

Guidelines on permit to Work (P.T.W.) systems

**Report No. 6.29/189
January 1993**



**International
Association
of Oil & Gas
Producers**



*P*ublications

Global experience

The International Association of Oil & Gas Producers (formerly the E&P Forum) has access to a wealth of technical knowledge and experience with its members operating around the world in many different terrains. We collate and distil this valuable knowledge for the industry to use as guidelines for good practice by individual members.

Consistent high quality database and guidelines

Our overall aim is to ensure a consistent approach to training, management and best practice throughout the world.

The oil and gas exploration and production industry recognises the need to develop consistent databases and records in certain fields. The OGP's members are encouraged to use the guidelines as a starting point for their operations or to supplement their own policies and regulations which may apply locally.

Internationally recognised source of industry information

Many of our guidelines have been recognised and used by international authorities and safety and environmental bodies. Requests come from governments and non-government organisations around the world as well as from non-member companies.

Disclaimer

Whilst every effort has been made to ensure the accuracy of the information contained in this publication, neither the OGP nor any of its members past present or future warrants its accuracy or will, regardless of its or their negligence, assume liability for any foreseeable or unforeseeable use made thereof, which liability is hereby excluded. Consequently, such use is at the recipient's own risk on the basis that any use by the recipient constitutes agreement to the terms of this disclaimer. The recipient is obliged to inform any subsequent recipient of such terms.

Copyright OGP

All rights are reserved. Material may not be copied, reproduced, republished, downloaded, stored in any retrieval system, posted, broadcast or transmitted in any form in any way or by any means except for your own personal non-commercial home use. Any other use requires the prior written permission of the OGP.

These Terms and Conditions shall be governed by and construed in accordance with the laws of England and Wales. Disputes arising here from shall be exclusively subject to the jurisdiction of the courts of England and Wales.

Guidelines on permit to work (P.T.W.) systems

Report No: 6.29/189

January 1993

This report has been prepared for the E&P Forum by their Safety, Health and Personnel Competence Committee through its P.T.W Task Force

Mr. S.R. Kyle	Marathon	Chairman
Mr. B. Al-Khashti	Kuwait Oil Company	
Mr. T.S. Collard	SIPM	
Mr. K.H. Maddox	Shell Expro	
Mr. J.E. Striefel	Amoco	
Mr. I.G. Wallace	Sovereign/Brindex	
Mr. D.R. Hammond	Texaco	
Mr. S. Gundersen	Statoil	
Mr. M. Edon	Wilrig/IADC	
Mr. D. Krahn	IADC	

Table of contents

Foreword	ii
Section A: General	1
Introduction	1
What is a Permit to Work system?	1
When are P.T.W. systems applicable?	2
Responsibilities	2
The Permit to Work Form	4
Training and competence	5
Documentation	6
Communication	7
Verification and monitoring of the P.T.W system	7
Section B: Preparation	8
Co-ordination	8
Planning	8
Hazard assessment	8
Types/categories of work	9
Cross reference	9
Life/validity of permits	9
Isolation	10
Precautions	11
Gas testing	11
Signatures	11
Section C: Process	12
Display of permits	12
Revalidation	12
Suspension	12
Shift hand-overs	13
Action in an emergency	13
Monitoring	13
Section D: Completion	14
Return of permit	14
Site inspection	14
Cancellation of overrides	14
Return to service	14
Logs/records	14
Appendices	15
1. P.T.W. inspection checklist	15
2. Checklist for the review of P.T.W. systems	19
3. Sample checklist of potential hazards	21
Glossary of Terms	22
References	22

Foreword

On 6 July 1988 167 men died as a result of an explosion and fire on board the Piper Alpha platform in the UK Sector of the North Sea.

A public inquiry into the disaster was held, headed by Lord Cullen, to investigate the cause of the disaster and to make recommendations to prevent a similar occurrence in the future. Lord Cullen issued his report in December 1990 which included 106 recommendations. He concluded that one of the primary causes of the disaster was a failure in one of the key management systems, that is the P.T.W System.

The E & P Forum set up its own Piper Alpha Task Force to review the Cullen Report. The report issued by that task force highlighted, among other things, the importance of Safety Critical Procedures which included, within these, P.T.W Procedures.

This document has been produced by the E & P Forum P.T.W. Task Force to provide guidance to E & P Operators and Service Companies in developing and monitoring their own P.T.W. Systems. It addresses what the task force considers to be the key elements of good P.T.W. systems. These include those areas of P.T.W. highlighted in the Cullen Report.

In producing this document the Task Force has drawn heavily on the Offshore Industry Advisory Committee (OIAC) Guidance on P.T.W. Systems in the Petroleum Industry.

The E&P Forum welcomed the involvement of staff and members of the International Association of Drilling Contractors (IADC) in the production of this document and the endorsement of the Guidelines by their Directors.

Section A General

Introduction

The petroleum industry handles large quantities of flammable and toxic materials, so the potential for serious accidents is clear. To prevent them it is vital that safe systems of work should be in place.

When incidents do occur, human factors, such as failure to implement procedures properly, are often a root cause. These failures may in turn be attributable to a lack of training, instruction or understanding of either the purpose or practical application of a Permit to Work (P.T.W) systems.

