



Ministry  
of Defence

**SAFETY RULE BOOK**

**FOR PERSONS IN CHARGE OF WORK ON**

**PETROLEUM INSTALLATIONS**

**ASSOCIATED WITH JSP 375 VOLUME 3**

**CHAPTER 5**

## **SAFETY RULES AND PROCEDURES – PETROLEUM SAFETY RULE BOOK**

### **CONTENTS**

	Foreword
	<b>Section 1 – Introduction</b>
1.1	General
1.2	Scope and Limitations
	<b>Section 2 – Roles &amp; Duties</b>
2.1	Authorised Persons
2.2	Persons in Charge
2.3	Work Team
2.4	Operating Authority
2.5	Cooperation and Communication
	<b>Section 3 – Management Arrangements</b>
3.1	Keys & Key Security
3.2	Co-ordination of Activities Across the Site
	<b>Section 4 – Operational Procedures</b>
4.1	Risk Assessment
4.2	Method Statement
4.3	Isolation
4.4	Restricted Area
4.5	Safety Programme
4.6	Permit to Work
4.7	Issue, Acceptance, Suspension, Reaffirmation and Cancellation of Permits to Work
4.8	Standing Instruction
4.9	Issue, Acceptance and Cancellation of Standing Instruction
	<b>Section 5 – Training</b>
5.1	Skilled Persons
	<b>Section 6 – Supporting Guidance</b>
6.1	Reference to Chapter 5 Annexes
7.0	<b>Section 7, Safety Rule Book Definitions</b>
C1	<b>Gas Detection and Monitoring</b>

## **FOREWORD**

### **SAFETY RULE BOOK**

The Petroleum Safety Rule Book has been prepared for the benefit of all persons involved in working on or testing of Petroleum Installations for which the Ministry of Defence is responsible.

All persons issued with the Petroleum Safety Rule Book are to have it available for reference whenever they are working on or testing within Petroleum Installations.

The Safety Rule Book is a brief summary of the safety rules and procedures and other information contained within JSP 375 Volume 3 Chapter 5 Petroleum Installations.

In the event of any queries or disputes with regard to the interpretation of this summary of the safety rules, the Authorised Person Petroleum should be consulted and reference made to the full version of the published Safety Rules and Procedures, JSP 375, Volume 3, Chapter 5 – Petroleum Installations and JSP 375 Volume 3 Chapter 2 – Common Requirements

## **1.0 INTRODUCTION**

### **1.1 GENERAL**

1.1.1 This Safety Rule Book is provided as guidance to Skilled Persons (SkPs) for work on 'Petroleum Installations'. For further information and detail reference should be made to JSP 375 Vol. 3.

1.1.2 In the case of conflict between this Safety Rule Book and Statutory Requirements or relevant Standards, the SkP is to seek guidance from the Authorised Person (AP).

### **1.2 SCOPE AND LIMITATIONS**

1.2.1 The Petroleum Installations Safety Rules and Procedures are designed for use on MOD Establishments, both in the UK and overseas.

1.2.2 These Safety Rules and Procedures include and are not limited to the following petroleum installations:

- a. Packed Stock Storage – Including flammable dangerous goods stores
- b. Mechanical Transport Fuelling Installations
- c. Aviation Fuelling and Distribution Installations
- d. Marine Ship to Shore Fuelling
- e. Petroleum Supply Depots
- f. Class II Boiler and Generator Fuels
- g. Class III Boiler and Generator Fuels
- h. Waste Petroleum Product Storage
- i. Hot Fire Training Rigs using Class II Fuel

1.2.3 The Petroleum Installations listed above may include the following:

- a. Storage tanks
- b. Product receipt pipelines and filtration
- c. Transfer pipelines including floating hoses and sub-sea pipelines
- d. Dispense / receipt points to road vehicles
- e. Rail facilities
- f. Pump house / filter water separators and filter monitors
- g. Roads, vehicle hard standing / interception and drainage oil separators
- h. Valve pits
- i. Hydrant distribution installations
- j. Pipe line end manifolds

1.2.4 Ancillary installations (Class II and III) serving boilers and generator houses involving low risk activities are not within the scope of this Chapter. Low risk activities boiler fuel oil installations shall be managed under JSP 375, Volume 3 Chapter 4.

All work shall be risk assessed, activities identified as high risk such as hot work or confined space entry shall be deemed as being within the scope of this Chapter.

1.2.5 Service family accommodation Petroleum Installations are outside the scope of this Chapter. All work shall be risk assessed and managed under current industry standard and guidance.

### **1.3 DEFINITIONS**

1.3.1 Within this Chapter the terms Authorising Engineer and Authorised Person, refer to Authorising Engineer (Petroleum) and Authorised Person (Petroleum) and no other related specialism. Other related specialism's will be written out in full e.g. Authorised Person (Electrical).

## **2.0 ROLES & DUTIES**

### **2.1 AUTHORISED PERSON (PETROLEUM)**

- 2.1.1 A key role of the AP is to oversee and certify the isolation of Petroleum Installations for which they have been appointed.
- 2.1.2 The general duties of the AP are detailed in the 'Common Requirements' chapter of JSP 375 Volume 3. In addition, duties of the AP include: -
- a. Reviewing all prospective work on petroleum installations at the point from which the AP has control of the risk and determining the appropriate level of control
  - b. Communication with the Operating Authority (OA) of the petroleum installation at the work planning stage
  - c. Preparing an AP Risk Assessment
  - d. Preparing a Safety Programme to ensure adequate control of a petroleum installation prior to the issue of any Permits to Work for that installation
  - e. Acceptance of a petroleum installation from the OA for the purpose of planned works
  - f. Defining the condition of the petroleum installation that is required immediately before planned works can commence
  - g. Ensuring that a Task Risk Assessment and Method Statement for all work on a petroleum installation is prepared to the satisfaction of the AP
  - h. Ensuring that any recipient of any Safety Documents is a current SkP for the installation to be worked on
  - i. Handover of a petroleum installation to the OA on completion of work
  - j. assessing SkP for appointment
  - k. Maintaining a Register of SkP assessments

### **2.2 PERSON IN CHARGE (PETROLEUM)**

- 2.2.1 The general duties of the Person in Charge / SkP are detailed in the 'Common Requirements' chapter 2 of JSP 375 Volume 3
- 2.2.2 In order to act as a Person in Charge (PiC) an individual must have been assessed as competent by the AP for the work or task, registered as a SkP and be in receipt of written authority.
- 2.2.3 The PiC is to: -
- a. Follow the AP's instructions and work in accordance with the appropriate sections of JSP 375 Volume 3. The PiC is to take all safety measures necessary to prevent danger, injury and damage to equipment.
  - b. Not to leave the place of work until the work or test is completed. If the PiC has to leave the place of work, the work or test is to be suspended and adequate safety precautions taken to prevent danger. The work or test is not to be resumed until the PiC has returned to the place of work and deemed it safe to continue.
- 2.2.4 The role of the Person in Charge (PiC) is to directly supervise (or carry out) work on a Petroleum Installation for which they are in receipt of a Permit to Work or a SI.
- 2.2.5 The PiC must be a registered SkP for the installation for which the Permit to Work or SI is to be issued.
- 2.2.6 Duties of PiC for work on Petroleum Installations include:\
- a. Ensuring that adequate emergency arrangements are in place before commencing the works

