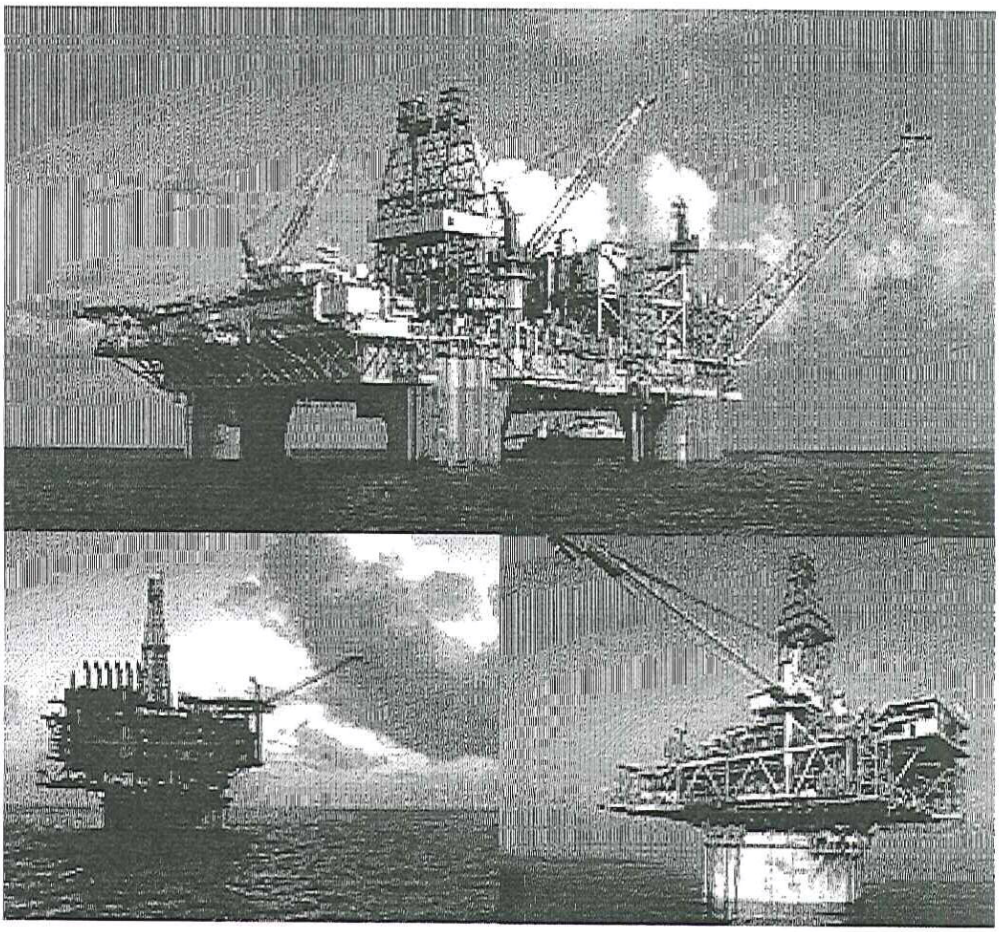
BP GoM Deepwater SPU

January 2010

Well Control Response Guide



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1 Responsibilities for Well Control Response Guide

1.1 Owner

The Owner is responsible for the Well Control Response Guide. He is responsible for initiating the appropriate programs to ensure awareness and proper use of the Response Guide. The Owner / Holder responsibilities also include the following maintenance activities:

- The review and approval of the Guide as being technically correct with accurate controls in place to recover from well control events safely;
- The management of timely reviews and revisions to the Guide;
- Participation in audits and reviews of the Guide

Owner
David Rich
SPU Wells Director
Date: January 2010

1.2 Custodian

The Custodian is nominated by the Guide Owner / Holder and is responsible for the contents of the Guide. He is responsible for ensuring that revisions and updates are prepared when necessary. The Custodian is also responsible for ensuring that the distribution of the Guide and its corrections and revisions are adequately controlled. Inquiries as to the content of the Well Control Response Guide should be addressed to the Custodian.

Custodian
John Sprague / John Shaughnessy
(Drilling Engineering Authority) / (Well Control TA)
Date: January 2010

1.3 Audit/Review

Reviewing the Well Control Response Guide

It is recommended that the Well Control Response Guide be audited and/or reviewed on an annual basis in January by the SPU Well Control TA, or sooner if there has been a significant restructuring of management personnel within either the Operator's or the Well Control Service Providers' management teams.

Conducting the review

The audit/review will be conducted with representatives from BP, Well Control Service Providers, pertinent third parties and contractors.

Notifying plan holders of changes

Written notices of revisions and/or amendments will be sent to all plan holders of record.

Training of personnel in use of plan

Personnel will be trained in use of this plan prior to the initial audit. Goal is to train the operational drilling personnel, such as Operations Managers, WTL, ops drilling engineers.

2 Distribution List

Name	Company	Department	Title	Copy Number
Gavin Kidd	BP	Atlantis	WTL - DD2	
Robert Sanders	BP	Atlantis	WTL - DD3	
John Shaughnessy	BP	Atlantis	Ops Drilling Engineer	
Louise Jacobsen Plutt	BP	Atlantis	Ops Drilling Engineer	
Dan Stoltz	BP	Thunder Horse	WTL - Enterprise	
Tony Emerson	BP	Thunder Horse	WTL - PDQ	
Kathleen Halvorson Dory	BP	Thunder Horse	Ops Drilling Engineer	
Eddie Osborne	BP	Thunder Horse	Ops Drilling Engineer	
John Guide	BP	DW Horizon	WTL - Horizon	
Brett Cocales	BP	DW Horizon	Ops Drilling Engineer	
George Gray	BP	DOC	WTL	
Trent Fleece	BP	DOA	Ops Drilling Engineer	
Dave Schilling	BP	DOA	WTL - DOA	
Greg Walz	BP		ETL	
Charles Taylor	BP		Drlg Eng TL	
Charlie Holt	BP	Atlantis	Wells Ops Manager	
Andy Frazelle	BP	Thunder Horse	Wells Ops Manager	
Bruce Rogers	BP		CTL	
David Sims	BP	DW Horizon	E&A DTL	
Glen Nohavitza	BP		Pride DW Project Manager	
Chuck Ware	BP	Thunder Horse	Ops Drilling Engineer	
Rupen Doshi	BP	Atlantis	Ops Completion Engr.	
Jeff Hupp	BP	Atlantis	Ops Completion Engr.	
Daniel Pickett	BP	Thunder Horse	Ops Completion Engr.	
Mike Fowler	BP	Thunder Horse	Ops Completion Engr.	

Black – BP GoM DWP Personnel

Blue – BP GoM DWP – Contractors

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4 Abbreviation List

BHA	Bottom Hole Assembly
BOP	Blowout Preventer Equipment
BST	Business Support Team
BU	Business Unit
COP	Current Operational Period
dB	Decibels
DE	Drilling Engineer
DTL	Drilling Team Lead (Leader of Drilling & Subsea Engineers)
DS	Drilling Superintendent, generic line manager for the WSL
DWP	Deepwater Production – BP Business unit in Gulf of Mexico
ERP	Emergency Response Plan
ETP	Engineering Technical Practices
Fifi	Firefighting and associated equipment such as pumps and monitors.
GCT	Group Crisis Team
GoM	Gulf of Mexico
GP	General Plan
H_2S	Hydrogen Sulfide Gas
HAZID	Hazard Identification Process
HAZOP	Hazard and Operability Process (meetings designed to assess risk of operations)
HHP	Hydraulic Horsepower
HODE	Head of Drilling Excellence – Global BP Position
IAP	Incident Action Plan (tactical plan for NOP)
IC	Incident Commander – ICS term. Leader of the BP-IMT
ICP	Incident Command Post
ICS	Incident Command System. Internationally accepted command system designed particularly for responding to and recovery from all types of emergency incidents.
ID/OD	Inside diameter/Outside diameter
IMS	Incident Management System
IMT	Incident Management Team
Key Personnel	Personnel with specific job function during a well control event
Kick	Unintentional Influx of hydrocarbon or water into the wellbore during drilling or workover
Kw/m2	Kilowatts per square meter
LCM	Lost Circulation Material
LEL	Lower explosive limit: percentage of gas and air mixture that will cause an explosion
LOT	Leak Off Test
M	Meters
MAASP	Maximum Allowable Annular Surface Pressure
Medevac	Medical evacuation
Mmscf/d	Million standard cubic feet per day
MODU	Mobile Offshore Drilling Unit
MSRC	Marine Spill Response Corporation
MWD	Measurement While Drilling
NOP	Next Operational Period
NRC	National Response Corporation (US Oil Spill Response organization)
OIM	Offshore Installation Manager, Sr. Rig Owners Representative if on a MODU
OSC	On-scene Commander: ICS term. Responsible for on-scene response actions, concerning the well and uncontrolled effluents emitted from the well. Leader of the TRT.
OTL	Operations Team Lead

POB	Persons on Board (relating to an offshore Installation/Site or MODU)
PPE	Personal Protective Equipment
Ppm	Parts per million
Ramp-up	Act of increasing resources (people and equipment) to better respond to an incident
ROV	Remotely Operated Vehicle
SAR	Search and rescue
SBSA	Shore Based Support Area
SCBA	Self Contained Breathing Apparatus
SDE	Senior Drilling Engineer
SOP	Standard Operation Procedure
SC	Source Control, relates to controlling the source of the effluent
SCBD	Source Control Branch Director. Responsible for source control activities onsite
SCSC	Source Control Section Chief. Responsible for all source control activities
SCSSSV	Surface Control Subsurface Safety Valve
Source Control Team	Team formed after an event has occurred. The team's function is stopping the flow of hydrocarbons at the source. Name originates from ICS and oil spill terminology.
TCP	Tactical Command Post (operation command post at the incident scene)
TRT	Tactical Response Team (onsite team responding to incident including Source Control)
WM	Wells Manager
WSL	Well Site Leader (onsite BP company representative)

5 Introduction

5.1 Abstract

This manual is applicable for the BP Gulf of Mexico Deepwater Business Unit (GoM DWP BU). It is a guide to ensure that an organized Source Control response to a well control event is brought swiftly and efficiently into action.

This manual provides a working methodology to safely and effectively manage an initial response to a well control incident. This would normally cover the first 48 hours until dedicated control and recovery teams are formed and well control specialists are on location. The plan goal is to provide guidance to:

- Safeguard human life - When primary well control is lost, it is essential to control site safety; safety of third parties and the safety of those directly involved with the well control operations. This is ensured by efficiently and effectively conducted control efforts.
- Minimize primary well control escalation to ensure minimum damage to the well, rig, surface facilities and location. Establish levels and definitions of Well Control Incidents to avoid arbitrary decisions of when to get the Incident Management System activated.
- Create an initial response team to demonstrate "Command and Control" of the incident in the eyes of the public, partners and personnel.
- Minimize logistics and Source Control problems unique to deepwater GoM and its environment.

5.2 Special Command and Control Considerations for MODU Operational Environments

Within the GoM DW SPU, some drilling/well operations are conducted on a Spar Platform or similar moored facility in which the Command /Control and Communication responsibilities from the well site up through to the Corporate level are virtually wholly within the BP organizational footprint, due to BP ownership in the "facilities" on which the drilling operations are conducted. Therefore, unity of command readily facilitates tremendous efforts and assets focused to accomplish BP's primary objectives to safeguard life, protect the environment, protect BP and third party assets and maintain/protect BP's image and reputation. However, on certain deepwater projects, drilling operations are conducted with a Mobile Offshore Drilling Unit (MODU). Since the MODU is indeed a vessel and not owned by BP, the MODU Rig Manager/OIM will in fact assume the initial role of On Scene Commander instead of a BP employee (WSL or BP OIM) as would be the more common case.

This subordination of the onsite BP representative to the MODU OIM should not diminish the efforts to achieve BP's primary objectives stated above. The intent of this document is not to specify the exact division of responsibilities in this situation, but to convey the principals of operation of the BP Incident Management System so that development of the site specific Well Control Contingency Plan (which may require a Non-BP party to be the initial On Scene Commander) can be accomplished within the intent of BP's Senior Management directives.

Within this document the term OIM (Offshore Installation Manager) which generally implies a BP employee, may indeed be the Rig Manager/OIM (As Applicable to the Situation). Once again, the Site Specific Well Control Contingency Plan must specify a division of responsibilities and support within the MODU Contractor/BP drilling team.

5.3 Document Objectives

The objective of this Guide is to provide clear concise instructions to key personnel in the event of a well control incident that are compatible with BP's tiered emergency response system. This will include the call out procedures and Incident Management Team (IMT) formation for a well control emergency. In addition:

- Provide guidelines for BP and contractor staff in response to an emergency well control event.

- Inform BP management, other departments and staff of their responsibilities and set out the procedures they should follow in a well control related emergency event.
- Define the type of support that may be required from the various departments and sections within BP and the support that may be required from contracted vendors.

It is not envisaged that the Well Site Leader (WSL) or the Installation/Site/Rig *OIM (As Applicable)* becomes an expert in response for loss of well control; however personnel onsite must have response guidance in the event of a well control emergency. It is also realized that every well control event is unique and response and mitigation actions must be tailored to suit.

This document is intended to be a quick response users guide with a minimum of pages and therefore contains minimum background and supporting information. This document provides guidance for initial team response and considerations for 'Personnel with Response Duties' both on and off scene. They are neither prescriptive nor exhaustive. Not all actions will be applicable in all cases. Others may be required. Provided the WSL/*OIM (As Applicable)* makes the correct initial contact and gives the necessary basic emergency details, the BP response should follow on automatically and the Guide will have served its primary purpose. For obvious reasons, Key Personnel should study this document prior to a well control emergency.

Other related "Well Control Contingency" documents will exist as part of the overall well control response and recovery plan. These plans may include details on managing; designing and executing a well control project both for surface and subsurface intervention as well as engineering studies evaluating loss of well control hazards and risk. These documents are meant to familiarize the DWP Wells Team on the planning process and would be utilized after the initial control teams are in place. See Figure 5-1 below.

