

The Purpose, Operation & Requirements of the SBAS Boiler Inspection Scheme (“The Scheme”)

7th Edition June 2023

Notes for the Guidance of Owners and Inspectors

SBA Services Ltd.

IMPORTANT NOTES

- I. SBA SERVICES LTD. Boiler inspections under the SBAS Boiler Inspection Scheme (“The Scheme”) are arranged by SBA Services Ltd (“SBAS”) which takes every reasonable care in making the arrangements and hopes that users of the Scheme find it wholly satisfactory in meeting their boiler inspection requirements. However, users will understand that SBA Services Ltd is not (and does not hold itself out as being) qualified to be a competent person to carry out boiler examinations.
- II. Professional and technical accountability for boiler examinations carried out under the The Scheme rests with the Inspectors who carry them out and SBA Services Ltd can accept no liability for the professional and technical competence and conduct of the inspectors.
- III. However, SBAS maintains in force a policy of professional indemnity insurance which provides cover in respect of examinations carried out to orders placed by SBAS; this acts as a safeguard for inspectors and owners in the unlikely event of something going wrong.
- IV. Use of the words "require", "requirement", etc., indicates an item, procedure, etc., that is mandatory under the The Scheme.

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1 Introduction.

1.1 It is SBA policy to encourage steam boaters to adopt technically sound and safe practices in the design, installation, operation and maintenance of steam plant, including particularly boilers and pressure systems. The SBAS supports this principal in providing its Services to SBA Members and other steam-boaters using our Services.

1.2 To this end the SBAS offers three complementary services to ensure that the boilers covered by this scheme are designed, constructed and operated in a safe manner. (“The Services”) This document describes these three Services, and these are defined as:

Design Assessment Service – A boiler & pressure system design assessment service. (See Appendix 4. Boiler Design Assessment Service.)

Construction Surveillance Service – An inspection service for boiler/pressure system during construction, to verify that manufacturing techniques and materials used are suitable for a Boiler to be included in the Scheme (See Appendix 5. Construction Surveillance Service.)

Periodic Boiler Inspection Service – The regular periodic inspections required under SBAS Boiler Inspection Scheme.(Described in this document Sections 1 though 7).

1.3 In accordance with this policy it has long been and remains an SBA **requirement** that all steam boats attending SBA events be covered by a current, valid, and satisfactory boiler inspection report. Similarly, most commercial marinas and marine insurance policies will make the same requirement.

1.4 The purpose of Periodic Boiler Inspections

1.4.1 The purpose of having a boiler examined regularly by a competent boiler Inspector is mainly to reduce, as far as practicable, the risks of danger from the fragmentation / explosion of the boiler pressure vessel or the connected pipe work and fittings, and from an unexpected and uncontrolled release of steam or water at high temperature and pressure, resulting from the boiler being unsatisfactory for its purpose.

1.4.2 The boiler Inspector’s main role in achieving this is to look for signs of defects in and deterioration of the boiler, and to advise the owner via the inspection report of steps to be taken or restrictions to be imposed to prevent the defects leading to unacceptable risk.

1.4.3 Typically, defects may arise as the result of ageing of the boiler, corrosion and wear and tear in service; also possibly as the result of accidental damage or unsatisfactory operating practices; occasionally up to-date knowledge will result in something which had been thought satisfactory no longer being considered acceptable.

1.4.4 For this process to be able to give a good assurance of safety, it is necessary for the original design and construction of a boiler to have been satisfactory for its purpose, and the boiler Inspector will need to have reasonable confidence of this factor too before he can issue a report. For new boilers, these requirements will typically be met by the boiler construction being inspected under the Construction Surveillance Service and/or the boiler design having been certified under the Design Assessment Service.

1.4.5 It is widely accepted, and almost goes without saying, that the safety of a boiler in service depends just as much on its proper operation as on its condition. Regular examinations of a boiler are likely also to assist in achieving good general maintenance and optimum and satisfactory operation. It is not the boiler Inspector's role to act as an engineering consultant for the owner as part of The Scheme.

1.5 The purpose of the SBA Boiler Inspection Scheme

1.5.1 The purpose of the SBA Boiler Inspection Scheme is to provide a simple, satisfactory and economical method of achieving the boiler inspection **requirement**.

1.5.2 Because the The Scheme is not intended to comply with all the administrative requirements of the statutory regulations affecting the use of pressure systems at work, its use is restricted to boilers used for private pleasure purposes only.

1.5.3 For a boiler inspection report made under The Scheme to be "current, valid and satisfactory" it must comply with the following definitions:-

1.5.3.1 Current.

1.5.3.1.1 For all typical boilers, the inspection report will be current for a period not exceeding 14-months or such a lesser period as the Inspector states in the report.

1.5.3.1.2 In the case of Forced Circulation Tubular Steam Generators which comply with the SBA Definition (see Appendix 6 – Forced Circulation Tubular Steam Generators) a report of a thorough inspection will be current for a period not exceeding five years, or such lesser period as the Inspector states in his report, **PROVIDED THAT** the protective devices on the steam generator receive interim inspections at intervals not exceeding 26-months.