- b. Ensuring that the contents of the Task Risk Assessment and Method Statement for the task are communicated to all members of the work team
- c. Ensuring that all necessary safety equipment is available and suitable for use prior to work
- d. Ensuring that all members of the work team are adequately trained, fit and able to carry out the work required
- e. Being fully conversant with and able to ensure compliance with the conditions set out in the Permit to Work or SI and the agreed Safety Programme
- f. Ensuring that all members of the work team are aware of the method of work set out in the agreed Method Statement for the task, the means of communication, the emergency arrangements and the requirements of these Safety Rules and Procedures
- g. Ensuring that the only work carried out is that for which the Permit to Work or SI is valid
- h. Stopping work and withdrawing all personnel, tools, plant and equipment if for any reason the conditions of the Permit to Work or SI cannot be met
- i. Reporting to the AP any accident, dangerous occurrence, defects found or other exceptional incidents occurring whilst working under the Permit to Work or SI
- j. Always be present at the work site when any work is being carried out
- k. To monitor and record gas levels in accordance with the requirement of Permit to Work

### **2.3 WORK TEAM**

2.3.1 A SkP will form part of the work team.

2.3.2 Duties of the work team include

- a. Working in accordance with these Safety Rules and Procedures
- b. Taking reasonable care of the health and safety of themselves and of any other person who may be affected by their actions or omissions
- c. Only using equipment for which they have been trained and in the manner in which they have been trained
- d. Reporting to the PiC/AP any defects found in the tools, plant and equipment to be used in the works
- e. Reporting to the PiC/AP any defects identified with the equipment being worked on
- f. Being conversant with petroleum hazards
- g. Understanding the management hierarchy relating to the site installations

2.3.3 A SkP must only work on Petroleum Installations for which he/she has been appointed.

### **2.4 OPERATING AUTHORITY**

2.4.1 The line manager of the Fuels and Lubricants section hereby known as the Operating Authority (OA) throughout this document has the authority delegated by the Commanding Officer, Head of Establishment or Officer in Charge for one or a number of petroleum installations. The OA is required to exercise duty of care over all activities at the installations and ensure that petroleum and base wide operations are fully taken into account before the AP is given authority to undertake works tasks.

2.4.2 Duties of the OA include

- a. Agree a Notification Regime procedure with the AP.
- b. Inform their staff of the work, any limitations imposed by the work and carry out any actions required of the OA by the AP prior to handing over the installation or equipment.
- c. Sign Part 2 of the Safety Programme as the final authorisation for the work to proceed.

- d. Sign Part 5 of the Safety Programme to confirm the return of the installation for normal operations.
- e. Implement a key access procedure to areas under their control.
- f. Co-ordinate tasks on Petroleum Installations carried out by organisations other than the MMO.
- g. Link all activities undertaken in the Petroleum Installations with the establishment wide system for safe control and co-ordination of operations and works activities
- h. Sign the Standing Instruction for the work to proceed.

## **2.5 COOPERATION AND COMMUNICATION.**

- 2.5.1 For specific details regarding duties under this heading refer to the 'Common Requirements' chapter of JSP 375 Volume 3. Also refer to the establishment / site rules and regulations, and ensure for all work a site induction briefing is undertaken.

## **3.0 MANAGEMENT ARRANGEMENTS**

### **3.1 KEYS & KEY SECURITY**

#### **Safety Locks, Safety Keys & Safety Key Boxes**

- 3.1.1 Safety Keys are keys to Safety Locks. These are used to:
- a. Lock isolation valves in the open or closed position as appropriate
  - b. Isolate electricity supplies
  - c. Lock by-pass valves in safe positions
  - d. Lock open drainage points and secure venting arrangements
- 3.1.2 A Safety Lock is a padlock indelibly painted red having only one unique key. When the safety locks are in use under a Safety Programme the safety keys are to be kept in a Safety Key Box.
- 3.1.3 Safety Key Boxes are secure boxes with either two unique locks or one unique lock and the facility to fit a multi-hasps.
- 3.1.4 For Standard Safety Key Boxes, each of the two unique locks are to have only one key, one being labelled "Safety Key Box—Person in Charge", and the other "Safety Key Box—Authorised Person". Both locks on the Safety Key Box must be released before access can be gained to the box.
- 3.1.5 For Safety Key Boxes which have a multi-hasps facility, the unique lock is to have only one key, being labelled "Safety Key Box—Authorised Person". When in use the multi-hasps facility must have a multi-hasps fitted and each Permit to Work issued against the Isolation must have a corresponding unique padlock fitted to the multi-hasps. The key for each padlock in the multi-hasps must be retained by each Person in Charge and the padlock is not to be removed from the multi-hasps until the corresponding Permit to Work has been closed out.

#### **Access Keys**

- 3.1.6 Access Keys are keys to locks that control access to petroleum installations, control rooms, pump houses, flammable dangerous goods stores and compounds that contain Petroleum Products.
- 3.1.7 For petroleum installations controlled and operated by the OA they will be deemed responsible for the management of all access keys on each site relevant to those installations.

### **3.2 CO-ORDINATION OF ACTIVITIES ACROSS THE SITE**

3.2.1 Reference should be made to the 'Common Requirements' chapter 2 of JSP 375 Volume 3 for general definitions. The obligations under these duties will be covered under the establishment / site induction.

3.2.2 Where work involves APs from different disciplines, the AP (PET) will coordinate the actions of the APs of all other disciplines.

## **4.0 OPERATIONAL PROCEDURES**

### **4.1 RISK ASSESSMENT**

4.1.1 Prior to any work on a Petroleum Installation 'suitable and sufficient' Risk Assessments must be produced.

#### **Authorised Person Risk Assessment**

4.1.2 The AP Risk Assessment (AP RA) is required to be produced by the AP to address the hazards exhibited by the installation/system in relation to the task. It is to include information concerning the methodology for isolation and/or control of the works task, which will then be detailed within the Safety Programme.

#### **Task Risk Assessment (TRA)**

4.1.3 The TRA is required to cover the risks encountered in carrying out the task. The TRA is to be completed by the Contracting Organisation carrying out the task and also the person/persons carrying out the task. This to include local hazard information supplied to the individual by the Area Custodian as detailed by JSP 375 Volume 2 Leaflet 34.

4.1.4 The TRA is to be submitted to the AP prior to raising a Safety Programme or SI. This must be a reasonable timeframe (to be agreed with the AP/SkP) prior to the requirement for a Permit to Work or SI to be issued. This will enable the AP to allow sufficient time for the review of the TRA.

4.1.5 The AP is to review the TRA and determine if it is consistent with the method of control. Should the AP consider the TRA inadequate, a Permit to Work or SI is not to be issued. If the AP is in doubt as to the suitability of the TRA they are to refer to the Authorising Engineer (AE) for further guidance AP.

4.1.6 During the task the AP RA is to be retained with the Safety Programme, and the TRA with the associated Permit to Work or SI.

4.1.7 Contents of all Risk Assessments must be communicated to all parties involved in the task.

### **4.2 METHOD STATEMENT**

4.2.1 The Method Statement (MS) is a written procedure to be produced by those undertaking the work that specifies the works to be done. A MS for the works task is to be completed and submitted to the AP at the start of the planning process to enable an AP Risk Assessment to be developed. All activities that necessitate the issue of a Permit to Work or SI are to be supported with an appropriate MS which is to include the following as a minimum:

- a. A description of the task and location
- b. The sequence and method of work
- c. The hazards identified during the risk assessment
- d. The skills required to deal with the hazards
- e. The precautions necessary to control the hazards
- f. References to specific safety procedures covering known hazards



- g. Details of tools and equipment to be used
- h. Method of disposal of waste and debris
- i. Details of the state or condition in which the plant or equipment will be left at the end of the activity
- j. Emergency and Rescue Plan for confined space entry

### **4.3 ISOLATION**

- 4.3.1 The method of isolation will be determined by the AP risk assessment.
- 4.3.2 The method of isolation will be agreed and accepted by the Person in Charge.
- 4.3.3 The selection criteria, methods of isolation and further guidance are detailed in Chapter 5, and is based on the Health and Safety Executive publication 'The Safe Isolation of Plant and Equipment' HSG 253.
- 4.3.4 **ELECTRICAL ISOLATION**
- 4.3.5 Electrical isolation for the purpose of petroleum / mechanical maintenance, may be made without reference to the AP (Electrical) when: -
  - a. The isolation is via a switch or circuit breaker, and
  - b. The switch or circuit breaker can be locked in the 'off' position by use of a safety lock

When the isolation requires the removal of fuses or the disconnection of cable terminations the isolation is to be made by an appointed SkP (Electrical) or an AP (Electrical).