A P.T.W is not simply permission to carry out a dangerous job. It is an essential part of a system which determines how that job can be carried out safely. The permit should not be regarded as a statement that all hazards and risks have been eliminated from the work area. The issue of a permit does not, by itself, make a job safe. That can be achieved only by those preparing for the work and those carrying it out. In addition to the P.T.W system other precautions such as curtailing production, suspending helicopter operations, *etc* may need to be taken. The P.T.W system should ensure that authorised and properly trained people have thought about foreseeable risks and that these are avoided by using suitable precautions. Those carrying out the job should think about and understand what they are doing and how their work may interface with that of others. They must also take the necessary precautions which they have been trained to take and for which they have been made responsible.

This guide is intended to give everyone involved in the E & P industry a basic understanding of what is meant by a “P.T.W” system.

The advice offered is of a general nature and is not intended to be exhaustive. *It is essential that it is read in conjunction with the specific instructions and guidance produced by individual companies for their own particular operations or activities.*

What is a Permit to Work system?

A P.T.W system is a formal written system used to control certain types of work which are identified as potentially hazardous. It is also a means of communication between site/installation management, plant supervisors and operators and those who carry out the work. Essential features of P.T.W system are:

- clear identification of who may authorise particular jobs (and any limits to their authority) and who is responsible for specifying the necessary precautions
- training and instruction in the issue and use of permits
- monitoring and auditing to ensure that the system works as intended.

The terms “P.T.W”, “permit” or “work permit” refer to the certificate or form which is used as part of an overall system of work and which has been devised by a company to meet its specific needs.

A P.T.W system aims to ensure that proper planning and consideration is given to the risks of a particular job. The permit is a written document which authorises certain people to carry out specific work, at a certain time and place, and which sets out the main precautions needed to complete the job safely.

The objectives and functions of such a system can be summarised:

- ensuring the proper authorisation of designated work. This may be work of certain types, or work of any type within certain designated areas, other than normal operations
- making clear to people carrying out the work the exact identity, nature and extent of the job and the hazards involved, and any limitations on the extent of the work and the time during which the job may be carried out
- specifying the precautions to be taken including safe isolation from potential risks such as hazardous substances and energy sources

- ensuring that the person in charge of a unit, plant or installation is aware of all the work being done there
- providing not only a system of continuous control but also a record showing that the nature of the work and the precautions needed have been checked by an appropriate person or people
- providing for the suitable display of permits
- providing a procedure for times when work has to be suspended, *ie* stopped for a period before it is complete
- providing for the procedures or arrangements for work activities that may interact with or affect any of these activities
- providing a formal hand-over procedure for use when a permit is issued for a period longer than one shift or when permit signatories change
- providing a formal hand-back procedure to ensure that any part of the plant affected by the work is in a safe condition and ready for reinstatement.

When are P.T.W. systems applicable?

Permits to Work should be considered whenever it is intended to carry out any work which may adversely affect the safety of personnel, the environment or the plant.

They are normally considered to be more appropriate to non-routine activities which may require some form of Job Safety Analysis prior to work commencing.

There will, however, be activities closely related to plant operations where P.T.W systems will be required. Maintenance work carried out by plant operators, for instance, should be subject to P.T.W procedures.

It is also advisable to use a P.T.W system when two or more individuals or groups or people, perhaps from different trades or different contractors, need to co-ordinate their activities to ensure that their work is completed safely. This will apply equally when there is a transfer of work and responsibilities from one group to another.

It is suggested that companies assess the risk of their activities and list specific operations and types of work which should be subject to P.T.W systems.

It is not intended that P.T.W procedures be applied to all activities as experience has shown that their overall effectiveness may be weakened.

It is very important for clear understanding by personnel moving from site to site, (especially contractors), that P.T.W systems are, as far as possible, harmonised between the different locations of the same Company. It is in any event essential that anybody starting work is familiar with the local instructions detailing when and how P.T.W systems are to be applied at a particular location.

Responsibilities

Several individuals/organisations will have specific duties which should be defined in the P.T.W. procedures. Principal responsibilities are identified below.

Installation owners should ensure:

- an appropriate P.T.W system is introduced
- training programmes and competence standards are established and maintained
- monitoring/auditing/reviewing of the P.T.W. system is established and maintained.

The Installation Manager should ensure that:

- all personnel who operate and use the P.T.W. system are competent to do so
- the planning, issue and return of permits is properly co-ordinated
- a secure method of electrical and process/mechanical isolations is implemented
- adequate time is allowed during shift changes to ensure effective transfer of information on outstanding permits
- the system is regularly monitored to ensure that the P.T.W system is implemented effectively.

Contractor's management should ensure that:

- they are informed of and understand the broad principles of the P.T.W system for the locations where their employees are to work
- their employees have been given the appropriate training and understand the operation of the P.T.W system and their specific responsibilities within it
- they monitor the training of their employees.

The person who issues a permit should ensure that:

- the nature of the work is fully understood
- all the hazards associated with the job are identified
- all the necessary precautions are implemented, including isolations, before work begins
- all people who may be affected by the work are informed before the work begins, when the work is suspended and when the work is complete
- permits for tasks that may interact are cross-referenced
- that effective arrangements are made for the work site to be examined before work begins, on completion of work and as appropriate when work is suspended
- sufficient time is spent on shift handover to discuss all ongoing or suspended permits with the oncoming permit issuer.