1.5.3.1.3 In all cases, the period of currency starts from the date of a satisfactory completion of the inspection sequence, not from the date of the report

1.5.3.2 Valid.

1.5.3.2.1 An inspection report issued is valid provided that:-

- The inspection has been carried out by a boiler Inspector carrying out an order for an inspection placed by SBA Services Ltd
- The boiler is operated within the limits and in accordance with any stipulations given in the report.
- Any repairs or alterations stated to be **required** in the report have been carried out by the specified dates and re-examined if **required** by the Inspector.
- No other alterations or repairs, which may have adversely affected the integrity of the boiler have been carried out since the inspection.
- Nothing has occurred since the inspection was completed to cause any doubt as to the safety of the boiler for use.

1.5.3.3 Satisfactory.

1.5.3.3.1 An inspection report is satisfactory if it states that the boiler is in order to be used (subject to specified conditions).

2 Scheme principles.

- 2.1 It is the intention of the SBAS Boiler Inspection Scheme to apply the best current practice most appropriate for the types of boiler examined under The Scheme and the circumstances of their use. Best current practice is taken to be that derived from the “The Pressure Systems Safety Regulations 2000” and the Health & Safety Commission Approved Code of Practice “Safety of pressure systems” (2000 edition ISBN 0 7176 1767 X)
- 2.2 The Inspectors appointed by the SBAS are to be considered as Competent Persons as defined in the above regulations.
- 2.3 The great majority of steam boats are operated for solely private pleasure purposes by their owners without employed crew and, as such, are not subject to any United Kingdom statutory requirements for boiler inspection. A minority are operated so as to fall within the scope of the statutory regulations of the Merchant Shipping Acts, Maritime & Coastguard Agency Regulations applicable to small passenger carrying vessels, and local/harbour/navigation authority passenger vessel licensing regulations. The Scheme is not suitable for these vessels.
- 2.4 Inspectors operating under the Scheme are **required** to have regard to the circumstances of operation of each boiler and to apply best practice in the manner most appropriate to each case. They are not **required** to apply every point of the Regulations or Code of Practice where that would not be appropriate, but they are **required** to apply the principles of the Code of Practice in every case.

3 Scheme administration.

- 3.1 The administration of the Scheme will be carried out by a Scheme Administrator appointed by SBA Services Ltd. (SBAS), who will publish from time to time the procedures for arranging boiler examinations and details of the charges for examinations. All inspection work carried out under The Scheme will be charged at the published rates, and the charges are not negotiable.
- 3.2 It is important that the boiler owners and inspectors follow the published procedures in order to ensure that examinations comply with The Scheme specification and scale of charges, and that they benefit from the insurance cover provided by The Scheme. (see 3.4).
- 3.3 When a request for a boiler inspection is received, the Administrator will select a suitable and conveniently located possible boiler Inspector, place an order for the inspection with the Inspector on behalf of the owner, deal with receipts and payments for the inspection, record and issue to the owner the inspection report, and deal with any “matters arising” from the inspection.
- 3.4 The boiler Inspectors with whom orders for examinations are placed are from a list maintained by SBAS (i.e., they are not employees of SBAS) whose qualifications and experience have been checked by SBAS, and who have agreed to carry out boiler examinations in accordance with The Scheme specification and at the scale of charges set by The Scheme. SBAS maintains in force a policy of professional indemnity insurance which provides cover in respect of examinations carried out to orders placed by SBAS; this acts as a safeguard for inspectors and owners in the unlikely event of something going wrong.
- 3.5 Prior to the first inspection of a boiler, SBAS will arrange for the basic information about it to be collected and recorded, which the boiler Inspector will need at subsequent examinations (thus making future examinations simpler and quicker). This may be done at the same visit as the first inspection or prior to that if appropriate and may be done by the boiler Inspector or another competent person. The information to be gathered will include physical details of the boiler and its installation, details of its original design and construction, and of its service and inspection history. If the boiler was constructed using the Construction Surveillance Service, this information will normally already be available.
- 3.6 The Inspector’s decisions are in all cases final on matters relating to the inspection of a particular boiler and the inspection report which he makes. SBAS will not enter into correspondence on these technical matters, but customers and owners should inform the company of any difficulties experienced in the operation of The Scheme. (see 3.7 Comments and Complaints. below)

3.7 Comments and Complaints.

3.7.1 SBAS welcomes comments at any time on any aspect of The Scheme; these help the company to develop The Scheme and provide a service suited to the needs of steam boaters. Please address comments to the BIS administrator.

3.7.2 If the owner is dissatisfied with the conduct of a particular boiler inspection (in respect of either the actions of SBAS or the work of the boiler Inspector), a complaint should be sent in writing addressed to the Chairman of SBAS. All written complaints will be investigated, and a written response will be made. If a complaint involves technical issues, SBAS may refer it to a technical specialist for an independent opinion.

