	<p>AZERBAIJAN BUSINESS UNIT</p> <p>(AzBU)</p>	
--	---	--

Policy for Safe System of Work:
Hot Work (Naked Flame) Policy

C12	0907.069.0 4	Issued for use	<u>V.Rendall</u>	<u>N.White</u>	<u>N. McCleary</u>	<u>G. Campbell</u>
Rev	Date	Reason for Issue	Prepared by	Checked by	Approved by TA	Endorsed by
Notes:			HSE - SAFETY			
			Azerbaijan BU Document Reference			
			Asset Code	Dept Code	Document Type	Sequence No
			UNIF	HSE	POL	101
						C12

The controlled version of this document can be found at: <http://baku.bpweb.bp.com/dep/hse/safe/>
 Next Revision Date: 30/06/2005 Print Date: 24/07/2010 15:41/200407/06/2004
 PAPER COPIES ARE UNCONTROLLED. THIS COPY VALID ONLY AT THE TIME OF PRINTING

Title: Hot Work (Naked Flame)	Doc No: UNIF-HSE-POL-101-C1
Procedure Policy	Rev No: C102 Page 2 of 11
Dated: September, 2004	Originating Dept: HSE

Formatted

Formatted

Formatted

Formatted

TABLE OF CONTENTS

Formatted

1. INTRODUCTION	3
2. DEFINITIONS AND ABBREVIATIONS	4
3. SCOPE	4
4. CROSS REFERENCES	4
5. RISK ASSESSMENT	5
6. PRECAUTIONS	7
7. STANDARD OF ISOLATION	8
8. WORKPLACE PRECAUTIONS	9
9. NON-PROCESS FLAMMABLE MATERIALS	109
Appendix A - A Summary Of Guidelines	10
Appendix B - Diagrammatic Arrangement Showing Risk Areas And Required Plant Preparations.....	124
Appendix C - Decision Process Flow Diagram.....	134
Appendix D - Checklists.....	144

Formatted

The controlled version of this document can be found at: <http://baku.bpweb.bp.com/dep/hse/safe/>

Next Revision Date: 30/06/2005

Print Date: 24/07/2010 15:41/200407/06/2004

PAPER COPIES ARE UNCONTROLLED. THIS COPY VALID ONLY AT THE TIME OF PRINTING

Title: Hot Work (Naked Flame)	Doc No: UNIF-HSE-POL-101-C1
Procedure Policy	Rev No: C102 Page 3 of 14 16
Dated: September June , 2004	Originating Dept: HSE

Formatted

Formatted

Formatted

Formatted

1. ~~INTRODUCTION~~~~Introduction~~

~~P~~olicy

Formatted

The Azerbaijan Business Unit (AZBU) policy relating to hot work naked flame activities in hazardous areas is that:

- It shall be avoided and only carried out when all other alternatives have been totally exhausted.
- Engineering shall minimize the need for hot work and provide cost effective alternatives by careful consideration during the design phase.

When such work is unavoidable it is necessary to ensure that the activity is planned and activities recorded and approved demonstrating that ALARP requirements have been met. In meeting ALARP the following shall be considered:

- Record Management justification for considering naked flame work, including consideration of alternatives.
- Identify and classify the potential sources of release.
- Determine the extent of the probable risk areas.
- Carry out a formal risk assessment.

Only when these steps have been completed and with the approval of the Asset Manager may the Area Authority consider the issue of a Hot Work (Naked Flame) Permit.

~~The storage or handling of flammable fuels, such as diesel or aviation fuel is not included, but general guidance is given in Section 10 of this procedure. Could not find this!~~

If Naked Flame work is considered to be justifiable under these requirements, the guidance in this document provides a logical and safe application methodology.