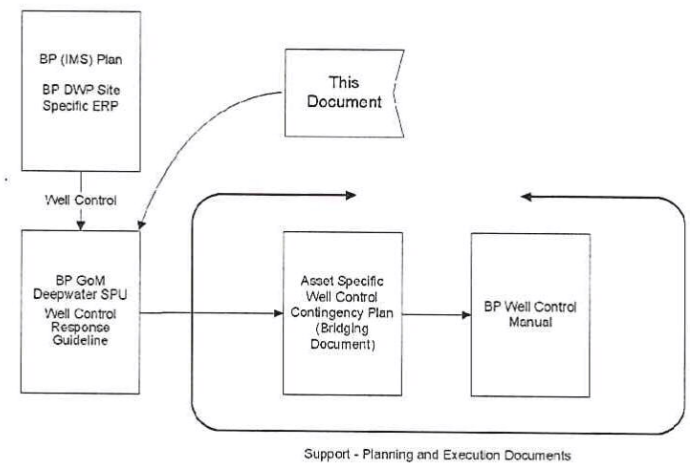
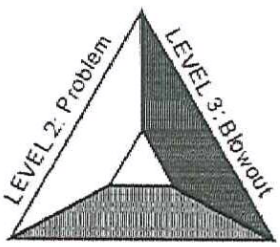
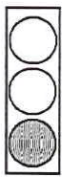


Figure 5-1: Well Control Response and Control Planning Documents

5.4 How to Use This Manual – Personnel with response duties

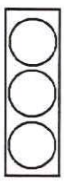


Step 1: Make sure you are familiar with the three different levels of well control events as follows:



Level 1 – Routine Well Control Event.

- Recovery is possible following site technical practices (STPs) and standard operating procedures (SOPs) using onsite personnel - e.g. well kick with pipe on bottom,
- Incident can be contained onsite.
- BP personnel, public, environment and property are not at serious risk.
- "Site Emergency"



Level 2 – Non-Routine Well Control Event

- There is a complication with the well control incident.
- No STP or SOP is available for recovery or risk/impact of escalation is high - e.g. stripping under pressure, massive loss of circulation with hydrocarbon zones open, H_2S kick, approaching MAASP.
- Personnel or environment are at greater risk.
- There is a high risk of escalation
- Deteriorating Level 1 event.

Level 3 – Loss of Well Control

- Loss of secondary well control.
- Requires immediate response to safeguard life and environment.
- Outside resources will be necessary for mitigation and control.
- Site evacuation is usually necessary.
- Deteriorating Level 2 event

Step 2: Make sure you have clearly noted the key contact telephone numbers for well control emergencies as recorded in the BP Incident Management Plan and Well Control Contingency Plan.

Step 3: Look over the flowcharts and notes for each level of a well control event. Make sure you are aware of your own role. If any actions are unfamiliar or unclear contact the Manual's Custodian for clarification or training.

Step 4: Well Site Leader/Offshore Installation Manager (WSL/*OIM (As Applicable)*) - Make sure other key personnel on your rig are aware of the Guide's principles.

Step 5: WSL/*OIM (As Applicable)* - Verify this Guide is located at appropriate communication points.

Step 6: WSL/*OIM (As Applicable)* - Hold drills as necessary to assure key personnel understand their roles.

5.5 *Emergency Priorities*

The WSL/*OIM (As Applicable)* and the Initial On-scene Commander (OSC) shall always keep the following priorities in mind when planning response actions:

1. ***SAFEGUARD LIFE***
2. ***PROTECT THE ENVIRONMENT***
3. ***PROTECT COMPANY/THIRD PARTY ASSETS***
4. ***MAINTAIN COMPANY IMAGE AND REPUTATION***

No attempts should be made to protect the environment or property if the Initial On-scene Commander is not sure of the safety risks to which untrained responders may be subjected. If unsure, all efforts should be focused on safeguarding life by clearing the area of personnel and maintaining an exclusion zone until trained responders are on the scene.

5.6 Well Control General and Operational Incidents

5.6.1 Well Control emergencies are generally divided into two categories as follows:

General Incidents

- Serious injury, illness or death
- Major fire or explosion
- Radiation or explosives incident
- Oil or chemical spill
- Extreme weather
- Violent crime, terrorist activity

In the event of a **General Incident** the focus is on safeguarding life and protecting the environment and assets and the response will always be through the OSC and IMT- Incident Commander.

In a well control situation, a General Incident may occur in combination with the Operational Incident. In this circumstance, the main priority of the WSL (OSC) and rig contractor's Sr. Toolpusher is to safeguard life, environment and assets until a dedicated recovery team is established. The initial function of the IMT will focus on all aspects of the General Emergency. In due course a dedicated Source Control Team will be formed inside the IMT and will focus strictly on the technical and operational aspects of regaining control of the well and recovery from the event.

Operational Incidents

- Level 1 Well Control Event (Routine - Primary Control Compromised – e.g., Well Kick)
- **Level 2** Well Control Event (Non-Routine - Escalation)
- [redacted] Well Control Event (Loss of Well Control)
  - Phase 1: Initial response
  - Phase 2: Surface intervention operations
  - Phase 3: Subsurface intervention operations
  - Phase 4: Recovery

In the event of an isolated **Operational Incident** the focus is on technical and operational aspects of regaining control, and line of command may be WSL, Sr. WSL, DTL, OTL of the asset, Wells Manager depending on the asset and severity of the incident and in consultation with BP Wells Team Leader or designate of IMT – Incident Commander.

In the event of a Level 1 or **Level 2** Well Control Event, the WSL will elevate the Alarm by contacting the *OIM (As Applicable)* and his line supervisor (OTL, DTL or WTL and the PU Well Control SPA). The MODU/Site/Facility *OIM (As Applicable)* will inform his line manager (Asset Operations Manager) and he will contact the asset OTL/DTL or Wells Manager as appropriate and will then form an "IMT" to assist the WSL until recovery is complete.

In the event of a [redacted] Well Control Event, the WSL/*OIM (As Applicable)*, following procedures laid out in the "Incident Management Plan", escalates the Alarm with BP. The *OIM* becomes the OSC.

5.6.2 Phases of Level 3 Well Control Response

Phase 1: **Initial Response**	Phase 1 is the initial reaction to the well-control emergency. It commences when a potential level 3 well-control incident occurs. It ends when the On-Scene Commander officially declares Level 3 status on the emergency.
Phase 2: **Surface Intervention**	Phase 2 is the well-control operations phase of the well-control emergency. This phase begins when the well-control incident is designated Level 3. It ends when the well has been brought under control.
Phase 3: **Subsurface Intervention**	Phase 3 is the relief well planning and drilling phase of the well-control emergency. It begins when the Deputy Incident Commander (DIC) approves the drilling of a relief well as part of the well-control project. It ends when the out-of-control well is intersected and effectively killed through the relief well.
Phase 4: **Well Recovery Operations**	Phase 4 is the well recovery phase of the well-control event. This phase begins when the well or event is brought under control. It ends when normal operations, i.e., drilling, testing, workover operations, etc., are resumed from before the well-control incident.
Phase 5: **Post-Incident Evaluation**	Phase 5 is the post-incident evaluation phase of the well-control emergency. This phase begins with the completion of Phase 4. It ends when the final report and briefing on the well-control incident occurs between Well Control Service Provider and the BP Deputy Incident Commander.

6 Well Control Incident Classification

To assure an adequate response is mounted, key personnel will be required to classify the well-control incident level. This will initially be the responsibility of the WSL in consultation with his line supervisor and the *OIM (Applicable)*. The following section defines the levels of various well control incidents. There may be gray areas as you classify some incidents on the boundaries between the levels. Depending on ones knowledge and experience different people may classify the same incident in different categories (e.g., an experienced WSL with extensive well control experience might classify an incident as a Level 1 and another with little experience may classify the same incident as Level 2). If uncertain, always classify in the higher category (over react) and then ramp-down if necessary.

A general guide for well control classification follows:

1) Level 1 – Primary barrier is not sufficient or is compromised.
   a) Standard procedures exists for recovery
   b) Low risk (impact x probability) of escalating complications
   c) Recovery may be accomplished with onsite resources (personnel and equipment)
   d) SPU Well Control TA is notified.
2) Level 2 – Loss of primary barrier
   a) Recovery requires non-standard/non-routine procedures
   b) High risk (impact x probability) of escalating complications
   c) Recovery will require offsite resources (personnel and/or equipment)
   d) SPU Well Control TA assistance is requested
   e) Segment Well Control TA notified
3) Level 3 – Loss of secondary barrier
   a) Uncontrolled release (loss of containment – surface or underground)
   b) Impending loss of control
   c) Recovery will require specialist resources, non-routine procedures and IMT ramp-up to included assistance and consultation with Segment Well Control TA.

Level 1 Well Control Incident – Routine Well Control

6.1 Level 1 – Well Control Incidents

6.1.1 Definition

A Level 1 Well Control Incident is defined as a situation in which:

- Primary well control is lost (influx of formation fluids in a drilling or workover operation), requiring secondary controls to prevent an uncontrolled release of wellbore gas or fluids (e.g., closing BOP). Or, loss of one of the two required barriers in a production, completion or workover operation (e.g., loss of SCSSSV or leaking inboard valve). Or,
- Conditions exist, prior to loss of primary control, which would complicate and potentially escalate recovery (circulating out the influx). And >
- There should be a standard operating procedure (SOP) for recovery.

- Recovery should have minor consequences if there is no further escalation.
- On-site crew should be trained and capable of recovery operations.
- Risk of an uncontrolled release is minimal.

6.1.2 Examples

Loss of Primary Well Control during Drilling

- ❑ Kick while drilling with bit on bottom or swab during connection. Kick volume and intensity is within kick tolerance limit and should be circulated without exceeding MAASP. Chemical and mud supplies are adequate. A SOP is available for recovery. The Crew is trained and capable of circulating the kick. There are no other apparent complicating circumstances. Caution: This incident would be classified Level 2 if H_2S were possible in the influx.
- ❑ Swabbed in influx while tripping. Kick volume is within kick tolerance limits. The pipe will have to be stripped back to bottom to circulate out the influx. A basic SOP exists for recovery. Stripping will have to be done through annular BOP or ram-to-ram. Chemical and mud supplies are adequate. There are no other apparent complicating circumstances. The Crew is trained and capable of stripping the pipe back to bottom. Caution: This incident might be classified as a Level 2 if; the crew has limited experience in stripping pipe under pressure; the BOP is in danger of failure during stripping tool joints; an adequate trip tank is not available to monitor small volumes of fluid during stripping; the influx may contain H_2S or the inflow potential is very high. The WTL will make the final decision.

Level 2 Well Control Incident – Non-routine Well Control

6.2 Level 2 - Well Control Incidents – Potential Loss of Control and/or High Risk

6.2.1 Definition

A Level 2 Well Control Incident is defined as a situation in which:

- Primary well control is lost requiring secondary controls to prevent a loss of control (e.g., closing BOP). Or, loss of one of the two required barriers in a production, completion or workover operation (e.g., loss of SCSSSV or leaking inboard valve). And >
- Conditions exist which would complicate and potentially escalate recovery. And/or >
- There is not a standard operating procedure (SOP) for recovery. And/or >
- Escalation occurred during attempted recovery from Level 1 Incident. And/or >
- On-site crew is not trained for recovery operations. And/or >
- Event impact is high (e.g., H_2S, massive pollution, loss of facility, 3rd party causalities)

6.2.2 Examples

Example conditions paired with hydrocarbon Influx. If any of the following conditions occur with a Level 1 Incident, the events will be considered Level 2.

- ❑ Mud and chemical supplies below predetermined adequate levels
- ❑ Kick tolerance below a predetermined critical level
- ❑ Casing wear that is greater than predetermined critical values
- ❑ Loss of critical well control personnel
- ❑ Impending severe weather
- ❑ Loss of critical well control equipment
- ❑ Loss of circulation greater than 10 bph
- ❑ Major Rig Failure

Example conditions paired with initial complications. If any of the following example conditions occur with a Level 1 – Incident, the events will be considered a Level 2.

- ❑ Kick with no pipe in hole
- ❑ Kick while tripping, cannot strip to bottom
- ❑ Kick with bit or string plugged
- ❑ Kick while running casing or liner
- ❑ Kick with simultaneous losses
- ❑ Kick with very high shut-in pressure
- ❑ Gas flow after cementing
- ❑ Any Kick with potential H_2S
- ❑ Very high volume gas kick
- ❑ Kick with hole in drill string

Example conditions paired with escalations during Level 1 recovery. If any of the following example conditions occur with a Level 1 - Incident, the events will be considered Level 2.

- ❑ Maximum Allowable Surface Pressure Exceeded
- ❑ Small Leak in Drillpipe Kelly Valve or stem
- ❑ Drillstring Washout
- ❑ Loss of BOP Controls
- ❑ Suspected Underground Cross Flow
- ❑ Gas Hydrate Ice Plug Formed
- ❑ Dropped Drillstring
- ❑ Major Rig failure
- ❑ Small Leak in BOP or wellhead
- ❑ Choke Plugged or Cut-out
- ❑ Sheared Drillpipe

Level 3 Well Control Incident – Release or Impending Loss of Control

6.3 Level 3 – Well Control Incident – Release or Impending Loss of Well Control

6.3.1 Definition

A Level 3 Well Control Incident is a release or impending loss of control. The well is flowing uncontrolled to the surface, seabed or confirmed flow underground.

An impending loss of control is a scenario where the loss of secondary control is judged imminent and risk to personnel and property justify abandoning the location.

Identifying the severity of the release is not critical at the initial stage. If there is uncertainty as to a "leak" being uncontrolled flow, the leak should be classified as a release if the on-scene crew cannot or are unwilling to attempt to control the leak. A sustained underground flow will normally be classified as a Level 3 Incident if diagnostic data indicate that is the case (either pressure data or wireline logs) because of the high risk of escalation to an uncontrolled surface release.