### **4.4 RESTRICTED AREA**

- 4.4.1 This is an area in which there is an increased risk of fire, explosion, asphyxiation or poisoning, due to spillage, defects or the nature of the work to be undertaken. Before a restricted area can be set up all operations must cease and personnel withdrawn. A restricted area is to be set up as indicated by the AP risk assessment, usually when petroleum products are exposed in liquid or vapour form, when there is a requirement to enter confined spaces, or there is a need for hot work to be undertaken.

### **4.5 SAFETY PROGRAMME**

- 4.5.1 A Safety Programme (SP) is to be implemented before the issue of any Permit to Work.
- 4.5.2 The SP cannot be closed until all Permits to Work raised against it are complete and the system/installation has been visually inspected for integrity by the AP.
- 4.5.3 A SP is to have a format similar to the model form detailed in Part 3 of JSP 375 Volume 3 Chapter 5 Model Form PET 03. Each sheet of the SP is to bear the same pre-printed serial number on the original and duplicate copies.
- 4.5.4 The SP is to include the necessary steps for control of the complete task. This is to include the issue of Permit to Work and general steps to completion of the work task and reinstatement.

The SP is to include: -

- a. The location of the installation
- b. AP Risk Assessment number
- c. The type of installation, which the proposed work sequence will make safe to work on
- d. Cross-reference to other relevant certificates and permits

- e. OA authorisation and contact details
  - f. The maximum gas concentrations applicable to the type of work to be undertaken
  - g. Permissible oxygen level minimum of 19% and a maximum of 22% at the point of work
  - h. Grades of RPE and PPE and other safety equipment to be used
  - i. The point(s) of work, which is/are to be made safe
  - j. Arrangements to isolate product and/or electricity supplies
  - k. The name and signature of the originating AP (and where applicable the countersigning body)
  - l. A schematic diagram with the points of the isolation, draining arrangements, points of work, other safety measures and equipment
  - m. The works sequence to be undertaken indicating:
    - i. The location at which each operation is to be performed
    - ii. The identity of each valve or component part to be operated
    - iii. The operation to be performed
    - iv. The reason for the operation
    - v. The maximum allowable gas concentration
    - vi. Any item (e.g. keys, locks, signs) required
    - vii. Steps required for reinstatement
- 4.5.5 The diagram required as part of the SP may either be a hand drawn or a CAD drawing (or section of one) or a copy of the relevant schematic stapled to the SP. Such drawings are to incorporate a title block, which includes the SP number, the name and signature of the AP, the name and signature of the PIC and is to be dated upon issue of the SP.
- 4.5.6 When the SP has been produced, including the work sequence, and is ready to be implemented, the AP is to obtain OA authorisation for the work to proceed by having them sign the SP at part 2. The AP is then to issue the OA a copy of the SP for their reference.
- 4.5.7 During implementation of the SP the AP is to record the time and date of each operation on the original.
- 4.5.8 Each isolation point is to be secured with a Safety Lock (where practical) and a safety sign fitted.
- 4.5.9 Upon completion of any initial isolation in the work sequence, the AP is to place any Safety Keys used into a Safety Key Box.
- 4.5.10 When a SP has been implemented the AP is to file the original in the Petroleum Installations Document Cabinet. This gives a record of the isolation as implemented.
- 4.5.11 Once isolations have been made or removed the actions are to be recorded in the Petroleum Installation Operating Record (PIOR) by reference to the item number of the sequence of operation entry contained within the SP.
- 4.5.12 When all work associated with a SP has been completed and all associated Permit to Work have been completed or stopped, the AP is to visually inspect the system for integrity and cancel the original SP at part 4. The installation is to then be returned to the OA who confirms return at part 5. The original is then to be filed in the Petroleum Installation Document Register (PIDR) for a period of not less than three years.
- 4.6 PERMIT TO WORK (REQUIREMENTS)**
- 4.6.1 The AP will issue the Permit to Work (PTW) immediately before work is to commence and it is to remain in force until the work is completed.

4.6.2 Before the issue of the PTW the AP and prospective PiC are to carry out joint gas monitoring with two gas detectors, the highest reading of the two being recorded on the PTW

4.6.3 Whilst a PTW is in force a sign is to be displayed at the point of work clearly identifying that a PTW is in force and giving contact details of the AP and the Safety Programme number (this may form part of the Temporary Restricted Area Signage).

A Permit to Work (Petroleum) will state precisely and legibly: -

- a. The installation to be worked on
- b. The location of the installation
- c. The proposed work
- d. The serial number of the Safety Programme
- e. Where applicable, the serial number of any related document

#### **4.7 ISSUE, ACCEPTANCE, SUSPENSION, REAFFIRMATION AND CANCELLATION OF PERMITS TO WORK**

4.7.1 A Permit to Work will be issued only at the point of work.

4.7.2 Before the issue of a Permit to Work, the AP will demonstrate to the SkP:

- a. The identity of the Petroleum Installation and the component parts to be worked on
- b. That the Petroleum Installation or component part has been isolated
- c. The safety arrangements at the place of work and at points of isolation
- d. Any special instructions and/or safety measures
- e. That the point(s) of work is/are de-pressurised, vented and drained, and that it is safe for the work to proceed

4.7.3 Before the issue of a Permit to Work the AP will also ensure that the SkP is in possession of and understands the Task Risk Assessment and the Method Statement for the task.

4.7.4 Before accepting the Permit to Work the prospective PiC is to:

- a. Read the Permit to Work and the Safety Programme
- b. Understand the extent of the work
- c. Understand the safety precautions
- d. Be prepared to undertake the work

4.7.5 The SkP is to sign the relevant Section of the Permit to Work to accept the responsibilities of the Person in Charge (PiC). On signing for acceptance of the Permit to Work the SkP authenticates the permit as valid and becomes the PIC of the permitted work.