4 Scheme charges

4.1 Charges are published, currently on the SBAS pages within the SBA web site. <https://www.steamboatassociation.co.uk/SBAS-Boiler-Inspection-Scheme/>

4.2 Charges for **Periodic Boiler Inspections** and **Construction Surveillance** services are based on the Inspector's time on site undertaking the inspection and mileage charges for the Inspector travelling to the location of the boiler being inspected.

4.3 Charges for the **Design Assessment Service** are based on Quotations provided by the SBAS on a per-design basis.

4.4 Subject to Para 4.5 below, a fixed (per boiler) administrative charge will be added to the agreed price invoiced to the customer to cover administrative & Professional Indemnity Insurance costs.

4.5 Where the work is considered by SBA Services Ltd to be of value to other SBA members, SBA Services may (at its discretion) make payment in whole or in part for the work undertaken. In such circumstance the ownership of the work will be assigned to the SBAS Boiler Designs Library.

5 Scheme Practice.

5.1 Acceptance Into the Scheme.

5.1.1 In order for a boiler to be acceptable for inspection under The Scheme a boiler is **required** to be of an appropriate design and construction.

5.1.1.1 In the case of boilers built new after 1st April 2000 evidence of certification by an independent authority will be **required**.

5.1.1.2 For boilers built before that date, evidence of independent certification should be provided if available, but in its absence other appropriate evidence of satisfactory design and construction may be accepted. (See code of practice “Safety of Pressure Systems”) If it is not possible to produce such evidence, the owner **must** arrange investigations, calculations or tests sufficient to establish the adequacy of the design and construction before the boiler will be accepted for inspection under the The Scheme.

5.1.1.3 Such investigations do not fall within the Periodic Boiler Inspection Service nor the Inspector’s duties. However, the Construction Surveillance Service and Design Assessment Service will typically be able to undertake the necessary investigations and analysis to provide the required information.

5.1.1.4 Moreover, the Inspector or Scheme Administrator will often be able to guide owners in such matters.

5.2 Boilers with copper scantlings.

5.2.1 Any boiler with a working pressure above 100psig using copper to be accepted into The Scheme must have a Design Assessment approved by a suitably qualified Competent Person.

5.2.2 Any boiler with a working pressure above 100psig requiring retubing must use a copper alloy tube material with appropriate specified elevated temperature properties, in preference to copper.

5.2.3 If it is insisted that copper is used for such retubing a Design Assessment approved by a suitably qualified Competent Person is necessary.

5.3 Boiler Inspection Process Overview

Note:- The following section is written in a format to provide a general scheme of inspection adequate for the majority of boilers used in small steam boats when applied in conjunction with a Boiler Log, but your Inspector may suggest or require changes for your particular boiler or installation.

5.4 Preliminaries.

5.4.1 Before a boiler is inspected for the first time under the The Scheme, the owner is required to make information available to the Inspector or Scheme Administrator that the boiler's design and construction are acceptable and compliant before a boiler will be accepted for inspection.

5.4.2 The information to be provided and recorded includes (subject to availability):-

- Name and address of owner.
- Name of boat in which the boiler is normally installed.
- Brief description of boiler and type.
- Maker and maker's serial number.
- Maker's original test pressure.
- Original design maximum working pressure.
- Details of original (and/or subsequent) design and construction assessments and certification.
- Brief details of inspection and maintenance history.
- Date of latest inspection report and permissible maximum working pressure specified in that.
- Date of the most recent hydraulic test, test pressure, and result of that test.
- Existence (or otherwise) of a Written Scheme of Examination for the boiler.
- Existence (or otherwise) of a boiler log.
- Any other information available relevant to the boiler and its future inspection.

5.4.3 In most cases the provision of a Written Scheme of Examination specifically for individual boilers should not be needed, but this is for the boiler Inspector to decide.

5.4.3.1 If required the Written Scheme of Examination should detail the procedures to be adopted for the periodic inspection of a particular boiler and its attachments. This requirement is likely to be applied only to the

larger or more complex types of boiler. The Inspector may decline to carry out an inspection until a satisfactory Scheme of Examination has been produced. Reference to the H&SC Code of Practice is recommended before drawing up a Written Scheme of Examination.

5.4.4 The Inspector is **required** also to satisfy himself that the boiler design is appropriate for its intended usage.

5.4.5 In the case of a small tubular steam generator for which an inspection interval in excess of 14-months is sought, the competent person is **required** to satisfy himself that the steam generator complies with the Definition (see Appendix 6 – Forced Circulation Tubular Steam Generators), and to record this fact, if dismantling is needed to establish this (i.e. if the details are not present in the boiler documentation), this check may alternatively be carried out by the boiler Inspector at the first (cold) inspection.

5.4.6 The boiler owner/operator is **required** to maintain an up to date log for each boiler subject to the The Scheme. The log is to contain all available documentation relating to the design, construction, initial testing and certification, modification, repair, operation, and inspection of the boiler over its whole existence. (See Appendix 3. Boiler Logs). The boiler log **must** be produced to the boiler Inspector at each inspection. The boiler Inspector is **required** to check the boiler log at each inspection, initial and date the latest entry(ies), and record so doing in the Inspection Report.

