

Notes of the **BOILER TEST GROUP Meeting**

Held on 4th **NOVEMBER 2009**

HOLIDAY INN EXPRESS, BEDFORD

Present:

Roger Greatrex, Chairman,
Tony Wood, Walker Midgley Insurance Brokers
Mike Leahy, Independent
Brian Reading, 71/4" Gauge Society
Wally Pearson, Southern Federation
Frank Stephen, Northern Association
Malcolm Armstrong, Midlands Federation
John Norman, Model Steam Road Vehicle Society.
Maureen Stephen, Note taker.

Agenda Item 1

The Chairman opened the meeting at 10.10 by welcoming everyone present. Apologies for absence were recorded from Mr B Harrison.

Agenda Item 2

The boiler test code, the 'Blue Book'. Alphabetical Appendices referred to are from the Blue Book. Numerical Appendices are in this document.

The meeting commenced by reviewing the previously circulated written comments, see Appendix 1. The comments had been received by Walker Midgley and N.A.M.E.

1. Appendix B, introductory paragraph on page 17;
the words 'may wish' – should be changed to 'shall'
2. The last paragraph on page 19/20 re ultrasonic etc. testing. It was suggested that the testing is either needed or it isn't. The word 'consider' puts the boiler inspector in an awkward position if a boiler goes bang! The HSE or a court could ask the boiler inspector if he had considered using ultrasonic tests. If he says that he didn't - is he leaving himself open to an allegation of negligence?

The meeting discussed these comments and it was felt that the Test Code had the right attitude and was guidance for a hobby activity. Boiler Inspectors should act within the scheme guidelines and note that the H.S.E. does not make things prescriptive

Items **1** and **2**: The meeting agreed 'No Action'.

3. Why is a witness needed for boiler tests?

The requirements of a witness are covered in clause 2.7. Being a witness provides a training opportunity for future Boiler Inspectors and also assists the boiler inspector in his inspection. A witness can also assist the Boiler Inspector should an incident arise.

[See comments in Appendix 4]

4. Screw operated valves on previously tested boilers.

The meeting recommends that screw operated valves should have captive spindles. A suggested arrangement is attached to these notes.

5. Test code wording of Water Levels and water gauges e.g. page 18, 4th paragraph.

The meeting agreed that the wording for these items would be reviewed when the test code is due for reprinting.

(A note re this topic is given in Appendix 2 following a meeting with the RSA.)

6. The test Code should be Prescriptive.

H.S.E. recommendations are that the code should not be prescriptive, a guideline only. It becomes a fact if and when it goes to court.

7. Increase in Steam Test Periodicity to 24 months

The 14 month steam test period was an 'industry standard'. This point was one of the trade offs made during the original discussion with HSE on periodicity of boiler testing. Those present at the original HSE meetings confirmed that the HSE were not prepared to allow an increase in periodicity of the hydraulic test unless additional inspections were introduced at intermediate periods i.e. the steam test, in line with PSSR.

7a. Re: Page 7 Para 5.1

Agreed the date should be 30th May 2002. To be corrected.

8. Concerns regarding the use of the word 'ensure' in the forward and purpose statements of the document.

This wording was not questioned by H.S.E. or their Legal Department, however the concerns would be considered in any future rewriting.

The Chairman then asked the representatives for their comments

The 71/4" Gauge Society had not received any written comments.

The Model Steam Road Vehicle Society; Being members of SF any comment might have gone via Mr Wally Pearson. None came via MSRVS committee.

Midland Federation.

One Society had limited the time period for Steam Test Certificates to 12 months as Society Policy. There was no problem with this practice see page 3, 5th Paragraph.

[See comments in Appendix 4]

N.A.M.E.

The matter of CE marking had been covered in publications.

Recent issues had been raised about CE Marking and the Boiler Test Paperwork.

With regard to the boiler test paperwork this would be reviewed when existing stocks have been exhausted. Suggestions were made to reduce the certificates to one page but it was pointed out that separate pages for the Hydraulic and Steam tests were necessary to maintain security of issue.

Southern Federation

A list of comments from the Southern Federation societies was presented by Mr Wally Pearson. See Appendix 3 for more information.

A list of questions had been supplied to the Group by e-mail dated 21st July 2009. At the time it was stated that it would be improper to supply copies of the original comments since much of it was incorporated in communications to the Southern Federation dealing with other topics. It is accepted that the (14) items identified at the time were only outline questions and required expansion and discussion at the meeting.

