

Engineering Procedure

SAEP-323

30 June, 2003

Performance Qualification

Testing of Contract Welders and Brazers

Document Responsibility: Inspection Department

Saudi Aramco DeskTop Standards

Table of Contents

1	Scope.....	2
2	Conflicts and Deviations.....	2
3	Applicable Documents.....	2
4	Definitions and Acronyms.....	3
5	Responsibilities.....	3
6	Instructions.....	4

1 Scope

- 1.1 This Engineering Procedure specifies the minimum requirements for the testing, certification and registration of contract welders and brazers working directly for, and under the supervision of, Saudi Aramco Maintenance. For the purpose of this Engineering Procedure, Maintenance shall also include to mean other proponent organizations performing fabrication and maintenance welding activities such as Operations Field Services, Pump Shops, Drilling & Workover, etc.
- 1.2 Unless specifically noted otherwise the term welder shall also mean welding operator or brazer.

2 Conflicts and Deviations

Conflicts between this Engineering Procedure and any other Saudi Aramco Standard shall be resolved by the Operations Inspection Division of the Inspection Department in writing.

3 Applicable Documents

Unless stated otherwise, all codes and standards referenced shall be the latest issue (including Revisions and Addenda). Sections of industry Codes and standards referenced herein shall be considered as part of this standard.

3.1 Saudi Aramco References

Saudi Aramco Engineering Procedures

[SAEP-321](#)

*Performance Qualification Testing and
Certification of Saudi Aramco Welders*

[SAEP-322](#)

*Performance Qualification Testing and
Certification of Saudi Aramco Brazers*

Saudi Aramco Form

SA 2318-ENG

Welder Qualification Record

SA 4758-ENG

Job Clearance Card

3.2 Industry Codes and Standards

American Society of Mechanical Engineers/Boiler & Pressure Vessel Code

ASME SEC IIC

Welding Rods, Electrodes and Filler Metals

American Welding Society

AWS D3.6

Specification for Underwater Welding

4 Definitions and Acronyms

Ability Test: An ad hoc test used to determine if a welder has the ability to produce work in accordance with a valid certification. The Ability Test shall be performed on any size coupon (production weld or test coupon) qualified within the limits of the certification. To be valid the test shall be witnessed and documented by the OIU inspector. Acceptance is based on visual inspection and radiographic examination.

Contract Welder: A contractor welder, working directly for and under the supervision of Saudi Aramco Maintenance, hired to perform work for a set period on a contract basis.

Contractor Welder: A welder working directly for, and under the supervision of, a contractor.

JCC: Job Clearance Card (Form SA 4758-ENG).

Job Clearance Card (JCC): A temporary identification card issued by OIU to contract welders hired to work directly for Saudi Aramco Maintenance on a contract basis. The JCC lists certifications held, description of the job, and the welders name and symbol.

OIU: Operations Inspection Unit

PED: Process Expiry Data.

Registered Welder: A welder whose certification has been reviewed, found acceptable, and is on file with the OIU.

Registration: The act of registering a welder certification, or a photostatic copy thereof. Registration is performed after certification review and approval. Current lists of approved welders and/or Job Clearance Cards are examples of registration.

Welder Certification: Certification in writing that a welder has produced a test weld meeting a defined standard.

Welder Performance Qualification: The demonstration of a welders ability to produce a test weld meeting a defined standard.

Wet Welding: Welding at ambient pressure with the welder/diver in the water without any mechanical barrier between the water and the welding arc.

WTC: Welder Testing Center.

WTS: Welder Tracking System.