For clarity:

Permit for Hot Work could involve any of the following activities:

- Naked flames (welding, flame cutting)

The controlled version of this document can be found at: <http://baku.bpweb.bp.com/dep/hse/safe/>

Next Revision Date: 30/06/2005

Print Date: ~~24/07/2010~~~~15/11/2004~~~~07/06/2004~~

PAPER COPIES ARE UNCONTROLLED. THIS COPY VALID ONLY AT THE TIME OF PRINTING

Title: Hot Work (Naked Flame)	Doc No: UNIF-HSE-POL-101-C1
Procedure Policy	Rev No: C102 Page 4 of 11
Dated: September, 2004	Originating Dept: HSE

Formatted

Formatted

Formatted

Formatted

- Electrical welding
- Electrical induction pre-heating, stress relieving or use of high temperature thermal calibrators (above 200°C), except in authorised workshops
- Use of portable grinders (air or electrically powered)
- Abrasive wheels
- Use of flare guns
- Use of heat shrink blowers in hazardous zones
- Use of equipment or work on pipe work or vessels contaminated or potentially contaminated with pyrophoric scale

Note 1: A Hot Work (Naked Flame) Permit is not required for operations and/or maintenance activities involving ignited gas flares or permanently mounted plant using an enclosed flame (boilers, inert gas generators, etc).

2. **DEFINITIONS AND ABBREVIATIONS**

Hazardous Area	plant areas processing highly flammable materials, e.g. gas and condensate
ALARP	As Low As is Reasonably Practical
Hot Work	covers the use of any device, tool or equipment that produces flame, sparks, arcs, heat or hot particles having enough energy to ignite flammable or combustible materials
A combustible material	any material that will burn, while a flammable material is a gas or liquid that is easily ignited by most low-energy heat sources.

3. SCOPE

This procedure applies to any naked flame hot work in hazardous areas within the **BP AZBU**.

4. CROSS REFERENCES

In carrying out any such Hot Work Naked Flame activity, compliance to AZBU SSOW management system shall apply. As a minimum, reference shall be made to the following:

SSOW	
Document Number	Title of Procedure
UNIF - HSE- PRO - 103	Permit to Work
UNIF - HSE- PRO - 105	Work Site Risk Assessment
UNIF - HSE- PRO - 106	Energy Isolations-Electrical
UNIF - HSE- PRO - 107	Energy Isolations- Process

The controlled version of this document can be found at: <http://baku.bpweb.bp.com/dep/hse/safe/>

Next Revision Date: 30/06/2005

Print Date: **24/07/2010**

PAPER COPIES ARE UNCONTROLLED. THIS COPY VALID ONLY AT THE TIME OF PRINTING

Title: Hot Work (Naked Flame)	Doc No: UNIF-HSE-POL-101-C1
Procedure Policy	Rev No: C102 Page 5 of 11
Dated: September, 2004	Originating Dept: HSE

Formatted

Formatted

Formatted

Formatted

UNIF - HSE- PRO - 108	Confined Space Entry
-----------------------	----------------------

5. RISK ASSESSMENT

Key Risk Issues

Formatted

The Key Risk Issues, associated with hot work in hazardous areas are the ignition potential to any local hydrocarbon residues or a leak, which could lead to a localised fire impact on personnel and potential escalation. Hot work would also require that local fire detection systems would need to be inhibited.

Formatted

Background

Formatted

These requirements are loosely based on hazardous area classification for selection of electrical equipment. They are not identical and care should be taken not to confuse the results, which may differ significantly (The electrical techniques examines plant in normal operation while these guidelines are concerned with abnormal operation)

The requirements are based on the:

- Identification of any item from which flammable material may be released (the "source of release"), and then,
- The assessment of the extent of the area (the "risk area") likely to be affected if flammable material is released.

Hot work sites must be prepared in such a manner that fires or explosions cannot result from the work. -To do this, it is essential to take all of the steps necessary to keep flammable and combustible materials away from hot work ignition sources. However, a non-flammable, combustible liquid that is confined at a temperature near its flash point becomes highly flammable when it escapes from confinement.