SFQ1 *Is it mandatory to use the Boiler Test Code (Blue Book) and the associated test certification if the Society is a member of the Southern Federation?*

The question arose from one particular Society that is known to produce their own boiler certification. It is believed that the Society has a right to use their own certification on the understanding that when visiting other Societies the certification may not be recognised. The Society in question has its own Insurance policy in place and does not use that provided by Footman James. It has already been stated to the Group that the Southern Federation does not interfere with the running of the affairs of any of the member Societies of the Federation. It was also pointed out that several of the bodies associated with the Southern Federation already have in place boiler test procedures and related documentation that is not based on the Blue Book. There is no policy in place from the Southern Federation to force these members to conform to the requirements of the Blue Book and the associated certification.

Under these circumstances therefore it must be accepted that the requirement is not mandatory. It is accepted however, for the sake of uniformity, that it is recommended.

The meeting responded that the intention of the Boiler Test scheme was that it would be applied nationally. The Blue Book and paperwork would offer uniformity throughout the hobby. The meeting pointed out that the 'blue book' was 'not mandatory' but where other schemes were used they should clearly state the code to which they were being tested. Societies should check with their Insurance Company as to their individual test requirements. If Certificates do not comply with the national scheme (Blue Book) they may have difficulty with Certificates being accepted elsewhere. The Boiler Test Code has been backed by H.S.E. and to comply with the Code is good practice.

SFQ2 *This question was raised by Tony Wood item 7 and is therefore not repeated here.*

The answer given in the meeting notes is not complete since it does not fully address the issue of a break point of 3-100 bar litre boilers, and the suggestion that pressure gauges be validated on a four year basis, i.e. at the time of the hydraulic test. The simplistic answer that the requirement is a 'trade off' may well not satisfy the originator of the question. The question was raised in various forms during the review of the Red Book prior to the issue of the Blue Book in 2007/8. No response was given at that time which accounts for the reason why it has been raised again.

The meeting noted that the HSE were not prepared to allow an increase in periodicity of the hydraulic test unless additional inspections were introduced at intermediate periods i.e. the steam test, in line with PSSR.

SFQ3 *Identified proofing errors in the text of the Blue Book.*

At the meeting it was established that Mike Leahy would continue to be the holder of the master copy of the Blue Book. Other copies have been issued to representatives of the appropriate Associations. However, only one copy should be used for updating as and when required. The related information contained in this specific report will be sent to Mike Leahy for inclusion in the Blue Book as and when required for issue.

Meeting notes on SFQ2 & SFQ3. Blue Book ‘Errors’

A list of ‘Proofing Errors’ was presented. The meeting accepted that in some cases improvements could be made. Mr Mike Leahy agreed that he would be prepared to make the appropriate adjustments to any future revised document

SFQ4 *Contradictions and inconsistencies in the Boiler Test code some of which were unwittingly introduced by ill considered alterations to the original test code.*

(a) *Section 10.5 states that an overpressure of 10% is acceptable during a steam test. Section 11.3 bullet 13 states that the safety valve set pressure must not exceed the maximum working pressure. There is no definition of the ‘set pressure’. This apparent contradiction has led to a boiler test sub committee to decide that the 10% allowance is not permissible and that the safety valve(s) must be set low enough such that the over pressure does not exceed the boiler SWP.*

The response given to this statement in the meeting notes is correct. However it may be appropriate to more clearly specify the requirement when the Blue Book is re issued.

[See comments in Appendix 4]

(b).Comments regarding Appendix B ‘may’ and ‘shall’, what is a ‘safe water level?’ and ‘water shall not be visible’ have been covered elsewhere in the Draft Minutes

It is understood that the text will be reviewed and re-written by Barry Wilkinson.

The meeting’s response to the question was:

The meeting agreed that there was a distinct and clear difference between an accumulation test of the safety valves and the setting of the safety valves. The points raised were two separate tests, not ambiguous, and that Boiler Inspectors should clearly understand the difference between the two clauses.

SFQ5 *Principally the same queries as 4(b) together with a request for improvements in format of the Test Code and the use of a skilled person be engaged to reformat the book.*

The response to these queries is essentially the same as that in paragraph 4.

Meeting notes on SFQ5 re Water Gauge wording.

There was an offer from an individual member to rewrite the clauses where water gauges and water levels were contained. These would be incorporated in a revision of the Blue Book.

