

Engineering Procedure

SAEP-1133

13 November 2005

Form 3750-ENG, Pressure
Relieving Device Test Report

Document Responsibility: Inspection Department

Saudi Aramco DeskTop Standards

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1 Scope

This Procedure provides instructions on the use of Saudi Aramco Form 3750-ENG, Relief Valve Maintenance Report. The report is electronically printed out from SAP system based on the scheduled Maintenance Plan of the Preventive/Predictive Maintenance Order PM02. It has dynamic data that is viewed for each RV type in accordance with fifteen (15) Standard Inspection Characteristics. Each RV type will have specific number of Inspection Characteristics assigned automatically (programmed) to it. Each Inspection Characteristic indicates the type of test & inspection required to be made on a RV. Attachment A of this procedure is an example of form 3750-ENG for Conventional RV.

Transaction QGA3 is used to print the RV Maintenance Report (SA Form 3750-ENG) based on Inspection Lot entry. There are two report layouts that can be selected for this transaction. The layout Z_RV_INSP_RESULT is used to print a blank of the 3750 form. The second layout QM_INSP_RESULT is used to produce a hardcopy of the test and inspection results that have been entered in SAP system.

2 Purpose of Report Saudi Aramco Form 3750-ENG, Relief Valve Maintenance Report

- 2.1 This form is designed to report RV testing and inspection results in SAP system. Once this form data is entered, it is passed onto the RV Coordinator. The RV Coordinator makes a usage decision in SAP. If the usage decision is entered as "ACCEPT" the Maintenance Division can then proceed to install the relief valve in the Plant. Once installed the preventive maintenance order is to be technically completed.
- 2.2 The Saudi Aramco Form 3750-ENG report is entered into SAP system by Maintenance using the Transaction QE17 as outlined in para. 6.8.3 of SAEP-318. The original completed form is then sent to the local RV Coordinator for data review and approval and then filing. The RV Coordinator enters his approval via Transaction QA11. A copy shall be kept in the RV file maintained by the RV Shop.
- 2.3 The Saudi Aramco Form 3750-ENG RV Test Report shall be printed from SAP system by using Transaction QGA3. It is issued and then the test data entered into the SAP system for all RVs tested and repaired in Saudi Aramco facilities or by Contractor Shops that works on a Saudi Aramco RV.
- 2.4 Only one Saudi Aramco Form 3750-ENG report shall be used for a RV that is serviced in the RV shop and later tested / set in-place.
- 2.5 The Saudi Aramco Form 3750-ENG Report form shall be completed during the maintenance work by the RV Technician performing the work. For each RV, the final test results for CDTP and/or Set Pressure shall match the ones shown on the respective Saudi Aramco Form 3099A-ENG. The RV Technician is responsible for the completeness and accuracy of the report. The RV

Technician(s) who tested and/or reconditioned the RV shall sign on the Saudi Aramco Form 3750-ENG. The RV Shop Supervisor / Quality Coach shall concur with all test report results. Also, the person who enters the data into the SAP system shall initial the Saudi Aramco Form 3750-ENG.

- 2.6 Replacement of independent rupture pins and rupture disks or parallel rupture disks must be reported as "Replaced in Kind" with size, pressure rating and replacement date. Use "Comments" field for pressure rating. Report results of visual inspections on Saudi Aramco Form 3750-ENG.

3 Detailed Instructions for Saudi Aramco Form 3750-ENG

- 3.1 Entry and Verification Instructions by Field for Relief Valves.

EQUIPMENT / RV NUMBER FIELD

Verify the assigned number of pressure relief valve after checking that the number on Maintenance Work Order PM02 or/ & PM07 corresponds with number on attached tag and is stamped on base of valve. Verification of this field is mandatory.

PLANT NUMBER FIELD

Check the plant number where the RV is located. This is the same plant number found on the Saudi Aramco Form 3099A-ENG.

PZV TAG NUMBER FIELD

Check the PZV tag number. This is the same PZV tag no. found on the Saudi Aramco Form 3099A-ENG.

TEST LOCATION FIELD

Enter a "S" (Shop) if RV is tested and inspected in the shop.