The controlled version of this document can be found at: <http://baku.bpweb.bp.com/dep/hse/safe/>

Next Revision Date: 30/06/2005

Print Date: ~~24/07/2010~~ 15/11/2004 07/06/2004

PAPER COPIES ARE UNCONTROLLED. THIS COPY VALID ONLY AT THE TIME OF PRINTING

Title: Hot Work (Naked Flame)	Doc No: UNIF-HSE-POL-101-C1
Procedure Policy	Rev No: C102 Page 6 of 11
Dated: September, 2004	Originating Dept: HSE

Formatted

Formatted

Formatted

Formatted

Preparing for safe hot work requires knowing sources of flammable and combustible materials and operating conditions, which could adversely affect conditions at the work site. -The people who prepare the hot work sites also have an obligation to help protect the people who do the work against other hazards. -Such hazards include hot, corrosive or toxic materials, hot atmospheres, harmful chemicals and unsafe access.

Formatted

The Sequence of Events

The following activities have to be completed before hot work can commence (refer to Appendix 3 of this policy):

- Record management justification for considering naked flame work, including consideration of alternatives.
- Identify and classify the potential sources of release
- Determine the extent of the probable risk areas
- Carry out a formal risk assessment.

Only when these steps have been completed may the area authority consider, with Asset Manager acceptance to proceed.

Classification of Sources of Release (and typical examples)

a) Low Risk

Items that are unlikely to be a source of release (and then only after a catastrophic failure) is considered to be low risk; for example, continuous process pipework without either flanges or drain/vent connections.

b) Medium Risk

Items where minor release is possible under normal operating circumstances (but where such release is likely to be very restricted) are considered to be medium risk; for example, flanges, valves, compression fittings.

c) High Risk

Items where release is likely under normal operating circumstances or where a release is unlikely to be restricted are considered to be high risk; for example, open or atmospheric vents, open vessels or pipework, open drains which are not isolated or flushed.

Extent of Risk Areas from Sources of Release

Formatted

While the extent of the risk area from a particular source of release will depend on the prevailing conditions, guidance is given below on some typical allowances for an

The controlled version of this document can be found at: <http://baku.bpweb.bp.com/dep/hse/safe/>

Next Revision Date: 30/06/2005

Print Date: 24/07/2010 15:41/200407/06/2004

PAPER COPIES ARE UNCONTROLLED. THIS COPY VALID ONLY AT THE TIME OF PRINTING

Title: Hot Work (Naked Flame)	Doc No: UNIF-HSE-POL-101-C1
Procedure Policy	Rev No: C102 Page 7 of 11
Dated: September, 2004	Originating Dept: HSE

Formatted

Formatted

Formatted

Formatted

initial appraisal of the risk area. The nature of the flammable material (e.g. heavier than air) shall be included in the vertical assessment of the risk area.

a) Minimal Risk

Any work carried out further than 15.0 metres from process equipment. Such areas are normally classified as safe areas.

b) Low Risk

The risk area is likely to extend 15.0 metres horizontally and vertically. This risk area will apply around all process plant and pipework and will surround any medium or high-risk areas.

c) Medium Risk and High Risk

The risk area is likely to extend 1.5 metres horizontally and vertically.

This initial appraisal shall be reviewed and adjusted if necessary by the formal risk assessment.

6. PRECAUTIONS

Plant Preparation

Any naked flame hot work carried out in a risk area will require that the plant in the risk area is prepared in accordance with the following general guidance. This includes the minimum requirements and recommendations for further consideration.

Environmental impact shall be included when venting is considered.

The justification for the relaxation of the minimum requirements (for example due to barriers – such as fire blankets or tarpaulins – or erection of a habitat or forced ventilation) shall be formally recorded. More onerous conditions may be applied following formal risk assessment (for example the risk area may be extended due to a known leak or the prevailing wind conditions).

a) Minimal Risk

The process may continue in operation.

b) Low Risk

The controlled version of this document can be found at: <http://baku.bpweb.bp.com/dep/hse/safe/>