SFQ6 *Paragraph 11.7 states that Test Certificates issued by professional/commercial organisations shall be accepted.*

The origin of this query is typical of several that have been received over the period of time July to November 2009. There are many reasons given why boiler inspectors should have the right to refuse a commercial boiler certificate if they believed that for one reason or another it was invalid. Boilers have been found with current (in fact in some cases immediately recent) certificates where the boiler was obviously defective, failing to meet basic standards related to the boiler test code e.g. no red line on pressure gauge or inability to limit the pressure rise to 10% and boiler feed mechanisms not working. In accordance with the Boiler Test Code, boiler inspectors are forbidden to test a commercially manufactured boiler if it does not bear the appropriate CE mark (paragraph 5.1). Some commercial boiler examiners are supplying a certificate that states ‘*CE mark not found*’ related to boilers that should in fact be CE compliant. The Joint Statement, CE Approval

for Boilers, issued by Walker Midgley/ Footman James in April 2009 clearly states '*how can a boiler certificate be valid if the boiler is not CE compliant?*'

[See comments in Appendix 4]

Surely this also should be grounds for non acceptance of such a certificate. The boiler inspector and the Club or Society would be out of order to accept such a certificate on behalf of the associated insurance provider.

[See comments in Appendix 4]

Meeting notes re Test Certificates

Clause 11.7 applies and Certificates issued shall be accepted. However where the Boiler Inspector has evidence or suspects that the model is not operating in strict accordance with the certificate the owner can be challenged.

SFQ7 *General query relating to revisions in the current Blue Book and the requirement for retrospective compliance. Specifically the Blue Book revised edition 2008 states that the provisions of this code (Blue Book) shall come in to force 1st January 2006. Clarification is therefore needed as to when retrospective compliance is to be implemented since the date from which the code shall operate is prior to the changes being published. Typical retrospective action is required for boilers fitted with non captive screw operated valves and the query then becomes 'is the action mandatory or advisory'?*

Further definition on this specific point relates to what was intended as a valve requiring to be modified. Some club boiler inspectors have made it mandatory to include the requirement to modify blow down valves, whilst others have applied the requirement to hand operated valves only.

Meeting note re Revisions of the Blue Book

The meeting agreed that the provisions of the code should have been applied from the date of issue. Certificates issued under the red book would continue to be valid until a retest was required under the blue book.

SFQ8 *Requirement for Club boiler inspectors to confirm that a boiler is CE compliant is not specified in the Blue Book. There is no information given as to what documents are required.*

The complaint here is that it should not be necessary for the owner/inspector to look through magazines published several years ago in order to obtain relevant information.

In this specific case the Southern Federation has issued a series of Information Sheets dealing with this subject. This level of information is probably not used by all the Associations.

Meeting notes re Boiler Inspectors

The meeting anticipated that boiler inspectors appointed by Societies would have experience and competency as outlined in clause 2.6. It is appreciated that the Boiler Test Code requires a responsible attitude from the Boiler Inspector, but it should be noted that the document is worded for and applies to a hobby activity.

SFQ9 *With reference to Appendix A paragraph 3 'what form of samples are required to be supplied for test for a non coded welder and to whom should the samples be sent for test'.*

The situation is similar to that in paragraph 8 above in that an instruction is made without any form of qualification or descriptive information. It is left to the imagination of the boiler inspector

or the owner of the boiler to determine a course of action. There should be some information made available to users of the Blue Book as to where more detailed information can be found if it is not already included in the text. Hence the suggestion that was made that a Code of practice type book accompanied the Blue Book publication. No definition of test sample has been provided.

Meeting notes re non coded welder samples.

This would be at the Boiler Inspector's discretion. Any test samples would need to be sent to an approved Test Station. Any welder carrying out any work on boilers should preferably hold current certification.

It was suggested that a separate document, perhaps a Code of Practice, be produced to 'explain' the blue book. The meeting discussed this and felt that the production of such a document would be extremely difficult due to the passage of time, changes that have taken place since the document was created and the difficulty of keeping such a document up to date. The more text that we produce the greater the risk of breaking the rules. The meeting reiterated that the aim of the documents produced so far was to be descriptive and **not** prescriptive.

Agenda Item 3

Following discussion Mr Mike Leahy agreed that he would be prepared to make the appropriate adjustments to any future revised document.

The meeting agreed

1. That there were no urgent issues that required any publications at the present time.
2. That the notes taken at this meeting be circulated to the respective bodies with a view to passing them on to all Societies.

Agenda Item 4

The meeting discussed a proposal to write a Boiler Construction Code Document. Discussion ensued on the merits of including Stainless Steel. Stainless Steel boilers were only a minority interest at present and would therefore not be included. In spite of statements currently being published and circulated that the Australian Design and Construction Code for Duplex Steel Boilers had been finally approved it was now our understanding that this was not in fact the case. Apparently whilst the Organisations Governing the hobby had given their approval, agreement from the appropriate Government Department is still awaited.