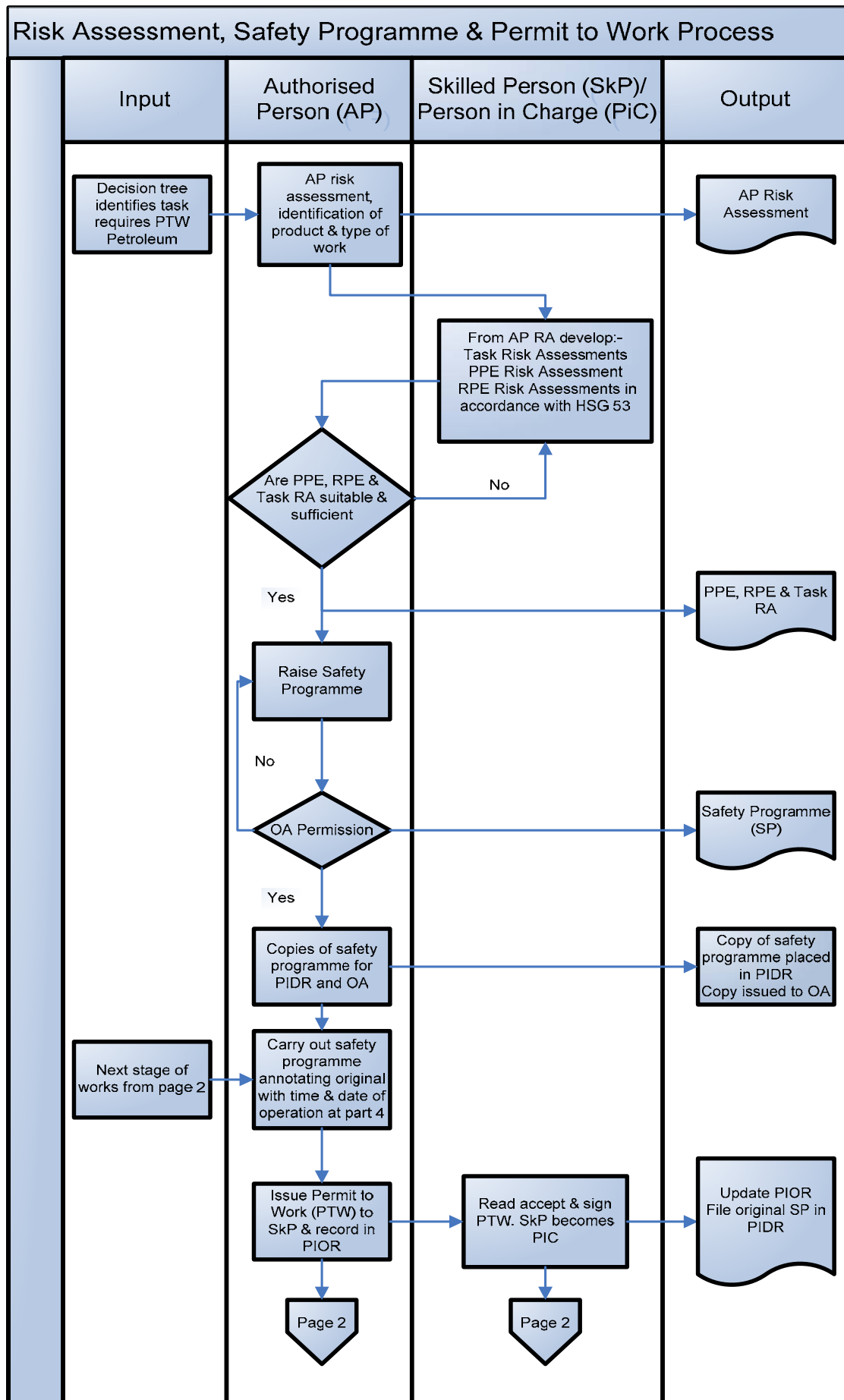
4.7.6 The PiC is then to either take control of the PiC Key from the Safety Key Box, or is to attach a unique padlock to the multi-hasps on the Safety Key Box and take control of the key to that padlock.

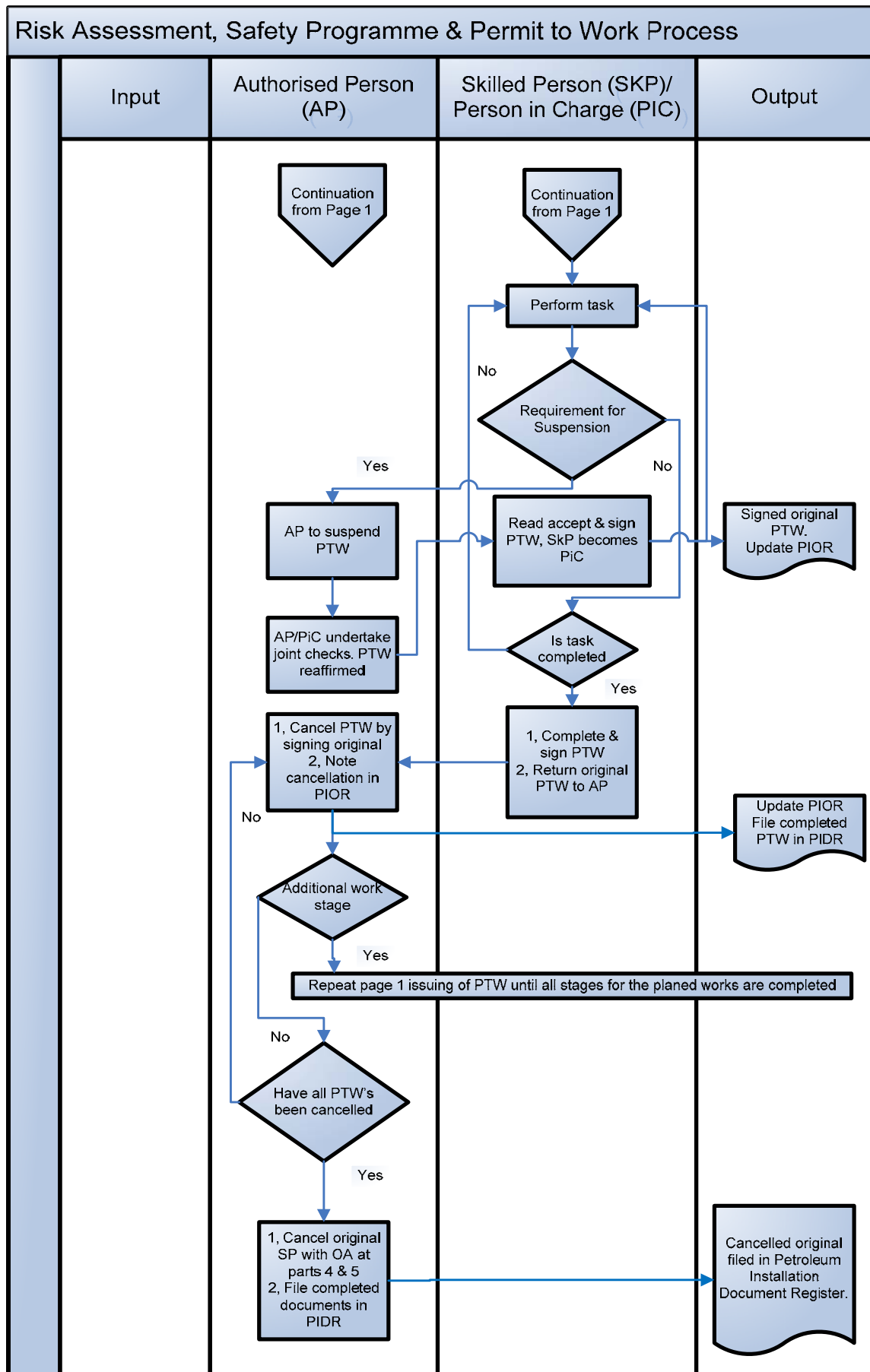
4.7.7 The acceptance of a Permit to Work identifies the PiC as personally responsible for supervising or undertaking the defined work.

4.7.8 While the work is in progress, the PiC is not permitted to leave the site or to undertake any other work or tests. During any temporary absence of the PIC from the point of work the work is to be halted. The PIC is to ensure that suitable safety precautions are taken and the AP informed, before leaving the point of work.

