Statement of Fitness - Asset Restart

Use following:

- Overhauls
- Turnarounds

Operating Unit: Shell Petroleum Development Company

Facility: IA Scrubber Manifold: 2" IA scrubber manifold to IA workshop

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Summary of event:
On Friday 3rd December 2021, gas supply from IA scrubber manifold through 2inch gas pipeline to IA workshop was manually shutdown due to report from process safety evaluation associated with critical pipeline wall losses and subsequent approval to shutdown facility for total replacement of the facility.

Isolation of supply line via double valve arrangement was immediately carried out at IA main gas manifold and blind-off at scrubber manifold.

The shutdown was taken to

- Carry out total replacement work on the gas pipeline
- Carry out Inspection and certification of the replaced facility

The total replacement work and Inspection of the installed pipeline from IA scrubber manifold to IA workshop have now been completed, hence the need to restart the facility and commence gas supply to IA workshop.

The replacement section totalling 573.9m was successfully hydrotested to a pressure of 16.25barg (1.25 x Design Pressure). All the joints passed the NDT results. The ancillaries were successfully leak tested with nitrogen to 1.1 of operating pressure. The line has been hooked up to ICCP (Impress Current Cathodic Protection System) and its readings are effective.

It is confirmed that, to the best of the undersigned's knowledge and belief, the following criteria has been met. These criteria have been identified by Shell as necessary for the facility to reintroduce hydrocarbon into its throughput.

- Statements of Fitness requirements specified in AI-PSM Application Manual Item 7.1 have been met where applicable:

Based on the above, the facility therefore meets the criteria necessary to re-introduce hydrocarbon.

Signed:

Cletus Ujah Digitally signed by Cletus Ujah Date: 2022.03.28 17:15:14 +01'00'
----------, date
Lead, Pipelines O/M, Land East

----------, date
Turnaround Project Manager

Uche Ojiako Date: 2022.03.25 08:50:49 +01'00'
----------, date
Head of Availability and RoW Management

Jackreece, Sokimiebi Digitally signed by Jackreece, Sokimiebi Date: 2022.03.25 11:26:33 +01'00'
----------, date
Head of Pipeline Integrity and Assurance

14/4/22
----------, date
Pipelines Asset Manager (Note 1)

Note 1: Job title is as per AIPSM-AM-; signature should be by person accountable for the asset

Appendix 2
Statement of Fitness Examples

1. Intent

The intent of this Statement of Fitness (SoF) is to ensure that when significant events occur, an appropriate check-and-balance has been applied at a sufficient senior level to confirm that necessary controls are in place to ensure a safe restart of the facility. The SoF aims to apply a formal process to aid the Asset Manager in confirming those controls are indeed in place.

2. Requirements

These guidance notes clarify the requirements for restart following major shutdowns and process upsets in producing assets, to comply with the Statement of Fitness as specified in the Shell Group AI-PSM Application Manual. It does not address the requirements for projects, including brown field modifications.

Within the scope of this document, the AI-PSM Application Manual calls for a Statement of Fitness (SoF) when:

"Restarting an Asset after an incident involving uncontrolled shutdown, or an overhaul or a turnaround, or when the Asset has been subjected to conditions outside the operational limits or experienced environmental conditions beyond the original design parameters"

3. Application of SoF for Asset Restart

The five criteria outlined above fall basically into one of two categories:

- **Maintenance** - (overhaul, turnaround)
- **Incidents** - (uncontrolled shutdown, excursion beyond operational limits, environmental conditions beyond design limits)

3.1 Maintenance

Statement of Fitness following day-to-day maintenance is deemed to be adequately covered by a properly functioning and effective Permit to Work system, hence no separate SoF needs to be filled in. (De-) isolations, leak testing, etc. shall be covered by the Permit to Work system and equipment start up shall be covered by existing operating procedures.

However, for significant maintenance shutdowns additional assurance in the form of a SoF is required. Upstream Americas Deepwater (UAD) defines a significant maintenance shutdown as one that is scheduled in the Integrated Activity Plan (IAP). In this instance, the Asset Manager utilizes the existing UAD processes for Pre-Startup Safety Review following an overhaul/turnaround and adds the SoF signature page for Overhaul / Turnaround (page 2).

In situations where brown field modifications are executed during significant maintenance shutdowns, the consideration as to whether to apply this SoF or the one for projects and plant modifications should be driven by what activity (i.e. project or maintenance) is the prime driver for the work.

3.2 Incidents

A Statement of Fitness document shall be completed following a high-risk incident involving uncontrolled shutdowns, conditions outside operational limits or environmental conditions beyond design limits. In these cases, SoF shall as a minimum be applied following high-risk incidents (actual or potential consequences and likelihood are assessed to be in the yellow 5a/b or red area of the RAM). Figure 1 defines the decision process for when an incident-type Statement of Fitness for Restart is required.