Discussion then moved to copper boilers and the meeting felt that a copper construction code may be a possibility. A steel boiler construction code was not really practicable at present – the majority of individuals bought directly from a steel boiler manufacturer.

Members from the N.A.M.E. had provided some copper construction guidelines and the meeting felt it would be useful for these to be circulated. The existence of the Australian Codes covering boiler construction in both steel and copper was noted.

In any discussion of boiler construction it was felt that manufacturers of copper and steel boilers should be consulted. The Chairman agreed to contact his colleagues in the copper boiler construction trade, and Mr Mike Leahy offered to contact Mr Billington with regard to his preparation of a construction code.

Mr Wally Pearson offered to contact the gentleman who had offered to write a construction code document to ascertain his interest in the production of a comprehensive document.

It was agreed that when all the information was available on all the above topics that a decision could be made about a possible meeting to discuss a construction code.

Any Other Business

The meeting then dealt with an enquiry regarding the updating of HSG 216. It was noted that this document was now back 'in the hands of' the H.S.E. having moved across to the Railway Inspectorate for some undetermined time.

It was noted that the definition of braking in HSG 216 was 'on to the wheel', exactly as it reads and not on the sides, back or rims!!

Recent information was that there was no intention by the H.S.E. to review the document.

Finally Mr Wally Pearson raised an issue regarding commercial activities. At an event where the HSW Act applied then PSSR also applied in full. It was noted that where the HSW Act applied then the national boiler test scheme documents would not be valid.

There had been an understanding that where Societies operated 'not for profit' of individuals and companies this would not be treated as 'commercial'

The date and time of the next meeting will be advised when all participants had time to review the documents from this meeting.

The Chairman thanked everyone for attending and closed the meeting at 3.10 pm.

Appendix 1.

Written comments received prior to the meeting: -

1. Paragraph Appendix B on page 17 and the words 'may wish' – it is felt that these should be changed to 'shall'
2. Last paragraph on page 19/20 re ultrasonic etc testing. It is felt that the testing is either needed or it isn't and the word consider puts the boiler inspector in an awkward position e.g. if a boiler goes bang and HSE or a court ask the boiler inspector if he considered using ultrasonic and he says that he didn't is he leaving himself open to an allegation of negligence? (I am told that some boiler inspectors have resigned over this issue)
3. Why is a witness needed? The boiler inspector is the one putting his head on the block. Finding a witness for some societies with members many miles apart is sometimes a problem. Professional boiler tests do not need a witness.
4. Screw operated valves on previously tested boilers
5. Page 18 4th paragraph – wording of the water gauges paragraph
6. The test code should be prescriptive – if litigation arises the boiler inspector can defend his actions by saying 'I tested in accordance with the test code'

7. We the Romney Marsh Model Engineering Society are not convinced that the reduction in steam test periodicity from two years to an annual event has been beneficial and proved to significantly raise maintenance standards which are already very high. We therefore propose that for copper boilers within the range of 3 to 100 bar-litres that the current periodicity for the cold examination and steam test at an interval not exceeding fourteen months should be replaced by a "period not exceeding twenty-four months". Furthermore over the last four years our experience having carried out around two hundred hydraulic together and annual cold examination/steam tests is that only two pressure gauges have required replacement. We therefore propose that the verification of pressure gauges against a gauge of known accuracy should be carried out as part of the four yearly hydraulic examination. This would obviate the necessity of annually removing pressure gauges which is proving a constant problem particularly with the smaller locomotives.

7a. Page 7 paragraph 5.1 – the date should be 30 May 2002

8. Revised edition Blue book 2008 – comment from boiler inspector

I have concerns regarding the use of the word 'ensure' in the forward and purpose statements of the document. These arise from dealings in the past with HSE, HMRI, RAIB and other regulatory bodies, and lengthy discussions with the company solicitor over the use of the word. The word also appears a few times in the main body of the document.

The solicitor's counsel was that the word 'ensure' is interpreted in law as mandatory, in the same way as the term 'shall'. Initially his advice was that the term must be used in company documents with caution, as it implied an absolute and irrevocable obligation on the company. For a while it was acceptable to use it in the way such as an individual 'shall ensure that records are maintained in accordance with' but to use it in any direct reference to a safety requirement was prohibited. Writing a Standard or Work Instruction and using the term 'to ensure safety' placed an absolute obligation on the company, and possibly the author, from which there was no mitigation if things did go wrong. Using 'should ensure' was not considered at law to imply an advisory or best practice condition. Eventually the use of the word was banned and withdrawn from all company documentation.