6.3.2 Level 3 – Loss of Control Examples

- A confirmed underground flow with low probability of gas broaching to the surface. Confirmed subsurface flow with high probability of broaching to the surface near or under the rig. Shallow leak point.
- Subsurface flow that has broached to surface and is currently at an apparent safe distance away from the rig. The position of the broach may be up, down or cross wind.
- Subsurface flow that has broached under the rig.
- Surface release through the drillpipe with: (a) ignition overpressure and fire; (b) no fire.
- Surface release through a valve or flange with: (a) ignition overpressure and fire; (b) no fire.
- Surface release through the annulus with: (a) ignition overpressure and fire; (b) no fire.

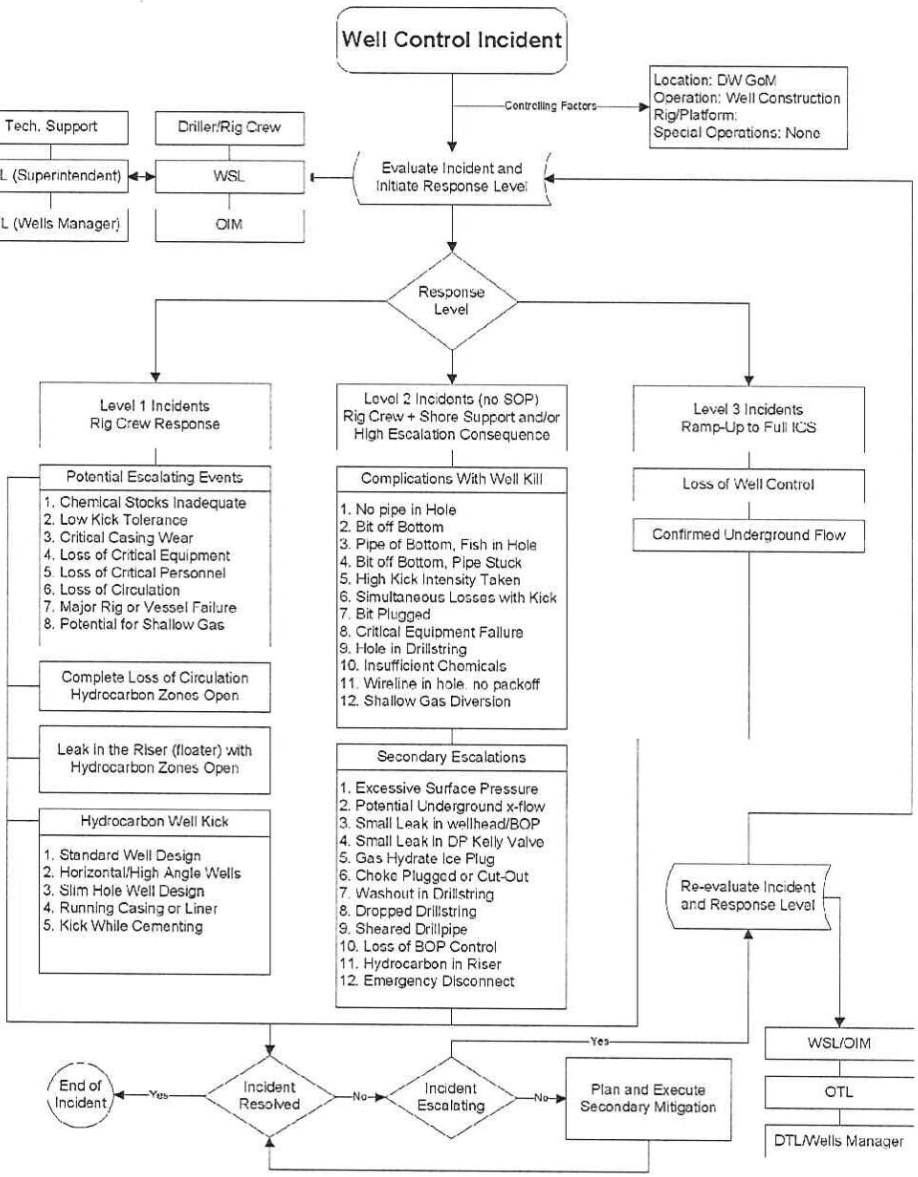


Figure 6-1: Example Well Control Incident Classification Chart

7 Team Response

Level 1 Well Control Incident

7.1.1 Introduction – Level 1 Well Control Incident Response

A well control event rarely occurs without warning, particularly in drilling, completion and workover environments. Typically, they are initiated as a loss in primary control (an influx is taken into the wellbore) requiring secondary barriers (BOPs) to be closed to contain the flow. If an STP/SOP exists to recover from this event it would be classified as a Level 1 Incident. Refer to Section 6 for additional details regarding incident classification.

The following section is a top-level guide for key responders in the event of a Level 1 well control incident. This guide is not intended to cover detailed technical aspects of kill and recovery procedures, but instead to provide a structure for organizational ramp-up should conditions associated with the kill operation deteriorate into a Level 2 Incident. Each incident will be unique, and a step-by-step procedure to cover all circumstances is not practical. All steps may not be covered while other steps not covered here may be required.

The first step in the process is for the WSL to classify the Incident given guidelines in Section 6.

7.1.2 Well Control Incident Management Team

Figure 7-1 shows an example response team organization for a Level 1 Well Control Incident with influx at both the well site and Houston Office. A Site/Facility specific BP ERP governs all BP GoM Site/Facility emergency response command and control procedures. These plans all follow the guidelines laid out in the BP IMS using the ICS and specify their local Tactical Response Team. The MODU/Site/Facility OIM is responsible for the all the POB and the asset and will fill the role of OSC in the event of a well control incident. The WSL would fill the role of Source Control Branch Director for an incident occurring during drilling or completion and would liaison directly with the Source Control Section Chief (qualified person from the Wells Team) to devise a strategy to regain control of the well. The SPU Well Control TAshould be notified and be prepared to provide technical assistance as needed.

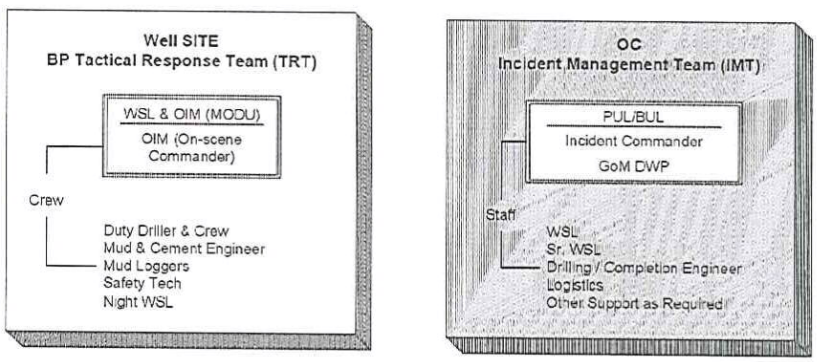


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Figure 7-1: Example of Level 1 Well Control Response Teams for rig site and OC.

Level 2 Well Control Incident Response Guide

7.2.1 Introduction – Level 2 Well Control Incident Response

The following section is a top-level guide for key responders in the event that an existing Level 1 well control incident deteriorates into a Level 2 incident. The guide is not intended to cover detailed technical aspects of recovery, but to provide a structure for organizational ramp-up to respond to the increased risk associated with a Level 2 situation. Each incident will be unique; a step-by-step procedure to cover all circumstances is not practical. All steps may not be covered while others may be required. This guide will supersede any of the Contractor's Emergency plans.

The first step in the process is for the WSL to classify the Incident as Level 2, given the guidelines in Section 6.

> Important: The situation must be evaluated and remedial actions taken as quickly as possible to prevent escalation to a Level 3 situation.

7.2.2 Well Control Response Team

The response team organization is critical. Within a short time period, they must diagnose the situation and devise and execute a response plan. Otherwise there is a risk that the situation can escalate into a significant event. The SPU Well Control TA shall assist the Response Team in formulation of a response plan. The Segment Well Control TA will be notified and be prepared to assist as requested. Figure 7-2 shows an example response team organization for a Level 2 Well Control Incident.

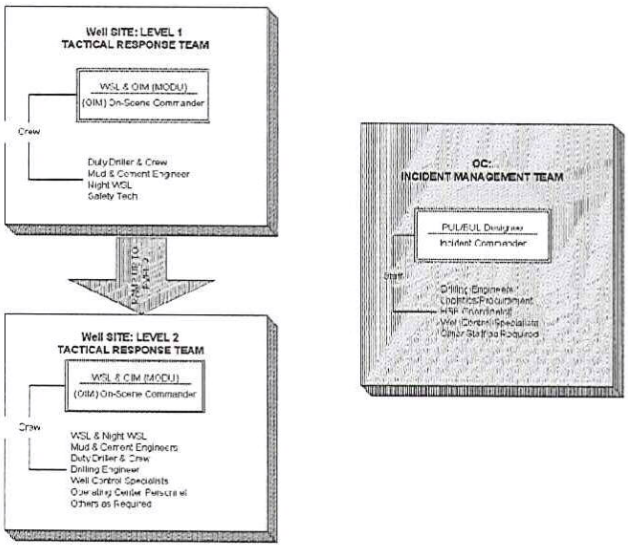


Figure 7-2: Example of Level 1 Well Control Response Teams escalating to level 2

Level 3 – Well Control Incident Response Guide

7.3.1 Introduction Level 3 Well Control Incident Response

A Level 3 Well Control Incident is where all well control barriers have been lost and the well is out of control, either at surface or underground. In a well control situation the response teams will ramp up based on the severity of the event and where General Emergencies exist simultaneously with the incident. However, for any Level 3 Incident, the SPU Well Control TA and Segment Well Control TA shall be available to provide technical assistance to the response team.

The following section is a top-level guide for key responders in the event that an existing Level 1 or Level 2 well control incident has deteriorated into a Level 3 event. The guide is not intended to cover detailed technical aspects of recovery, but to provide a structure for organizational ramp-up such that recovery can be achieved while dealing adequately with the hazards associated with well conditions. Each incident will be unique; a step-by-step procedure to cover all circumstances is not practical. All steps may not be covered while others may be required. **Unless contrary to laws governing Safety of Life at Sea for sea-going vessels or resolved with joint site specific plans, this guide supersedes any of the Contractor's Emergency plans.**

The first step in the process is for the OIM to classify the Incident as Level 3 event, given the guidelines in Section 6.

7.3.2 Well Control Initial Tactical Response Team

Four functional teams collectively constitute the BP incident response and crisis management organization. These are:

1. **Tactical Response Teams** (TRT) to implement incident response tactics at well site
2. **Incident Management Teams** (IMT) to carry out incident response operations in Houston
3. **Business Support Team** (BST) to carry out crisis management operations at the business level
4. **Group Crisis Team** (GCT) in London to coordinate corporate crisis management operations.

The above teams are organized and act in a manner consistent with the organizational and management principles of the Incident Command System (ICS). Members of these teams have pre-defined roles and responsibilities.

An example initial TRT could be similar to that shown in Figure 7-3 (Well Control Source Control Team for surface and subsurface intervention) or Figure 7-4 (for a relief well only), depending on how fast the escalation progressed and the status of the Level 2 response organization. The GoM DWP Wells Operational Guidelines, Section: Well Control Source Control Support document provides additional information regarding Source Control Organization.

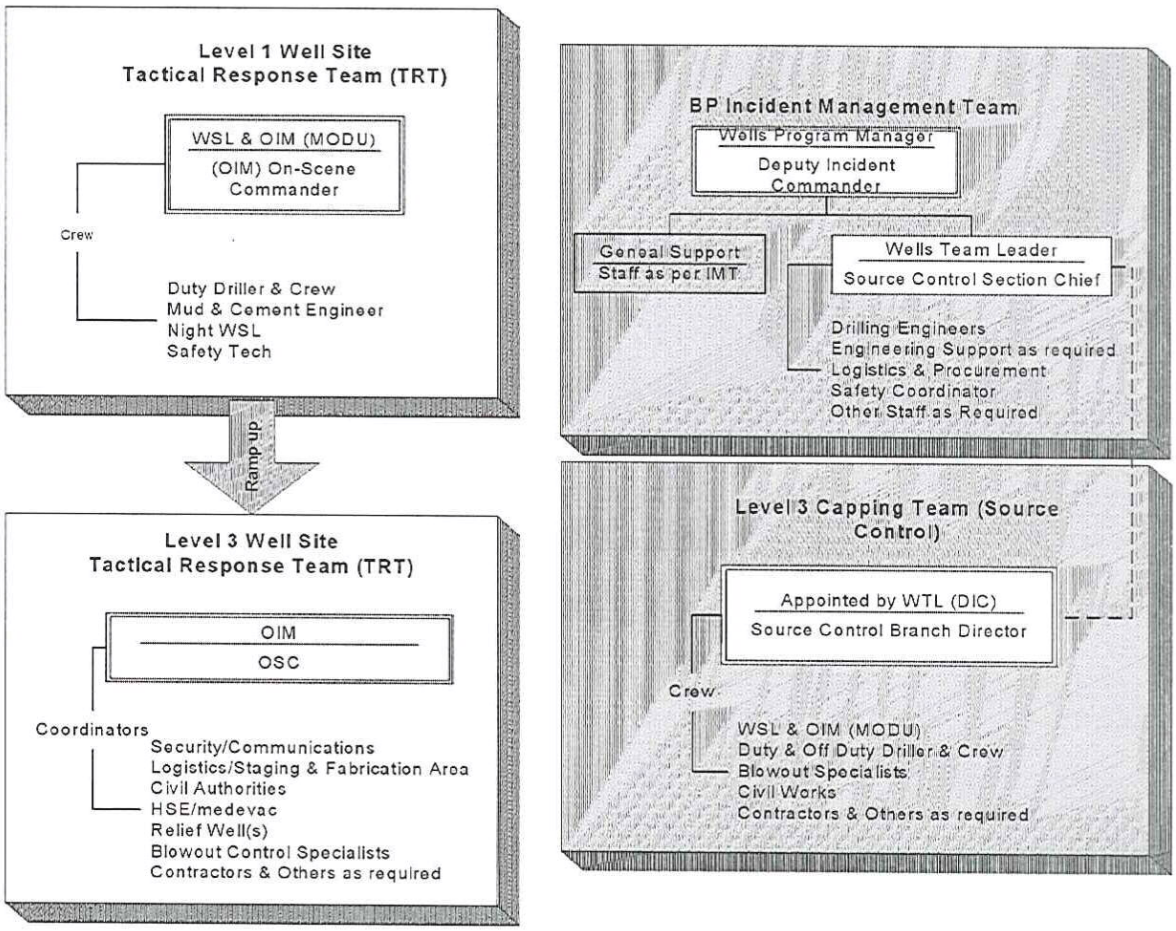


Figure 7-3: Example Level 3 - Well Control Response Source Control Team with Surface Intervention, at well site and Houston