Appendix 2
Statement of Fitness Examples

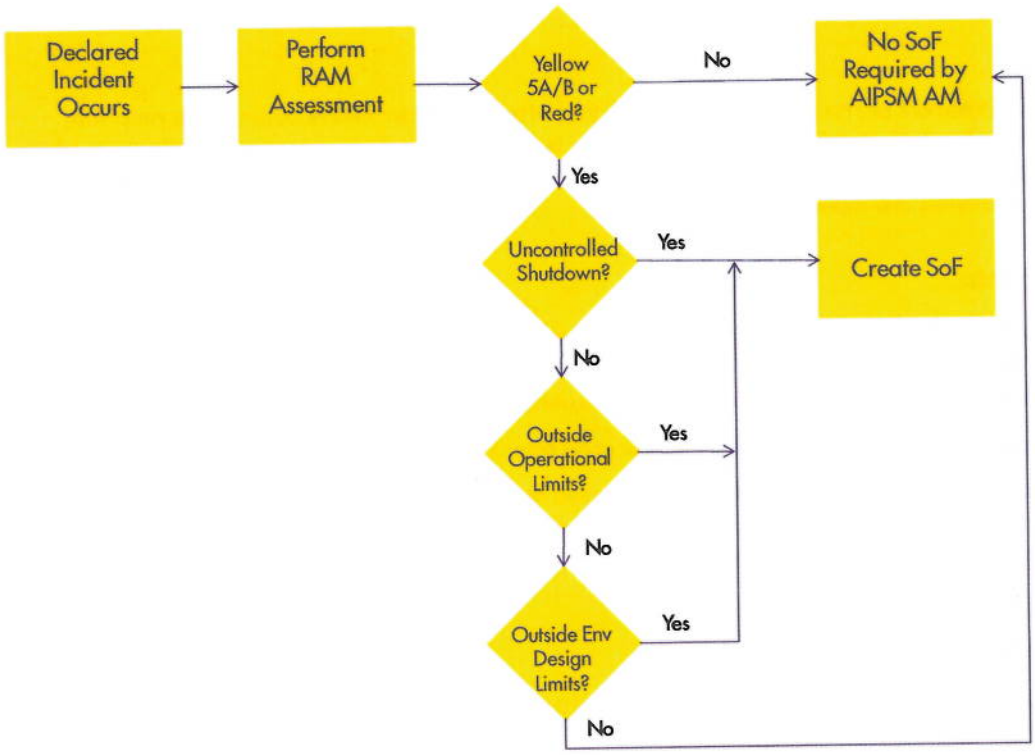

FIGURE 1: Decision Chart for Incident-Type Statement of Fitness for Restarts

A. Uncontrolled Shutdown:
An uncontrolled shutdown is defined as:

A shutdown of equipment where the equipment shuts down and/or blows down

- in a sequence that is not as per the design, or
- a timeframe that is not as per the design, or
- following a logic that is not as per the design.

B. Conditions outside the operational limits:
For the scope of the Statement of Fitness document; the term "operational limits" as written in the AI-PSM Application Manual, is defined as the specified limit values of process parameters such as pressure, temperature, and flow rate, within which a process or equipment item must remain during operation to maintain Technical Integrity. Technical Integrity is defined as the condition of a physical Asset in which, under specified operating conditions, the risk of a failure that would endanger the safety of people or the environment is As Low as Reasonably Practicable .

In UAD, "conditions outside operational limits" occur when any process-related safety critical protective device fails to perform its intended function of protecting Technical Integrity of the equipment. For example, a relief valve does not relieve at the design setting.

C. Environmental conditions beyond the design parameters:
The Asset experienced environmental conditions beyond the design parameters. Examples include:

Appendix 2
Statement of Fitness Examples

- Earthquakes of magnitude greater than allowed by the design of the facility,
- Hurricanes of strength greater than allowed by the design of the facility,
- Environmental conditions (Waves, winds, subsurface currents, etc) higher than allowed by the design of the facility.

4. Signatories

Signatories are as a minimum the senior person on site (OIM/PIC), responsible for confirming that required actions have been taken on site, the Operations Manager confirming agreement, and the Asset Manager as the accountable party.

The Statement of Fitness signature page may be routed via email from the OIM/PIC to the Operations Manager and then the Asset Manager. In this instance, the sender makes the statement "I approve the Statement of Fitness for Restart as attached" at the top of the email before sending to the next signatory. The SoF is then considered electronically signed and dated.