Enter a "P" (In-Place) if RV has been "authorized" to be tested in-place in accordance with SAEP-319, and successfully passes that test.

Enter a "B" (Both in shop and in-place) if RV has been "authorized" to be tested in shop as well as in-place in accordance with SAEP-319, and successfully passes that test. Entry in this field is mandatory.

FIELD OF INSPECTION CHARACTERISTICS

INITIAL TEST RESULTS:

Characteristic 0010 Initial CDTP test:

Enter the as-received pop-test result. Enter pressure reading at which relief valve, as received from field, pops sharply open. Measure valve in same pressure units as shown on the Saudi Aramco Form 3099A-ENG.

Characteristic 0020 Initial set pressure test:

Enter pressure reading at which relief valve pops sharply open. Measure valve in same pressure units as shown on the Saudi Aramco Form 3099A-ENG. If a RD or RP is visually inspected or replaced with a new one, then enter its set pressure.

Characteristic 0030 Initial vacuum test: (for TK RV type only)

Enter the initial vacuum test reading at which vacuum breaker or tank breather, as received from field, pops sharply open. Measure valve in same pressure units as shown on the Saudi Aramco Form 3099A-ENG.

Characteristic 0040 Initial pallet weight test: (for TK RV type only)

Enter the weight of the pallet at which valve was received from field. Measure valve in same pallet weight units as shown in the Saudi Aramco Form 3099A-ENG.

Characteristic 0050 Initial seat leak test:

Enter results from "as received" leak test. If the valve passed the test, tick "PASS". If the valve failed the leak test, tick "FAIL" in the block. Tick "N/A" if the test is not applicable. Entry in this field is mandatory. For Rupture Disk, if leak tested and passed, then tick "PASS". Otherwise, tick "FAIL".

Characteristic 0060 Reason for disassembly – RV:

Check one of the following entry codes: I001, I002, N001, O001, P001, or P002. The description of each code can be found on the 3750-ENG Form itself. However, code "O001" will cause the SAP system to request the user to enter some comments. Entry in this field is mandatory.

Characteristic 0070 Visual inspection results – RV:

Enter a minimum of one of the following options: C001, C002, F001, F002, M001, N001, O001, or O002. The description of each code can be found on the Saudi Aramco Form 3750-ENG itself. However, codes "O001" & "O002" will cause the SAP system to request the user to enter some comments. Entry in this field is mandatory.

DEFECTS RECORDING:

Enter the object part, damage, cause and the activity performed on a RV under this field to record the defects observed from visual inspection.

There are 27 RV parts fields that should be filled in with the appropriate action that was required to be taken by maintenance, especially in the case when the RV is disassembled. However, there are some mandatory fields that must be filled in, regardless of what repair action was taken. If a "N001" (Not disassembled) was entered under the REASON FOR DISASSEMBLY field, then the only mandatory field that must be entered under DEFECTS RECORDING is the Body field, indicating the external condition of the RV. If

any other indicator was entered under the REASON FOR DISASSEMBLY field, then, minimally, the Body, Disk, Nozzle & Seat, and Gaskets parts fields must be filled in with one of the applicable repair actions. The description of each repair action can be found on the DEFECTS tab of Transaction QE17 or QE53 of SAP system.

FINAL TEST RESULTS:

Characteristic 0080 Final: CDTP test:

Enter pressure reading at which cleaned/repaired/reset valve pops sharply open. If the valve is tested in the shop ("S" in test location field), this is the CDTP, (Cold Differential Test Pressure, i.e.; the pressure at which the RV is adjusted to open on the test stand). Enter Pressure unit which is the same as shown on the Saudi Aramco Form 3099A-ENG.

Characteristic 0090 Final: set pressure test:

Enter pressure reading at which cleaned/repaired/reset valve pops sharply open. If the valve is tested in-place ("P" or "B" in test location field), this is the Set Pressure. This reading must be within tolerances specified by SAEP-1132. Entry in these blocks is mandatory. For Rupture Disc or Rupture Pin, enter the set pressure. Enter Pressure unit which is the same as shown on the Saudi Aramco Form 3099A-ENG.

