Handling of Design Sub	2
ABSA Update Seminar	3
Trends in the Welding Industry	3
PRVs in Cooling Water Service	3
Beware of Exploding Dishwashers	4
Operator Scalded	4
Notice - TSSA Requirement	4



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**Canadian Publication
Agreement No.
1470019**