4.7.9 On completion of the work the PiC is to:

- a. Inspect the work to ensure that it is complete and that system integrity has been restored.
  - b. Withdraw all persons, equipment, tools and instruments from the point of work
  - c. Advise all persons under their control that they are no longer permitted to work on the petroleum installation
  - d. Complete and sign the relevant section of the original Permit to Work
  - e. Return the original Permit to Work and PiC Key to the Safety Key Box to the AP
- 4.7.10 The AP will confirm that the work has been completed satisfactorily and close the Permit to Work.
- 4.7.11 If the AP decides that it is necessary to stop the work, the Permit to Work will be withdrawn and cancelled. A new Permit to Work is required before re-starting work.
- 4.7.12 The Permit to Work is to be cancelled or suspended if during the period of validity, any of the following conditions apply (including but not limited to):
- a. At the end of the working day
  - b. The conditions under which it was issued change beyond the stipulated limits e.g. gas concentration and oxygen percentages
  - c. A change of work is necessary which is not authorised on the original Permit to Work
  - d. Any personnel or contractors disregard the conditions of the Permit to Work/or the MOD Safety Rules and Procedures
  - e. There is a failure of safety equipment
  - f. Prolonged absences of the AP or PiC
  - g. The OA requests the discontinuation of the work
  - h. Should any accident or incident occur. For example involving injury to personnel, damage to equipment or plant, or spillage of product
  - i. Electrical Storm
- 4.7.13 Where the work is stopped and the Permit to Work cancelled. The PiC is to:
- a. Withdraw all persons and if appropriate all equipment, tools and instruments from the place of work
  - b. Advise all persons under his or her control that they are no longer permitted to work on the installation
  - c. Amend the relevant section of the original Permit to the effect that the work is incomplete and the point of work has been made safe
  - d. Return the original Permit to Work to the AP
  - e. Return the PiC Key or remove the unique padlock from the multi-hasps
- 4.7.14 Where the work is stopped and the PiC has returned the Permit to Work, the AP is to annotate the original Safety Programme to highlight that work may not be complete. This serves to prevent removal of the isolations until all associated work is complete and the integrity of the installation has been restored.
- 4.7.15 If the PiC has lost the original Permit to Work, the loss is to be recorded by the AP in the PIOR. The duplicate copy of the Permit to Work is then to be used in place of the original and cancelled in accordance with the above paragraphs. The PiC is to countersign the statements in the PIOR to confirm and acknowledge the loss of the Permit to Work.





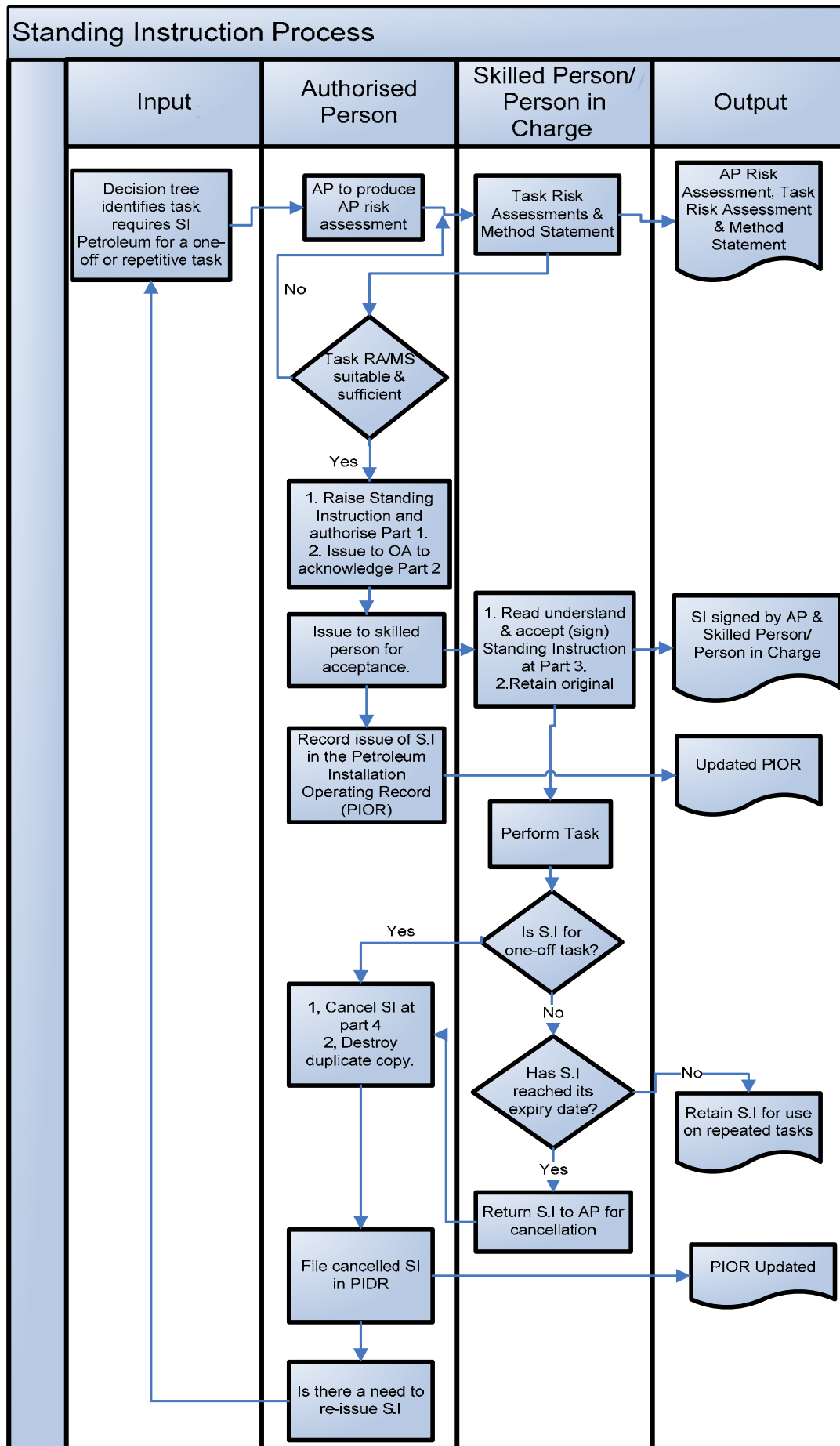
## SIS

- 4.7.16 SIs are issued by the AP to SkPs for both one-off and repetitive tasks on Petroleum Installations where a Permit to Work is not appropriate.
- 4.7.17 Examples of tasks for which an AP may issue a SI (SI):
- Non-intrusive work on Class I and II installations, not involving Hot Work or requiring entry into Confined Spaces
  - Intrusive work on Class III installations excluding tank entry.
  - Electrical Work and Testing on Class III installations.
- 4.7.18 Non-intrusive work on Class I and II installations may be defined as low risk maintenance tasks, not including any task which exposes petroleum products in liquid, gas or vapour form, introduction of a source of ignition, or involves confined space entry. Examples of these non-intrusive tasks are:
- External painting.
  - Adjusting machinery, equipment and metering.
  - Adjustment and tightening of valve glands (excluding repacking).
  - Maintenance tasks of valve gear equipment.
  - Minor adjustment or replacement of instruments and equipment.
- 4.7.19 Intrusive works on Class III installations may be defined as low risk maintenance tasks. Electrical work and testing on all Class III installations may be defined as a low risk task.
- 4.7.20 An SI is to contain the following information:
- Validity period of SI
  - Location and Identity of equipment
  - Task or operation to be undertaken
  - Detail of tasks to be carried out
  - Special instructions or safety measures applicable
  - Originating AP
  - Name of SkP
  - Employer
- 4.7.21 SIs will detail the procedure to be undertaken by the SkP to ensure that the point of work is safe to work on. This may be in the form of an attached procedure detailing the method for isolation and liaison with the OA. There could be several such procedures supporting a Standing Instruction as it may cover more than one item of equipment, such as kerbside installations, pumps, controls and tanks.
- 4.7.22 All risks and hazards associated with the work to be carried out under a SI and the controls identified to manage them must be fully communicated to the PiC prior to commencement and issuing of a SI. All work on Petroleum Installations will be co-ordinated by the AP to ensure that the petroleum related risks are fully taken into account. For all petroleum tasks undertaken by a SI, a Task Risk Assessment and Method Statement will be produced by the PiC and reviewed by the AP.
- 4.7.23 SIs Electrical issued by the AP Electrical for electrical work are outside the scope of these Safety Rules and Procedures and are covered in JSP 375 Volume 3 Chapter 3.