Supervisors (or person in charge of the work) should ensure that:

- they have received training in the P.T.W system as applied in that particular location
- the people working for them have received adequate instruction in the system
- they discuss the job fully with the person issuing the permit
- the permit is posted at the work site
- the work party is briefed on the details of the permit including any potential hazards, and on all the precautions taken or to be taken
- the precautions are maintained throughout the work activity
- the worker understands that if circumstances change work must be stopped and advice sought
- the work group stays within the limitations set on the permit (physical boundaries, type of work and validity time)
- on completion or suspension of the work the site is left in a safe condition and the permit issuer is informed.

Individuals working within the P.T.W system should ensure that:

- they have received instruction and have a good understanding of the P.T.W. system at the installation where they work
- they do not start any work requiring a permit, until it has been properly authorised and issued
- they receive a briefing from the supervisor on the particular task and they understand the hazards and the precautions taken or to be taken
- they follow the instructions specified in the permit
- when they stop work, the site and any equipment they are using is left in a safe condition
- if in any doubt or if circumstances change, they must stop work and consult with their supervisor.

The Permit to Work form

The core of the P.T.W system is the form itself. Many different types of forms are used by installation owners. Some companies use a simple form to cover all activities. Others use different forms for different types of hazards. The two most common categories of forms are for hot work and cold work.

When a large number of active permits are in force, then administration of the permit system and control of work may be enhanced by using colour combinations, to distinguish between the permits issued for the work of differing type and degree of potential hazard.

It is recommended that the method of differentiation selected should be consistent within a company and/or geographic areas.

Every effort should be made to keep the form simple and user friendly. Universal pictograms and multi-language formats should be used where appropriate.

In considering the content of the form the following list is typical of the information required:

- description of task to be done
- description of exact location/plant numbers etc
- details of work party and tools to be used
- details of potential hazards
- details of precautions taken
- details of protective equipment to be used or worn
- other persons to be notified/approve
- time of issue and period of validity
- signature of person in charge of the work
- signature of person issuing the permit
- signature for handover of responsibilities between shifts
- declaration by person in charge of work that work is complete or incomplete and site has been left in a safe condition
- signature of person issuing the permit which confirms that site has been checked and that equipment may be reinstated or left safely isolated and that the permit is cancelled.

Training and competence

P.T.W systems are only as good as the care and competence of the people who use them. It is essential to have all key personnel within the P.T.W system adequately trained.

Training is recommended to reflect the different responsibilities of:

- the person issuing the permit
- the person in charge of the work
- the workforce.

P.T.W training requirements for the person issuing the permit and the person in charge of the work should include:

- legislation and industry guidance
- company policy, local rules and procedures
- responsibilities
- case histories of accidents or near misses involving failure of the P.T.W. system.

A written examination or suitable assessment should be included in the training.

In assessing for competence, consideration should be given to:

- the results of the training assessment
- relevant work experience
- personal references.

It is desirable for these positions/responsibilities that proof of their appointment is readily available.

Permit issuers should be able to demonstrate knowledge and competence in the following areas:

- plant and equipment layout
- the process taking place *ie* production, drilling
- potential hazards existing
- the means of mitigating the hazards before issuing a permit
- the specific responsibilities associated with issuing permits
- applicable legal requirements
- all the company and local rules applying to the operation of the P.T.W. system
- the use of all the different forms and records associated with the P.T.W. system
- communication skills (bearing in mind multi language locations)
- shift handover requirements
- action to be taken in an emergency situation
- training requirements for role players
- auditing and monitoring requirements.

Persons in charge of the work should be able to demonstrate knowledge and competence in the following areas:

- potential hazards associated with the plant/process
- the precautions required before commencing work
- local rules applying to the P.T.W. system
- details of the documentation involved
- the specific responsibilities associated with being a Task Supervisor
- shift handover requirements
- action to be taken in an emergency situation
- communication skills (bearing in mind multi-language sites)
- P.T.W. training requirements for the job and for members of the work party.

All other members of the workforce who are required to work within the P.T.W. system should receive instructions on the specific procedures as they apply on the installation where they are to work. This should consist of a general overview of the P.T.W. system and their specific workforce member responsibilities.

Records should be kept of the P.T.W training carried out.

Consideration should be given to periodic reassessment of key personnel.

In the case of visiting specialist personnel who arrive at a location to do a specific task under the P.T.W system, it may not be practicable to give them the necessary training required for persons in charge of the work. They should however, still receive the instructions on the P.T.W. system, and be supervised, until the task is completed and the site handed back.

Documentation

The P.T.W system will include critical procedures and it is therefore important that the documentation associated with the P.T.W. system be given a suitable level of importance. The following points should be noted.

The P.T.W System documentation should :

- be controlled
- have a specific owner
- be accessible
- be periodically reviewed and amended if required
- be a standard to be audited against.

