

<b>SAUDI ARABIAN OIL COMPANY (Saudi Aramco)</b> <b>GENERAL INSTRUCTION MANUAL</b>  <b>ISSUING ORG.</b> DRILLING & WORKOVER OPERATIONS ORGANIZATION  <b>SUBJECT:</b> ONSHORE WELLSITE EMERGENCY RESPONSE OPERATIONS ROLES & RESPONSIBILITIES		<b>G.I. NUMBER</b> 1850.001 <span style="color: blue;">Approved</span>	
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## CONTENT:

This General Instruction outlines the emergency response operations roles & responsibilities for any onshore wellsite drilling or workover operations emergency, or when a Producing Organization has turned over responsibility for well control operations to the Drilling & Workover Operations Organization. This document specifically addresses the following Onshore Wellsite Emergency Response Operations Management Elements:

1. OBJECTIVE
2. IMPLEMENTATION
3. ORGANIZATION
4. WELL CONTROL
5. RESTORATION OR ABANDONMENT OPERATIONS
6. COST ACCOUNTING
7. SUPPORT SERVICES
8. DOCUMENTING AND CRITIQUE
9. DRILLS / TRAINING EXERCISES

APPENDIX I ROLES AND RESPONSIBILITIES  
APPENDIX II ROLES AND RESPONSIBILITIES, SUPPORT ORGANIZATIONS  
APPENDIX III ORGANIZATION CHART, WELLS WITH OR WITHOUT RIG ON LOCATION

## 1.0 OBJECTIVE:

The objective of this General Instruction (GI) is to define the emergency response operations roles & responsibilities for any onshore wellsite emergency involving D&WOO activities, or when a Producing Organization has turned over responsibility for well control operations to D&WOO.

This GI will serve as the basis for the development of a D&WOO Onshore Wellsite Emergency Response Plan, which complies with the applicable requirements of the Saudi Aramco Safety Management System Element-8 and the Saudi Aramco Corporate Contingency Plan (SACCP).

## 2.0 IMPLEMENTATION:

### 2.1 Well Control Operations Emergency During Production Operations

If a well control operations emergency occurs while the well is the responsibility of one of the Producing Organizations, notification that a well control operations emergency exists will be made through the normal chain of command. The Area Producing Vice President or Ex. Director or Gen. Manager (if the Vice President cannot be reached) may request Drilling and Workover to take over well control operations by contacting (by priority):

- VP / Executive Director, Drilling & Workover Organization
- General Manager, Drilling Operations
- Manager relevant area Drilling / Workover

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**D&WOO's Wellsite Emergency Response Operations Responsibilities** when a Producing Organization turns over well control operations will be strictly limited to coordinating / conducting safe & effective well control operations until the well is returned back to Area Producing Organization, while the respective Producing Organization will retain sole responsibility for all other aspects of a safe & effective emergency response operation beyond the specific wellsite emergency.

**2.2 Well Emergency During Drilling, or Workover Operations**

If a wellsite emergency occurs during any drilling or workover operations, the situation will be reported by dialing the 110 Incident Notification System, utilizing the seven digit local area emergency number and contacting the relevant Manager of Drilling & Workover Dept. or the General Manager, Drilling Operations. The D&W Organization will be solely responsible for the safe & effective management of all aspects of the wellsite emergency.

**2.3 Reporting of Emergency During Drilling or Workover Operations**

**2.3.1** The Saudi Aramco D&WOO Liaison-man or Senior D&WOO representative will report any emergencies or selected drills by dialing the appropriate ISO Control Center's 110 Incident Notification System Equivalent Number (seven digit).

**2.3.2** The appropriate method for reporting **selected drills** requires that the person reporting speaks slowly, calmly, and distinctly in a clear voice and give the following sequential information:

- Clearly state: "This is a **drill**, this is a **drill**, this is a **drill** at Rig \_\_\_\_, on Well \_\_\_\_ at \_\_\_\_ area".
- Identify yourself by name & badge number.
- Give your wellsite location
- Briefly describe the **training exercise scenario** (i.e. H2S Release, Fire, etc)
- State the **simulated** number of injured persons
- Repeat the above information
- Request the ISO person receiving the call to repeat the information to ensure it is clearly understood to be a **drill**.