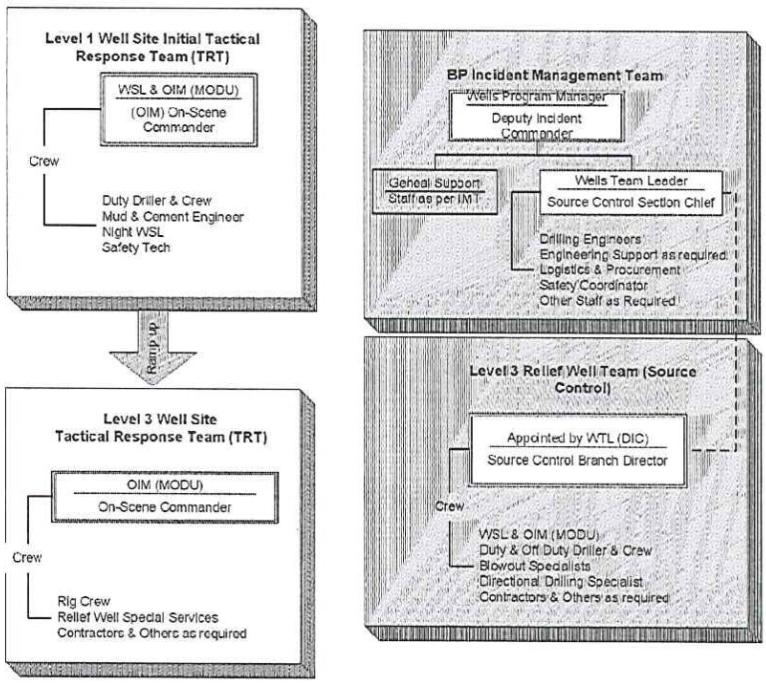


Figure 7-4: Example Level 3 - Well Control Response Team Relief Well Intervention

7.3.3 Example Ramp-up to Level 3

- ❑ **OIM** assumes the role of Initial On-scene Commander, until relieved by either the Sr. WSL, FS, WPM, WTL and /or OTL and forms Tactical Response Team (TRT).
- ❑ Make notification as per BP Incident Management Plans, specifically "Emergency Action Plans –GoM DWP Operations Center.
- ❑ BP Incident Management Team (IMT), BP Business Support Team (BST) and possibly BP Crisis Management Team (CMT) will ramp-up depending on the severity of the incident. This team will initially focus on the General Emergency – HSE, public, families, etc. See the *WC Source Control Support* for more information on these ICS based team organizations.
- ❑ Well Teams Leader or Wells Ops Manager may assume the role of On-Scene Commander (OSC) and will form a Source Control Team based on the circumstances and resources available following the ICS recommended organization format. This team will focus exclusively on the technical issues for regaining control of a well control event.
- ❑ WTL would logically become the Source Control Section Chief (SCSC) for a significant well control event.
- ❑ The **OSC** may send a team to relieve or assist the initial SCSC and TRT depending on circumstances of the severity of the event and perceived impact on the business unit.
- ❑ The teams will evolve depending on circumstances of the event. For example, BST and/or IMT team may stand down or reduce dedicated staff if there are no General Emergencies. Source Control Team will organize into Surface Control and Sub-surface Intervention Teams after the arrival of the well control specialists. If an oil spill is on-going then a spill clean-up and recovery team will be formed as needed.

- ❑ The IMT would likely be split between physical locations in GoM DWP and Houston depending on function and requirements.

7.4 On-Scene Commander Support Information

7.4.1 General

The following sections supply information specific to the Initial On-Scene Commander (OIM (As Applicable)/OSC) and if loss of well control occurs on a stand-alone MODU, the Emergency Response Coordinator (WSL). If the loss of well control incident occurs on a manned Site/Facility, the OIM will follow the Site/Facility specific ERP, however, the general information in this section will be of value. This section is written to more fully expand the checks provided in the body of this guide. The information is primarily for floating operations. Again, each well control event is specific and all situations require common sense and sound judgment. These sections are included to assist in the decision making process.

7.4.2 Basic Emergency Equipment

Prior to the commencement of any activity, the following prerequisites are necessary.

- ☐ All escape capsules (minimum 200% of maximum occupancy) must be in a state of deployable readiness and regularly inspected & maintained.
- ☐ All life rafts (minimum 150% of maximum occupancy), with either rope ladders or knotted rope access lines, or davit launched, must be in a state of deployable readiness on the installation.
- ☐ Full evacuation capability from the rig must be proven by means of formal risk assessment and practical emergency exercise, prior to drilling operations.
- ☐ All life jackets (150% of maximum occupancy) must be serviced and available on the installation.
- ☐ The public address system must be fully functional and interconnected between all areas of the rig.
- ☐ All Fire/gas detection systems on the rig, must be fully functional and subject to a suitable test program, prior to any work activities being carried out.

7.4.3 Initial On-scene Command Responsibilities

In an emergency situation a single person should be in command of on-scene response actions. This can get complicated in an offshore situation with contracted MODU, support vessels and helicopters. In the event of a well control incident on a stand-alone MODU the BP WSL is responsible for the well, escaping effluent (oil, gas, water), and the effects of that effluent on third parties and the environment on and away from the site. The contracted MODU OIM is responsible for the safety of all the personnel on board their vessel and for the MODU assets and generally for a 2 mile exclusion zone around the MODU and will assume the ICS role of On-scene Commander for the MODU. The same is true of support and intervention vessel captains and helicopter pilots with respect to their vessels and helicopters.

If the loss of well control occurs on a BP Facility, the OIM will assume the role of OSC and will take all responsibility with respect to emergency response.

7.4.4 MODU Owners OIM - On-scene Commander

For stand-alone MODU Loss of well control events , the MODU's OIM has overall responsibility for safety on the rig. All activities carried out on board the rig and within the exclusion zone around the location, come under his jurisdiction and may only take place with his knowledge and agreement. He reports to the onshore contractor MODU Manager. His reporting line does not overrule his legal authority to take whatever action he deems necessary to safeguard personnel on board the installation.

For any incident involving the Contractor's rig, particularly involving Safety of Life at Sea and safety of rig and equipment, the control of the offshore emergency response will be taken by the contractor's organization under the authority of the MODU OIM, in accordance with the established procedures contained in a rig specific Emergency Preparedness Manual. The OIM is accountable for the health and safety of all personnel on board at ALL TIMES. The Rig Emergency Procedures Manual and Emergency Contingency procedures will apply at all times to the control of incidents on the Rig itself.

Organized response to an emergency will depend upon the particular scenario but in general terms, Contractor's Rig personnel, would directly respond to emergency involving rig equipment and services provided by the rig contractor, e.g. Pump Unit, ROV, etc.

The MODU OIM is responsible for all activities in connection with the operation of the rig and training in the requirements of emergency response. This includes exercises to ensure the processes and procedures are effective. The MODU OIM shall ensure that the procedures in place are followed, and notify the BP Company Representative (WSL) on board of any situation that may affect the safety of the rig or personnel or of any other emergency situation. A designated competent BP supervisor must be at the site of activity and shall be designated as the BP Representative (WSL).

The Contractor OIM will be responsible for notifying external authorities, as appropriate to local requirements, of a state of emergency on the rig. This includes raising the alarm and alerting local rescue services on marine emergency frequencies and 3rd party vessels or installations in the area. The Contractor and service companies shall be responsible for discharging their respective liabilities with regard to next of kin notification. **BP will take the lead in notifications with the MMS in as so far as discussions of the wellbore issues.**

Service company personnel offshore will comply with the Rig Emergency Contingency Procedures. In emergencies, their shore base organizations will set up communications with the BP ERC, and comply with the BP ERC procedures.

In the event of a well control emergency, the MODU OIM shall be overall in SOLE CHARGE of the rig and will coordinate emergency response efforts in liaison with the BP offshore Emergency Response Coordinator (WSL). As soon as an emergency situation develops, the MODU OIM shall notify the BP offshore supervisor immediately. The MODU OIM shall also notify his onshore management. During an emergency, the rig OIM's authority for safety of personnel and the rig is defined within the 2 mile exclusion zone around the installation. External to this and, dependant upon prevailing circumstances, the Incident Command may be delegated to other authorities (for

example the stand by/Support Vessel Captain). All major incidents of this nature will be managed by the MODU OIM, who shall follow the rig specific emergency procedures and will be supported from BP's ICP. This shall include the necessary transportation, equipment and facilities needed.

If the loss of well control occurs on a Spar or BP owned facility, the Site/Facility OIM will assume these duties and will follow their Site/Facility specific ERP.

7.4.5 BP WSL - Standalone MODU

If the loss of well control incident occurs on a stand-alone MODU, the BP Offshore Well Site Leader (WSL) is responsible for ensuring all activities are carried out in a safe and efficient manner at the location and for proactively promoting the health, safety and welfare of all personnel on the Rig. He will ensure that all work programs are carried out to the appropriate standard, and in a timely manner, without injury or risk to any person working offshore, whilst giving due consideration to BP's Reputation. He is also responsible for the safe implementation of the drilling/completion program through the Contractor's Senior Toolpusher and service company personnel. He reports directly to the BP onshore Exploration Wells Team Leader.

The WSL at the site of an offshore Emergency incident shall be designated as the BP Emergency Response Coordinator. The Emergency Response Coordinator will liaise and direct the efforts of the onshore BP emergency response team.

In the event of an emergency, the Emergency Response Coordinator will liaise with the Contractor Offshore Installation Manager (MODU OIM) and will be the offshore focal point for relaying information to the BP onshore Incident Management Team (IMT) and for requesting/directing any specific assistance.

Onshore, the arrangements set out in the BP IMS, will have primacy over the Rig Contractor's and service company's plans for onshore call-out, incident support, communication routes, personnel movements, evacuation arrangements and press releases. A dedicated Emergency response room will be made available in the BP office, for the purposes of dealing with offshore emergency incidents. The facility will be equipped with suitable communication devices to allow free communications with offshore facilities in the event of an emergency incident. There will be clear procedures in place for the mobilization of the emergency response center with roles and responsibilities clearly identified.

The rig contractor and associated service companies must be able to demonstrate their own suitable and sufficient independent arrangements and facilities, where onshore interactions and interfaces are required with BP.

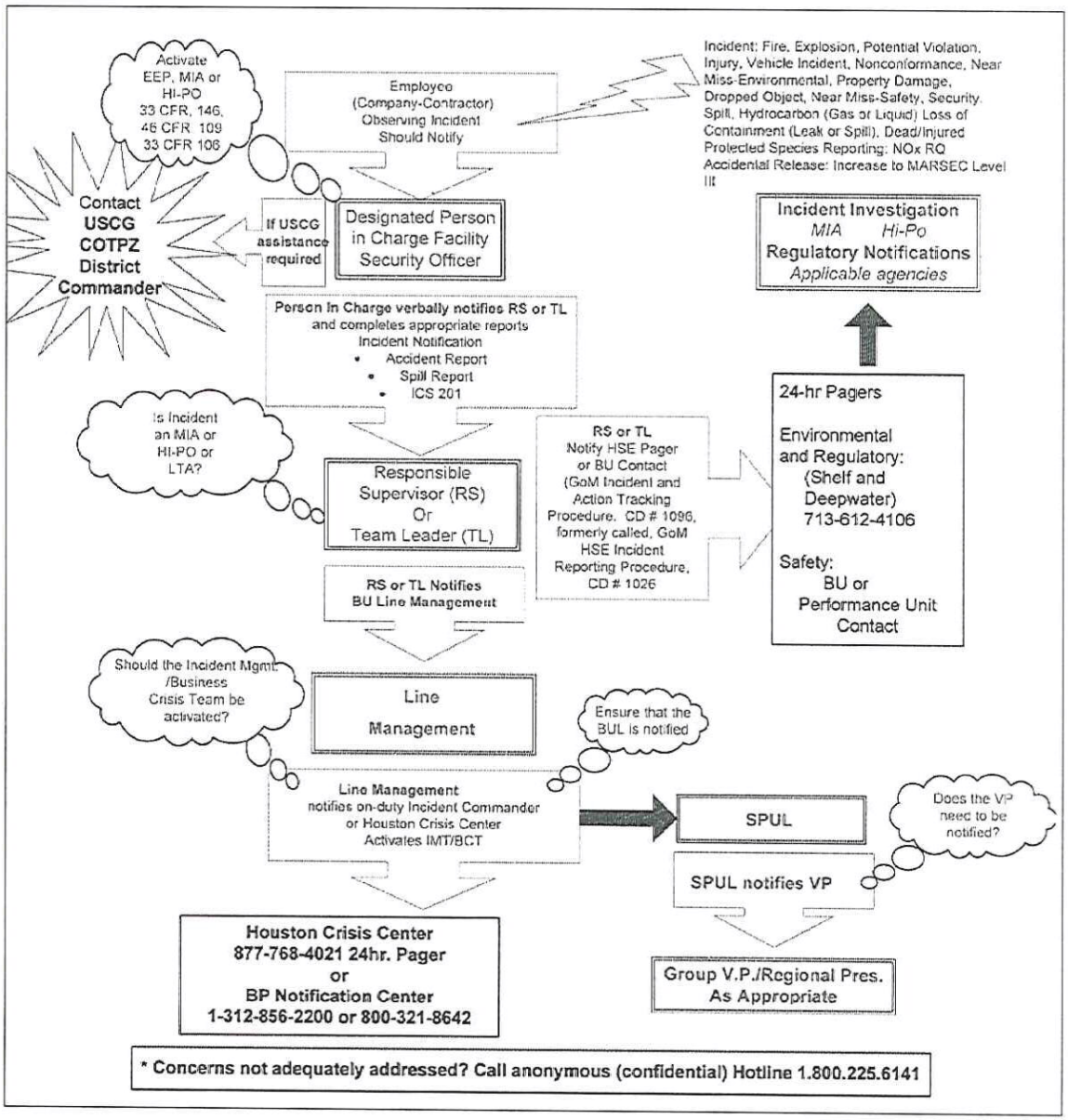
During an emergency, rig onshore/offshore communications will be routed as outlined in Figure 7-5: GoM Incident Notification Procedure for Well Release. Reporting of oil spills and other pollution incidents including a Level 3 well control event will follow the same communications routing as for other emergency events. Nothing in these arrangements, in the event of a stand-alone MODU emergency, will supersede the MODU OIM's duties to: raise the alarm and alert local coastguard services on marine emergency frequencies; submit statutory reports to local regulatory authorities as required.