5 Responsibilities

- 5.1 Maintenance is responsible for selecting contractor welders that have undergone and passed a third party administered welder performance qualification test for hire as contract welders.
- 5.2 The Operations Inspection Unit is responsible for:
 - a) reviewing certifications of contractor welders selected for hire as contract welders by Maintenance;
 - b) sending properly certified contractor welders (selected for hire as contract welders) for welder performance qualification testing to the WTC;
 - c) registering contractor welders (selected for hire as contract welders) that pass the welder performance qualification test conducted by the WTC;
 - d) issuing Job Clearance Cards to contractor welders (selected for hire as contract welders) that pass the welder performance qualification test conducted by the WTC;
 - e) keeping track of the status of contract welders on WTS and documentation; and
 - f) inputting performance entries in WTS for the contract welder in a timely manner within the period of Process Expiry Date (PED) shown on WTS.
- 5.3 The Welder Test Center is responsible for testing contractor welders (working directly for and under the supervision of Maintenance) hired to perform work for a set period of time on a contract basis.

6 Instructions

- 6.1 General Requirements
 - 6.1.1 Maintenance shall only select those contractor welders for hire that are properly certified by a Saudi Aramco approved welder testing agency.
 - 6.1.2 Maintenance shall send the certifications of welders selected to work as contract welders to the responsible OIU for review and approval prior to the start of work.
 - 6.1.3 Contractor welders that do not have a valid test certificate shall not be considered for employment with Saudi Aramco.
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- 6.1.4 Contractor welders that have a valid test certificate shall take a welder performance qualification test conducted by the WTC in accordance with [SAEP-321](#) for welders and [SAEP-322](#) for brazers. The test shall be scheduled by the responsible OIU.

Exception:

For shutdowns and one off jobs the welder test prerequisite requirements of [SAEP-321](#), paragraph 6.1.1.4 do not apply.

- 6.1.5 Test results shall be reported in writing on Form 2318-ENG (Welder and Welding Operator Qualification Record) and entered in WTS by the WTC. Contractor welders that pass the welder performance test shall be automatically assigned a welder symbol by the WTS, however, they shall not be issued qualification cards nor given a copy of Form 2318-ENG. They shall be issued Job Clearance Cards by the OIU instead.

Commentary Note:

Contractors that obtain copies of the Form 2318-ENG shall not be permitted to use them as proof of welding proficiency in lieu of a valid test certificate from a third party welder testing agency and corresponding proof of continuity of welding (this also applies to welders transferring from one Saudi Aramco Maintenance organization to another). Welders that are transferred from one Maintenance organization to another shall keep their welder symbol, however, they shall pass an Ability Test administered by the new OIU to determine their suitability for the new job.

- 6.1.6 Contractor welders that fail the welder performance qualification test conducted by the WTC shall be rejected for employment with Saudi Aramco (one retest is permitted). This test result, reported in writing on Form SA-2318-ENG, shall be entered in the WTS by the WTC.
- 6.1.7 Contractor welders that pass the welder performance qualification test conducted by the WTC shall be accepted for employment with Saudi Aramco. When they begin work for Saudi Aramco they shall be called contract welders.

6.2 Initial Field Testing

- 6.2.1 The first three (3) production pressure retaining butt welds welded by each new contract welder shall be 100% radiographed. The OIU inspector shall witness the welding of at least one of these welds. Radiographic acceptance shall be as specified by the applicable design code governing the work.

- 6.2.2 If the radiographs are all acceptable the contract welder shall be permitted to continue production welding. Subsequent production welding shall be radiographed at normal job monitoring levels.
- 6.2.3 If radiography shows that one or two of the first three (3) welds are unacceptable, the OIU inspector shall visually examine all three welds and their corresponding radiographs. If the weld quality is poor the contract welder shall be terminated. If the weld quality is borderline the contract welder may be permitted to continue production welding provided all subsequent work is 100% radiographed. If the weld quality improves the radiography shall be reduced to normal job monitoring levels. If the weld quality does not improve the contract welder shall be terminated. A written request to terminate that welder from WTS shall be addressed to the WTS Administrator.
- 6.2.4 If radiography shows that all three welds are unacceptable the contract welder shall be terminated. A written request to terminate that welder from WTS shall be addressed to the WTS Administrator.
- 6.3 Maintaining Welder Certifications
 - 6.3.1 The OIU shall maintain Welder Experience Records to verify the welding activity of each contract welder. Verification shall be by reference to an inspection or radiography report, weld number or similar documentation. A suggested Welder Experience Record is given in Appendix 6 of [SAEP-321](#).
 - 6.3.2 The OIU shall also maintain a record of the pressure containing groove welds made by each contract welder with each process or combination thereof. Monthly and yearly repair rates shall be calculated on a butt joint and/or lineal inch basis. The method for calculating repair rate limits shall be as defined in the Saudi Aramco Engineering Welding Standards. Contract welders with high repair rates shall be terminated.
 - 6.3.3 If there is a specific reason to question a contract welder's ability to make sound welds the inspector may require the contract welder to perform an Ability Test as described in [SAEP-321](#). Contract welders that fail the Ability Test shall be terminated. A written request to terminate that welder from WTS shall be addressed to the WTS Administrator.