**2.3.3** The appropriate method for reporting **wellsite emergencies** requires that the person reporting speaks slowly, calmly, and distinctly in a clear voice and give the following sequential information:

- Clearly state: "There is a **wellsite emergency** at Rig \_\_\_\_, on Well \_\_\_\_ at \_\_\_\_ area".

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- b. Identify yourself by name & badge number.
- c. Give your wellsite location
- d. Briefly describe the **wellsite emergency** (i.e. H2S Release, Fire, etc)
- e. State the number of killed or injured persons
- f. Repeat the above information
- g. Request the ISO person receiving the call to repeat the information to ensure it is clearly & accurately understood to be a **wellsite emergency**.

2.3.4 The D&WOO Liaison-man will also contact the respective D&WOO Superintendent or the respective D&WOO Manager, if the respective superintendent cannot be reached, in order to inform them of the nature & severity of the wellsite emergency. Also notify any nearby Oil or Gas Operations facility of any potential associated risk to their facilities.

2.4 Wellsite Emergency Response Operations Priorities

- 2.4.1.1 D&WOO Incident Commander (initially the Liaison-man) will take all actions necessary to minimize the loss of life and/or personnel injury. In the event that there are any injured or dead, the D&WOO Liaison-man or most senior D&WOO representative or Contractor employee on the rig, will be responsible for obtaining appropriate emergency medical assistance and EMS transportation. This will be accomplished by clearly stating the number of injured or fatalities in the 110 Incident Notification Message (Section 2.3.3 Item-e).
- 2.4.1.2 Security patrols will be dispatched to strictly limit access to the wellsite & any defined offsite hazard zone to Saudi Aramco authorized personnel.
- 2.4.1.3 The D&WOO Liaison-man or senior drilling representative will designate a team to immediately begin monitoring the offsite hazard zone (if any) for flammable gas and hydrogen sulfide (H2S) or other potential hazards.
- 2.4.1.4 Persons in any endangered area near the emergency site will be alerted and /or evacuated by Saudi Aramco Government Affairs / ISO authorized personnel.
- 2.4.1.5 Fire Protection Department will respond to the wellsite emergency with appropriate fire fighting & rescue resources. The actual level of assistance will depend upon the remoteness of the wellsite, in combination with the nature & severity of the incident.

2.5 Safeguarding of Company Assets

Fire fighting and special well control equipment from the D&W SWAT Unit will be dispatched as warranted to the wellsite. The D&WOO Incident Commander or the D&WOO Well Control Team Leader will assess the incident severity and define a prudent & practical asset protection strategy.

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**Specialized Fire Fighting & Well Control Operations**

**2.5.1 Well Control**

The D&WOO Well Control Team Site Leader will coordinate & direct all on-site well control operations. **No other leader or site commander**, designated by other organization, will have the authority to interfere or take charge of any D&WOO Well Control Operations activities.

**2.5.2 Voluntary Well Ignition**

Should uncontrolled hydrocarbon flow from a well occur without being accidentally ignited, the decision to ignite will be based on the following criteria:

- A) If uncontrollable flow from a gas well creates a **30ppm** H<sub>2</sub>S Concentration at the **defined** RER (Rupture Exposure Radius) ignite the flow immediately.
- B) If uncontrollable flow presents immediate and serious danger to adjacent inhabited areas or facilities, by creating a minimum **100 ppm** H<sub>2</sub>S Concentration at the wellsite parameter - ignite the flow immediately.
- C) Any flow condition other than that described in item (A) & (B) will be evaluated on a case-by-case basis. The decision to ignite will be made by the VP / Executive Director D&WOO and/or General Manager, Drilling, after evaluating all the facts. If there is no communication with higher levels of Management or time factor becomes critical, then the decision to voluntarily ignite can be made by a D&WOO Liaison-man, Well Control Team Site Leader, Superintendent or Manager.

**3.0 D&WOO Onshore Wellsite Emergency Response Operations Organization**

The D&WOO Onshore Wellsite Emergency Response Operations Organization is defined in Appendix III. Personnel assigned to the organization will be relieved of their routine responsibilities by other personnel who will carry on regular Company business.

**3.1** In the event that the well has a drilling or workover rig on it, the D&WOO Incident Manager will be responsible for all wellsite emergency response operations. He will appoint the Incident Commander & Well Control Team Site Leader. The Well Control Team will consist of designated D&WOO & contractor personnel as deemed appropriate by the Well Control Team Site Leader, in consultation with the Incident Commander.