In a loss of well control incident, during drilling/completion and/or rig related operations on a stand-alone MODU, the MODU OIM (As Applicable) will assume the role of OSC (with respect to the MODU and POB) until the MODU POB are safely evacuated or the MODU has disconnected from the wellhead and pulled off location and is no longer in danger. In the event of emergency evacuation the WSL will support the MODU OIM in those actions and will additionally assume the duties of an emergency response coordinator for offsite response. Depending on the evacuation or pull/drive-off scenario, the BP WSL will take on the role of the leader of the TRT until relieved.

The same situation will apply if the BP WSL is physically located on a contracted supply vessel or helicopter in the immediate vicinity of the well. He will continue to assume responsibility for the loss of well control related response. The vessel Captain remains responsible for the safety of all the personnel on board the vessel. His authority with respect to the vessel and its personnel (e.g. spray water or move his vessel out of a perceived danger area) will supersede that of the BP WSL, while on board the vessel.

The extent of the BP control is initially the area around the well control incident and the off-scene area affected by the escaping oil and gas. In the case of H2S and/or oil spill, that distance might extend for many miles. In these circumstances, where third parties may be affected (vessels, MODU/Site/Facilitys, beach), they must be notified immediately and a separate on-scene response will be initiated.

Figure 7-5 GoM Incident Notification Procedure for Well Flow Release



7.4.6 Down-man, Disconnect, Evacuation or Abandon Rig by Escape Capsules

In most loss of well control scenarios during well construction on a floating MODU/Site/Facility the sequence of events will dictate the immediate actions on the rig. If the decision is made to disconnect or abandon the rig, follow the guidelines as outlined in the MODU/Site/Facility SPECIFIC EVACUATION PROCEDURES. This section is a reference guide only. The OIM (As Applicable) in consultation with the WSL must judge the proper course of action based on their experience and the circumstances of the well control incident.

Decisions to down-man non-essential personnel and attempt mitigation actions will be made by the OIM (As Applicable) in consultation with the WSL and the IC. Safety of personnel and third parties must be the number one priority. The MODU/Site/Facility OIM has final authority.

If there is any uncertainty of the potential risk of sudden escalation, then the MODU/Site/Facility should be down-manned, abandoned or disconnected (MODU) and specialists mobilized.

If abandonment is chosen the general rule of thumb for method of offshore evacuation is the following, in order of preference; 1) by helicopter if safe and practical, 2) by basket to standby or supply vessel, 3) in escape capsules (life boats).

Consider the following:

- ❑ Have the escalation/safety risks been defined and evaluated?
- ❑ Have clear objectives been defined and evaluated? Before starting work: define objectives, assign crew specific tasks, define safety plan, define escape plan, assign a scribe to monitor and record events.
- ❑ Has the crew been trained and are they willing to perform the proposed tasks?
- ❑ Does the crew have the appropriate safety equipment?
- ❑ Does the attending vessel have a cascade air system to allow breathing time for evacuation by crane?
- ❑ Can the life boat engines operate in an explosive air/fuel mixture in the case of broach around the MODU/Site/Facility?
- ❑ Many casualties on past loss of well control incidents have been the WSL, toolpusher and driller/floormen caused by sudden ignition in attempts to mitigate the uncontrolled well flow.

7.4.7 Initial On-Scene Command Area

The extent of the OSC control is initially the area around the well control event and the off-scene area affected by the potential for and / or escaping oil and gas. In the case of H_2S and / or massive pollution (oil or produced water) that distance might extend for several miles. In circumstances where third parties may be affected, civil authorities need to be mobilized quickly and a command and communication interface implemented with these authorities.

7.4.8 Establish On-Scene Tactical Command Post and Response Team

An on-scene Tactical Command Post (TCP) is to be established by the WSL who will assume role as leader of the TRT as soon as practical to facilitate coordination of further response activities. If the rig has been partially evacuated, the TCP might be the MODU. If the rig has been abandoned the TCP might be established nearby, outside the Exclusion Zone (the anchor handling/supply vessel may be a good choice) or nearby Site/Facility. Good communication equipment is essential between OSC and all field support resources. OSC will choose essential personnel to form a Site Response Team based on the situation.

Define Plan of Action

- Identify and prioritize - Assign available resources - Identify additional resources required, de-mob those not required.
- Delegate Actions to Team Members - Fire Team Leader, Medic, Tool Pusher.

Communicate

Update IC and brief him on:

- General status including whether coming under control or getting worse.
- Information on personnel status, as it becomes available.
- Any projected site down man, evacuation or disconnect.
- Be brief and keep to the point. The incident investigation can wait until later.
- Communication with IMT could be delegated by the WSL.

Re-Assess

Repeat the cycle: Assess - Plan - Delegate - Communicate - Re-assess and monitor Stress.

7.4.9 Activate Exclusion Zone

After evacuations and the other initial command structure procedures, the OSC should address site safety for third parties and responders. The first step will be activating an Exclusion Zone for all traffic. The initial Exclusion Zone is a fixed radius around the release exit point(s). If air quality and H2S hazard parameters are uncertain assume 1-1/4 to 2 miles as a minimum initial radius. A helicopter or boat should scan the area down current from the rig looking for plume break out and oil slick as it may be many miles from the exit point by the time it reaches the sea surface.

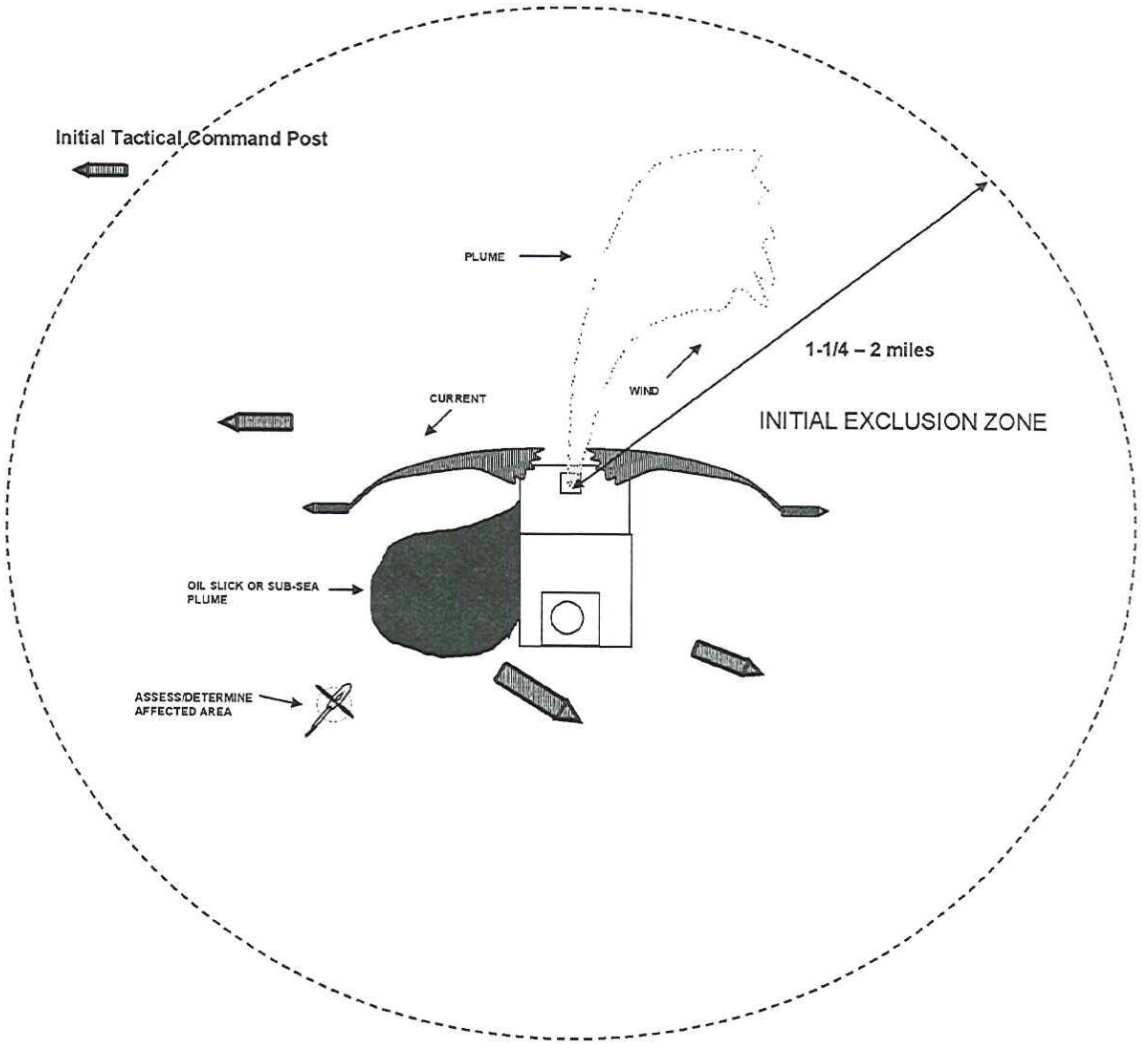


Figure 7-6 Example of Initial Exclusion Zone.

7.4.10 Define Hot (red), Warm ( ) Cold (green) Safe (blue) Work Zones and Shore Based Support Area

The Shore Based Support Area can be generally be pre-defined regardless of well or weather conditions. However, the definition of the work/safety zones will normally be made after all non-essential personnel and third parties have been evacuated beyond the initial exclusion zone (exception for SAR). These are safety zones designed to establish levels of increasing potential risk to responders as they move back to the rig (hot zone). The OSC should not move their fifi vessels to the MODU/Site/Facility until access and egress routes (yellow) through these zones, are established with appropriate controls and designation. Each zone will have increasing levels of safety requirements before responders are allowed to enter. The Warm Zone boundary with the Cold Zone will establish the working Exclusion Zone for third parties and non-essential personnel. These zones will be established systematically and considering the hazards with the potential to do harm at the greatest distance from the uncontrolled well flow exit points. Consider the following list as an example.

- H_2S and/or SO_2 exposure (if applicable)
- Shifting wind directions and velocities
- Broaching around or away from well site
- Effluent intensity escalating
- Location instability and/or deterioration
- Gas ignition and explosion with flying debris
- Secondary explosions after primary ignition
- Gas fire and associated heat radiation
- Liquid hydrocarbon pool fires
- Smoke and oxygen deficiency

These zones will initially be established by the OSC in consultation with the H_2S and Safety Representatives, Sr. Service Provider Personnel, Toolpusher and Well Control Specialist Specialists (if possible) evaluating each of the potential hazards individually and again as a system. A site-specific safety plan, to include support and escape plans, must be developed for the team designated to access the zone boundaries. Weather and location conditions can change on short notice; therefore these boundaries can change and must be re-evaluated constantly. If there is uncertainty concerning the potential hazards involved then the OSC should maintain the Initial Exclusion Zone until relieved by expert response personnel.

Hot Zone (Red) Considerations

(It is recommended to wait for the arrival of well control specialists before setting this boundary)

- ❑ A "SITE SAFETY PLAN" is required before well site work can start. This plan is developed and implemented by the OSC after initial evacuation of personnel. An additional plan will be made when the well control specialists arrive.
- ❑ The Hot Zone (red) boundary must be realistically based on the presence (or the anticipated presence) of an explosive mixture (LEL levels), rain of liquid hydrocarbons or H_2S. It is principally controlled by wind direction but is also influenced by the leak rate and location as well as the direction of the flow.
- ❑ On burning well control incidents the Hot Zone (red) will likely be set on radiant heat limits and smoke avoidance. Wind direction also has considerable impact in Hot Zone (red) boundaries. Some fires do not burn clean and product can exist in the presence of a fire. Secondary

explosions must also be considered. The Warm Zone ( ) boundary should include an estimated contingency for hydrocarbon ignition.

- ❑ Generally the Hot Zone (red) will be set by inspection and not from a quantitative analysis. If this process is being used, be conservative and revise as time goes on monitoring carefully throughout the project.
- ❑ If the Hot Zone (red) boundary is set by actual measurements (necessary for H_2S and LEL), two men with SCBA's shall perform the assessment. They also should approach effluent using LEL meter, H_2S meter, dB meter and Radiant Heat Meter (if available) and check levels downwind of the well area. Initial approach should be from an upwind direction.
- ❑ The boundary of the Hot Zone (red) is defined as when first indication is seen of:
  - ❑ > 1/4 LEL level (1% concentration of hydrocarbons in air) at any near surface elevation. *Note: Atomized oil droplets in the air can constitute an explosion hazard and will not be picked up by LEL meters in the Hot Zone (red).*
  - ❑ Surface pooling or streaming of liquid hydrocarbons, surface gas bubbling or hydrocarbon and water vapor fogs (restricted visibility and explosive vapor).
  - ❑ >10 ppm H_2S.
  - ❑ >90 dB noise level (hearing protection required above these levels)
  - ❑ Over 3 Kw/m2 heat-loading or practically the point where exposed skin cannot sustain exposure without protection for more than a few minutes.
- ❑ In measuring parameters, approach problem well from any possible access route (including those located downwind) and repeat this process.
- ❑ Where possible, set Hot Zone (red) boundaries away from these hard indicators (ex: 1/4 LEL) at good control points.
- ❑ Hot Zone (red) shall be restricted to well control experts or designee of the OSC and shall be allowed in the zone on a permit only basis and only for a prescribed and defined task. Buddy system will be maintained at all times and cover of water provided for each when appropriate.
- ❑ Manpower with radios from crew, safety and production personnel can be used at these defined Hot Zone (red) control points to restrict access into the Hot Zone (red). Downwind Hot Zone (red) boundary must be tightly controlled and continuously monitored as variable winds can quickly change the boundary. Access routes (yellow) to the Hot Zone should be clearly marked. Guide boats may be needed to accompany vessels being staged in the Cold Zone to prevent accidental entry.
- ❑ The Safe Zone (blue) or Cold Zone (green) location is based on the "measurable" Hot Zone (red) boundaries, available work areas and access and wind direction.
- ❑ The safe distance as seen in the downwind approach of the Hot Zone (red) boundary is then used as one guideline for setting subsequent Zone boundaries (Warm, Cold, Safe). Additionally, software dispersion modeling may be coordinated and used with the measurements taken to help predict downwind conditions if a light breeze are blowing. *Note: Models do not work well in low wind conditions.* **The safe area must be safe if ignition occurs!**

Warm Zone (Yellow) Considerations

- ❑ The Warm Zone ( ) includes is the specified and controlled route between the Safe Zone (blue), Cold Zone (green) up to the Hot Zone (red). Control indicators (LEL levels, H_2S, radiant

heat etc.) are continuously monitored within the Warm Zone and at the entrance to the Hot Zone (red).