Communication

The importance of effective communication within the P.T.W system cannot be overstated. Due to the number of people who may be involved in the P.T.W. system and the potentially large number of interfaces, this is one of the most important areas of a P.T.W. system. Special attention should be paid to the possibility of communication problems on sites where more than one language is spoken.

Areas of specific emphasis include:

- person requesting the work to state clearly the exact nature and scope of the work, the number of workers, different trades and special tools involved
- person issuing the permit to communicate clearly the potential hazards at the worksite, the precautions he has taken and the precautions to be taken by the person in charge of the work. He should also ensure that any other person who may be affected by the work is informed
- person in charge of the work to communicate clearly to the members of his work party the information received on hazards and precautions and the action required in the event of an emergency. He should tell the person issuing the permit if there are changes in the work conditions which may affect the validity of the permit.

Verification and monitoring of the P.T.W. system

The extent and frequency of verification and monitoring will be determined by the size of the location/ installation, the numbers of permits in normal use and the extent of discrepancies found on previous checks.

As a general rule, the following programme is suggested.

- Daily monitoring by the Installation Manager, Safety personnel, Supervisors, Permit Issuer.

This should be on a spot check basis, checking for example :

- is the permit properly displayed at the work site ?
- has it been properly completed ?
- is specified safety equipment in place ?
- are specified precautions adequate and being implemented ?
- has the work party been briefed and are the conditions of the permit and the full extent and nature of the work to be performed understood ?

More in-depth regular inspections should be carried out possibly using a prepared check list. See Appendix 1 for sample check list. This should cover all aspects of the P.T.W system including isolations, adequacy of briefings, shift handover arrangements and training. This inspection should be carried out by senior personnel independent of the area being checked.

Auditing should take place on an annual basis, by persons independent of the location being audited. The P.T.W system is usually included as part of an overall Safety Audit. See Appendix 2 for sample audit check list.

A periodic review of the Company P.T.W system should take place to consider the results of previous audits, incident reports, legislation and organisation changes.

Section B Preparation

Co-ordination

It is important to ensure that work activities, requiring permits to work, are planned and coordinated in order to avoid risks caused by simultaneous activities. This coordination is best achieved by having one person, usually the Installation Manager, control the issue and return of all permits to work. On some installations it may be necessary to delegate this responsibility to more than one person. The delegated responsible persons would be responsible for the single point coordination of work activities within their own well defined areas and for informing others where the work may infringe on another area. The Installation Manager should retain overall responsibility for coordinating activities between the different delegated areas.

Planning

Careful planning of work requiring a permit should take place to ensure:

- appropriate approval for the work
- all persons in charge of areas which may be affected are made aware and hence take precautions against possible interaction with other work activity
- sufficient time to identify all potential hazards, implement precautions and prepare the worksite. One suggested technique of achieving this is a Job Safety Analysis (refer to Glossary).

Hazard assessment

A critical element of the P.T.W. preparation stage is an assessment of the hazards which may be associated with the work to be undertaken.

Such assessment should be carried out by the permit issuer, in conjunction with the Task Supervisor and any other persons whose specialist knowledge may be needed.

The following principles apply to assessments:

- precise details of the work to be undertaken should be obtained from the Task Supervisor. Consideration should be given to any safer alternatives, either in terms of the timing, or the intended method of performance of the work
- the “process” hazards should be considered. This will include a consideration of hazards associated with the material being handled, and of process equipment
- the practical difficulties of carrying out the work should be assessed, if necessary consulting the discipline specialists undertaking the work
- the possible impact of the work on the surrounding environment should be assessed. Potential hazards to the safe execution of the work arising from the surrounding environment should be similarly considered
- from the assessment of the hazards involved, the precautions which will have to be taken to enable the work to be carried out safely may be deduced.

A typical checklist of hazards to be considered is contained in Appendix 3.

Types/categories of work

The types of work for which P.T.W. systems are normally applied include maintenance and repair, inspection, testing, construction, dismantling, modification and cleaning.

The type of jobs requiring the control of a P.T.W system may include:

- hot work of any type where heat is used and generated, for example by welding, flame cutting, grinding, grit/sandblasting *etc*
- work which may generate incensive sparks or other sources of ignition
- work which may cause an unintended or uncontrolled hydrocarbon release, including any disconnection or opening of any closed pipeline, vessel or equipment containing, or which has contained, flammable or toxic materials
- electrical work
- work at any place on an offshore installation from which any person could fall into the sea
- work involving the use of dangerous substances, including radioactive materials and explosives
- excavations
- diving activities
- pressure testing
- danger of dropped objects
- maintenance operations which compromise critical safety systems or which remove them from service *eg* fire and gas detection systems, public address systems, life saving equipment and fire fighting equipment.

This is not an exhaustive list. It is important that each company's procedures includes their own list of jobs that require the use of the P.T.W system.

Cross reference

The objective of a cross reference is to ensure that no interaction takes place between work activities which might endanger the safety of personnel or the installation. The permit issuer should, by knowledge of work going on in his area of responsibility, be aware of potential interaction when issuing different permits for the same piece of equipment or system, or where there may be potential conflict with adjacent work activities.

Such situations should be minimised by careful planning and suitable precautions which should include an appropriate method of cross referencing the different tasks.