**3.2** In the event that a Producing Organization turns over a well to D&WOO, the VP / Exe. Director, D&WO or General Manager, Drilling will appoint a D&WOO Well Control Team Site Leader. The Well Control Team Site Leader will be solely responsible for all well control operations. The D&WOO Well Control Team will consist of designated D&WOO & contractor personnel as deemed appropriate by the Well Control Team Site Leader, in consultation with the Producing Organization Incident Commander.

**3.3** Prior to any rig move to drill or workover a well, the Drilling Superintendent or designated representative will contact the respective Producing counterpart and others that may have interest in the area order to:

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<ul style="list-style-type: none"> <li>- Ensure that the concerned organizations are familiar with their specific roles &amp; responsibilities described in the D&amp;WOO Onshore Wellsite Emergency Response Plan.</li> <li>- Established appropriate contact point(s) in case the D&amp;WOO Onshore Wellsite Emergency Response Plan is activated.</li> </ul>		
<b>4.0 WELL CONTROL OPERATIONS:</b>		
<p>The D&amp;WOO Well Control Team Site Leader will define an appropriate well control operations strategy for the respective Incident Commander. The Incident Commander will assist the D&amp;WOO Well Control Team Site Leader with the coordination of well control operations support service resources at the wellsite.</p>		
<b>5.0 RESTORATION OR ABANDONMENT OPERATIONS:</b>		
<p>As a well is brought under control, safety equipment will be installed. Debris must be removed and construction plans will be implemented to repair the site and return the well to its previous operating status. If necessary, the well will be abandoned.</p>		
<b>6.0 COST ACCOUNTING:</b>		
<p>Drilling and Workover's, Planning &amp; Accounting Services Group, will obtain a special project number from the Finance and Insurance Claims Administrator, Treasurers Department, Dhahran, to accumulate costs related to the disaster. The Treasurers Department will determine the proper disposition of the costs accumulated in the SP.</p> <p>The Planning and Accounting Services Group of the Drilling and Workover Department will review the charges and make corrections or adjustments as necessary and issue a final financial cost report if required.</p>		
<b>7.0 SUPPORT SERVICES:</b>		
<p>Support services provided by various departments as well as those performed by service companies will be coordinated by the Incident Commander and the Manager, Drilling and Workover Services. Each department providing a support service will be responsible for adequate preparation to provide prompt and efficient service during the emergency.</p>		

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## 8.0 DOCUMENTING AND CRITIQUE

Complete daily logs of all critical wellsite emergency response operations will be maintained in the respective ECC and continuously updated on the Emergency Message Board System (EMBS) as warranted. Designated ECC personnel assigned by the Incident Manager will act as liaison with all of the various groups to maintain continuous documentation of the wellsite emergency operations including (but not limited to) any fatalities, injuries and environmental impact. A complete factual report of each day's activities will be maintained by the ECC as a permanent record. The final report shall be prepared by the Incident Manager and shall contain a complete record of facilities and wells involved, planning, decisions, photographs, etc. Upon completion of the final report, a critique will be held to evaluate all the causes, actions and reactions of the various phases up to the final restoration or disposition.

## 9.0 DRILLS / TRAINING EXERCISES

- 9.1 D&WOO will conduct an annual (1) "Primary" rig emergency drill to better prepare for wellsite emergencies should they occur. These annual drills will be coordinated with the respective Producing Organizations and designated Support Service Organizations, in order to validate that the D&WOO Onshore Emergency Response Plan can be safely & effectively implemented for any onshore wellsite emergency.

The scope of an appropriate D&WOO Primary Drill will require the full mobilization of the defined Wellsite Emergency Response Operations resources, along with the respective D&WOO ECC. Designated Support Service Organizations will also be required to demonstrate their preparedness & competency to safely & effectively fulfill their defined roles & responsibilities.

- 9.2 D&WOO will also conduct annual "Secondary" rig emergency drills with each respective Producing Organization Department. These "Secondary" drills will evaluate wellsite emergency response preparedness and will require minimal mobilization of the defined emergency response resources.