#### **4.8 ISSUE, ACCEPTANCE AND CANCELLATION OF STANDING INSTRUCTIONS**

- 4.8.1 Having understood the instruction(s) and being prepared to undertake the task(s), the SkP is to sign and accept the SI (SI). On signing for acceptance of the instruction a SkP authenticates the instruction as valid and becomes the PiC of the permitted task(s).
- a. The SI will detail the following: -
- i. The task or operation to be conducted on the equipment
  - ii. Specified circumstances under which the task may be conducted
  - iii. Any special instructions or safety measures
- 4.8.2 In accordance with local or other MOD procedures the AP will ensure that, where appropriate:
- a. PiC is provided with a written instruction of the arrangements
  - b. PiC informs the Maintenance Management Organisation (MMO) of any task to be undertaken which may result in any loss of service
  - c. PiC obtain permission from the MMO before taking Petroleum Installations out of service
  - d. PiC informs the OA before conducting any task
- 4.8.3 The original copy of the SI will be issued to the SkP.
- 4.8.4 Having acknowledged the instruction(s) and being prepared to undertake the task(s), the SkP is to sign and accept the SI by signing Part 3. On signing for acceptance of the instruction a SkP authenticates the instruction and becomes the PiC of the permitted task(s). Notwithstanding that the PiC has been authorised to undertake the task, he must comply with the notification regime and instruction on the SI before conducting the task on each occasion.
- 4.8.5 The AP may cancel a SI at any time.
- 4.8.6 On completion of the tasks outlined in the SI or (for repetitive tasks) on reaching the expiry date, the PiC is to return the instruction to the duty AP for cancellation. All SIs are to include an expiry date.
- 4.8.7 If the PiC has lost the original SI, the loss is to be recorded by the AP in the PIOR. The duplicate copy of the SI is then to be used in place of the original and cancelled in accordance with the previous paragraphs. The Person in Charge is to countersign the statements in the PIOR to confirm and acknowledge the loss of the SI.
- 4.8.8 A SI cannot be transferred from one SkP to another.
- 4.8.9 A SI is to be valid for not more than three years and must be reviewed by an AP at intervals of not more than twelve months or following any change or modification to the system; the review of the SI is to be recorded in the PIOR..





## 5.0 TRAINING

### 5.1 SKILLED PERSONS

- 5.1.1 To be eligible, prospective SkPs are to meet the competency criteria as detailed in the 'Common Requirements' chapter 2 of JSP 375 Volume 3. They are to have an appropriate qualification in a relevant discipline and are required to have successfully undertaken technical training as endorsed by their employer to meet the needs of the site and the task.
- 5.1.2 The suitability of a specific qualification will depend on:
- The work to be undertaken
  - The type of Petroleum Installation
- 5.1.3 The SkP's appointment becomes extant when they are added to the appropriate SkP Register.
- 5.1.4 SkPs are to: -
- Be able to demonstrate competence to undertake the work activities required.
  - Be familiar with the types of installation, equipment or location that they are to be required to work in/on or test.
  - Possess the necessary technical knowledge, skill and experience relevant to the nature of the work activities to be undertaken to prevent danger or, where appropriate, injury.
  - Have successfully undertaken technical training in the required discipline and training administered by the organisations or bodies as specified for the particular specialism, or some equivalent form of training and experience acceptable to the appropriate AP or AE.
  - Have an adequate knowledge of the relevant parts of JSP 375 Volume 3, any agreed local variations, and those associated regulations and documents which are applicable to the installations, equipment or locations having significant risk on or within which work or tests are to be undertaken.
  - Have a letter from the individual's employer attesting his or her competence.

## 6.0 SUPPORTING GUIDANCE

- 6.1 For further reference and specific details, refer to the annexes within Chapter 5.

A	-	Isolation Methodology
B	-	Electrical works in Petroleum Hazardous Areas
C	-	Gas Detection and Monitoring
D	-	RPE and PPE
E	-	Grass Cutting
F	-	Restricted Areas
G	-	AP Risk Assessment
H	-	Medical Requirements
I	-	Signs, Notices and Posters
J	-	Works Organisation at Product Receipt Enclosure
K	-	Definitions

## **7.0 SAFETY RULE BOOK DEFINITIONS**

### **Area Custodian**

See Operating Authority

### **Authorising Engineer Petroleum (AE PET)**

As defined with JSP 375 Volume 3 Chapter 2, but with specialism in petroleum

### **Authorised Person Petroleum (AP PET)**

As defined with JSP 375 Volume 3 Chapter 2, but with specialism in petroleum

### **Bulk Fuel Installation (BFI)**

An installation where large quantities of fuel are stored and dispensed to Installation (BFI) a consumer

### **Classes of Petroleum Products**

The following are in accordance with current guidance: -

**Class I:** Liquids which have a flash point below 21 degrees C.

**Class II:** Liquids which have a flash point from 21 to 55 degrees C inclusive.

**Class III:** Liquids which have a flash point above 55 degrees C, up to and including 100 degrees C.

**Unclassified:** Liquids which have a flash point above 100 degrees C.

See annexes G and H for further examples and guidance; always reference the specific safety data sheet (SDS or MSDS) for the product handled.

### **Cold Work**

Cold work includes the use of tools for erection, dismantling and cleaning, which are not liable to produce incendive sparks, and work such as drilling, tapping and cutting carried out in such a way as to limit the heat produced and keep the temperature of the tools and work below 100 degrees C.

### **Confined Space**

A confined space is a place which is substantially enclosed (though not always entirely), and where serious injury can occur from hazardous substances or conditions within the space or nearby (e.g. lack of oxygen).

### **Dangerous Fumes**

Fumes in a concentration, or mixture with air, of an obnoxious, harmful or dangerous nature, arising from gases or vapours generated from products and materials, from welding and the use of heat-generating tools, application of protective coatings, particularly in unventilated spaces.

### **Dangerous Occurrence**

An incident which may give or has given rise to injury to person or damage to plant and/or equipment, as defined by RIDDOR. Any occurrence that puts the Person in Charge or any other person in danger shall, without delay, be reported by the Person in Charge to the AP or, if that is not practicable, to the person supervising the work.

### **Down Wind Boundary (DWB)**

Boundary of hazardous or restricted area which is located downwind of the work, used for monitoring flammable vapour, measured LEL is to be zero.

### **Explosive Gas-Air Mixture**

A mixture of flammable gas or vapour with air under atmospheric conditions in which, after ignition, combustion spreads throughout the unconsumed mixture

### **Flashpoint**

The lowest temperature at which a liquid gives off sufficient vapour in air to form a flammable mixture.

### **Gas Concentration**

A concentration of gas expressed as a percentage of the Lower Explosive Limit.

### **Gas Detector**

An indicator designed to measure the concentration of Hydrocarbons, Oxygen, and other gases, such as Hydrogen Sulphide (H<sub>2</sub>S), depending on the requirement and the type of sensors fitted. This will encompass a number of variations of meters available, including multiple gas indicators (MGIs), combustible or flammable gas indicators (CGIs). See also 'response test'.

### **Gas-Free**

An environment is said to be gas free when the following conditions are all met:

- a. A gas test shows that the concentration of gas is 1% or below of the Lower Explosive Limit
- b. When it is free from all fuel and residues
- c. When it is free from vapour drift from any source.