Next Revision Date: 30/06/2005

Print Date: 24/07/2010 15:41:20 04/07/06/2004

PAPER COPIES ARE UNCONTROLLED. THIS COPY VALID ONLY AT THE TIME OF PRINTING

Title: Hot Work (Naked Flame)	Doc No: UNIF-HSE-POL-101-C1
Procedure Policy	Rev No: C102 Page 8 of 11
Dated: September, 2004	Originating Dept: HSE

Formatted

Formatted

Formatted

Formatted

The process in the risk area shall be shutdown. Consideration shall be given to venting, draining, purging or flushing the plant.

c) **Medium Risk**

The process in the risk area shall be shutdown and vented/drained. Consideration shall be given to purging or flushing the plant.

d) **High Risk**

The process in the risk area shall be shutdown, vented or drained and purged or flushed.

7. STANDARD OF ISOLATION

Formatted: Bullets and Numbering

a) **Standard of Isolation Low Risk**

For hot work in low risk areas, single valve isolation may be adequate but only provided the integrity of the isolation has been proven and it can be demonstrated there are no flanges or drain/vent connections.

b) **Medium Risk**

For hot work in medium risk areas, single valve isolation may be adequate provided that the plant in the risk area is vented or drained to a safe location remote from the risk area. If the plant is not vented or drained, the use of double block and bleed may

The controlled version of this document can be found at: <http://baku.bpweb.bp.com/dep/hse/safe/>

Next Revision Date: 30/06/2005

Print Date: **24/07/2010**

PAPER COPIES ARE UNCONTROLLED. THIS COPY VALID ONLY AT THE TIME OF PRINTING

Title: Hot Work (Naked Flame)	Doc No: UNIF-HSE-POL-101-C1
Procedure Policy	Rev No: C102 Page 9 of 11
Dated: September, 2004	Originating Dept: HSE

Formatted

Formatted

Formatted

Formatted

be considered only when the vent or drain valve is in a safe location remote from the risk area and the integrity of the isolation has been proven. If neither isolation is practicable, positive isolation (by blanking) is required.

c) High Risk

For hot work in high-risk areas, positive isolation is required.

d) General

It is recommended that where facilities exist, experienced process personnel should monitor the pressure in the isolated section.

7.8. WORKPLACE PRECAUTIONS

Standard precautions are detailed in SSOW.

Additional measures may be taken to reduce risks where this is considered to be reasonably practicable. Such measures may include the provision of barriers, (such as fire-blankets or tarpaulins), a habitat around the workplace, or forced ventilation. These precautions may reduce the extent of the risk area.

8.1 Insulated Flanges

Formatted

Formatted

Where flanges are covered by insulation consideration shall be given to removing the insulation to enable a satisfactory gas test.

The controlled version of this document can be found at: <http://baku.bpweb.bp.com/dep/hse/safe/>

Next Revision Date: 30/06/2005

Print Date: 24/07/2010 15:41:20 04/07/06/2004

PAPER COPIES ARE UNCONTROLLED. THIS COPY VALID ONLY AT THE TIME OF PRINTING

Title: Hot Work (Naked Flame)	Doc No: UNIF-HSE-POL-101-C1	
Procedure Policy	Rev No: C102	Page 10 of 11
Dated: September, 2004	Originating Dept: HSE	

Formatted

Formatted

Formatted

Formatted

Formatted

Formatted

8.2 Open Drains

Where it is possible for flammable materials to drain in to open drains, the drains shall be considered to be high risk unless the drain lines are isolated and the drains flushed though to remove flammable materials. After a satisfactory gas test such flushed drains may then be considered to be low risk.

8.9 NON-PROCESS FLAMMABLE MATERIALS

In general, liquid fuels commonly used offshore are not considered to be volatile. Provided that hot work is carried out so that such fuels are not heated, no further plant preparation is likely to be required, except around the vents on aviation fuel systems. Additional measures may be specified after the risk assessment.