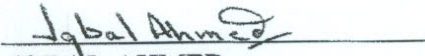
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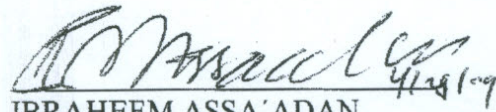
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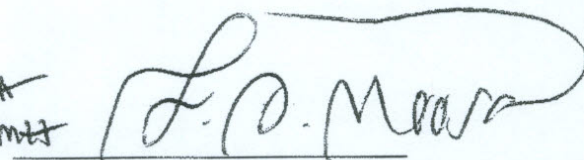
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Recommended By:


  
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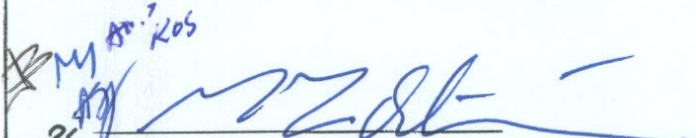
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## APPENDIX I

**ROLES & RESPONSIBILITIES**

Selected critical roles and responsibilities of designated participants in the D&WOO Onshore Wellsite Emergency Response Operations Plan organization are defined in this appendix, in order to clarify the crucial operations functions. This list is not intended to describe all the actions potentially required to safely & effectively respond to any specific wellsite emergency.

VP / Exe. Director, Drilling & Workover Organization

1. Initially assume the D&WO Incident Manager role and may join the SACCP Crisis Management Team, depending upon the nature & severity of the incident
2. Update the SACCP Crisis Management Team on emergency response operations as warranted.
3. Appoint an Incident Commander, Well Control Team Site Leader, and Investigating Committee.

General Manager, Drilling Operations

1. Assume the D&WO Incident Manager role at the discretion of the Executive Director, D&WO
2. Appoint a Well Control Team Site Leader for Producing Organization Well Control Operations
3. Authorize voluntary ignition of well effluent, as warranted.
4. Assist the D&WO Incident Manager as warranted

Manager, Drilling or Workover Department

1. Assume Incident Command responsibilities for well control operations on wells involving drilling or workover rigs.
2. Implement the operations segment of the D&WOO Onshore Wellsite Emergency Response Operations Plan
3. Appoint a Well Control Team Site Leader at the discretion of the Incident Manager or General Manager
4. Appoint an Engineering General Supervisor to take charge of engineering support.
5. Provide logistical support and operational assistance to the Well Control Team Site Leader
6. Arrange for on-site inspection by VP / Executive Director & General Manager, Drilling & Workover as warranted.
7. Notify and update the shift superintendent of any nearby Oil or Gas Operations facility of any potential Risk to their facility.



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Superintendent Drilling or Workover operations

1. Notify respective Department Manager of the wellsite emergency.
2. May initially assume Incident Command or Well Control Team Site Leader role at the discretion of the Incident Manager .
3. Insure that the SA Liaisonman or senior drilling representative has designated a team to initially monitor the potential downwind hazard area for flammable gas and hydrogen sulfide or other hazards.
4. Coordinate support service provided by other designated department at the discretion of the Incident Commander.

Manager, Drilling & Workover Services

1. Notify Government Affairs Representative.
2. If necessary call Boots & Coots (281) 931-8884 Fax No. (281) 931-8302  
Or Wild Well Control (281) 784-4700 Fax No. (281) 784-4750  
Or Alert Disaster(UAE) (9714) 883-2343 Fax No. (9714) 883-2395
3. Notify Department Managers of designated support services departments.
4. Implement the services segment of the D&WOO Onshore Wellsite Emergency Response Operation Plan .
5. Provide equipment, material, and logistical support to the Well Control Team Site Leader.
6. Coordinate mobilization of Emergency Response Operations or Support Services provided by designated Contractors.
7. Maintain the SWAT Well Control Operation Equipment & Personnel in a continuous emergency preparedness mode and arrange deployment to any onshore wellsite emergency location.

Superintendent, Drilling Rig Equipment Maintenance Division

1. Mobilize SWAT Well Control Operation Equipment to any onshore wellsite emergency location.
2. Provide personnel to work in the DREM yard to help assemble, operate and repair equipment .

Superintendent, Water Well Maintenance Division

1. Hook up nearby wells for use during onshore well control operations.
2. Provide competent & trained skilled and semi-skilled personnel to work at the well site.