5.4.7 The Inspector is **required** to see and check the last previous inspection report (or initial test certificates in the case of a new boiler) and record having done so in the inspection report. If the last previous inspection report (or initial test certificates) cannot be produced the Inspector may, if he considers it necessary, ask for investigations to be carried out as in 4.1(a) above.

5.4.8 Scheme users are strongly advised to consult the Inspector well in advance of the date of an inspection to exchange information on the boiler and the Inspector's directions for preparation and examinations. Failure to do this could result in avoidable expense and delay, and it is emphasised that it is entirely for the Inspector to decide the extent and detail of the preparation, examinations and tests which should be carried out.

5.5 Preparation for Inspections.

5.5.1 As noted in Section 5.6.1 a minimum of two inspections are required for a Periodic Boiler Inspection under The Scheme (one “cold” and one “hot”). Preparation for these Inspections is important to minimise cost and time.

5.5.2 The boiler owner is **required** to ensure that the boiler is prepared for inspections as directed by the Inspector. Failure to prepare the boiler may result in the inspection having to be terminated and rescheduled with the resulting costs being charged to the owner.

5.5.3 The following preparations should be regarded as the minimum **requirement** unless otherwise directed by your Inspector: -

- Drain the boiler and associated pipe work.
- Open or take off all fireside access doors, inspection plates and smoke box doors.
- Remove all unspent fuel, soot and ash from the firebox, smoke box and ash-pan.
- Clean fire tubes internally.
- Clean all accessible fireside spaces and surfaces. (remembering the outside of water tubes if present).
- Open or take off all manholes, hand holes, drum ends, inspection plugs, etc., giving access to or allowing inspection of waterside spaces and surfaces.
- Clean all accessible waterside spaces and surfaces.
- Clean all water tubes internally insofar as is practicable.
- Open up and dismantle the safety valve(s), water level gauge(s), main steam stop valve(s), blow-down valve(s) and water inlet check valve(s).

5.5.4 The site of the boiler should be made clear of obstructions and safe and easy access provided to all parts of the boiler which the Inspector is likely to wish to examine. Good lighting should be provided.

5.5.5 The boiler Inspector is **required** to decline to continue with an inspection if the boiler has been inadequately prepared or safe access is not available.

5.6 On-Site Examinations.

5.6.1 A minimum of two examinations of the boiler are **required** before a report may be issued; both may be carried out as a continuous operation if that is practicable. A hydraulic pressure test may also be needed.

5.6.2 It is a **requirement** that the owner of the boiler (or his duly authorised agent) shall be present with the Inspector during the whole of every inspection, together with such additional persons as may be necessary to assist the Inspector in the conduct of the inspection, and the boiler Inspector is **required** to decline to carry out an inspection in absence of the owner or his agent.

5.6.3 It is important that at least one person present with the owner (if not the owner him/herself) should have sufficient technical competence to understand and interpret the Inspector's instructions and recommendations.

5.6.4 The first inspection is **required** to be carried out with the boiler cold, empty and prepared as directed by the Inspector but in any event to the minimum **requirements** given in 5.5.3 above. At this inspection the Inspector is **required** to carry out the following as a minimum, together with such other inspections and tests as he considers appropriate and necessary:-

- Check the integrity of the pressure vessel(s) and associated pipe work and valves including superheater(s) and economiser(s).
- Check the integrity of the boiler framing, settings, brickwork (including fire-brickwork), insulation, casing and cladding.
- Check all parts for wear and corrosion.
- Check specifically the condition of safety valve(s), pressure gauge(s), water level gauge(s), main steam stop valve(s), blow-down valve(s), water inlet check valve(s).
- Check, where practicable by rodding through, that the water passages of the water level gauge(s) are unobstructed and that the gauge glass isolating and blow-down cocks operate correctly.
- Check that the pressure gauge(s) is/are marked with a red line at the correct maximum permissible working pressure of the boiler, and that the safety valve(s) is/are marked with an operating pressure no higher than this.
- Consider the adequacy of the boiler feed water supply arrangements.
- Consider the possible need for annealing of copper pressure pipework connected to the boiler.
- Consider any other factors affecting the safe operation of the boiler.

5.6.5 The second inspection is **required** to be carried out with the boiler fully reassembled and under normal steam pressure. It is **required** that the boiler should be fired for the test as for normal service and that the pressure should be raised so as to lift the safety valve(s). At this inspection the Inspector is **required** to carry out the following as a minimum, together with such other inspections and tests as he considers appropriate and necessary:-

- Check visually for correct assembly of all components, giving particular attention to the fitting of access doors, drum ends, flanged connections, manholes, and pipe joints.
- Check the correct operation of main steam stop valve(s), blow-down valve(s), water inlet check valve(s), pressure gauge(s), gauge glass isolating and blow-down cocks.
- Check that the operation of the safety valve(s) controls steam pressure to within an acceptable margin of the specified maximum permissible working pressure.

- Check the operation of at least one means of supplying feed water to the boiler.
- Check visually for steam and water leaks.
- Consider any other factors affecting the safety of operation of the boiler.