It may be that the interacting activities are covered by separate permit issuers, in which case close co-ordination will be necessary.

Life/validity of permits

In order that effective control is maintained in changing circumstances there should be a limit on the life of a permit. Depending on the task, the overall life of a permit could be up to 7 days, although it will be necessary to regularly revalidate the permit during this period. (See Section 3 - Revalidation). Some companies prefer to cancel the permit at the end of each shift and issue a new one if work is continuing beyond one shift.

Isolation

An essential ingredient of any safe system of work is the method and integrity of the isolation procedure.

The isolation principle to be adopted, prior to carrying out maintenance or repair, will be determined by a number of factors *eg* potential for pressure, dangerous substances, lack of oxygen, moving machinery *etc* It is beyond the scope of this document to provide guidance on the isolation required for each potential hazard. Each company should develop its own isolation procedures to be adopted depending on work activity and risk involved.

The following additional points should be considered within the isolation procedures:

- complex isolations should be planned and recorded on a working drawing. This should be discussed between the person issuing the permit and the person in charge of the work to ensure all isolation points are clearly understood and agreed. The marked up drawing should be readily available to all concerned. Consideration should be given to attaching a copy to the permit
- it is essential that the isolation standard is commensurate with the type of work being carried out, plant operating conditions and other local influences
- isolation procedures should include all energy sources, *ie* mechanical, electrical, hydraulic pressure *etc*
- the tag or key number should be recorded on the permit form or on a separate form which should in turn be cross referenced and attached to the P.T.W. form
- isolation should only be applied and removed on instruction from the person issuing the permit
- if more than one task is to be carried out on part of a plant or piece of equipment, there is a risk that on completion of one of the tasks the isolations are removed and the equipment is put back into service. Controls should be in place to prevent premature de-isolation where dual tasks are involved
- if the work is not able to be completed within the shift the site should be checked by both the person in charge of the work and the permit issuer to ensure it is left in a safe condition and equipment cannot be reinstated until all work is properly completed
- if the permit is suspended, the status of the work site should be left on display in a suitable location *eg* Control Room, and the isolation padlock keys kept in a secure place to ensure no unauthorised access.

All persons authorised to carry out isolations should be assessed for their competence prior to appointment ie they should :-

- be suitably qualified
- have experience on the plant/equipment
- have received specific instructions on the plant, methods of isolation *etc*
- be able to demonstrate their knowledge by examination.

Their areas of responsibility should be made quite clear.

Precautions

The permit issuer and other responsible persons involved in raising the permit should indicate on the permit those precautions which will be necessary to allow the work to proceed. This may take the form of a statement, or may be by means of a checklist. The person in charge of the work should ensure that all the precautions are put into operation.

The type of precautions will be dictated by the nature of the work to be undertaken. In broad terms they will be concerned with the following:

- the safety of personnel in terms of protective equipment to be worn or used
- the safety of the plant or equipment associated with the work (*eg* isolations)
- the safety of the actual task *eg* spark containment during welding).

Gas testing

P.T.W preparation may involve a consideration of the likely presence of flammable or toxic gases, or oxygen deficiency/enrichment, at the worksite.

Where such a consideration is necessary then gas testing should be undertaken.

Persons involved in gas testing should be adequately trained in the use of gas testing equipment, and in the interpretation of results.

The responsibility of what to test for, where to take samples, and the minimum number of samples to take should lie with the permit issuer. Gas testing should be done as close to the commencement of work as possible.

Results of any gas testing should be recorded and timed, and entered on the permit - if levels change during the work, the permit should be suspended.

Signatures

Before any work subject to a permit is allowed to commence, certain signatures will be required.

The number and designation of the signatories will be determined by the type of permit, and the nature of the work to be undertaken. This should be specified within the P.T.W. system.

As a minimum, the permit issuer and the person in charge of the work should sign the permit.

Other personnel involved in the permit preparation, *eg* gas tester, should also sign the permit.

Personnel who need to be aware of the permit, or of aspects of the particular task, may also be required to sign.

Where a transfer of responsibilities takes place *eg* a new Supervisor assumes responsibility for the permit or for the work, provision should be made for this person to sign the valid permit.

No one should authorise/issue a work permit for work they will carry out themselves.

Section C Process

Display of permits

It is important that permits are displayed so the persons who need to be aware of them, or to refer to them, are able to do so.

Copies should normally be distributed/displayed as follows:

- at the worksite. Where this is not practicable (*eg* at an exposed location), the person in charge of the job should retain the copy on his person, having ensured that the work party members are familiar with its content
- at the main control/co-ordination room, where they should be displayed in a systematic arrangement
- where the permit issuer is remote from the main control/co-ordination centre, he should have a copy of the permit.

Revalidation

Permits should be revalidated in order that the permit issuer can satisfy himself that the conditions under which the permit was originally issued remain unchanged to allow work to continue.

Revalidation is normally done at the completion of a shift.

Suspension

Work being carried out under a P.T.W. system may have to be stopped before the work is completed.

Typical circumstances where this may arise are:

- in the event of an emergency
- for operational reasons to prevent interaction with another activity
- work carried out during single shift only
- waiting for materials or services.

In certain circumstances it may be appropriate to cancel the permit and to implement a secure long term isolation procedure.