So on Page 3 of the code, where the purpose of the document is stated 'To ensure that boilers are constructed....' apart from being subtly different with the introduction on the inside front cover where 'this code should ensure that boilers....' is used, the word causes me concerns.

I do not believe that anyone in authority will challenge the intent of the boiler test code, but in the event that there is an incident that leads to an owner or operator of a boiler having to explain themselves to the man in the curly wig, I fear that individual will be at a disadvantage, even if they have followed the requirements of the document, and the reputation of the hobby may be damaged. I would like to suggest that the Liaison Group responsible for the Boiler Test Code document to seek legal advice on this matter. There is no doubt, amongst the membership of the Association, someone with legal expertise. Failing that, the opinion of Royal & Sun Alliance could be sought.

9. I've just had a conversation with a client who has pointed out that the boiler code says you shall not inspect a non CE marked new boiler (Paragraph 5.1) – it does not say that you shall not inspect a non CE marked old boiler.

Appendix 2

The following is an extract from a meeting with the RSA.

At a meeting with the RSA 19th March 2009 at which this topic was raised the following were suggested.

1. The bottom of the gauge glass should be above the crown. If the connection is below the crown then the bottom of the gauge glass should be fitted with a shroud of suitable material. This would ensure that when water is visible it is above the crown.

[See comments in Appendix 4]

2. Page 19 paragraph 5 refers. It was agreed that the boiler tester could use his judgement as to whether a gauge coming off a manifold caused a major problem.

Following some discussion the RSA hoped that common sense would be used by boiler inspectors on these topics. Existing models can still be tested.

Appendix 3

Additional text provided with the questions raised by the Southern Federation representative, Mr Wally Pearson.

INTRODUCTION

The writer has been requested to supply further information with regard to the questions posed at the meeting from members of the Southern Federation related to the problems associated with the new Examination & Testing of Miniature Steam Boilers (Revised Edition 2008), otherwise known as the Blue Book. The writer had tried to make it clear at the meeting that he had no prior involvement in the production of this Edition and was treating it with the view of an outsider.

Persons who have been members of the Group therefore have personal knowledge of what was intended or expected when the document was originally produced. The writer, like other Club and Society members can only read what is presented to them. Where information is not present or incomplete it then becomes a requirement to assume or guess what is intended, with the probability of getting it wrong. The alternative is to ask the question of the Group for definitive answers. That is what the writer had tried to do at the meeting.

A list of questions had been supplied to the Group by e-mail dated 21st July 2009. At the time it was stated that it would be improper to supply copies of the original comments since much of it was incorporated in communications to the Southern Federation dealing with other topics. It is accepted that the (14) items identified at the time were only outline questions and required expansion and discussion at the meeting.

The penultimate paragraph of the list of topics indicated that comments/criticisms that had been sent in related to the 2006 edition Red Book had not been included in the list. A number of these topics had not apparently been resolved. It may be appropriate to reconsider these items since over 20 have been documented.

[See comments in Appendix 4]

CONCLUSION

It should be apparent from the above that there is a fair degree of discontent from the membership regarding the lack of information or conflicting information within the Blue Book. It is appreciated that the Blue Book would not be **prescriptive** although a properly produced document that requires the use of a check sheet leaves very little scope for confusion or criticism. A document that is for **guidance purposes** leaves itself wide open to variation, inconsistency and probable dangerous misinterpretation. A document that is **descriptive**, giving an explanation of exactly what is required and if necessary a guide on how to carry out the requirement is middle

way that would probably be acceptable. As a typical example, how many members or inspectors know how to test super-heaters?

It can also be inferred that if a substantial number of boiler inspectors find it necessary to attend a boiler seminar then there must be some lack of source information or confusing information within the Blue Book. Reference is continually made here to the Blue Book but there is also some confusion that the current edition 2008 is published on a web site with a Red cover. [See comments in Appendix 4]

BOILER DESIGN AND CONSTRUCTION CODES

As far back as 2004 under the MRLG it had been stated that the Group were preparing design and construction codes for both copper and steel boilers, along the lines of the Australian codes but modified to suit UK requirements. It is now late 2009 and still there is no positive progress.

ANY OTHER BUSINESS.

The writer raised the point regarding CE marking of boilers. The documentation regarding correspondence between the writer and BIS and the formal response from BIS had previously been circulated to members of the Group. The option was for the documentation to be issued jointly but was not taken up. It is intended to issue the documentation to member Societies of the Southern Federation through the process of Information Sheets, News Letter and web site. [See comments in Appendix 4]

The query regarding the validity of Federation boiler certification for a home built but not CE marked boiler when the locomotive is used for commercial purposes was discussed. The relevant information has been passed by the writer to Footman James for forwarding to RSA to resolve the issue.