### **Hazardous Area (on account of explosive gas atmospheres)**

The area surrounding a location or petroleum asset as defined and specified by the OA / Hazardous Area Manager / or other representative of the establishment and which is indicated by fences, notices or other means. Within this boundary can be contained the physical 'hazardous area' and possibly areas that would be deemed non-hazardous.

Non-hazardous area (on account of explosive gas atmospheres): *an area in which an explosive gas atmosphere is not expected to be present in quantities such as to require special precautions for the construction, installation and use of equipment.*

Examples of sub-assets within the fenced area but outside the physical hazardous area may be the control/rest room within a bulk fuel installation (BFI) or a Hazardous Waste Compound (incorporating petroleum products).

Refer also to 'Restricted Area'. The 'Restricted Area' may extend beyond the defined or fenced area of a petroleum installation.

### **Hazardous Area Manager:**

A person having control of works and other defined responsibilities within a Hazardous Area. See also Operating Authority.

### **Hazardous Substance**

Materials that can cause harm to human health if the risk(s) associated with it are not properly controlled during the course of work. The hazards from petroleum installations include flammability, toxicity, asphyxiation, bodily harm (e.g. dermatitis) and hazards arising from the operation and maintenance of the installation.

### **Hot Work**

This includes welding, the use of any flame or electric arc, and the use of any equipment likely to cause heat, flame or incendive sparks including non-certified electrical equipment. It also includes caulking, chipping, drilling, riveting and any other heat-producing operation, unless it is carried out in such a way as to keep the temperature of the tools and the work below 100 degrees C, whilst also preventing the creation of incendive sparks.

### **Hydrogen Sulphide, H<sub>2</sub>S**

A gas which is very toxic by inhalation and a highly flammable gas.

### **Joint checks**

This is a specific requirement for the monitoring of combustible gases, oxygen levels and other gases by both the AP and the PiC with two appropriate gas indicators/monitors and recording of the highest reading of the two readings on the permit or other document as required.

### **Lead**

A toxic alkyl compound (tetraethyl lead or tetra methyl lead) which may be present in gasoline, and is still added to aviation gasoline. Refer to Manufacturer's/Material Safety Data Sheet (MSDS).

### **Lead-Free**

- a. Any tank, vessel or equipment which has at no time contained gasoline. Note that so called unleaded gasoline contains lead, and tanks which contain that product can therefore not be classed as lead free.
- b. Any tank, vessel or equipment which has contained leaded fuel and the whole of which has been blast cleaned and internally epoxy coated and is free from damage.

### **Lower Explosive Limit (Synonymous with Lower Flammable Limit), LEL, LFL**

The percentage by volume of gas in a mixture of gas and air below which no explosion will take place, the minimum concentration needed for ignition, hence below this will not ignite with the application of an ignition source. Refer also to Flash point and upper explosive limit.

### **Maintenance Management Organisation**

The Maintenance Management Organisation is the organisation responsible for planning, organising and managing the operation, maintenance and repair of systems and equipment and may include the design and construction of new works.

### **Manufacturers' or Material Safety Data Sheet (MSDS)**

See SDS.

### **MTFI – Mechanical Transport Fuelling Installation**

Filling and Service Stations (Kerbside Pump Installations). Installations for the receipt, storage and issue of petroleum products directly into the fuel tanks of vehicles for the sole use of those vehicles, and for the occasional filling of portable containers.

### **Multiple Gas Indicator, MGI**

See Gas Detector.

### **Operating Authority, OA**

The term is used in two related contexts, one use is to represent the line manager (either RN, RAF, Army, USF or civilian body) having overall control of the operation of a petroleum installation, filling and service station or plant storage facility. In this context the OA is the officer with delegated authority for the operation of the petroleum installation. The alternative use of the term is to describe the overall Service Operating Authority which defines the rules for handling petroleum at Service installations. The OA is also responsible for the management of site fuel installations and associated work area's including the management of fuel movement, fuelling operations and replenishment of the fuel holding. Ensures fuel quality is maintained in accordance with JSP317.

### **PET**

General abbreviation for petroleum used throughout this document, for example, AP Petroleum, and Petroleum Installation, to emphasise the source of the hazard to maintenance operations.

### **Personal Protective Equipment, (PPE)**

Overalls, headgear, eye protection, footwear, gloves, and other equipment intended for the protection of personnel against contamination by petroleum products. Type and grade subject to task being undertaken and risk assessment in accordance with Personal Protective Equipment at Work Regulation '.

### **Respiratory Protective Equipment, (RPE)**

Respiratory Protective Equipment selection of type equipment subject to assessment in accordance with Personal Protective Equipment at Work Regulation and HSG 53, for further information refer to Annex 'D', all equipment must have Health and Safety Executive approval and CE marked.

### **Response test**

This is the testing, prior to use of the gas tester, used to monitor a space is free from flammable gas, correct oxygen level and other duties as required. The response test will be carried out using a known gas. Manufacturer's instructions must be consulted.

### **Restricted Area**

A temporarily defined area, normally but not necessarily in a Hazardous Area, in which, owing to the nature of the work to be undertaken, a release of petroleum product or liquid is possible thus giving rise to an increased risk of:

- a. Fire.
- b. Explosion.
- c. Asphyxiation.
- d. Poisoning from toxic sludge, fumes, gas or dust.

### **Risk**

The likelihood and consequence of a hazard being realised.

### **Safety Data Sheet (SDS)**

The law requires a SDS is produced in accordance with the European Regulations.

In the UK CHIP requires the supplier of a dangerous chemical to:

- a. Identify the hazards (dangers) of the chemical. This is known as 'classification
- b. give information about the hazards to their customers. Suppliers usually provide this information on the package itself (e.g. a label); and
- c. package the chemical safely.

### **Spillage Plan (Unit Spill Response Plan – USRP)**

Developed by the occupying department in accordance with JSP 317 and is detailed plan on how a spillage and the subsequent clean-up will be managed on site.

### **Upper Explosive Limit (UEL or UFL)**

Also known as upper flammability limit, where the concentration of gas reaches its highest concentration in air to burn when introduced to an ignition source. Once this concentration is exceeded the gas mixture will not burn, as the gas concentration in air is too rich. See also flash point and lower explosive limit.

## Gas Detection and Monitoring

### C1 General

Chapter 5 Annex C Gas Detection and Monitoring and associated tables have been provided here for direct reference by the PiC.

**C1.1** It is a requirement of these safety rules and procedures to detect the presence, and concentration of flammable gases, oxygen and other hazardous substances identified in the AP Risk Assessment. This is needed to exercise the correct control over work within the petroleum hazardous areas. For this purpose, a Multiple Gas Indicator (MGI) is to be used. Testing for the presence and concentration of flammable gasses, oxygen and other hazardous substances is a requirement of these Safety Rules and Procedures when the need is identified by the AP Risk Assessment. Appropriate MGIs shall be used in conjunction with Table C1.

**C1.2** Readings are to be taken before the commencement of any work, and during the work, to check that the gas concentrations and other levels are within the limits stipulated on the Permit to Work, as determined from this document and the Safety Programme.

**C1.3** There will be a requirement for individual readings by the PiC, and joint readings carried out by the AP and the PiC. These joint readings must be taken simultaneously with separate instruments.

**C1.4** Test frequencies and responsibilities shall be in accordance with Table C2.

**C1.7** Permits to Work must stipulate the maximum gas concentrations applicable to the type of work to be undertaken. A separate Permit to Work must be issued for each part of the work where working practices or requirements alter the maximum permissible gas concentration e.g. changes from cold work to hot work.