Commentary Note:

A welder will be placed in the Inactive welders list if he did not appear for Anniversary Exam (ARD) within 90 days. The welder will be in the separated welders list if he did not appear for ARD after the 90 days period; subsequently to reinstate him in the WTS, a letter from his

perspective Maintenance Division head explaining the welder's case shall be sent to the Operations Inspection Division head of the Inspection Department.

6.3.4 Certifications of contract welders shall automatically expire after every three (3) years of continuous employment. Contract welders shall be required to recertify to every Test Supplement previously held and/or required. This shall be called the Anniversary Recertification Test. The Anniversary Recertification shall be scheduled every three years (in cases of continuous service only) by the OIU and conducted by the WTC. Test results shall be entered in the WTS and reported to the OIU in writing. Welders that pass the Anniversary Recertification test shall be given a new Job Clearance Card (JCC) by the OIU.

6.4 Job Clearance Cards (JCC)

6.4.1 Contractor welders that are properly certified and pass a welders performance qualification test conducted by the WTC shall be registered and issued a Job Clearance Card (Form SA 4758-ENG) by the responsible Saudi Aramco Operations Inspection Unit prior to the start of work.

6.4.2 Job Clearance Cards shall remain valid for the specific contract period the contract welder was hired for.

6.4.3 Job Clearance Cards can be withdrawn by the Saudi Aramco Operations Inspection Unit if the contract welder does not produce good quality work. Contract welders whose Job Clearance Cards have been withdrawn shall be immediately terminated. A written request to terminate that welder from WTS shall be addressed to the WTS Administrator.

6.4.4 Job Clearance Cards shall be returned to the Saudi Aramco Operations Inspection Unit when the contract welders contract expires, or when the contract welder goes home on leave. Contract welders that return to work to the same maintenance organization within six months time may be reinstated without retesting.

6.5 Requirements for Underwater Welders

6.5.1 Underwater welders shall be certified for a given weld class in accordance with AWS D3.6 by an approved independent welder testing agency. They shall be certified to weld with each procedure used for production welding in accordance with the limitations described in AWS D3.6, paragraph 5.16. They shall be considered qualified for up to six months from their

last certification test or acceptable production weld (with proper certification and proof of welding continuity).

Commentary Note:

Underwater welders are also required to take the anniversary recertification test.

- 6.5.2 Satisfactory evidence that underwater welders have been properly certified by an approved independent welder testing agency for the intended job application shall be submitted to and approved by the responsible Operations Inspection Unit prior to the start of work.
- 6.5.3 Underwater welders with approved certifications shall take a Saudi Aramco welder performance qualification test in accordance with an approved Saudi Aramco Test Supplement for underwater welding prior to the start of work. The test shall be administered and entered in WTS by the WTC. Underwater welders shall be tested either at site or under similar conditions.
- 6.5.4 Underwater welders that pass the performance qualification test administered by the WTC shall have their test results documented in accordance with paragraph 6.1.5.

Revision Summary

30 June, 2003

Revised the "Next Planned Update". Reaffirmed the contents of the document, and reissued with minor revisions.