

## 1. Definition of work permit?

Work permit is authorization to perform specific construction, maintenance, inspection and repairing activity, on specific equipment in specific area.

## 2. Work permit Form No, Color and GIs?

- SA Form 9873-1(EO/LB) (Yellow)
- SA Form 9873-2(Hot WP) (Red)
- SA Form 9873-3(Cold WP) (Blue)
- SA Form 9873-4(Confined Space WP) (Green)
  
- WPR GI = 2.100
- Gas Test GI = 2.709
- LOTO = 6.012

## 2. What is potential hazard?

Anything that may cause harm to people, the environment, assets and business.

## 3. What is restricted area?

- (Location that have been designed by the proponent origination manager as requiring implementation of the work permit)
- Area within 23m (75ft) of H2S containing line
- Area within 15m (50ft) of energized power line.

## 4. What is unrestricted area?

- Any area outside of restricted area will be classified as non-restricted area and in this area no need Saudi Aramco work permit.

## 5. Low risk activity and examples?

Miner Sweeping, visual inspection, non-flash photography, take gas test.

## 6. What is HIP?

Hazard identification program

## 7. What is Confined space?

Any area which is generally not designed for human occupancy, Limited means of entry and exit is called CS.

## 8. Example of Confined space?

Vessels, valve box, manhole, boiler, tank and excavation more than 1.2m etc.

## 10. Most responsible person of Confined space?

- Standby man

## 9. How much depth of excavation is called CS?

More than 1.2m depth is called Confined Space.

## 10 CS communication method?

- Face to face
- Hand signal
- Verbal communication
- Radio communication
- OATH method

## 11. O.A.T.H Stands for?

- O for Ok
- A for advance give me rope
- T for take me up
- H for help

## 12. Where use OATH method and what is use for communication?

We use rope for deep confined space for communication where entrant and stand by man can not see each other they use rope for communication.

## 13. Scaffolding definition?

Temporary elevated working platform for support both man and materials.

## 14. Tag use of Scaffolding and explain?

- Green tag use up to 1.8m.
- Yellow tag use over 1.8 m its mean use hole scaffolding with full body harness.
- Red tag means not use except of scaffolding erection and dismantled.

## 15. What is work at height?

Any work above two meter from ground level is called at height.6ft and 1.8 meter.

## 16. What is Lifting?

Shifting of material from one place to another place by using machine is called lifting.

### THERE ARE FIVE TYPES OF CRANE:

1. MOBILE
2. HYDRAULIC
3. OVERHEAD
4. GANTRY
5. TOWER

## 17. What Tandem lifting?

Any Lifting operation which involving two or more cranes use is called tandem lifting.

## 18. What is critical lifting, how pass this plan and Rigger level 1 capacity?

- Lifting over 40Ton
- Lifting near overhead power line
- Load more than 85% of crane
- Critical lift plan approved by only certified Aramco rigger level one.

## 19. Critical lifting?

- Lifting near power line
- Lifting near population area
- Lifting near Railway line
- Lifting more Than 40Ton
- Lifting more than 85% of rated crane capacity.
- Tandem lifting (two or more lift)
- Tails lift (more than 2 lift)

## 20. Rigger level 2 capacity?

- Up to 40 ton

## 21. Rigger 3?

- Up to 10 ton

## 22. Crane, man basket and scaffolding maximum working air speed?

- Man basket 25kph
- Crane lifts 32kph
- Scaffolding 65kph

### 23. What the issuer check before issuing permit crane lifting?

Lifting gear physical condition, operator and rigger certificate, crane check list

### 24. Lifting Requirement?

- Critical lifting
- Work permit,
- Critical Lift Plan,
- Crane inspection sticker,
- Rigger and operator certificate,
- Safe distance from power line,
- Boom safe angle 45°

### 25. Lifting hazard?

- Crane fall,
- Over turn,
- Over speed,
- Oil leakage,
- Mechanical failure,
- Over loading,
- Ground surface is not level.

### 26. Define LOTO?

Lockout-tag out is the safety procedure to prevent the accidentally startup of machine. It is use to protect the people form injury.

### 27. LOTO where installed?

- On electrical equipment installed in junction box and barker
- On mechanical equipment installed on valve

### 29. What is TWA and SWL stand for?

- Time weighted average.
- Safe work load.