5.6.6 If a hydraulic test of the boiler is needed it should be carried out after the boiler has been reassembled following the first inspection but before the boiler is next steamed. It is a **requirement** that all boilers must be hydraulically tested at intervals not exceeding 10 years or more frequently as the Inspector considers necessary. The hydraulic test pressure is **required** to be 1½ times the maximum permissible working pressure which the Inspector has specified following the first inspection, or to such other pressure as the Inspector determines. The hydraulic test pressure is normally to be maintained for a minimum continuous period of 20 minutes or such period or periods as the Inspector may instruct. Subject to the agreement of the Inspector, minor loss of pressure (as from a weeping "closed" valve) may be made up during the test, but the test will be invalidated by any major pressure loss, the cause of which must be found and rectified before repeating the test. The Inspector is **required** to examine repeatedly during the test all accessible parts of the boiler and report all leaks which are caused by defects.

5.6.7 In the case of small tubular steam generators with an interval between thorough examinations in excess of 14-months, an interim inspection of the boiler protective devices is **required** at intervals not exceeding 26-months. At these interim examinations the Inspector is **required** to carry out the following as a minimum, together with any other inspections and tests as he considers appropriate and necessary:-

5.6.7.1 Check the condition and correct operation of the pressure relief valve, the steam pressure gauge, and the means of controlling the firing rate to prevent excessive temperature; check also such other protective devices as may be fitted, such as temperature gauges and temperature limiters, feed flow and /or pressure gauges. These checks to be carried out:

- i) Firstly, cold, with the items dismantled to the extent required by the Inspector, and
- ii) then under normal steam pressure.

5.6.8 The Inspector is **required** to ask for additional examinations to be carried out to repeat either the first or the second examinations or the hydraulic test if this appears to him to be necessary for the proper completion of the inspection sequence. This could occur as the result of inadequate preparation by the owner, or following the discovery of defects needing rectification and re-inspection before proceeding to the next stage of the inspection sequence,

or if necessary for it to be possible to issue a satisfactory inspection report. The owner may decline to have such additional examinations(s) carried out, in which case the Inspector is **required** to issue a report for an incomplete inspection (see 5.7.3 Incomplete examinations.).

5.7 Inspection results.

5.7.1 On-site reports.

5.7.1.1 The Inspector is **required** to report to the owner (or his/her agent) the results of the inspection before leaving the site, as follows:-

5.7.1.2 IN ORDER.

If the boiler is in order, the Inspector will inform the owner orally that it may be prepared for the next inspection or, following the inspection in steam, that it may be put into service without awaiting receipt of the written inspection report.

5.7.1.3 DEFECTS.

If defects have been found during the inspection, the Inspector will inform the owner orally of their nature and what is needed for their rectification (in general terms – the Inspector is not **required** to give a detailed specification for repairs). He will inform the owner whether rectification is necessary before the boiler is next steamed, or before a particular date or, if after the first inspection, before the second inspection; and whether the repairs should be examined by an Inspector during repairs and/or on completion.

5.7.1.4 IMMINENT DANGER.

If as a result of the inspection the Inspector concludes that an imminent danger would occur if the boiler was steamed again in its present condition, he is **required** to inform the owner orally of the defects (as above) and also advise him/her that the boiler should on no account be steamed until the defects have been rectified. In addition to this oral notification, the Inspector is **required** also to complete immediately on site all sections of a **Hazardous Boiler Notice** on the standard The Scheme pro-forma (see Appendix 2 – Hazardous Boiler Notice) in triplicate; the top copy to be handed immediately to the owner or his agent on site, the second copy to be sent to the The Scheme Administrator, the third to be retained by the Inspector for future use.

5.7.2 Formal inspection reports.

5.7.2.1 The Inspector is **required** within 28 days of the completion of the inspection sequence (see 5.7.3 Incomplete examinations. for incomplete examinations) to complete and despatch a formal written inspection

report. The report is to be completed on the standard The Scheme pro-forma (see Appendix 1 – Inspection Report Forms.) together with additional sheets if needed. The Inspector is **required** to complete all sections of the report pro-forma, entering "not applicable" etc., where that is appropriate. If a **Hazardous Boiler Notice** has been issued, a copy is **required** to be attached to the inspection report (whether the boiler has since been repaired or not). The report is to be sent to the The Scheme Administrator who will register it and forward a copy to the boiler owner.

5.7.3 Incomplete examinations.

5.7.3.1 In the event that the boiler owner has not made the necessary arrangements for the full inspection sequence to be completed within 60 days of the first inspection, the Inspector is **required** (unless he has agreed special arrangements with the owner) to issue a formal written inspection report on the The Scheme standard pro-forma with sections completed as "not carried out" or "not examined" as necessary, and stating that the boiler is "not in order to be used".

5.7.3.2 Inspectors are guided not to agree to extended inspection sequences unless there are sound technical reasons for them (for instance when major repairs have been found to be needed which will be examined on completion); in particular, inspectors should not agree to an arrangement which would result in a boiler's being unexamined for a long period before the inspection in steam; the only exception to this could be in the case of newly manufactured boilers which have never been filled with water.