### C2 Flammable Gas

**C2.1** The maximum permissible flammable gas concentration levels for differing work activities are contained in Table C 1.

### C3 Other Gases

#### C3.1 Oxygen

**C3.1.1** The safe range for Oxygen percentage is 19 – 22%.

### C5 Initial readings

**C5.1** An Initial reading must be taken as follows:

- a. Immediately before the associated work/inspection
- b. Before entry into tanks or confined spaces
- c. When reaffirming
- d. When the AP decides it is necessary

### C6 Readings for open space work

**C6.1** Readings should be taken at the location of the work, at any low lying locations such as drains, ducts, and excavations in the vicinity of the work. Readings should be taken at any temporary perimeters set up for the duration of the work; which must take into account the wind direction.

## **C7 Reading within tanks or confined spaces**

- C7.1** Readings must be taken through the access point before entry. The AP is to be aware of the possibility of stratification of gases within undisturbed confined spaces.
- C7.2** On entering the confined space, areas liable to have higher gas concentrations e.g. pipeline entries, drain sump and low bottom plate levels on tanks, should be checked to confirm they are within the limits stipulated on the Permit to Work.
- C7.3** Pockets of combustible gas can be trapped under rust patches especially on the bottom plates of tanks. Any such patches should be removed by safe methods (determined by additional Task Risk Assessment) and further readings taken.

## **C8 Readings for gas freeing operations**

- C8.1** There are two main purposes for taking gas readings during gas freeing operations;
- To confirm that the tested area is free from all hazardous and flammable gases.
  - To establish whether normal minimum safety distances require extension. The aim is to achieve less than 1% of LEL at the boundary of the marked Restricted Area. If higher readings are recorded, the boundary must be extended.
- C8.2** If there is any wind, the readings to establish if a concentration less than 1% of LEL exists should be made at the Downwind Boundary (DWB) of the Restricted Area.
- C8.3** In still air conditions, readings must be made all around at the normal safety distance from the point of vapour emission and the restricted area boundary moved out if readings are not satisfactory.
- C8.4** The figures recorded on the Permit to Work and if necessary the Gas Concentration Continuation Sheet, are for the Down Wind Boundary (DWB), not the levels inside the confined space being ventilated.
- C8.5** It is the PiC's responsibility to monitor what is happening inside the confined space being ventilated and record their findings in accordance with local arrangements.
- C8.6** When ventilating confined spaces it may be necessary to switch off any ventilation arrangements (e.g. fans), before taking a reading in order for the atmosphere to stabilise. This will avoid the possibility of reading the gas concentration only in the ventilated air stream.

## **C9 PiC monitoring**

- C9.1** The PiC must continuously monitor the gas concentration whilst work is in progress within the confined space.

## **C10 Recording of readings**

### **C10.1 Recording of initial reading**

- C10.1.1** The highest initial reading obtained, simultaneously by the AP and the PiC using two instruments will be recorded immediately.

### **C10.2 Repeat readings**



- C10.2.1** The minimum frequency for recording readings is given in Table C 2.
  - C10.2.2** These readings will be recorded on the reverse of the Permit to Work or when necessary on the Gas Concentration Monitoring Sheet.
  - C10.2.3** The highest intermediate readings required to be taken will be recorded by the PiC.
  - C10.2.4** The highest confirmatory readings required to be taken will be recorded by both the AP and the PiC.
- C11 Final readings**
- C11.1** Both the AP and PiC must carry out final readings, and they must agree that the combustible gas level is below 1% LEL before dismantling Restricted Areas and prior to cancelling any Permit to Work.

Table C1

TYPE OF ACTIVITY	READING (% of LEL)	REMARKS
(a)	(b)	(c)
Entry to tanks, confined spaces and vessels, for visual inspection	Less than 20%	Entry of personnel for visual inspection only and use of tools is not permitted.
Sludge removal from tanks, confined spaces and vessels	Less than 20%	Entry of personnel for the removal of leaded or otherwise contaminated sludge.
Cold Work	Less than 10%	Any mechanical works where the tool or work piece temperature remain below 100°C
Hot work	Less than 1%	See definitions.
Electrical work/test	Less than 1%	Any intrusive work on electrical equipment in hazardous areas which can induce current and voltage to flow with the possibility of incendive sparks.
Grass Cutting at Class I and II installations	Less than 1%	Use of mechanically driven grass cutting devices in hazardous areas

Table C2

TYPE OF WORK	READING RECORDED BY	MINIMUM FREQUENCY THAT READINGS ARE RECORDED
(a)	(b)	(c)
1. HOT WORK  a. Before commencement  b. 2 <sup>nd</sup> reading  c. Intermediate readings whilst work proceeds  d. Confirmatory test whilst work proceeds	AP and PiC  AP and PiC  PiC  AP and PiC	Initial and before start of work daily  Ten minutes after starting  Hourly  2 Hourly
2. ELECTRICAL WORK  a. Before Commencement  b. Intermediate Readings whilst work proceeds  c. Confirmatory test whilst work proceeds	AP and PiC  PiC  AP and PiC	Initial and before start of work daily  Hourly  2 Hourly
3. CONFINED SPACES  a. Before commencement  b. Intermediate readings whilst work proceeds  c. Confirmatory test whilst work proceeds	AP and PiC  PiC (taken by entrant and communicated to PiC)  AP and PiC	Initial and before entry daily  2 Hourly  4 Hourly
4. GRASS CUTTING CLASS I INSTALLATIONS  a. Before commencement  b. Confirmatory test whilst work proceeds	AP and PiC  AP	Initial and before work starts daily  Continuous testing with records for each potential point of release made at fifteen minute intervals

TYPE OF WORK	READING RECORDED BY	MINIMUM FREQUENCY THAT READINGS ARE RECORDED
(a)	(b)	(c)
<b>5. GRASS CUTTING CLASS II INSTALLATIONS</b>  a. Before commencement  b. Intermediate readings whilst work proceeds  c. Confirmatory test whilst work proceeds	AP and PiC  PiC  AP and PiC	Initial and before start of work daily  4 Hourly  8 Hourly
<b>6. COLD WORK</b>  a. Before commencement  b. Intermediate readings whilst work proceeds  c. Confirmatory test whilst work proceeds	AP and PiC  PiC  AP and PiC	Initial and before start of work daily  3 Hourly  6 Hourly
<b>7. GAS FREEING CLASS I AND II TANKS AND CONFINED SPACES</b>  a. At commencement  b. 2nd Reading  c. Intermediate readings whilst gas freeing  d. During first 8 hours of gas freeing  After the first 8 hours  e. Intermediate readings whilst gas freeing  f. Confirmatory test whilst work proceeds	AP and PiC  AP and PiC  PiC  AP and PiC  PiC  AP and PiC	Initial and before start of work daily  Ten minutes after starting  Hourly  2 Hourly  3 Hourly  6 Hourly
In addition to the above readings, the Person in Charge must monitor the gas concentration continuously whilst work is in progress		

\* The frequency of readings may have to be increased in changeable weather conditions particularly when Class I products are involved.

**C14 Inspection requirements**

**C14.1** Prior to use, the PiC must check that the Multiple Gas Indicator selected for use is fit for purpose. These checks include:

- a. the instrument is of the correct type for the gases to be monitored
- b. the total condition is acceptable e.g. no apparent damage and/or suitable for hazardous environment
- c. indicator is within calibration date and an in-date certificate of calibration is available
- d. indicator has been response tested in accordance with manufacturers recommendations
- e. correct Lower Explosive Limit, Gas or Hazardous Substance Alarm setting has been applied
- f. suitable remaining battery life remains for the proposed task

**C14.2** If there is doubt over the suitability of the proposed Multiple Gas Indicator then an alternative indicator must be used.