Characteristic 0110 Final vacuum test: (for TK RV type only)

Enter the final vacuum test reading at which vacuum breaker or tank breather pops sharply open. Measure valve in same pressure units as shown on the Saudi Aramco Form 3099A-ENG.

Characteristic 0110 Final pallet weight test: (for TK RV type only)

Enter pallet weight reading at which cleaned/repaired/reset valve sharply opens. Measure valve in same pallet weight units as shown in the Saudi Aramco Form 3099A-ENG.

Characteristic 0120 Final seat leak test:

Enter results from final leak test. If the valve passed the test, tick "PASS". If the valve failed the leak test, tick "FAIL" in the block. Tick "N/A" if the test is not applicable. Entry in this field is mandatory. For Rupture Disk, if leak tested and passed, then tick "PASS". Otherwise, tick "FAIL". Tick "PASS" block if the seat leak test passed and meets the leakage criteria. **The RV shall not be taken to the field with leaking seats.** Therefore, the user must tick "PASS" block.

Characteristic 0130 Final bonnet leak test:

Tick "PASS" block if the bonnet passes the leak test. If the valve failed the final bonnet leak test, tick "FAIL" in the block. Tick "N/A" block if the test is not applicable or RV does not have a bonnet. Entry in this field is mandatory.

Characteristic 0140 Final bellows leak test:

Enter "PASS" if the bellow passes the leak test. Enter "N/A" if the RV does not have a bellow.

Characteristic 0150 blowdown test:

Enter blowdown. This is the reseating pressure of the tested RV. Normally, this kind of pressure setting is measurable during in-place testing of steam safety valves. Use this field also for blowdown settings of pilot operated valves, when required by the responsible Engineering Unit.

Valuate, Accept or Reject RV:

Select one of the following options:

A001, A002, A003, A004, A005, C001, or R001 to enter the detailed repair which was performed on the RV. The description of each code can be found on the Saudi Aramco Form 3750-ENG itself. However, clicking on "LT" (Long Text) button in SAP system will enable the user to enter some comments against the inspection characteristic. Entry in this field is mandatory.

COMMENTS:

Enter any comments or special information. Type/write the comment against any inspection characteristic made after valuating the overall repair of a RV. Entry in this field is mandatory which in turn will be entered in SAP "LT" (Long Text). Therefore the user must enter any applicable comments.

Test Date field:

Enter month number of Gregorian year for date of test. Enter day of Gregorian month for date of test. Enter year of Gregorian century for date of test.

- 3.2 Affix signature of the Qualified Relief Valve Technician performing inspection, testing and/or repair before submission of the test report to the RV Shop Supervisor or Quality Coach.
- 3.3 Affix signature of the RV Shop Supervisor or Quality Coach before submission of the test report for data entry.
- 3.4 Affix date of entry and initials of the person(s) who enters the Saudi Aramco Form 3750-ENG into the SAP system.
- 3.3 Send the original Saudi Aramco Form 3750-ENG to the Local RV Coordinator for data entry approval.

4 Entering Saudi Aramco Form 3750-ENG Report Data Using SAP System

- 4.1 The person entering the test Data shall be trained to use the SAP System, have a logon ID assigned to him by his Department CSL, trained in entering RV data described in this Procedure, and shall be familiar with the terminology for RV repair work to recognize obvious data entry messages and errors.
- 4.2 Data Entry Procedure can be found in the SAP Computer Center Online Training Catalog that can be accessed using the URL link:
<http://sapcc.aramco.com.sa/catalog/catmenu.asp>
- 4.3 SAP PM Transaction QE17 is used to enter the RV test results.

5 Applicable Documents

The requirements contained in the following documents apply to the extent specified in this procedure.