### 30. What is near miss?

- An event which occur with out injury of person damage to property but has the potential to result in an accident
- Any unwanted, unplanned event that has potential to cause harms damage or loss but did not do so.

### 31. What is fire?

Triangle of fuel heat and energy is called fire.  
Chemical chain of reaction of fuel heat and oxygen is called fire.

### 32. Classes of fire?

- **Class A** fire involve ordinary combustible materials such as wood, paper, cloth etc.
- **Class B** fire involving flammable or combustible liquids such as petroleum, greases etc.
- **Class C** fire involving energized electrical equipment such as computer, transformers etc
- **Class D** fire involving combustible metals such like Magnesium, sodium, potassium etc.
- **Class K** fire involving cooking oils and fats.

### 33. What is PASS stand for?

- P pulls the pin
- A aim the base of fire
- S squeeze the lever
- S sweep from side to side.

### 34. Gases level?

#### O<sub>2</sub>

- 20 to 23.5% normal to perform job
- Less than 20% use SCABA and Division Head Sign
- Above 23.5% not work allowed

#### H<sub>2</sub>S

- 10ppm or above Breathing apparatus must use
- 10 to 100ppm Use SCBA and Division head sign
- 100 above not work allowed.

#### CO

- 35ppm or above Breathing apparatus must use
- 1000ppm or above no CS entry allowed

#### LEL

- Above 0% LEL No hot work allowed
- 5% (0.5) to 10% (0.1) Breathing apparatus must use
- 10 % (0.1) or above no work and CS entry allowed

### 35. What is IDLH limit of H<sub>2</sub>S?

Immediately dangerous life to health 100ppm > above

### 36. What is safe limit of gases, oxygen, h<sub>2</sub>s, CO?

Oxygen 20-23.5%, H<sub>2</sub>S less than 10ppm, CO<sub>2</sub> Less than 35ppm

### 37. Gas tester name?

- T40 rattler\*
- Mx4 vents
- Mx6 I bird.

### 38. Multi Gas Taster?

MX4\*

### 39. How made JSA?

Safety department and engineering departments

### 40. What is JSA?

The document in which we divide the job into different steps in front of steps we write his hazards and precaution JSA means looking at the work task and considering what is the safety way to complete it. It is a way of becoming aware of the hazards involved in doing the job.

### 41. Define the Excavation?

Digging (Moving) of earth though hand tool equipment and explosive is called excavation.

### 42. Excavation type?

- Mechanical excavation
- Manual Excavation

Shoring, benching and sloping use to protect cave-in

### 43. What is the attachment of Excavation before taking permit?

- Pre Excavation check list
- Daily excavation check list
- Equipment check list
- JSA (Job safety analysis)

#### 44 What are excavation hazards?

Cave in, fall of moving machinery  
Falling of material

#### 45. Class of soil and angle use in excavation?

**Rock** slope angle 90°

**Class A** tight cohesive soil such as clay, rock and slope angle 75°

**Class B** loss cohesive soil such as mix soil, rock and clay slope angle 45°

**Class C** least cohesive soil such as gravel sand freely slipping soil safe slope angle 34°

#### 46. Saudi Aramco maximum safe angle of slope?

34° type C

#### 47. Excavation machine are not to operate closer than how many meter?

3m or 10ft

#### 48. Benching the horizontal step and vertical rise between each step should be approximately how many meters?

1.2m 4 feet

#### 49. Keep away motor vehicle, crane and heavy equipment shall be kept from edge of excavation?

2m (6.5ft)

#### 50. Spoil piles should be placed at least how many feet the edge of excavation?

2ft away

#### 51. Scaffold should not be erected near the excavation?

1.5 time depth of excavation

#### 52. How much distance between excavation and heavy equipment, soil piles, scaffolding?

2mter and scaffolding 1.5xDepth of Excavation

#### 53. What is minimum safe distance should be kept from overhead line?

- Up to 50kv 3m
- 50kv -250kv 6m
- More than 250Kv 7.6m.