Appendix A - A Summary Of Guidelines

Formatted

A Summary Of Guidelines

Formatted

Classification	Typical Examples	Extent of Risk Area	Required Plant Preparation	Minimum Standard of Isolation	Additional Preparation to be considered
Minimal Risk	Remote from plant	None	None	None	Shutdown, vented/ drained and purged/ flushed
Low Risk	Continuous pipework	15.0 m	Shutdown	Single Valve	Vented / drained and purged / flushed
Medium Risk	Flanges, valves	1.5 m	Shutdown, vented /drained	Single valve and vented	Purged/flushed

The controlled version of this document can be found at: <http://baku.bpweb.bp.com/dep/hse/safe/>

Next Revision Date: 30/06/2005

Print Date: **24/07/2010**

PAPER COPIES ARE UNCONTROLLED. THIS COPY VALID ONLY AT THE TIME OF PRINTING

Title: Hot Work (Naked Flame)	Doc No: UNIF-HSE-POL-101-C1
Procedure Policy	Rev No: C102 Page 11 of 11
Dated: September, 2004	Originating Dept: HSE

Formatted

Formatted

Formatted

Formatted

				to safe area or positive isolation	
High Risk	Vents, open vessels/pipework, open drains	1.5 m	Shutdown vented/drained, and purged/ flushed	Positive isolation	

The controlled version of this document can be found at: <http://baku.bpweb.bp.com/dep/hse/safe/>

Next Revision Date: 30/06/2005

Print Date: **24/07/2010**

PAPER COPIES ARE UNCONTROLLED. THIS COPY VALID ONLY AT THE TIME OF PRINTING

Title: Hot Work (Naked Flame)	Doc No: UNIF-HSE-POL-101-C1
Procedure Policy	Rev No: C102 Page 12 of 11,16
Dated: September, 2004	Originating Dept: HSE