[See comments in Appendix 4]

Appendix 4

Additional text provided by Mr B Harrison, who was a member of the original BMELG. The comments are offered as detailed background for information to those who weren't involved with the original BMELG/PSSR/PER work, and perhaps a reminder to those that were but have forgotten in the meantime!

Re question 3. HSE couldn't see why a witness was needed – it's never done in professional practice! They accepted the answers as above, together with one not mentioned there, which is that the witness is also signing to verify that the test had been properly conducted – useful in the event of a dispute between the inspector and the member whose boiler had just been binned!

Re question 7. We tried to get the hydraulic test period for copper extended to 5 or 6 years, but HSE wouldn't go along with this, arguing that we didn't have enough evidence to support such an extension. Yes, we have lots of anecdotal evidence, but no numerical evidence. That's one of the reasons behind the slightly increased paperwork and better record keeping – to gather more numerical data so that we might later be able to argue for an increase to 6 years. But there was no way that they'd go along with steam tests at 4-yearly intervals!

First, because PSSR required annual steam tests and we were aiming to operate within the principles of PSSR.

Secondly, the steam tests is aimed at testing the ENTIRE pressure system including all fittings, safety valves, connections, etc. and those could reasonably be expected to have some changes over such a period.

Thirdly, boilers don't present any risk when cold, they do present risks when hot and under pressure, so as it was appropriate to test them in proportion to the risk level (basic risk assessment principle), we ended up with 4 years for hydraulics, 1 year for steam.

In fact, there was no way we were ever going to get anything other than yearly steam tests. In practice, my club has not found it to be any problem at all. Yes, another bit of paper, another test that requires witnessing, but other than that very little additional to the checks that any owner would want to do before setting off with his engine.

Re 12 month steam test certificate. Warrington do the same, 14 months was causing too much confusion amongst the masses. It was only introduced because it was 'professional' practice, and might be beneficial to some societies and/or individuals.

Re SFQ4. The 'set pressure' is the pressure at which the safety valves are to be set, i.e. working pressure.

There was a problem here when we were writing the code – in professional practice, the boiler would have a 'working pressure' and a 'design pressure' – the working pressure would be the pressure that the boiler should not exceed in normal service, the design pressure would be 10% above the working pressure, and should never be exceeded. An alternative view would be that the design pressure would be the maximum safe pressure for the boiler, on which all the calculations were based, working pressure would be a bit below that, giving headroom for the safety valves. The safety valves would be set at working pressure and would have to ensure that the design pressure would not be exceeded under worst-case conditions.

HSE initially queried our practice of effectively doing it the opposite way about (i.e. designing for working pressure and then letting the boiler go 10% above that), and wanted our boilers to be allocated working and design pressures. We convinced them that this would be a) impractical given the number of historic designs that were running around, b) confusing, since it would involve a change to well-established practice, c) not necessary, since we could demonstrate that our existing arrangements had proven satisfactory over many years and thousands of boilers, and d) would necessitate all existing boilers being down-rated by 10%. Fortunately, we won that one!

Re SFQ6. The HSE representative advised us that we should not refuse to accept the 2x hydraulic test certificate from professional boiler makers as this was his statement that the boiler had been tested at that pressure, which verified that he was justified in putting his CE mark on it, which in turn is his legally binding indication that the boiler complied with the requirements of PER. Not accepting the certificate could be legally actionable, the inspector would effectively be calling him a liar! Bear in mind that the professional boiler makers usually have some notified body looking over their shoulder and checking every now and then that they're sticking to the rules, so the inspector could also be challenging the actions of the notified body. That was as far as the advice went; it applied to the manufacturer's initial 2x certificate.

This test is exactly analogous to what I do when testing cables in a cable factory – I witness the initial test at elevated voltage (varies with cable type, but never less than 2x) and, assuming that the cable passes the test, I sign the certificate. After which the manufacturer's customer/my client is legally obliged to pay for the cable, so it's also a contractual document. And both I and the manufacturer would get very upset if the customer refused to accept the certificate! The cable will

never again be subjected to a test at that voltage, and if it were to be so tested, the manufacturer would walk away from any guarantees. It would not be unreasonable in my view for a boiler maker to do the same if a club inspector stuck another 2x test on the boiler.