- ❑ The Warm Zone ( ) is closely controlled and restricted to essential support personnel only. Vessels or personnel dispatched/requested by the Team Leader of the Well Control Service Provider to work either in the yellow zone or red zone will enter via the established Warm Zone route unless otherwise directed or guided.
- ❑ As before, well and wind conditions change, the Hot Zone (red) boundaries will shift. The Warm Zone ( ) could also be moved or adjusted. An example would be shifting boundaries after well ignition or significant changes in wind direction and velocity. The initial rear boundary of the Warm Zone should be set to allow for these changes without having to change the boundaries of the Cold (green) and Safe (blue) Zones and still have sufficient room for vessels engaged in support to the Hot Zone (red) to maneuver.

Cold Zone (Green) Considerations

- ❑ The Cold Zone (green) is considered a staging area for storage tanks, material stock piles, spare or supplemental fire fighting equipment and well control equipment not currently being used.
- ❑ Cold zone should be of sufficient size to accommodate the stationing of vessels and barges and allow room for maneuver to the Warm or Hot zones via the Warm Zone routes defined by markers or escorted by guide boat as dispatched/requested by the Team Leader of the Well Control Service Provider unless otherwise directed or guided.
- ❑ Entry into the Cold Zone (green) from the Safe Zone (blue) for staging purposes only will be directed by the Forward Command Center in coordination with the Well Control Manager or Well Control Service Provider Team Leader. Movement vessels from the Safe Zone to the Cold Zone will be along routes designed by the Forward Command Center, but will not be along or in conflict with the Warm Zone (yellow) route.
- ❑ As the well and wind conditions change, the Hot Zone (red) boundaries will shift. The Cold Zone (green) could also be moved, but it's initial placement should avoid the need to move. Any boundary shifting should be contained within the Warm Zone ( ) if practicable.

Safe Zone (Blue) Considerations

- ❑ The Safe Zone (blue) is not an area of shifting boudaries like the Hot Zone (red) but is a dedicated staging area for control efforts. Movement to the Warm (yellow) or Hot Zone (red) must made via a Warm Zone route either defined by markers or escorted by guide boat as dispatched/requested by the Team Leader of the Well Control Service Provider unless otherwise directed or guided.
- ❑ Safe Zone (blue) should be accessible from two directions.
- ❑ Safe Zone (blue) restricted to essential personnel with proper protective equipment.
- ❑ Safe Zone (blue) is 0 LEL, <5 ppm H_2S, <45 dB sound level and <1.6 Kw/m² heat loading.
- ❑ Mark the designated Hot Zone (red) and Safe Zone (blue) on the available Emergency Response Maps for distribution and to be included in all procedures.
- ❑ As the well and wind conditions change, the Hot Zone (red) boundaries will shift. The Safe Zone (blue) could also be moved, but it's initial placement should avoid the need to move. Any boundary shifting should be contained within the Warm Zone ( ) if practicable.

Shore Based Support Area

- ❑ The SBSA is an area for the specific purpose for reception and inspection of personnel, materiel and equipment deploying to the work zones defined above.
- ❑ May be an extension of, or inclusion within an existing shore based facility, but must be physically designated so that controlled access and security measures specific to the ongoing well control operations can be effective.
- ❑ Must have adequate office space and facilities, (i.e. land, power, water, hoisting, lighting, communication, IT, life support) to allow effective support operations to the well control effort and optimize the offshore operational footprint.
- ❑ May also be used for fabrication or repair of specialized equipment or devices.

- ❑ The SBSA will be a busy place, the land footprint must be sufficiently large to minimize any incidents or accidents while moving, loading or receiving equipment. The adverse impact of any accident, directly or indirectly associated with the ongoing well control operations may be magnified in the public perception arena.
- ❑ Must have a proper facility for issuing press releases, conducting press conferences, public announcements and briefings as deemed appropriate by the IMT and upper management.

Asset Protection and Damage Control

After the site safety issues are addressed, the OSC may address asset protection and damage control. For a semi-submersible this would likely be applicable only if the rig were abandoned due to a surface uncontrolled release caused by equipment failures (e.g., drillpipe loss of control while tripping with collars across shear rams) and where unable to disconnect and pull-off location.

Protection is probably limited to 1) firewater application prior to arrival of well control specialists, to minimize ignition hazard or to cool structure if ignition has already occurred and 2) cutting the anchor cables and letting the pre-tension pull the rig off location (if rig is moored).

The OSC must maintain control over all damage control activities, for example fifi vessels that might be deployed to spray water on the rig. The operators of this equipment must be briefed and fully understand the potential dangers of escalation and safety procedures that must be followed before they are deployed into a potentially dangerous situation. Non-essential crew should be removed and all safety equipment and breathing systems must be checked before entry into the Hot or Warm Zone.

The highest safety risk for responders exists, if the uncontrolled well flow has not ignited, from sudden and unexpected explosion and fire. There has been many uncontrolled well flows ignite during the spraying of firewater. If a high flowrate release has occurred and has not ignited, firewater application by untrained crews may be an extremely hazardous operation, and high consideration should be given to not applying firewater until specialists arrive or until ignition occurs. Most supply vessels have FIFI 1 Class equipment. These systems may not be capable of maintaining a safe distance and still apply water to the structure. In these instances, they should not approach until the well control specialists have arrived.

Although pollution control is not addressed directly by this document, booms may be used to prevent oil slicks from approaching adjacent support vessels and barges. Consideration should be given to having access to containment booms and dispersants for protection from the hazard of oil slicks during any surface control operations.

Additionally, portable fifi equipment, if available and properly designed, can be rapidly installed on vessels of opportunity, either a multi-service vessel, large work boat or barge.

7.4.11 Define Access and Egress Routes

Routes into and out of the exclusion zones must be established for support vessels and/or helicopters carrying response personnel, initially for firefighting, assessment, and emergency escape. Generally the access and egress routes are made in the upwind hemisphere or at 90° angles to the wind and current direction. All hazards must be considered, however, before finalizing the routes as winds and currents may be in opposite directions. To avoid explosion over-pressure and subsequent flying debris attempt to approach the rig at wall corners if possible. *Note: The egress route may change during the course of a work period due to changes in conditions and should be monitored continuously.*

7.4.12 Initial Exclusion Zone Safety Procedures

Site-specific Exclusion Zone safety procedures will be established for all personnel entering the hot zone. The OSC in consultation with the OIM, well control specialists, H2S safety representative and IC define these procedures. If re-entry is to be considered after a rig evacuation, the OSC considers the following:

- The need for entry
  - evaluate risks for entry team
  - develop tasks for entry team
  - develop contingency plans and escape means for various scenarios
  - operational "Site Safety" meeting with all concerned
- Discuss personnel safety
  - emphasis on buddy system
  - set objectives of re-entry
  - emphasis on escape and contingencies
  - equipment checks for hot and warm zone entry
  - site procedures for access control/personnel monitoring
- Issue personal protective equipment (PPE) for staff in each zone
  - SCBA (if appropriate)
  - heat/fire-resistance clothing
  - hearing and eye-protection (with heat shielding)
  - head, hand and foot protection
  - hand-held communications
  - air quality monitoring devices
- General site security and areas to avoid
  - closed area
  - highly contaminated areas (gas, oil, etc.)
  - gas concentration (high LEL, H_2S, etc.)
  - on-site toxicants and chemical exposure (caustic, acids, etc.)

Site safety will be a particularly important issue if the decision is made to allow essential personnel to remain on the MODU/Site/Facility to execute mitigation procedures (pumping, firefighting, etc.), or if firefighting equipment is to be deployed in the Warm Zone to spray water after the

MODU/Site/Facility has been abandoned. If the MODU/Site/Facility is destroyed or the perceived danger is high, the site safety issue should be left to the well control specialists and all personnel including FIFI vessels should remain outside the exclusion zone.

7.4.13 Hot (red) Zone Re-entry by Initial Response Team

When the well is blowing moderately but not on fire, there may be a desire for BP staff or MODU contractor's damage assessment team to re-board the rig. in general, we recommend that re-boarding damage assessment be left to the well control specialists and not be attempted by BP staff members or contractors. What may appear to be a manageable situation could escalate quickly and cost the lives of the assessment team. The responsibility of determining whether or not to attempt a site investigation will rest on the judgment of the onsite personnel and the IMT leader. If there is any chance that the investigation will put the assessment team at undue risk, the effort should be aborted. The case of search and rescue (SAR) may be accepted but only after a detailed safety/rescue plan is in place for the responders and risk for rescuers is reasonable. For all other purposes (e.g. assessment or mitigation or attempt to pull-off rig) the on-scene personnel should wait for a professional response team to arrive and develop a detailed proactive plan of action.

If re-boarding is attempted, it should only be done by people with experience and training in the risks involved. This should be attempted only when wind conditions permit a safe retreat from the Site/Facility and under the covering protection of water spray. These men must be trained in working under mask (wearing SCBA equipment) and be properly attired for heat protection should the well suddenly ignite. *Note: Many fifi class 1 vessels do not have adjustable nozzles and full stream spray could injury response personnel.*

7.4.14 Establishing Work Zones

Purpose

The purpose of designating the various work zones in well control operations is to determine the level of hazards around the wellhead and to restrict access to these areas to trained and qualified specialists.

Blue Zone (Safe Area)

Physical Parameters	• +/- 1 to 2 miles minimum distance from wellhead. • 0 PPM H_2S • 0% LEL • noise level 65 dB or less
Normal Duties	• Location of Forward Command Center/Floatel • Signing in of all well site personnel • Staging area for support equipment and services.
Equipment Permitted	• Well Control Support equipment • Emergency vehicles

Personnel Restrictions

- Personnel restricted to those directly involved with well control efforts.
- Admittance requires approval of Well Control Manager or Well Control Service Provider Team Leader.
- All approved personnel must be signed in at the Forward Command Center immediately upon entering the Blue Zone.

Personal Protective Equipment Requirements

Head protection —	Hard hats
Foot protection —	Steel-toed safety boots
Eye protection —	Safety glassed / shields
Hearing protection —	> 29 dB plugs / muffs
Hand protection —	Gloves
Clothing —	FRC

Important

*All personnel on station **must be accounted for** at the Forward Command Center each day.*

GREEN (Cold) ZONE

Physical Parameters

- +/- ½ mile minimum distance from well head.
- +/- ½ mile minimum in width
- 0 PPM H_2S
- 0% LEL
- 65-80 dB noise level

Normal Duties

Staging area for:

- water storage tanks
- firefighting pumps
- well-control equipment while not in use
- emergency/safety personnel and equipment

Equipment Permitted

- Cranes, hoists, etc. when not in use.
- Athey wagons and accessories, abrasive jet cutter, etc.

Personnel Restrictions

- Admittance requires approval of Well Control Service Provider Team Leader.
- Usually limited to well control personnel and emergency/safety personnel.

Personal protective equipment requirements

Head protection —	Hard hats
Foot protection —	Steel-toed safety boots
Eye protection —	Safety glasses / shields
Hearing protection —	> 29 dB plugs / muffs
Hand protection —	Gloves
Clothing —	FRC

YELLOW (Warm) ZONE

Physical Parameters

- +/- 200' minimum from wellhead
- +/- 1/2 mile minimum width
- Physical layout includes controlled route(s) and entry points from other work zones into the Warm Zone and Hot zone. – Route width minimum ¼ mile.
- 0-10 PPM H_2S
- 0-25% LEL
- 80-90 dB noise level (or less)

Normal Duties

- Fireboat and Barge Monitors
- Final staging area for all well-control equipment
- Cranes, Capping Support Vessels etc.

Personnel Restrictions

- Admittance requires approval of Well Control Service Provider Team Leader
- Usually limited to well-control support personnel, emergency/safety personnel, and Well Control Service Provider Specialists.