#### 54. Crane and overhead line power line distance?

15m 50 feet

#### 55. How many feet away from power line?

- 10ft up to 50kv
- 15ft 50 to 200kv
- 20ft 200 to 350kv
- 25ft 350 to 500kv
- 35ft 500 to 750kv
- 45ft750 to 1000kv

#### 56. Define Risk?

The likely hood that a hazard will cause harm in combination with the severity of injury, damage or loss that might foreseeable occur

#### 57. What is LEL & PEL?

Lower explosive level and Permissible exposure

#### 58. What is risk?

- Combination of the (probability) frequency of an undesirable event occurring and the severity level of its consequence.
- A risk is a chance high or low that any hazard will actually cause somebody harm

#### 59. Define Risk Assessment?

A formalized process of identifying the risk that they generate and then either eliminate or controlling the risk.

#### 60. What is difference between incident and accident?

- Any unwanted, unplanned occurrence is called **incident**,
- Any unwanted, unplanned event which leads to injury, damage or loss is called **accident**.

#### 61. Define Flammable?

Easily set on fire.

#### 62. Define Flammability?

Is the ability/nature of a substance to burn or ignite, causing fire.

#### 63. Define Combustible?

Ability to catch fire and burn easily is called Combustible.

#### 64. Define Combustibility?

Is a measure that how easily a substance can be set on fire

#### 65. Is Saudi Aramco permit need to drive "tractor"?

Hot work Permit

#### 66. Define Hot Work?

- Any activity that may develop enough spark, Flame or heat to ignite flammable atmosphere or combustible material

#### 67. If work is low risk in non-restricted area then which permit needed?

No permit require but follow the rules and procedure of Saudi Aramco

#### 68. Under what circumstances low risk job can do without permit?

If work is low risk and non-restricted area.

#### 69. How much total near misses in safety hazard?

A: 200 B: 400 C: 600\* D: 800

#### 70. Occurring, operation or done at the same time?

Called simultaneous

#### 71. How to Report in Emergence?

- Call To 110 or 911 Control room
- 3 Time Say "This is An Emergency Call"
- Describe incident Location
- Describe the incident
- Report injury if any
- Give your name and Badge No
- Repeat above information
- Last Stay on line for further instruction.

### 73. What is procedure in Emergency Situation?

Evacuate immediately,  
Sound the alarm,  
Assess the situation,  
Protect rescue plan,  
Rescue victim,  
Revive victim.

#### Types of Alarm?

- 5 Types
- Stop work
- H2S Alarm
- LEL Alarm
- (Fire) Emergency
- All Clear

(\*\*Abbreviation of WPR\*\*)

#### OCR?

Operation Control Room

#### LPD?

Loss prevention department

#### JSI?

Joint site inspection\*

#### JSA?

Job safety analysis\*

#### STEL?

Short time explosive limit\*

#### IDLH?

Immediately dangerous life and health\*

#### GFCI?

Ground fault circuit interrupted\*

#### ERP?

Emergency response plan\*

#### ERT?

Emergency response time\*

#### ROPS?

Roll over protective structure\*

#### RPO?

Radiation protective officer\*

#### SWL?

Safe work load\*

#### TWA?

Time weighted Average\*

#### RTA?

Risk task assessment\* (ready to assembly)