That would/could also apply to certificates from ‘professional’ boiler testers, a rejection would again be calling their actions into question. However, that said, I shall relate a personal tale.... I bought a 2 1/2” gauge loco from a dealer in second hand models, which had a boiler certificate from a ‘professional’ boiler inspector, stating that it had passed a hydraulic test at 1.5x working

pressure without leaks, and had passed a steam test. Working pressure was stated as 100 psig. The fact that it was identified as a vertical boiler was obviously wrong, but I accepted that this could be a simple error (used a previous computer copy of a certificate as a template and forgot to change the description) and was promised a revised certificate... which never arrived.

Since I effectively didn’t have a certificate for the loco, I decided to let our boiler inspectors loose on it. First problem was that although it passed a hydraulic test, it did have leaks on it – one weep from the dome flange over the regulator, and one or two (can’t remember) from back head fittings. Nothing serious, the sort of thing we often get, but it meant that the statement ‘no leaks’ on the certificate was wrong.

Come the steam test, and we stopped that when the boiler pressure had reached 150 psig and was still rising! The safety valves wouldn’t cope with the steam production under test conditions, good fire, full blower, etc. I modified the valve caps and the blower valve and after that work it passed with flying colours.

I rang the dealer to tell him about this, and that there was absolutely no way in which it could have passed a steam test a la boiler test code, so it shouldn’t have been certificated. I was somewhat alarmed when he came back with the comment that he didn’t agree with the test code, no-one would be daft enough to sit there with full blower on, so he didn’t have it done that way during his steam tests!

Needless to say, our boiler inspectors will now NOT accept certificates from that source and inspector, and they have my full support as Chairman in that decision. It might cause a ruckus some time in the future, but if it did we have the evidence to back our decision.

So, there are some less than professional testers/dealers out there, and yes, our inspectors do need to be able to refuse to accept certificates other than the initial 2x one from a professional boiler maker – but they’d better have a very good reason for doing it, or they could find themselves in the deep, deep brown stuff!

Now, back to 2x hydraulic certificates, and this is going to go back somewhat on what I said earlier. Some years ago Winsons had a boiler problem affecting the 0-4-2 (or was it 2-4-0?) GWR tank engine kit they sold – several boilers had firebox stay leaks when tested at 1.5x by club inspectors. Winsons were accused of falsely certifying boilers, and it got a bit heated. Well, that wasn’t the case – they had tested the boilers properly, and had certified that they passed the test, because they had, so they weren’t actually being naughty boys. What had happened was that they had tested the boilers immediately they were completed to the water-tight stage, but this was before the excess protruding stay length had been cut off by some minion – who had been a bit careless and had cut off so much that the sealing and strength was compromised. But this was AFTER the test had been done. What was wrong was not any dishonesty, it was a manufacturing and QA process/sequence problem, they tested them too early.

This, or something similar, could happen again. Hopefully it won't, but it could. So again, yes, boiler testers should be able to refuse to accept a manufacturer's certificate – but for this one, for reasons I explained earlier, they had better have a VERY, VERY good reason for doing it! His best get-out would actually be to exercise his right to refuse to test a boiler (for which he doesn't actually have to give a reason, although not doing so might upset his club member!), rather than risk getting himself in the mire.

Trouble is, if you simply write in the code that an inspector can refuse to accept a 2x certificate, some idiot, somewhere, will make it his rule to refuse one, because the book says he can, and that will not do anyone any favours. Any revision would need to be worded to the effect that inspectors shall (I use the word with meaning as defined in the code) normally accept manufacturers' 2x certificates, should only reject them under very exceptional circumstances, and that any such refusal should be documented and the reasons stated in the documentation. The inspector shall then refuse to test the boiler further (i.e. he won't give it another 2x test) and either he or the purchaser shall communicate the refusal and the reasons for the refusal to the manufacturer and give him the opportunity to clarify or rectify matters. Make it strong enough to ensure that some Little Hitler of an inspector doesn't make it his normal practice, make it clear that he will have to justify his refusal.

Re Non acceptance etc. Not necessarily – there are thousands of commercially supplied boilers out there that don't need to be CE marked. The requirement for CE marking only applies to boilers manufactured from 30 May 2002 when PER compliance became mandatory. Those manufactured before that date are perfectly legal (and acceptable to insurers) even if they're not CE marked.

The comment doesn't give enough information to be sure whether or not the certificates in question relate to these unaffected boilers; my guess is that at least the majority will. If so, inspectors can accept the certificates.

Gauge glass from Appendix 2. Warrington have been asking for this measure for some time now – it's working fine, quite practical, no difficulties encountered.