Saudi Aramco References

Saudi Aramco General Instructions

<i>GI-1000.500</i>	<i>Maintenance Work Order</i>
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Saudi Aramco Engineering Procedures

<i>SAEP-318</i>	<i>Pressure Relief Valve Program Authorization for Installation, Deletion and Changes</i>
<i>SAEP-319</i>	<i>Pressure Relief Valves – Routine Test, Inspection, Quality Assurance and Regulation</i>
<i>SAEP-1132</i>	<i>Instruction for Using the Relief Valve Test Stand</i>
<i>SAEP-1134</i>	<i>Relief Valve Technician Certification</i>

Saudi Aramco Forms and Data Sheets

<i>3099A-ENG</i>	<i>Relief Valve Authorization</i>
<i>3750-ENG</i>	<i>Relief Valve Maintenance Report</i>

Saudi Aramco SAP Plant Maintenance Order Types

<i>PM01</i>	<i>Normal Maintenance</i>
<i>PM02</i>	<i>Preventive/Predictive Maintenance</i>
<i>PM07</i>	<i>Maintenance Support to Capital Projects</i>

Revision Summary

13 November 2005	Revised the "Next Planned Update". Reaffirmed the contents of the document, and reissued with editorial changes.
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Attachment A – Example of RV Maintenance Report

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Inspection lot	Relief Valve Maintenance Report :SA-3750- ENG (01/2002) 114000020300	Order number 20230366
Status	Usage decision made/No defects found	
Origin	14 Plant Maintenance	

Operation 0030 Test & Reset Relief Valve

Equipment 2815927 TechidentNo 77B07018 Plant = A001 Berri Gas Plant
RV type CV PZVNumber 505A
Test location ____ (SHOP, INPLACE, BOTH)

Characteristic 0010 Initial CDTP test (443.0000 .. 471.0000 PSIG) _ _ _ _
Characteristic 0020 Initial set pressure test (436.0000 .. 464.0000 PSIG) _ _
Characteristic 0050 Initial seat leak test (Check one) ☐PASS ☐FAIL ☐N/A
Characteristic 0060 Reason for disassembly - RV Reason for disassembly - RV
☐ I001 Disassembly interval is due ☐ O001 Other, describe in comments
☐ I002 Insp, Eng Ops Request ☐ P001 Stuck , no Pop at 110% of CDTP/ Set pres.
☐ N001 Not disassembled ☐ P002 Popped 10% below of CDTP/Set press

Characteristic 0070 Visual inspection results – RV

☐ C001-Some Corrosion attack	DEFECTS RECORDING (Print from 9002 Shop paper)			
☐ C002-Severe Corrosion attack	OBJECT PART	DAMAGE	CAUSE	ACTIVITY
☐ F001-Foreign-Material-partially plugged	_____	_____	_____	_____
☐ F002-Foreign-Material-severely plugged	_____	_____	_____	_____
☐ M001-Mechanical damage	_____	_____	_____	_____
☐ N001-No defects	_____	_____	_____	_____
☐ O001-Others(major defects)	_____	_____	_____	_____
☐ O002-Others(minor defects)	_____	_____	_____	_____

Characteristic 0080 Final CDTP test (443.0000 .. 471.0000 PSIG) _ _ _ _
Characteristic 0090 Final set pressure test (436.0000 .. 464.0000 PSIG) _ _
Characteristic 0120 Final seat leak test (Check one) ☐PASS ☐FAIL ☐N/A
Characteristic 0130 Final bonnet leak test (Check one) ☐PASS ☐FAIL ☐N/A

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Relief Valve Maintenance Report :SA-3750- ENG (01/2002)
Inspection lot **114000020300** **Order number 20230366**
Status **Usage decision made/No defects found**

VALUATE_ACCEPT OR REJECT EQUIPMENT(One choice)

☐ A001 Accept, major ☐ A002 Accept, unexpected repairs
☐ A003 Accept, routine repair ☐ A004 Accept, Design change
☐ A005 Accept, no part replacement ☐ C001 Cancel due to data entry error
☐ R001 Reject

COMMENTS (BY INSPECTION CHARACTERISTIC)

TEST DATE __/__/__(MM/DD/YY)

RV TECHNICIAN NAME BADGE SIGNATURE
TESTED BY: _____

RECONDITIONED BY: _____
RV SHOP SUPRVR OR Q.C.: _____ DATE: _____
DATA ENTERED BY(MAINT): _____ DATE: _____

Usage decision by RV Coordinator(Inspection Unit)
Name : _____ UserID : _____
Badge: _____ Date : _____