Formatted

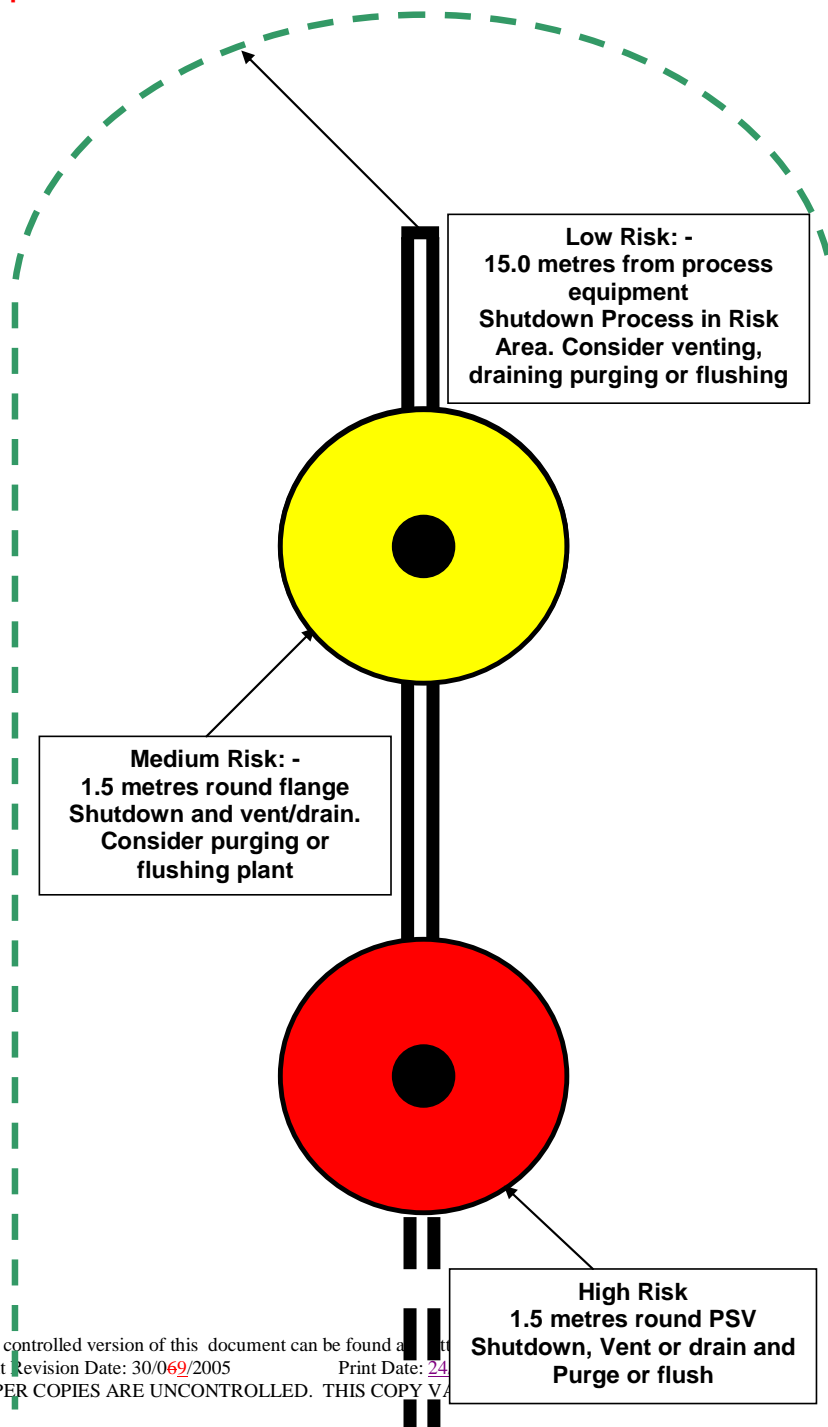
Formatted

Formatted

Formatted

Appendix **2B** - Diagrammatic Arrangement Showing Risk Areas And Required Plant Preparations

~~Diagrammatic Arrangement Showing Risk Areas And Required Plant Preparations~~



The controlled version of this document can be found at
Next Revision Date: 30/06/2005 Print Date: 24
PAPER COPIES ARE UNCONTROLLED. THIS COPY VA

Title: Hot Work (Naked Flame)	Doc No: UNIF-HSE-POL-101-C1
Procedure Policy	Rev No: C102 Page 13 of 11
Dated: September, 2004	Originating Dept: HSE