Well Control Team Site Leader

1. Advise the D&WOO Liaisonman & Incident Commander of any immediate action(s) to be taken.
2. Assist the Incident Commander with any wellsite evacuation and rescue operations as warranted.
3. Continuously update the Incident Commander of the Well Control Team's activities / operations.

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### Accounting Services

1. Maintain a record of costs incurred and appropriate documentation as directed.
2. Maintain inventory of all Equipment & Materials delivered to disaster site.

### Superintendent, Drilling Rig Support Division

1. Obtains all materials and equipment needed for use at the wellsite.
2. Coordinates with Transportation to ensure prompt delivery of materials & equipment.

### Superintendent, Wellsite Division

1. Provides a location for emergency equipment and camp to be set up
2. Provides a road way for movement of material and equipment to reach the wellsite location.
3. Provides stand-by equipment for use during well control operations to construct pits or dikes.

### Government Affairs Representative

Notify Government officials of situation. All communications will be cleared through the Executive Director, Drilling & Workover.

### General Supervisor., Drilling or Workover Engineering

1. Inform Manager, Area Reservoir Engineering Department of situation and conditions. Obtain relevant well data including:
  - (a) Bottom-hole pressure, productivity index, water cut and oil-water contact.
  - (b) Preferred relief well drilling locations subject to wind and terrain considerations.
  - (c) Preferred intercept interval.
  - (d). Contour dip and strike.
2. Request computer flow rate and pressure profile-calculations to be run (computer) for given conditions.
3. Transmit copies of well configuration sketch, wellhead drawing, Morning Reports, and other pertinent documentation to the D&WOO ECC and SACCP CMT as warranted.
4. Assemble well data and distribute copies as required. Include drilling program, well cross-sectional sketch, reports, known information - formation tops, final elevation etc.

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5. Have large-scale sketch (flip chart size) of well configuration prepared for use in review meetings. Denote casing sizes/depths, drill string configuration, formation tops, hole problems encountered and other relevant information which may be of use.
6. Designate qualified and experienced engineer(s) to go to the wellsite to:
  - (a) Keep accurate log of wellsite operations and well/environmental/weather conditions.
  - (b) Assist the Well Control Team Site Leader as warranted.
7. Prepare kill program including fluid type, density and pumping rates.
8. Review available rig(s) to drill relief well(s). Recommend rig(s) from optimum technical viewpoint.
9. Once survey location(s) for relief well(s) are received, prepare directional drilling program.
10. Monitor drilling progress on relief well(s) and provide technical liaison among engineering services group(s) and operations.
11. Prepare relief well kill program(s).
12. Prepare management reviews of progress as required.

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**ROLES & RESPONSIBILITIES OF SUPPORT SERVICES DEPARTMENTS**Communications

1. Design, Install, Maintain, and Test reliable communication systems in all designated D&WOO ECCs
2. Provide communication system installation, testing, and maintenance services required to ensure reliable wellsite emergency response operations communications.
3. Provide communication system technician(s) at the designated D&WOO ECC & Wellsite

Aviation

1. Provide emergency transportation services for medical evacuation, personnel evacuation, and Well Control Team members as warranted.
2. Provide aerial wellsite surveillance to assist with search & rescue, security and well control operations as warranted.
3. Provide for movement of authorized personnel and materials as warranted

Land Transportation

1. Provide immediate emergency response movement of designated materials and equipment.

Fire Protection

1. Provide competent personnel and equipment to support wellsite emergency operations as requested. The actual level of emergency assistance will depend on remoteness of the wellsite.
2. Provide SA GIS Wellsite & Rig Location Mapping System link in each fire station to ensure an immediate 110 Incident Notification System response.

Security

1. Provide emergency response units for wellsite access control & offsite personnel alert / evacuation operations

Medical

1. Provide emergency medical services as required on-scene and at clinic(s).
2. Provide SA GIS Wellsite & Rig Location Mapping System link in each fire station to ensure an immediate 110 Incident Notification System response.

Community Services

1. Provide accommodation and food services as needed.

Producing

1. Responsible for all aspects of wellsite emergency response operations, other than well control operations for any well emergency that is turned over to the D&W Organization.
2. Handle all liaison with dispatchers, plant pipelines and other groups concerned with gas/oil movements.
3. Coordinate with the Well Control Team Site Leader on all activities within the field.
4. Supervise all shut-in and start-up activities of nearby wells when the need arises.