Shift hand-overs

Shift changeovers can be one of the most vulnerable times for the P.T.W. system. The failure to pass on information or the correct information has been shown to be the cause of many accidents.

Installation owners should take into account, when developing P.T.W. systems, the importance of planning the shift change such that there is sufficient overlap to allow proper review and discussion of the status of all permits to work.

Written means of communicating information can be by:

- Permit Log Book
- Permit Files
- Display Boards
- Computer Screen/Print Out

or a combination of any of the above.

Whichever arrangements are adopted, the shift handover arrangement should be monitored regularly to ensure its continued effectiveness.

Action in an emergency

The P.T.W. system should make provision for actions in an emergency. Normally this will consist of an instruction that all work is to cease in the event of an emergency. It is likely that time will not allow formal suspension of permits by way of their return to a central control/co-ordination point.

Post-emergency actions should however include a re-assessment of work subject to permits to ensure that conditions have not altered as a result of the emergency, and that the permit remains valid.

Monitoring

The monitoring of a P.T.W. system should be a continuous activity.

The intent of such monitoring is to ensure that the conditions under which the permit was issued remain unaltered, and that the precautions specified on the permit are being complied with.

(See Section A - Verification and Monitoring).

Section D Completion

Return of permit

On completion of work, the issued copies of the permit should be re-united and returned to the point of issue.

The copies should then be signed off by the permit issuer and the Task Supervisor to indicate completion, subject to a satisfactory inspection of the worksite (see next reference).

Other parties to the permits, *ie* those made aware of the work who may have been signatory to the permit, should also be informed of its completion.

Site inspection

Prior to signing off the permit, the permit issuer or a delegated representative should conduct an inspection of the worksite to confirm that it has been left in a satisfactory condition.

The person in charge of the work in signing completion is making a statement that the worksite has been left in a safe condition, and the permit issuer has to be satisfied of this before he signs his acceptance of the completed permit.

Cancellation of overrides

Where the override of process shutdown or fire and gas detection/protection systems has been necessary to allow work to proceed, these should be cancelled as part of the permit completion arrangements.

Overrides should be in place for the shortest practicable time and should not necessarily wait until the work is completed.

The permit issuer, when he is satisfied that such overrides are no longer required, should authorise their cancellation and verification. The cancellation of overrides should be indicated on the permit.

Return to service

There should be a formal procedure for returning equipment to service which has been subject to work under the P.T.W. system.

This procedure should consider the following:

- that work on the equipment has been completed
- that the plant or equipment has been left in a safe condition, and that this has been verified by the person finally signing off the permit
- that all isolations/overrides pertaining to the plant or equipment have been removed/cancelled, or that the status of any remaining isolations/overrides is known to Operations personnel
- that the Operations person responsible for that area formally acknowledges his acceptance of the plant or equipment.

Logs/records

The P.T.W. system should call for a record to be kept of permits issued over a specified period. Such a system may consist of a permit log book itemising issued permits, or of permit copies being retained for the specified period.

The period for retention of records is typically 12 months.

Appendix 1 P.T.W. inspection checklist

The success of the P.T.W. system largely depends on the care and competence of the personnel responsible for authorising the work, strict supervision and the professionalism in the way the work is undertaken.

As with any system it requires regular supervision and auditing to ensure it operates at peak effectiveness.

The attached sheets are given as guidance to persons involved with such an audit. To ensure this is a meaningful and accurate assessment, straight yes/no answers may not be sufficient. Please therefore be thorough in your assessment and expand your answers as newecessary.

Installation.....

Permit issuer.....

Installation manager

Task supervisor

Auditor

Date

Description of work (including work location)

P.T.W. inspection checklist

page 2

Item	Issue time	Valid until	Comments
1) Permit no:	_____	_____	
2) Date of issues:	_____	_____	
3) Type of permit:	_____	_____	
4) Distribution and display: Have permit copies been properly distributed, and where necessary is a permit prominently displayed?			yes/no
5) Is the work description on the permit adequate, <i>ie does it adequately describe the work location, the equipment to be worked on, and the exact nature and scope of the work?</i> If not, explain deficiency: _____ _____			yes/no
6) Validity			
a) The permit should clearly state the time and dates between which it is valid.			
b) Is permit revalidation being signed and dated by Permit Issuer?			yes/no
c) Are revalidations up to date?			yes/no
7) Hazards			
a) Are hazards clearly identified?			yes/no
b) Are they directly applicable to job being undertaken?			yes/no
8) Precautions			
a) Are appropriate precautions identified and specific enough?			yes/no
b) Have other affected personnel outside the permit area been notified of the permit work? If yes - have they appended their signature?			yes/no yes/no
c) Have all precautions been implemented at the worksite? If not - explain deficiency. _____ _____			yes/no
9) Gas Tests			
a) Have gas tests been undertaken?			yes/no
b) Are tests valid for this period?			yes/no
c) Are portable gas monitors fully operable at worksite and calibrated?			yes/no
d) Are on-site personnel knowledgeable on how to operate equipment?			yes/no
e) Have they been properly trained in its use?			yes/no
f) Has periodic testing been carried out as appropriate?			yes/no