Formatted

Formatted

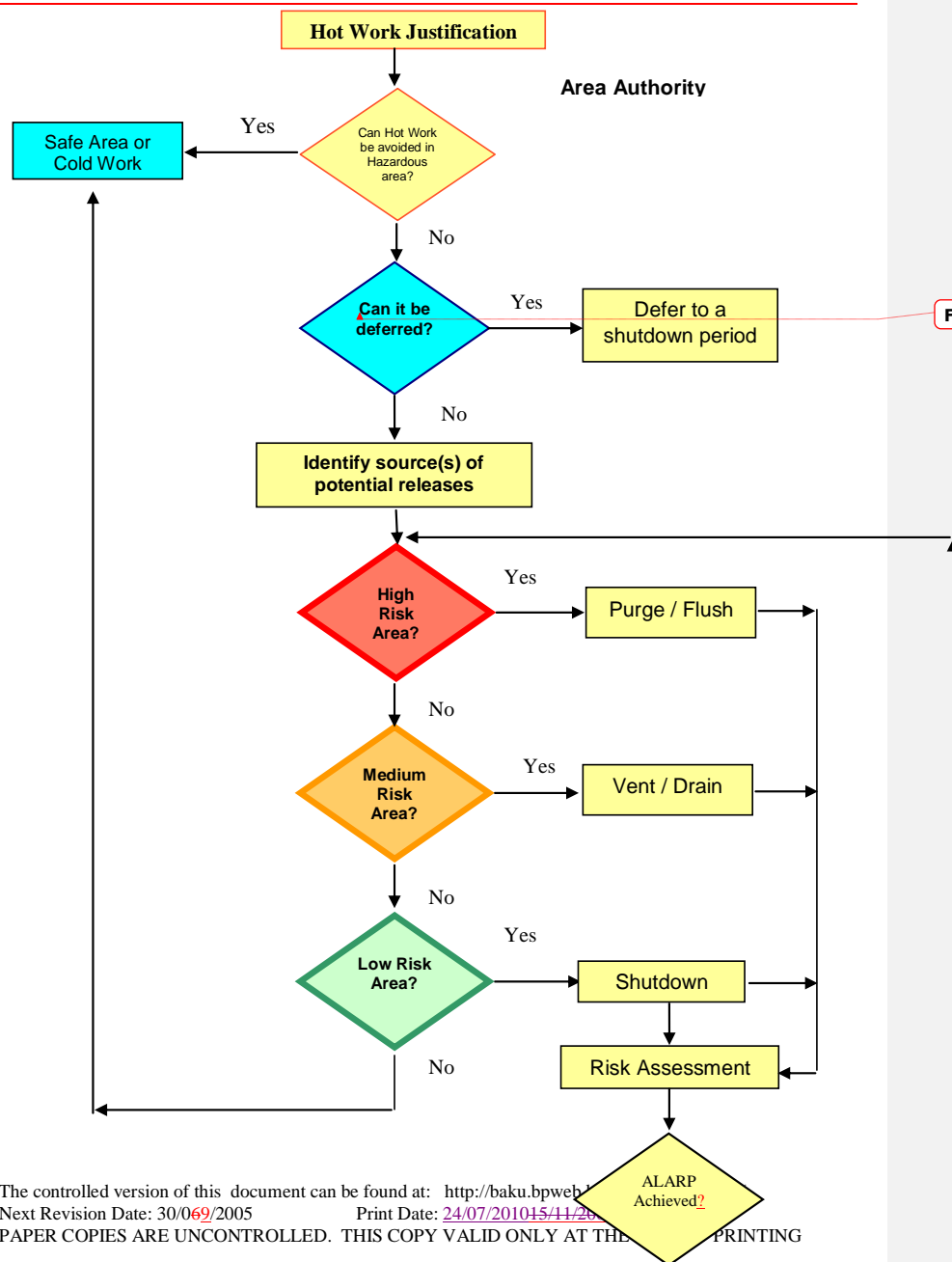
Formatted

Formatted

Appendix C - Decision Process Flow Diagram

Appendix 3 Decision Process Flow Diagram

Formatted



Formatted

Title: Hot Work (Naked Flame)	Doc No: UNIF-HSE-POL-101-C1
Procedure Policy	Rev No: C102 Page 14 of 11
Dated: September 2004	Originating Dept: HSE

Formatted

Formatted

Formatted

Formatted

- No →

Management

Approval for Hot Work

Formatted

Formatted

Appendix D - 4 Checklists**Checklist**

Formatted

These checklists are to assist the Area Authority of the precautions, which may be required in completing a Hot Work permit for naked flame work in a hazardous area. A completed copy of the appropriate checklist is to be attached to the top (performing authority) copy of the permit and filed with the permit on completion. A new checklist is required for each permit; it is not permitted to use the same checklist for continuation permits when the work lasts more than one day.

In view of the importance of monitoring flammable materials when performing naked flame hot works in hazardous areas the Area Authority may require to specify the location of any portable gas detectors. It may even be necessary to mark the required position of the detectors on site to prevent inadvertent misplacement.

Title: Checklist prior To and During Hot Work**Prior to work starting (by area authority)**

Formatted

✓ When Noted on Permit ✗ If not required	Required (Delete as necessary)		Precaution
	Yes	No	Consult HSE Advisor over Emergency Response Plan
	Yes	No	Habitat for Hot Work (complete additional checklist)
	Yes	No	Provide Forced Ventilation
	Yes	No	Provide fire blankets
	Mandatory		Barrier off area
	Mandatory		Warning notices around worksite
	Yes	No	Check calibration of fixed gas heads
	Yes	No	Work squad familiarisation with fire equipment
	Yes	No	Test deluge prior to start
	Yes	No	Inform CCR
	Mandatory		PA prior to start of work

During Work (by performing authority)