Personal protective equipment requirements

Head protection —	Hard hats
Foot protection —	Steel-toed safety boots
Eye protection —	Safety glasses / shields
Hearing protection —	> 29 dB plugs / muffs
Hand protection —	Gloves
Clothing —	FRC
Safety equipment —	H_2S air mask, etc. (when conditions exist)

RED ZONE (Hot)

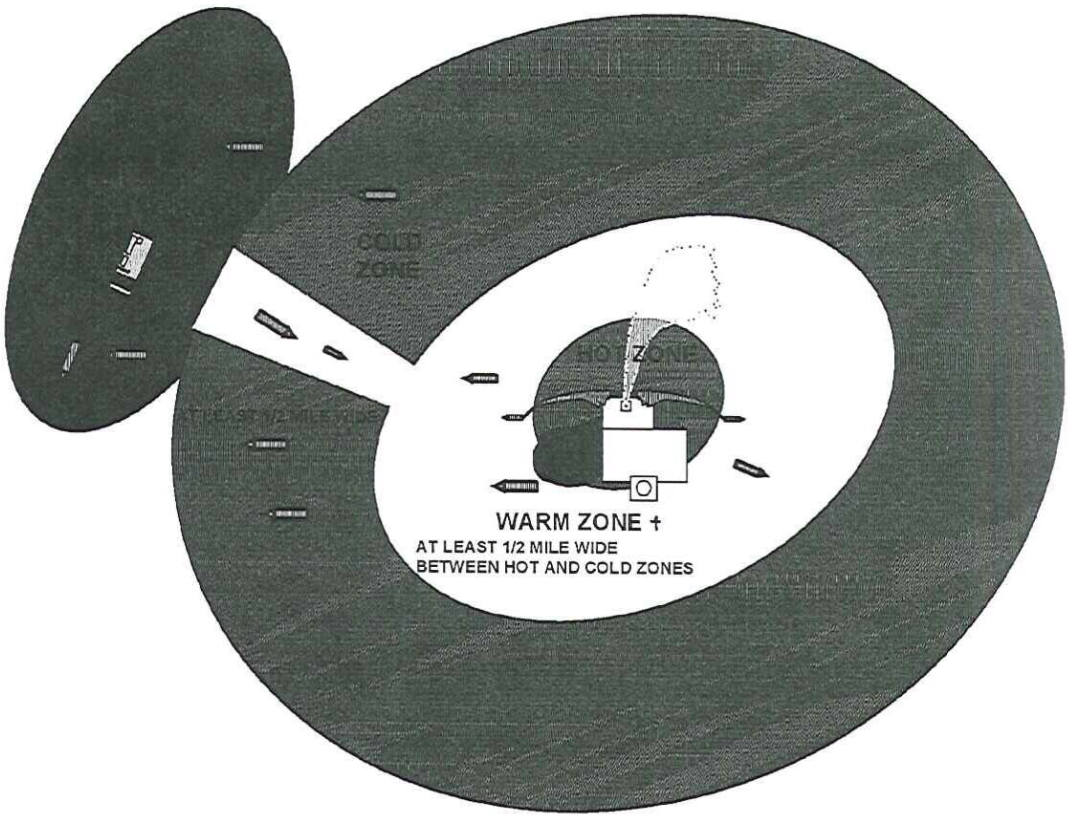
Physical Parameters	• 200' minimum radius around wellhead or entire facility as appropriate • 10 PPM or greater H_2S • 25% or greater LEL • 90 dB or greater noise level
Normal Duties	• Clearing debris from wellhead area • Capping operations
Equipment Permitted	• Specialized well-control equipment • Cranes and operators
Personnel Restrictions	• Highly restricted area; admittance requires approval of Well Control Service Provider Team Leader • Usually limited to Well Control Service Provider Senior Well Control Specialists, Team Leader and Well Control Project Manager or designate

Personal Protective Equipment Requirements		
	Head protection—	Hard hats
	Foot protection—	Steel-toed safety boots
	Hearing protection—	> 29 dB plugs / muffs
	Hand protection—	gloves
	Clothing—	FRC

Important

- No search and rescue operations can be conducted in the Hot Zone (red) without the direct supervision of the Well Control Service Provider Team Leader
- No remedial work can be performed in the Hot Zone (red) without the direct supervision of the Well Control Service Provider Well Control Team Leader.
- Two-man buddy system to be in use at all times when working within the Hot Zone (red) boundaries.
- When work/operations are being conducted in the Hot Zone (red), the firefighting pumps will be kept running.
- Boundaries of the Hot Zone (red) may shift during the course of the well-control operations due to wind conditions or well conditions, or as determined by the Well Control Service Provider Team Leader.
- Well Control Service Provider Team Leader will be immediately available and providing direct supervision to all personnel working within the Hot Zone (red).
- Access to the Hot Zone (red) will be monitored and closely controlled at all times.

Figure 7-7: Example of Established Work Zones



7.4.15 Phase 1, Loss of Well Control Response Actions

The initial OSC should not attempt Level 3 well control actions unless approved by the Incident Commander and only then after a credible operation plan has been devised along with a site safety and egress plan. In cases where the event occurred rapidly with no chance for off-site support, the location should be secured and abandoned. Well control response would wait for the Level 3 ramp-up and a proactive plan to be developed by the Source Control Team. Circumstances in which field personnel might attempt control actions would be where an escalation has occurred gradually from a Level 2 Incident, the location has been down-manned and the support team has already been activated. Control attempts may be considered where an immediate control attempt has a high probability of success, the safety risk is low, further rapid escalation risk is low and an approved site safety plan is in place.

7.4.16 Removing MODU by Re-Boarding

There may be a situation where the MODU contractor feels he might save his rig if it can be removed safely. This should not be attempted until the risks have been evaluated and accepted, the probability of success is high, further rapid escalation risk is low and an approved site safety plan is in place. In general, it is recommended to wait until the well control specialists have arrived to assist in this decision process.

> WARNING! In no case shall the response team be subjected to unreasonable risk. At all times during the initial Phase 1 period the safety of personnel will be the number one priority. Crews should not be expected or asked to perform potentially dangerous tasks that they have not been trained to perform. Crew injuries and fatalities have occurred in the past while attempting well control response actions from untrained personnel.

Level 3 - Phase 1 on-site well control response actions will be specific to company approved policy and:

1. The circumstances of the loss of well control (e.g. surface, on fire, underground, potential risk for escalation);
2. The operation at the time of the incident (e.g. drilling/completion related or testing related);
3. Potential for sabotaging future proactive control plans if an immediate attempt fails; and,
4. The local environment at the time of the incident (e.g. night/day, weather, fire, pollution, available resources, willingness, training level and skill of crew).

There may be a situation where contractors feel he/she might save some of his asset if it can be removed safely. This might entail re-entry into the Hot Zone (red) with a crew to prepare equipment components for removal. This should not be attempted until the risks have been evaluated and accepted, the probability of success is high, further rapid escalation risk is low; an approved site safety plan is in place and with the approval of the OSC. In general it is recommended to wait until the well control specialists have arrived to assist in this decision process.

7.4.17 Voluntary Ignition Guidelines

Ignition Criteria Oil – "Sweet" Gas

It is unlikely that voluntary ignition would be considered in the case of an uncontrolled surface release of oil where a floating MODU/Site/Facility is still in place over the well. This would then leave attempting to in-situ burn the oil on the sea as it surfaces with the gas plume. Boomed oil will burn more readily. The potential of catastrophic pollution/environmental consequences for free release (unburned) of hydrocarbon gasses is generally considered low unless in certain low wind or other atmospheric conditions escalate the likelihood of a catastrophic event. The main driver for voluntary ignition of oil and "sweet" gas is primarily for pollution mitigation rather than imminent risk to life and property. Therefore, it is more likely than not that these actions may be turned over to the Oil Spill Team for execution. See Figure 7-7. However, the OSC (MODU OIM (As Appropriate)) or his designate **can** make a decision to ignite the well without consultation if it is in their judgment that voluntary ignition is the safest course of action to mitigate an imminent threat.

Ignition Criteria Sour Gas (H_2S)

If conditions are apparent that an uncontrolled release of hydrogen sulfide (H_2S) to the atmosphere might pose an **imminent** danger to the health and safety of the public or well site personnel, the OSC (MODU OIM (As Appropriate)) or his designate **can** make a decision to ignite the well without consultation if it is in their judgment that voluntary ignition is the safest course of action. If there is no immediate danger to the public, the Wells Completions Superintendent, Wells Team Leader and the Wells Ops manager shall be consulted prior to ignition.

The well **should** be ignited as soon as all personnel working at the site have cleared to a safe distance under any of the following conditions:

1. The well is experiencing an uncontrolled flow, the well effluent has reached the surface, no immediate chance of control and the flow, if not ignited could lead to loss of life.
2. The well is flowing H_2S gas to surface and the safety of personnel cannot be assured because:
    i. Evacuation of personnel within the emergency planning response zone CANNOT be accomplished; or
    ii. Monitoring results indicate H_2S levels of 15 ppm for fifteen (15) minutes in unevaluated areas; or
    iii. Monitoring is not taking place due to unforeseen circumstances, such as weather or communication breakdown.
3. Once ignited, monitor SO2 levels and conduct downwind monitoring to define effective exclusion zones.
    - Advise Leadership of the change in emissions
    - Initiate downwind monitoring for SO2 as well as H2S
    - Assess the need for additional firefighting equipment

- The rescue team will be positioned on a radio-equipped vessel at a safe upwind distance from the gas/oil release. They will maintain radio and visual contact with the primary ignition team and provide rescue support if necessary.
- The primary ignition team will carry a lower explosive limit (LEL) meter and will continuously monitor the area for explosive gases to determine a safe perimeter. They will approach the oil/gas release to a distance determined by the range of the flare gun or at a gas reading of 10% of the LEL, whichever comes first. The OSC will carry the flare gun (flare shells are to be carried in a separate container).
- The OSC will determine the hazardous area and establish safe perimeters. He will decide if it is safe to attempt ignition. If there is not a reasonable wind velocity the overpressure from the ignition may endanger the primary ignition team (even if there is wind, an explosion from gas trapped inside of an enclosed space is a possibility). Make sure the vessel is not in a hydrocarbon slick.
- If the flow is not ignited on the first attempt, move in 20 to 30 feet parallel to the release and fire again. If trouble is incurred in igniting the gas, attempt to fire a flare at 40 to 90 degrees to each side of the area where you have been firing (it is not uncommon to fire 8 or 10 flares and not get ignition). If ignition is not accomplished move back to the safe zone and evaluate other options.

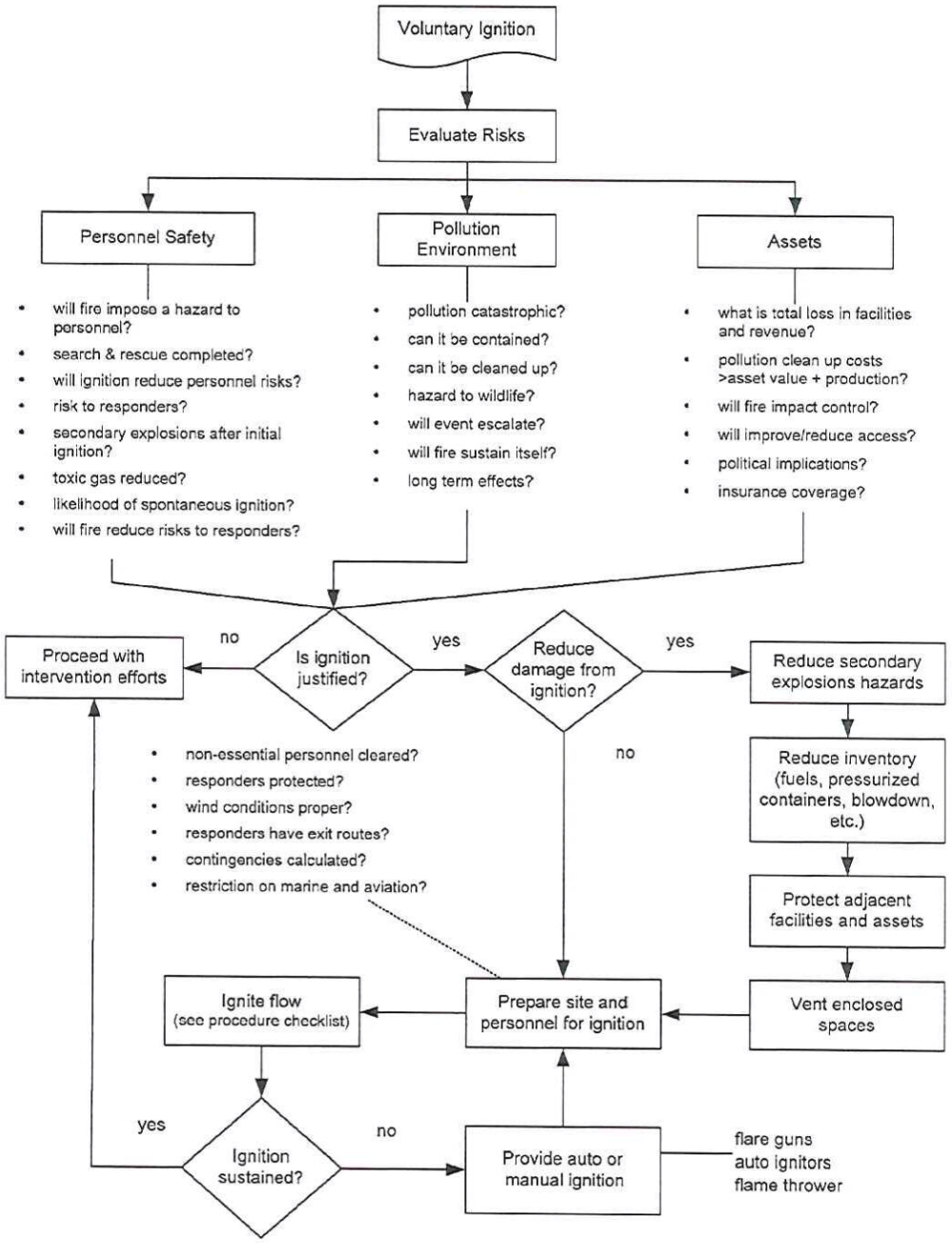


Figure 7-8: General Voluntary Ignition Evaluation Flowchart

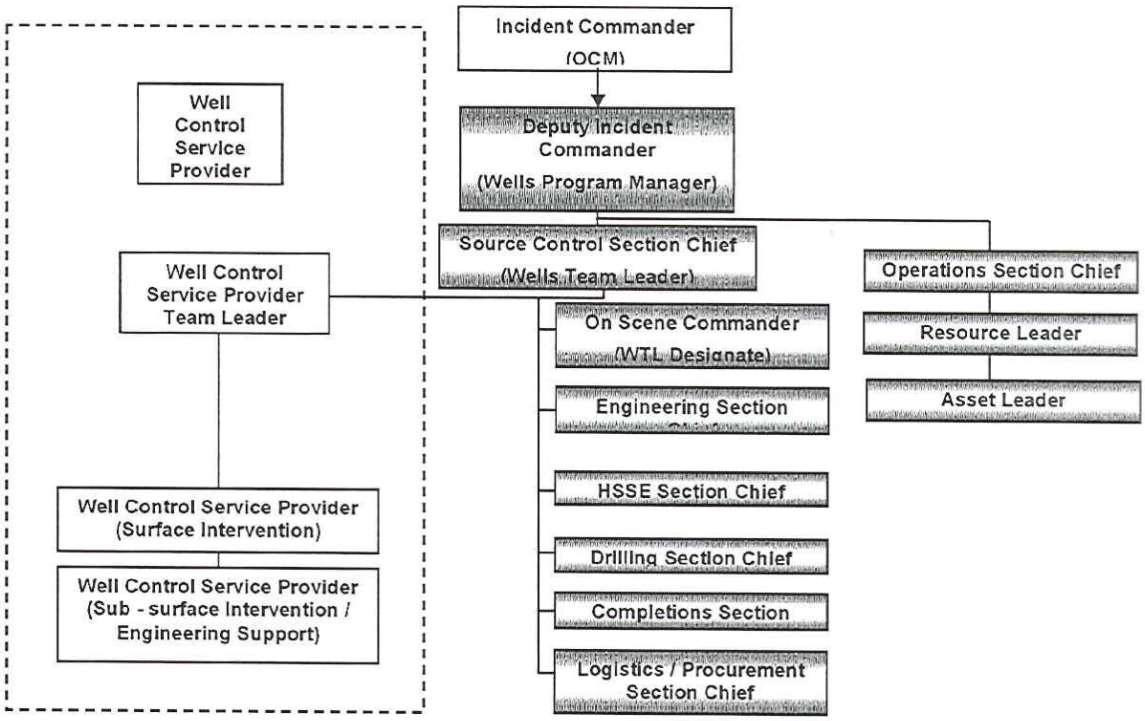


Figure 7-9: Example Level 3 – Joint Well Control Response Source Control Team – Initial Response