P.T.W. inspection checklist

page 3

10) Precautions Taken by Task Supervisor

- a) Has Task Supervisor briefed everyone in the Work Party? yes/no
- b) Have all the persons in the Work Party read the permit? yes/no
- c) Do all persons fully understand the safety requirements and the precautions stated on the P.T.W? yes/no
- d) Are they in compliance *eg* using safety clothing as specified, isolating equipment at breaks, *etc*? yes/no
 If not - specify. _____

11) Isolation

- a) Are isolation certificates attached to the permit? yes/no
- b) Are they cross referenced? yes/no
- c) Do certificates or attachments detail specific isolation points? yes/no
- d) Are all isolations secure? yes/no
- e) Are all isolations tagged? yes/no
- f) If more than one task on same isolation, has multiple lock/key system or other suitable control been used? yes/no
 If so - give details. _____

12) Precaution by Permit Issuer

- a) Has task been fully discussed with person carrying out the the isolation? yes/no
- b) Has task been discussed with Task Supervisor? yes/no
- c) If more than one Permit on equipment/system, have all appropriate cross references been made and all necessary personnel been made aware? yes/no
- d) Where tasks may impinge on other responsible persons/areas, have affected persons signed to acknowledge their awareness of the work? yes/no

13) Handover

- a) Has handover of permit been done between Permit Issuers at shift change? yes/no
- b) How is this thing being documented? _____

- c) Has a handover of jobs between Task Supervisors been done? yes/no
- d) How is this being documented? _____

14) Work Suspended/On Hold/Completed

- a) Has site been left in a safe and tidy condition? yes/no
- b) If work not complete, are isolations secure? yes/no
- c) Is Permit Issuer aware of status? yes/no
- d) Is Control Room aware of status? yes/no

15) Training

- a) Have personnel who are currently associated with this permit received training in the company's P.T.W system? yes/no
- b) Is the type and frequency of training in accordance with company policy? yes/no
- c) Is evidence of their training and appointment readily available? yes/no

Appendix 2

Checklist for the review of P.T.W. Systems

The purpose of this checklist is to help everyone concerned with the preparation of P.T.W. systems to decide whether a particular example covers all the points which are considered essential. If the answer to any of the questions below is “no” the system may need to be reconsidered and changed.

The System

- Does the permit system in force satisfy all the legal requirements applying to that site or installation?
- Is the permit system recognised throughout the site or installation as being essential for certain types of work?
- Are the types of work, types of job or areas where permits must be used clearly defined and known to all concerned?
- Does the permit system extend to contractors and their employees?
- Is it clearly laid down who may issue permits?
- Is it clearly laid down how permits should be obtained for specific jobs?
- Is the permit system flexible enough to allow it to be applied to other potentially hazardous work, apart from that which may have been specifically identified when the system was established?
- Is the issue of a permit by a person to themselves prevented?
- Does the system provide both for the recipient to retain the permit and for a record of live permits and suspended permits to be maintained at the point of issue?
- Does the system require a copy of the permit to be displayed at the workplace?
- Does the system require the display of live and suspended permits so that process operating staff can readily see and check plant status?
- Is there a set of properly documented isolation procedures for working on potentially dangerous items of plant and does it provide for long term isolation?

Training and competence

- Is the permit system clearly covered during site or installation safety induction training?
- Are personnel who have special responsibilities under the permit system *eg* issuing and isolating authorities, properly authorised and trained to undertake the duties required of them?
- Do these people have sufficient time to carry out these duties properly?
- Does the system require that assessment of competence of personnel is carried out before they are given responsibilities under the permit procedure?
- Is a record of training and assessment maintained?
- Are contractors included in training and competence requirements ?
- Are individuals provided with written confirmation of successful completion of relevant training and are these documents checked before appointments are made within the P.T.W. system?

The permit

- Is there a clear requirement for work being done under a permit to be stopped if any new hazards have arisen or old hazards have recurred?
- Does the permit contain clear rules about how the job should be controlled or abandoned in the event of an emergency?
- Do permits specify clearly the job to be done?
- Do permits specify clearly to whom they are issued?
- Does the system require the potential hazards at the work site to be clearly identified and recorded on the permit?
- Does the permit clearly specify the precautions to be taken by the issuing and performing authorities?
- Do permits specify clearly the plant or geographical area to which work must be limited?
- Does the recipient have to sign the permit to show that they have both read the permit and understood the conditions laid down in it?
- Do permits specify clearly a time limit for expiry or renewal?
- Does the permit include a hand-over mechanism for work which extends beyond a shift or other work period including work which has been suspended?
- Is a hand-back signature required when the job is complete?
- Is there a procedure to bring to the attention of the site manager tasks which require inhibiting safety devices *eg* fire detectors, to ensure that contingency plans and precautions are in place?

Coordination

- Are copies of permits issued for the same equipment/area kept and displayed together?
- Is there a means of coordinating all work activities to ensure potential interactions are identified?
- Is there provision on the permit form to cross-reference other relevant certificates and permits?
- Is there a procedure to ensure that the agreement of others who could be affected by the proposed work is obtained before starting the work or preparations for it?
- Where there are isolations common to more than one permit, is there a procedure to prevent the isolation being removed before all the permits have been signed off?