5.7.3.3 Once a report for an incomplete inspection has been issued, the full inspection sequence **must** be repeated before a further report may be issued.

5.7.4 Report archive.

5.7.4.1 The The Scheme Administrator is **required** to maintain a confidential archive of all reports issued under the SBA Boiler Inspection Scheme.

Appendix 1 – Inspection Report Forms.

6 Four types of report form are used by an Inspector, they are divided into those used when the boiler is new to The Scheme & those used for repeat examinations.

6.1 They are as follows:

- a) Conventional Boiler new to scheme.
- b) Conventional Boiler repeat inspection.
- c) Small Tubular Steam Generators new to The Scheme.
- d) Small Tubular Steam Generators repeat inspection.

6.2 When a boiler is new to the Scheme (a & c above) The Scheme **requires** that the Inspector verifies **that the original design & construction are suitable for purpose**, as noted in Section (5.1 Acceptance Into the Scheme.).

6.3 Issue of these report forms indicates that the requirements of Purpose Operation & Requirements of the SBAS BIS Section 5 Scheme Practice have been satisfied.

6.4 The forms are available for inspection from the BIS Administrator.

Appendix 2 – Hazardous Boiler Notice

Notes for boiler Inspector

- (a) This notice is to be completed in triplicate immediately on site if you believe as a result of your inspection of a boiler that an imminent danger would occur if the boiler was steamed again in its present condition.
- (b) One copy is to be given immediately to the boiler owner/agent on site together with oral advice not to steam the boiler again until defects have been rectified.
- (c) One copy to be sent to the The Scheme Administrator.
- (d) One copy for you to retain.

Section 1: details of boiler and owner

1.1 Name and address of boiler owner:-

1.2.Name of boat which boiler is installed:-

1.3.Name of boiler maker and maker's serial number:-

Section 2: details of inspection/test

2.1. Date of inspection/test:-

2.2. Type of inspection/test:-

2.3. Brief details of defects found:-

Section 3. Notice of imminent danger

NOTICE OF IMMINENT DANGER

**AS A RESULT OF MY inspection TODAY OF THE ABOVE BOILER
I CONCLUDE THAT AN IMMINENT DANGER WOULD OCCUR IF THE BOILER WAS
STEAMED AGAIN IN ITS PRESENT CONDITION.**

**ON NO ACCOUNT SHOULD THIS BOILER BE STEAMED AGAIN UNTIL THE
DEFECTS NOTED ABOVE HAVE BEEN RECTIFIED SATISFACTORILY.**

Boiler Inspector Name

Date.....

Signature.....

Appendix 3. Boiler Logs

7 The purpose of the **boiler log** is to provide in a convenient and accessible form all the available documents which provide the boiler history and establish the adequacy of its design and construction. These should include:-

- Design drawings, calculations and specifications.
- Makers drawings, calculations, approvals, material certificates, welding certificates, test certificates.
- Similar documentation relating to modifications and repairs.
- Reports of boiler examinations and tests.
- An operating log compiled on a daily basis (when the boiler is in use, being examined, repaired etc.) Recording all the events relating to the boiler, (use of water treatment, wet or dry storage when not in steam, winter storage & frost protection etc.)

The following format is suitable. It is recommended that the log should be kept in loose leaf format.

SAMPLE BOILER LOG

S.L Fiery Fiend

Sheet no 17

DATE	OPERATING HOURS	OTHER EVENTS	REMARKS
6 April 05	5	Trip on Thames	Boiler stored full with treated water
7/8 May 05	15	SBA Ouse Rally Ely	Boiler blown down from 30psi. Stored dry with plugs removed.
21/22 June 05	—	Boiler wash	Black scale removed.
7-9 July 05	—	Strip and clean for inspection	
12 July 05	—	Cold Inspection by SBAS Mr Jones.	No adverse comments, reassembled boiler.
15th July 05	2	Hot Inspection by SBAS Mr Jones.	All OK except that pressure gauge inaccurate, to be recalibrated.
18th July 05	—		New pressure gauge fitted. Ref no 139478 Bourdon 3" dia 0-300psi Calibration cert. on file.
10th Nov 05	1	Winter Storage	Blown down hot from 30psi. All plugs & inspection plate re-moved. Pipework blown empty. Pressure gauge stored in warm workshop.

Appendix 4. Boiler Design Assessment Service.

8 Scope

8.1 The service will provide the means for clients to obtain approval for:

- new boiler designs
- existing designs where significant modifications are proposed
- a Written Scheme of Examination.

9 Principles

9.1 The Scheme Administrator will arrange the work necessary, this will include quotation, paying the Inspector & receiving payment from the customer.

9.2 A Competent Person, as defined by the Pressure Systems Safety Regulations 2000 (PSSR) Section 2(1), shall be nominated by SBA Services Ltd to ascertain the suitability of the design or Written Scheme of inspection for approval. For the purposes of “The Scheme” this person shall be known as the “Inspector.”