From Appendix 3 – Introduction. This comment seems to be predicated on the assumption that all comments would be accepted for inclusion in any revision. A somewhat naïve idea, to say the least! I wasn't directly involved in the revision, but I am aware of many of the comments, and to have included them all would have resulted in a useless document, since some of them were totally contradictory! On top of that, some were incorrect, the result of mis-reading of the code, some resulted from the model engineers' ubiquitous practice of reading into it what was not there, some were from ignorance, some were nothing more than an individual's hobby horse! I trust the redrafting committee to have given all comments due consideration, to have incorporated those that had some validity or benefit, whilst not accepting those that were, for whatever reason, inappropriate. The fact that this was the approach to be taken was made clear to Northern Association delegates, and accepted by them.

From Appendix 3 - Conclusion. Having been involved with the preparation of tenders, instructions, specifications and standards at company, industry, national and international levels for over 40 years, I think I'm qualified to say that the test code is a good document, prepared by people who knew what they were doing, advised by experts from HSE and RSA, and subsequently checked over by the main BMELG committee that included at least 5 club boiler inspectors. Many, many factors were taken into account in arriving at the clauses and

the detailed wording of each one, such as the user requirements for the code, the legislative background, professional practices, attitudes to litigation, aversion to risk that is so prevalent today, etc., etc., etc. Its provenance is first class, and it's soundly based. It's not perfect, but it is soundly based, so you need to be very wary of making changes willy-nilly in case the whole package becomes gradually debased – changes and amendments need to take account of the many background factors, most of which are not immediately apparent to the people making adverse comments about it!

National and international standards, codes of practice and the like are written by people who know what they're doing, as was the test code, and they don't have these problems. So why do so many model engineers (allegedly, I see little supporting evidence for the claim) have a problem with our test code?

The answer is simple, but not necessarily very palatable - it's because they're model engineers!

Yes, I am being serious here; the problem is the audience for the document. In professional life, the expertly prepared standards are read and used by knowledgeable people, who know the background material and may even have contributed to the document by commenting on the drafts. There are, of course, cases where non-expert users have tried to apply a standard and got it badly wrong, and I can quote a number of instances in my own field where I've been involved in picking up the pieces.

That's the situation with the test code – there are hundreds/thousands out there who don't understand the background to the code, many have their own little bete-noir about some aspect of boiler testing and think their opinion should have been in it, and even more who can't read a document without either missing something out or reading into it that which is not there. They may be good model engineers, but they're not good at everything!

The purpose of the NAME seminars was not to give clarity about a poorly written document, it was to explain the background to the code to the assembled multitudes so that they had a better understanding of matters, and to ensure that all NAME inspectors applied the code in a uniform manner, without individuals applying their own interpretation, or their own modifications. The fact that SFed hasn't done the same may be one of the factors contributing to any reported discontent.

AOB re BIS correspondence.

This is not to be recommended. You should be VERY careful about the information that is released – for example, one of the answers from the BIS is WRONG! And one answer that Tony Wood got from RSA was also WRONG, and we've now been successful in getting their decision reversed.

'Persons going their own way' in these matters could be very damaging to the hobby, particularly if they do not have the correct information. And I don't care that some guy at BIS gave the answer, he didn't give the right answer – surely by now everyone realises that our government and its minions cannot be relied upon for sound and accurate information?!!!

The BMELG and the boiler sub-committee worked hard to get a hobby-wide consistent approach to the many matters that impinged on our activities, so that everyone sang from the same hymn sheet – including HSE, local authorities and RSA.

People really should apply a modicum of circumspection before flying off the handle, do a bit more to establish facts and background before asking questions that shouldn't be asked of people who might not actually know the correct answer. The boiler committee needs to get a grip on this, and get it fast before damage is done. All approaches to RSA, BIS, etc. should be through the boiler sub-committee.

AOB re validity query

Simple, nothing complicated, RSA involvement not needed....

The home-built boiler, put into service for the builder's own personal and non-commercial purposes, does not have to be CE marked. That applies for the rest of the boiler's working life; the relevant legislation does not say anything about this changing if/when the boiler enters a new phase of its existence.

However, should the boiler pass into commercial service, it would then come firmly under the requirements of the Pressure Systems Safety Regulations, PSSR, and would have to have a much more detailed and individually prepared Written Scheme of Examination, etc., etc. The prospective insurers could, of course, apply their own requirements before accepting it for insurance, for example they might want a detailed radiographic, endoscopic and ultrasonic inspection and report from a professional inspector.

The SFed/NAME boiler certificate would probably (but not necessarily, that would depend on the prospective insurer!) be unacceptable for this purpose, its only value would be to give the purchaser some indication that the boiler had a reasonable chance of being accepted as fit for purpose.

End of Appendices

End of document.

2nd December 2009