Appendix 3
Pre-Start Checklist

Instructions – Complete this form and obtain approval. Leadership approval is required. Appropriate actions must be taken to address all "No" responses prior to start-up.

Date Issued:	21/03/2022	Facility:	IA SCRUBBER MANIFOLD TO IA WORKSHOP
Sponsor:	UPC/G/U	Company:	SPDC

Start-up Description: Start-up of IA gas facility post replacement of 2" IA scrubber manifold to IA workshop

	Item	Yes	No	N/A
	Hazard analysis recommendations have been addressed and implemented as appropriate.	X		
	Sectional Replacement has been completed according to design specifications.	X		
	Piping is routed and valved according to the mechanical flowsheets.	X		
	Non-destructive testing requirements have been completed.	X		
	Leak testing has been performed to ensure no leaking flanges or tubing connection	X		
	All protective shipping brackets and packing have been removed from controllers, instruments, and other equipment.			X
	Pre-service required by vendors has been performed.			X
	All safety and control devices are set and operate properly	X		
	Actual device function tests are complete, and control and safety system logic match the design requirements.			X
	Utility, firefighting, and personnel safety equipment are in place and operational.	X		
	Maintenance procedures and spare parts are in place (such as SAP).	X		
	Written startup, operating and shutdown procedures are in place.	X		
	Emergency response and evacuation procedures including EEP are in place.	X		
	Necessary regulatory approval has been obtained before startup. (Notes for Offshore: BOEM notification for field inspection required 2 days before startup of new facilities. Also, U.S.C.G. may require that both fire water pumps be in service prior to allowing personnel to stay over-night.)			X
	Handover communicated during crew/shift change.			X
	All personnel trained.	X		
	Safety briefing completed.	X		
	Equipment in start-up ready condition (blinds removed, vents/drain valves in correct position).	X		
	Control Room/Monitor Room notified.			X
	Shell departments and third-party personnel notified before startup (PMC, Terminal, etc.).			X
	Start-up cross-referenced with other Permits.	X		
	Simultaneous Operations (SIMOPs) considered.	X		
	Barricades removed.	X		
	Equipment purged.	X		
	Lock Out Tag Out devices and safety tags removed. (Isolation tags to be removed sequentially post de-isolation exercise)	X		
	Hatches in correct position.			X
	Area clean and tools returned to proper location.	X		
	Oil and gas receiving stations notified. (PMC informed to notify customers)-(To be notified post sign-off of SoF)		X	
	Critical safety systems operational.	X		
	Are Process/Safety Flow Sheets and SAFE Charts Complete? □ Process Flows should show processing equipment and include normal temperature, pressure and flow rates for major flow streams and composition of streams. □ Heat Exchangers should include the BTU transfer. □ Safety Flow sheets should show all bubbles as reference by API RP 14 C.			X

Appendix 3
Pre-Start Checklist

	▯ SAFE Charts should be done in accordance with API RP 14 C. ▯ Material/Energy balances should be done as needed for the design.			
	Are Mechanical Flow Sheets Complete? ▯ Mechanical Flows should show equipment, vessel and line sizes, the sizes of all valves, controls, shutdowns, relief valve set points and orifice size, mawp/temperature rating of the equipment and specification breaks. ▯ Critical operating parameters such as normal operating, LSH and LSL levels should also be indicated.			X
	Are the Layout Drawings Complete? ▯ Electrical Classification Drawings should show unclassified, Div. 1 and Div. 2 areas. ▯ There should be a current station bill in the living quarters if applicable. ▯ Equipment layout drawings should show skid layouts with as many details and dimensions as needed. ▯ A crane radius load diagram as a separate drawing should be available. The load radii for both static and dynamic lifts should be superimposed on the equipment layout drawing. ▯ A Safety Equipment Layout drawing should be done showing firefighting equipment, escape capsule, life rafts, gas detection, etc.			X
	Has a Process Hazard Analysis Been Completed? ▯ PHA should be properly documented and filed with Division HSE.			X
	Material Safety Data Sheets ▯ Are the MSDSs complete and available at the location?			X
	Equipment/Pipe Specifications ▯ Document the design specifications of the facilities if other than the SOI standard or industry specifications.	X		
	Erosion/Corrosion Prevention ▯ Is there an erosion/corrosion monitoring and prevention program in place? ▯ Is there an underwater inspection program in place?	X		
	Relief System ▯ The orifices of PSVs should be listed. ▯ The sizing basis for each element and the entire relief system should be listed. ▯ A relief schematic should be available. ▯ The design capacity of the relief scrubber should be listed.	X		
	Other BOEM Information ▯ Fire and gas detection system schematic as required by 30 CFR 250.122 ▯ Professional Engineering certification of the design			X