9.3 The Nominated Inspector will be insured by a reputable company. The premiums for which will be paid for by SBA Services Ltd. This cover only indemnifies the Inspector for work undertaken resulting from a commission by SBA Services Ltd.

9.4 SBA Services Ltd will not be responsible for any work undertaken other than for that arranged through the SBAS Administrator.

10 Service Technical Standards

10.1 For new boilers the approval service will be to the standards prescribed in The Pressure Equipment Regulations 1999, Pressure Systems Safety Regulations 2000, BS EN12953 or other relevant legislation, Approved Codes of Practice or Guidelines, as amended. Although such Regulations excludes pressure equipment for ships (which includes small steamboats) the Regulations detail 'best practice' with recognition by most UK Authorities.

10.2 Repair or modifications to existing boilers will be assessed by the Inspector who will prepare any necessary work specifications. Such work will comply with Regulation 13 (Modification & Repair) of The Pressure Systems Safety Regulations 2000. Although these Regulations exclude pressure equipment for ships (which includes small steamboats) the Regulations detail 'best practice' with recognition by most UK Authorities.

10.3 When a Written Scheme of inspection is called for it will be prepared in accordance with best practice detailed in The Pressure Systems Safety Regulations 2000.

11 Administration of the Service

- 11.1 The boiler owner will contact the SBA Services (SBAS) Administrator to arrange any work.
- 11.2 The SBA Services Administrator will prepare in conjunction with the customer a Quotation Request
- 11.3 The SBA Services Administrator will contact the Nominated Inspector & forward to him the Quotation Request with a copy to the customer.
- 11.4 The Nominated Inspector will submit a written quotation to the SBAS Administrator & send a copy to the customer.
- 11.5 The customer will contact the SBAS Administrator to approve the quotation & request that the work proceed.
- 11.6 The SBAS Administrator will request the Nominated Inspector in writing to proceed with the work.
- 11.7 The Inspector will submit the approved documents to the customer, simultaneously sending an invoice & a copy of the approved documents to the SBAS Administrator.
- 11.8 The SBAS Administrator will make payment to the Inspector & claim payment from the customer.

Appendix 5. Construction Surveillance Service.

12 Scope

12.1 This Appendix describes the **Construction Surveillance Service** offered by the SBAS.

12.2 This service is designed to provide the necessary inspection of boilers being constructed by professional or amateur boiler builders to ensure that the resulting boiler is suitable for inclusion in The Scheme.

12.3 It is designed to provide an appropriate Quality Assurance process for the boiler owner, but not a Quality Control process, which the SBAS would be expected to be operated by the builder.

12.4 It includes assurance that:

- the construction follows an assessed design.
- the materials used in construction are appropriate and match those defined in the design. (or their current equivalents)
- Where appropriate, that any welder involved in the construction of the pressure vessel has appropriate and valid welding certifications.
- the construction methods used in building the boiler are adequate and appropriate, and well executed.
- that appropriate non-destructive testing has been undertaken.
- via liaison with the builder, to ensure a common understanding of the requirements of the design.
- they undertake inspection and hydraulic testing of completed boiler..
- they provide certification of construction for completed boilers that meet The Scheme's standards

12.5 It does not include:

- extended consulting or instructing of the builder, who is expected to have appropriate skills, knowledge and experience.
- detailed quality control activities.
- non-destructive testing of construction details (e.g. ultrasound inspection, or crack detection of welds)

13 Principles

13.1 The SBA Services Ltd (SBAS) Administrator will arrange the work necessary, this will include quotation, paying the Inspector & receiving payment from the customer.

13.2 An Inspector, defined by the Pressure Systems Safety Regulations 2000 (PSSR) Section 2(1) as a “Competent Person”, shall be nominated by SBA Services Ltd to validate the quality and suitability of materials and constructional methods.

13.3 The Nominated Inspector will be insured by a reputable company. The premiums for which will be paid for by SBA Services Ltd. This cover only indemnifies the Inspector for work undertaken resulting from a commission by SBA Services Ltd.

13.4 SBA Services Ltd will not be responsible for any work undertaken other than for that arranged through the SBAS Administrator.

14 Service Technical Standards

14.1 The Inspector should endeavour to ascertain that appropriate technical standards have been followed in the construction.

15 Administration of the Service

15.1 When a request for the Construction Assessment Service is received, the Administrator will select a suitable, and as convenient as possible, boiler Inspector, place an order for the Service with the Inspector on behalf of the owner, deal with receipts and payments for the inspection, record and issue to the owner the inspection report, and deal with any “matters arising” from the inspection.

15.2 The boiler inspectors with whom orders for examinations are placed are from a list maintained by SBAS (i.e., they are not employees of SBAS) whose qualifications and experience have been checked by SBAS, and who have agreed to carry out boiler examinations in accordance with The Scheme specification and at the scale of charges set by The Scheme. SBAS maintains in force a policy of professional indemnity insurance which provides cover in respect of examinations carried out to orders placed by SBAS; this acts as a safeguard for inspectors and owners in the unlikely event of something going wrong.