Monitoring

- Is there a system of spot checks to ensure that permits are being followed?
- Is there a procedure for reporting any incidents that have arisen during work carried out under a permit and for reviewing procedures as necessary?
- Are audits carried out on the P.T.W system at least once a year, preferably by people not normally employed at that site or offshore installation?

Appendix 3

Sample checklist of potential hazards

- Liquid or gas under pressure.
- Toxic materials.
- Corrosive materials.
- Flammable materials.
- Hot materials.
- O₂ deficiency.
- H₂S area.
- Naked flames or arcs.
- Flying particles or sparks.
- Electricity.
- Radioactivity.
- Moving Machinery.
- Equipment generating sparks.
- Crane operation.
- Pressure testing.
- Adjacent operations.
- Wind, weather, sea state.
- Danger of falling.
- Access/egress.
- Confined space.
- Explosives.
- Substances harmful to health.
- Isolation of safety systems.

This list is not exhaustive. Each company should prepare its own list of hazards for each location.

Glossary of terms

Assessment (as in “training and competence”)

The determination by questioning of the level of knowledge acquired.

Audit

The examination of the whole system to assess how it has been used over a period, and so make sure it has operated as intended.

Designated area

An area on an installation where all work may require to be controlled by the PTW system.

Designated work

An activity which should only be carried out under the PTW system - see Section B “Types and Categories of Work” for examples.

Gas testing

The checking of the work site with a suitable gas detector, prior to certain types of work activities and during the work activity, to provide warning of the presence of flammable and/or toxic gas, or an oxygen deficient/enriched atmosphere.

Handover

The process of transferring responsibility for work activity between shift workers.

Hazard assessment

A careful consideration by component people of the potential hazards associated with a task. The potential effect of each hazard, how severe it might be and the likelihood of it occurring, should be considered to determine the effort required to make the work site as safe as reasonably practicable.

Inspection

More formal regular checking using a prepared check list.

Installation Manager

The person in overall charge of an installation engaged in activities associated with oil and/or gas. It is more commonly used in the offshore situation.

Isolation

A physical barrier between a source of energy and a place of work.

Job safety analysis

A formalised procedure whereby persons involved in a task get together to assess the work, identify associated hazards and recommend safe job practices and precautionary measures.

Live Permit

A permit for work which is currently active.

Monitoring

The routine checking of how the PTW system is being used on the job.

Override

The temporary bypass of a safety device, to allow certain work to proceed without causing an unnecessary process shutdown or fire alarm eg fire detector overridden during welding operation.

Permit Issuer

The person responsible for authorising work which is the subject of a PTW, to proceed.

Potential hazard

A source of danger which if not adequately controlled or if suitable precautions are not taken could create an unsafe condition - see list at Appendix 3.

Precaution

Action required to reduce danger, or to mitigate against harmful effects.

Revalidation

The re-assessing of the work site and PTW conditions to determine if work can continue safely for another set period of time.

Review

A re-examination of the fundamental design of the system to see whether it should be changed in the light of experience.

Site Manager

In an onshore location this person may be equivalent to the Installation Manager or he may have a wider responsibility for a number of individual units within one site.

Suspension

The temporary invalidation of a permit for a period during which the subject work has ceased.

Task Supervisor

The person supervising the worker(s) engaged in the task which is the subject of a PTW.

Validity

The period during which the PTW may remain active before re-assessing the work site conditions.

Verification

Refers to the whole process of checking the PTW system through daily monitoring to periodic audits and reviews to ensure the system continues to function as intended.

References

1. *The Public Inquiry into the Piper Alpha Disaster*. The Hon. Lord Cullen, London HMSO, Cm 1310 (November 1990).
2. Oil Industry Advisory Committee. *Guidance on P.T.W Systems in the Petroleum Industry*, HMSO ISBN 011 885688X.
3. United Kingdom Offshore Operators Association *Guidance on Harmonisation of P.T.W Systems*. Published 1991.
4. *E&P Forum Piper Alpha Task Force Report* No. 7.7/172

What is OGP?

The International Association of Oil & Gas Producers represents the world's oil and gas industry. Our members include private and state-owned oil and gas companies, national associations and petroleum institutes.

What do we do?

Our purpose is to:

- provide information about the oil and gas exploration and production industry;
- represent our members' interests at global and regional regulatory bodies; and
- develop operating guidelines.

What are our aims?

We aim to:

- increase understanding of the industry;
- work with international regulators to develop workable proposals which take full account of industry views;
- contribute to continuous improvements in industry operating standards;
- be a visible and approachable organisation to which governments and others refer on matters relating to the industry;
- maintain a large, diverse and active membership; and
- communicate issues affecting members to international bodies and the public.



**International
Association
of Oil & Gas
Producers**

25/28 Old Burlington Street
London W1S 3AN
United Kingdom
Telephone: +44 (0)20 7292 0600
Fax: +44 (0)20 7434 3721

165 Bd du Souverain
4th Floor
B-1160 Brussels, Belgium
Telephone: +32 (0)2 556 9150
Fax: +32 (0)2 556 9159

Internet site: www.ogp.org.uk
e-mail: reception@ogp.org.uk