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RESPONSIBILITIES

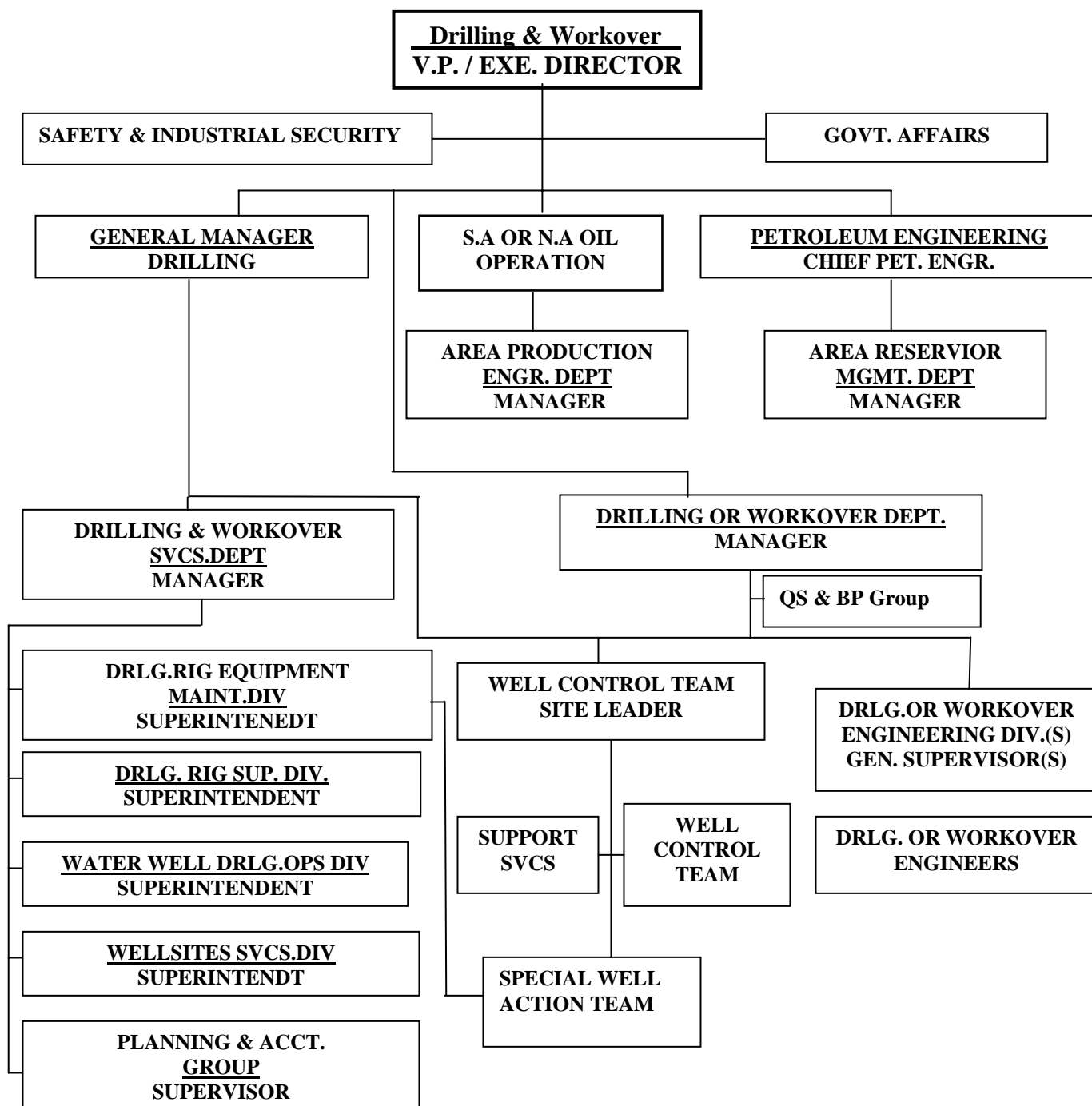
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APPENDIX III

**WELLS WITH OR WITHOUT RIG ON LOCATION**



\* CHANGE

\*\* ADDITION

NEW INSTRUCTION ☐

COMPLETE REVISION ☒