#### TLV?

Threshold limited value\*

#### HIP?

Hazard identification program\*

#### OSHA?

Occupational safety health and analysis\*

#### CHB?

Chemical hazard buttons

#### HAZCOM?

Hazard communication

#### SMS?

Safety management system\*

#### HAC?

Hazard analysis checklist\*

#### NORM?

Natural occurring radioactive material\*

#### ACM?

Asbestos containing material \*

#### PEL?

Permissible exposure limit\*

#### RTU?

Remote terminal unit\*

#### SCBA?

Self containing breathing apparatus

#### SABA?

Supplied air breathing apparatus

#### RPE?

Respiratory personal equipment

#### PPE?

Personal protective equipment

#### LOTO?

Lock out tag out\*

#### UL?

Under Weightier laboratory

#### CS?

Confined space

#### CSEP?

Confined space entry plan

#### WP?

Work permit

#### CSES?

Confined space entry stand bay man

#### CSES?

Confined space entry supervisor

#### FRC?

Fire resistant cloth

#### GOSP?

Gas oil separation plant\*

#### LEL?

Lower explosive limit

#### UEL?

Upper explosive limit

#### CPR?

Cardiopulmonary resuscitation

#### O.A.T.H?

O: OK A: Advance T: Take me up H: Help

#### STARRT?

Safety task analysis risk reduction talk

#### COSHH?

Control of substance hazardous to health

#### FM?

Factory manual

#### EPD?

Environment protection department

#### CO?

Carbon monoxide

#### SAPO?

Saudi Aramco proponent organization

#### SAEM?

Saudi Aramco engineering management

#### ROW?

Right of way\*

#### PASS?

P: pull the pin A: aim the base of fire

S: squeeze lever S: weep from side to side

#### NDT?

Non destructive\*

#### ELCB?

Earth leakage circuit breaker

**SAES?**

Saudi Aramco engineering standard

**ANSI?**

American National Standard institute

**NEC?**

National electrical commissioning

**GI?**

General instructions

**SAMSS?**

Saudi Aramco material system specifications

**OIM'S?**

Operation institute manual

**SAPO?**

Saudi Aramco project organization

**OMPPD?**

Onshore maintain potential project department

**PMT?**

Project management team

**PID?**

Project inspection department

**SAOO?**

Southern area oil operation

**HIPS?**

High integrity protection systems

**CP?**

Catholic protection

**DSICS?**

Do not smoke in the confined space

**Fire Extinguisher?**

A device which is use for extinction of fire particularly is called Fire extinguisher.

**Color coding for fire extinguisher?**

- Water Red
- Foam Cream
- Dry powder blue, use for B and C
- Carbon dioxide black, use for Electrical fire

**DEFINE EMERGENCY?**

An accident that has a potential to cause serious injury and loss of life.

**TWO TYPES OF HOT WORK?**

**Open Flame** – such as burning, welding, torch soldering, etc. Exceptions are areas which are considered as safe for routine cutting and welding (maint. shop, etc.)

**Non-flame** – work not producing a flame such as grinding, chipping, sand blasting, concrete cutting, etc.; opening of explosion-proof housing is included

**Wat is Safety?**

Freedom from risk, harm, loss or injury is called safety.

**What is hazard?**

Anything that may or cause harm to people, the environment and business.

**How Sign on the Scaffolding Tag and Validity?**

Above 1.8m Scaffolding Supervisor Signature  
Above 6m Scaffolding inspector Signature  
Validity for 2 week.

**How do you treat a heat stroke victim?**

- Heat stroke is a form of hyperthermia in which the body temperature is elevated dramatically.

Victims of heat stroke must receive immediate treatment to avoid permanent organ damage. First and foremost, cool the victim.

- Get the victim to a shady area, remove clothing, and apply cool or tepid water to the skin (for example, you may spray the person with cool water from a garden hose), fan the victim to promote sweating and evaporation, and place ice packs under the armpits and groin.
- If the person is able to drink liquids, have them drink cool water or other cool beverages that do not contain alcohol or caffeine.
- Monitor body temperature with a thermometer and continue cooling efforts until the body temperature drops to 101 to 102 F (38.3 to 38.8 C).
- Always notify emergency services (911) immediately. If their arrival is delayed, they can give you further instructions for treatment of the victim.

Extinguisher	For Fire Class	Extinguishing Method
Water	Class A	Reduce the heat in fire. No sufficient heat no fire
Dry Chemical	Class A, B & C	Disturbs the chemical reaction in a fire, thus the fire cannot sustain
Carbon Dioxide(CO2)	Class B and C	Displacing oxygen. No oxygen no Fire. (Not preferred to use in electronic equipment)
Foam(AFFF)	Class B Oil Fires, Class A	Farm a layer of Foam on Oil surface, So oxygen (air) is restricted to reach fuel. {AFFF (Aqueous film-forming foam)}
Dry Powder	Class D	Metals Extinguishers agents are Mostly Specific for Mattel type and perform in different ways to put-off fire
Wet Chemical	Class K, Class A	Chemical reacts with fat to form a soapy foam blanket over the burning oil. The water content cools the oil below its ignition temperature.

**How Many Step to Stop Work Authority?**

1. Stop unsafe work
2. Notify Effected person
3. Investigate the cause for Incident (Accident)
4. Communication finding and rescue Victim
5. Follow up

**H2S emergency Action Steps?**

1. Evacuate the Area
2. Sound the Alarm
3. Assess the situation
4. Protect rescue plan
5. Rescue the victim
6. Revive victim
7. Get medical Aid