Formatted

✓ When Noted on Permit ✗ If not required	Required (Delete as necessary)		Precaution
---	-----------------------------------	--	------------

The controlled version of this document can be found at: <http://baku.bpweb.bp.com/dep/hse/safe/>

Next Revision Date: 30/06/2005

Print Date: 24/07/2010 15:41:20 04/06/2004

PAPER COPIES ARE UNCONTROLLED. THIS COPY VALID ONLY AT THE TIME OF PRINTING

Title: Hot Work (Naked Flame)	Doc No: UNIF-HSE-POL-101-C1
Procedure Policy	Rev No: C102 Page 15 of 11
Dated: September 2004	Originating Dept: HSE

Formatted

Formatted

Formatted

Formatted

	Yes	No	Specified location for portable gas monitors
	Mandatory		Permanent Firewatcher
	Yes	No	Radio contact with control room
	Yes	No	Production operator to monitor plant pressure
	Yes	No	Ground monitor linked to fire hydrant
	Yes	No	All fire doors to/from area to be kept shut

Checklist prior To and During Hot Work

Title: Checklist Prior To Habitat for Hot Work

Formatted

FACILITY:

APPROVAL TO PROCEED WITH THE WORKSCOPE

Formatted

Area Authorities Signature: _____		Date: _____	
To be completed /signed/approved prior to the commencement of Naked Flame Work			
		Yes	No
1	Is the housing secure, safe, made of fire retardant material and sturdy enough to hold men and equipment?		
2	Are the entrance and exit satisfactory and are they identified?		
3	Is the inside of habitat and any combustible fabric lined with fire blankets and is the fire blanket secured to ensure that it stays in place within the habitat.		
4	Will any welding debris etc. be contained within the habitat and neither come into contact with the habitat structure nor fall out of the habitat into the external environment?		
5	Is the habitat of sufficient size for at least 2 men to carry out the job within minimum restriction?		
6	Is the inside of the habitat free from combustible material?		
7	Is the pressurising air supplied from at least 2 meters within a safe area and is the ducting properly secured?		
8	Is the duct marked 'FOR HABITAT USE - DO NOT REMOVE'?		
9	Is the air supply to air movers marked 'FOR HABITAT USE - DO NOT REMOVE'?		
10	Is the exhaust ducting vented out of the module		
11	Can the pressure within the habitat be maintained at a pressure above atmospheric pressure? State test pressure achieved: _____		
12	Is the exit from the habitat of sufficient size to allow easy escape in an emergency and is there a suitable viewing port?		
13	Is the area at the pressurising duct inlet, gas free?		
14	Have all open ended pipes, not subject to workscope been blanked? (Not applicable means yes)		

NOTE:

Formatted

The answers to all the above questions must be 'YES'. Any conditions which do not meet the procedure requirements must be rectified before the habitat can be put into service.

APPROVAL OF THE HABITAT

Formatted

The controlled version of this document can be found at: <http://baku.bpweb.bp.com/dep/hse/safe/>

Next Revision Date: 30/06/2005

Print Date: 24/07/2010 15:41:20 04/07/06/2004

PAPER COPIES ARE UNCONTROLLED. THIS COPY VALID ONLY AT THE TIME OF PRINTING

Title: Hot Work (Naked Flame) Procedure Policy	Doc No: UNIF-HSE-POL-101-C1
	Rev No: C102 Page 16 of 11
Dated: September 2004	Originating Dept: HSE

Formatted

Formatted

Formatted

Formatted

Habitat Build Responsible Person

Signature: Date:

Area Authority

Signature: Date:

2nd Auditor

Signature: Date:

APPROVAL TO PROCEED WITH THE WORKSCOPE

Formatted

OIM Signature: Date:

The controlled version of this document can be found at: <http://baku.bpweb.bp.com/dep/hse/safe/>

Next Revision Date: 30/06/2005

Print Date: **24/07/2010 15:41:20**

PAPER COPIES ARE UNCONTROLLED. THIS COPY VALID ONLY AT THE TIME OF PRINTING