15.3 Prior to the first on-site visit of the Inspector, the SBAS Administrator will arrange for the basic information about the planned boiler to be collected and recorded. This may be done at the first visit or prior to that if appropriate and may be done by the boiler Inspector or another competent person.

15.4 The service will typically involve more than one on-site (aka “in-works”) visit. The typical sequence will be (but the exact number and timing of visits will be determined by the Inspector):

15.4.1 Initial visit to discuss construction, design, construction methods (may be undertake by phone).

15.4.2 Inspection of materials and certification of materials. Inspection of weld preparation (for welded boilers). Inspection of Welder’s certification (for

welded boilers). Inspection of pressure vessel components prior to assembly. All of the above to ensure compliance with the assessed design.

15.4.3 Inspection of assembled pressure vessel, ensuing compliance with assessed design and competence of construction methods employed.

15.4.4 Final hydraulic proof testing of the pressure vessel to two times working pressure; this may be undertaken as part of one of the earlier visits.

15.5 The Inspector's decisions are in all cases final on matters relating to the inspection of a particular boiler and the inspection report which he makes. SBAS will not enter into correspondence on these technical matters, but customers and owners should inform the company of any difficulties experienced in the operation of The Scheme. (see 15.7 Comments and Complaints. below)

15.6 The charges for Construction Surveillance Services are as described in Section 4 Scheme charges.

15.7 Comments and Complaints.

15.7.1 SBAS welcomes comments at any time on any aspect of The Scheme; these help the company to develop The Scheme and provide a service suited to the needs of steam boaters. Please address comments to the BIS administrator.

15.7.2 If the owner is dissatisfied with the conduct of a particular boiler inspection (in respect of either the actions of SBAS or the work of the boiler Inspector), a complaint should be sent in writing addressed to the Chairman of SBAS. All written complaints will be investigated, and a written response will be made. If a complaint involves technical issues, SBAS may refer it to a technical specialist for an independent opinion.

16 Service Reports

16.1 A sample Service Report is shown below:



SBA Services Ltd.

In-Works Inspection Record

Inspection Job No:

Date of issue: 12 July 2018

Customer

Boiler Maker

Job Type

New Build? YES/NO

Repair? YES/NO

Description

Inspector

Boiler Design

Description

Design Approval Completed? YES/NO

Material Verification (Note 1)

Materials meet the design specification? YES/NO

Material certification checked? YES/NO

Comments

Welder Approval (Note 2)

Welder approval certification checked? YES/NO

Comments

Weld Preparation (Note 3)

Weld preparations checked? YES/NO

Comments

Accuracy of Assembly (Note 4)

Accuracy of final assembly set-up checked? YES/NO

Tube fitting and expansion procedure checked? YES/NO

Comments

Final Inspection

Completed assembly inspected? YES/NO

Hydraulic Test

Pressure applied:

Date of Test:

Duration of test:

Boiler Identification

Boiler unique identifier:

Boiler marked with unique identifier, test pressure and date? YES/NO

Inspector

I confirm that the assembly is fit for purpose and meets the requirements for acceptance into the SBAS Boiler Inspection Scheme.

Signature

Date

SBAS Administrator

I confirm that this inspection has been carried out in accordance with the SBAS Boiler Inspection Scheme.

Name

Signature

Date

Appendix 6 – Forced Circulation Tubular Steam Generators

17 Definition of a “forced circulation tubular steam generator”

17.1 For the purpose of compliance with the Scheme rules, a **forced circulation tubular steam generator** is:-

- A steam generator in which the heated element is a continuous coil of tube of internal diameter not exceeding 10-mm actual size, or several such tubes operating in parallel and connected together at their water inlet and steam delivery ends.
- The total internal volume of the tubes (together with any components fitted to them) between the water inlet check valve and the first stop valve downstream of the last heated component shall not exceed two litres. The steam generator shall not include or have connected to it any receiver, drum, reservoir or similar, heated or unheated containing steam or hot water under pressure (this prohibition does not apply to the intrinsic components of engines driven by the boiler, nor to non-heated steam/water separators if required in the system. Boiler tubes, pipe fittings, valves, etc., shall be rated for the design working pressure and metal and steam temperatures of the steam generator.
- With the exception, where essential, of water feed and steam delivery pipework, gauges and instruments, controls and protective devices, the whole of the boiler pressure system shall be confined within a casing of such form and strength that, in the event of the rupture of a tube or fitting, the hot water and steam contents of the boiler will be confined until dispersed safely up the funnel.
- The boiler shall be fitted with the following as a minimum: a pressure relief valve capable of preventing the boiler pressure exceeding the design working pressure, a pressure gauge, a means of controlling the firing rate sufficient to prevent steam and metal temperatures exceeding design limits. So far as reasonably practicable, the following shall also be fitted: steam and metal temperature gauges, feed flow indicator or feed pressure gauge, protective devices to prevent steam and metal temperatures exceeding design limits.

17.2 Where generators do not comply with this definition a Design Assessment and Written Scheme of Examination prepared by a competent person is **required**.