8 Individual Roles and Responsibilities

8.1 Introduction

Responsibilities of personnel in responding to Level 1, 2 and 3 (Phases 1 – 5) can be found in the following subsections. Personnel may have overlapping duties in all levels or phases if required. In addition, it may be necessary to change the duties of personnel in response to changing conditions or a shortage of manpower.

8.2 WSL Roles and Responsibilities

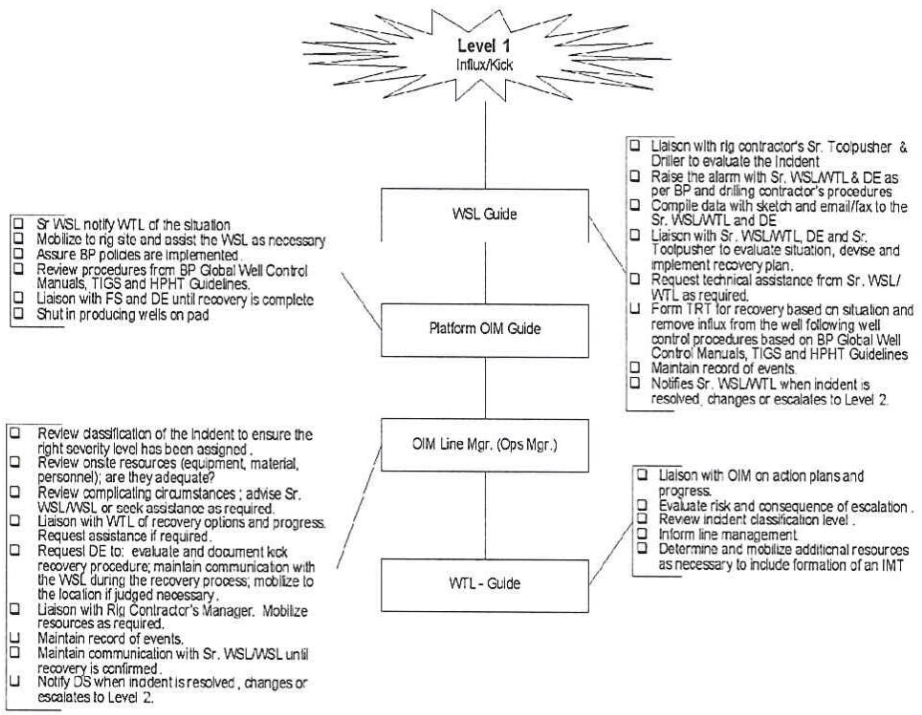
8.2.1 LEVEL 1: ROUTINE WELL CONTROL

- ❑ Ensure driller has secured the well and raise the alarm as per BP and Drilling Contractor's SOP (BP Global Well Control Manuals).
- ❑ Assign rig drilling engineer to collect all other data required to complete Kick Control Worksheet as per BP policy. Compile data with sketch and email/fax to the WTL.
- ❑ Consult with OIM (As Applicable) and rig crew to evaluate situation, devise and implement recovery plan. Discuss any potential complications (e.g., H2S, float and motor in drillstring for accurate SIDPP, impending severe weather, mud supply, pump problems, choke problems, hydrates, location of drillpipe valves, possibility of stuck pipe, close to MAASP, losses, simultaneous operations, etc.). Agree on response level with OIM. Request technical assistance from WTL as required.
- ❑ H2S Determination. If H2S is designated the incident classified will be upgraded to Level 2 It must be assumed that the influx contains H S if any of the following apply:
  - ❑ H2S is noted as a possibility on the Drilling Program.
  - ❑ If traces of H2S are observed in the mud log analysis.
  - ❑ The influx has come from a formation not normally associated with Hydrocarbon Production.
- ❑ WSL or designate will notify line manager/TL of the incident in the following order:
  - ❑ Sr. WSL (As Applicable),
  - ❑ Engineer assigned to well, or duty engineer if after office hours,
  - ❑ Wells Team Leader.
  - ❑ Sr. WSL #2/Superintendent Designate (As Applicable)
- ❑ Consult with Engineer for specific well control procedures based on STPs
- ❑ Assist OIM to form TRT based on the circumstances. WSL logically assumes role of Source Control Branch Director.
- ❑ Maintain record of events.
- ❑ Notify Sr. WS L/ WTL when incident is resolved, changes or escalates to Level 2.

- ☐ Follow IMS procedures and protocol until recovery is complete.

Refer to Figure 8-1

Figure 8-1: Level 1 Response – Influx/Kick



8.2.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ☐ Secure the well as practical and raise the alarm as per Spar ERP.
- ☐ Inform WTL your location and plans to assess the situation
- ☐ Consult with the OIM (As Applicable)/Toolpusher and Size Up the Situation
  - ☐ Get debrief from the Toolpusher and rig crew
    - ☐ What happened
    - ☐ Is the situation stable or changing
    - ☐ Assess immediate escalation probability
  - ☐ Assess the immediate, hot zone safety issues
    - ☐ Is it safe to keep the crew at their stations (if not or unknown, evacuate rig crew from hot zone until a credible action plan can be devised).
      - ☐ Assess the crew willingness to continue to work under potentially or unknown hazardous

circumstances.

- ☐ Identify the hot zones (e.g., rig floor, derrick, shakers, moon pool, pump room, etc.)
- ☐ Assess immediate escalation safety hazards and possible consequences
  - ☐ Excessive pressure, gas release, H2S, fire, explosion, projectiles, gas plume, etc.
- ☐ Establish rig crew emergency escalation procedure
  - ☐ Establish hot zone abandonment criteria and procedure
  - ☐ Establish escape route(s)
  - ☐ Establish if additional protective actions are required (e.g., PPE, barriers, temporary refuge, standby deluge, etc.)
- ☐ Isolate, clearly mark, and secure the immediate hot zone area(s)

☐ Assess immediate IAP by the rig crew
- ☐ If you do not understand the problem concentrate on escalation mitigation rather than control and recovery
- ☐ Is immediate action required to mitigate escalation (e.g., pumping junk shot to plug a hydrocarbon leak, shearing drillpipe, etc.)
- ☐ What can be accomplished to gain better understanding about the problem (run ROV, diagnostic logs, pump-in tests, etc.)
- ☐ Devise initial IAP for crew
  - ☐ Is the crew trained and willing to carry out the IAP

☐ Implement hot zone command and control
- ☐ Re-assign non-essential personnel outside the area
- ☐ Establish a personnel accountability system in the hot zone.
- ☐ Establish communication procedure

☐ Report to the TCP and debrief the OIM and TRT leaders. Discuss complications or escalation and current IAP. Agree on response level with OIM.
- ☐ Notify WTL as per ERP/IMS plan and discuss situation, what has happened, what is currently being done, what is planned and assistance requested.
- ☐ WSL logically assumes role of Source Control Branch Director unless relieved by IMT.
  - ☐ When time permits record all relevant source control data for transmission to office,
    - ☐ Written description of incident including times.
    - ☐ Status of personnel, environment, well, surface assets, third parties, weather.
    - ☐ Sketch of well mechanical situation.
    - ☐ Drilling/well parameters, mud properties, pressures, volumes, mud log, MWD data, etc.
    - ☐ Status of mud and chemical supplies and requirements based on situation.
    - ☐ Additional equipment and material requirements for response or contingency.
    - ☐ Any other data that can assist the IMT in defining the problem and recovery options.
    - ☐ Prepare written IAP for current period
  - ☐ Re-evaluate initial incident assessment and IAP
    - ☐ In consultation with OIM (As Applicable) and WTL develop tactical operational procedure for recovery to include safety and escape procedures in the event of escalation.
      - ☐ Ensure recovery, crew organization (TRT), job safety, and escape plans are reviewed with and understood by crew before implementation. Include the crew in HAZID. Use essential personnel only in recovery.
      - ☐ Is the crew trained and willing to perform the proposed recovery operations?
  - ☐ Continually monitor for changes that may affect current actions plans
  - ☐ Maintain log of events
  - ☐ Follow IMS procedures and protocol until recovery is complete.

Refer to Figure 8-2

Figure 8-2 Level 2 Incident Response Guide

8.2.3 LEVEL 3: Loss of Well Control

- ☐ Confirm with MODU OIM (As Applicable) that he is in command with respect to the MODU and personnel while on board and in escape capsules.
  - ☐ Follow MODU/Facility/Site specific ERP for evacuation or disconnect. Some personnel may be in shock, it is important for OSC to demonstrate command and control to restore order.
  - ☐ Assume roles as Emergency Response Coordinator. Initial responsibility will be to coordinate offsite response and support.
- ☐ Assist OIM to respond to immediate personnel and third party safety: All personnel accounted for at the muster stations.
  - ☐ Notify standby boat to move upwind ready to pickup evacuees or provide fifi support.
  - ☐ SAR: Will the SAR team be put at unreasonable risk to perform search and rescue? Personnel may be scattered depending on conditions. Do not put SAR team at risk until certain there is someone to rescue and a safety and rescue plan is in place.
  - ☐ Immediate Medical Support Needs - Mobilize Medivac.
  - ☐ Assist OSC to evaluate whether to disconnect and pull/drive off or evacuate.
    If evacuation is chosen, assist OSC to evaluate best means for evacuation (typically order of priority depending on well effluent type/severity, point of source release and weather conditions - helicopter, boat transfer by basket, escape capsules)
  - ☐ If supply vessel is moored to MODU, have them disconnect and move up wind, ready to pickup evacuees or provide life support as required.
  - ☐ Assist OSC to evaluate MODU options.
  - ☐ Confirm OIM has made notifications when practical: __onsite and en-route standby and supply vessel(s) and helicopters; __broadcast on emergency marine frequency; __MODU manager
  - ☐ __Duty Emergency Manager __WTL as per GoM emergency notification procedure
  - ☐ Record: Name, Date, Time, contact method, who is in command.
  - ☐ Description of current situation.
  - ☐ Request immediate onsite assistance as required (medivac, helicopters, fifi vessels, oil spill, H2S safety, Coast Guard, operation team, etc.).
  - ☐ Planned immediate response actions: (Disconnect, evacuation, SAR, firefighting, setup new command post, secure exclusion zone, etc.)
  - ☐ Any third party vessels immediately threatened by surface or sub-sea uncontrolled release?
- ☐ Assist OIM in assessing Down-manning, Disconnect or Evacuation
  - ☐ Stay Connected: If safe and practical (for example seabed uncontrolled flow) it is normally preferred to leave the rig connected to the wellhead (if there is a competent drillstring in the well that can be pumped through) and down man to essential only personnel and attempt to regain control or wait for specialists to arrive. This setup will typically offer

more options for regaining control from the surface than leaving sheared drillpipe in the well.

- Uncontrolled flow at the seabed in deepwater are not likely to create gas plumes that would form boils under the rig due to the water depth and resulting pressure and temperature which will cause the escaping gas to form hydrates and go into solution in the seawater. The hydrates have a density of approximately 0.95 sg which will cause them to rise slowly due to its density difference. The ocean current should carry and scatter the hydrates a considerable distance from the seabed escape point before they melt and turn back to gas between 300m and 500m water depth depending on water temperature and salinity.
- If drilling 26" hole riser less and an uncontrolled shallow gas flows occurs to seabed, it is unlikely pumping down the drill string will kill the well. Continuing to pump seawater may help the well bridge but will result in loss of the BHA. The decision to attempt to pull the string out of well will be based on safety rather than economics issues.
- If pipe was sheared due to an uncontrolled flow from the drillpipe and was hung off in lower pipe rams and the drillpipe pressure is greater than the holding pressure of the rams from the backside there is good probability that the pipe rams will leak. If this occurs the flow may ultimately cut out the ram body escalating to an uncontrolled well release at the seabed. Under this scenario, if the drillpipe cannot be bullheaded dead before the rams start to leak, consideration should be given to opening the lower pipe rams and dropping the drillpipe containing the uncontrolled flow underground. The consequence of this action however is a relief well or SBOP intervention may be required for recovery.
- Disconnect: In an unlikely situation where an intense gas boils forms under the rig and there is little or no wind to disperse the gas to below LEL levels then a prudent course of action would be to shear the pipe, disconnect and move to a safe location generally 90 degrees to the wind direction. The drillpipe should never be retrieved from the open wellbore before disconnect as it may be required as the only relief well target if that became necessary.
- Evacuation: Evacuation would likely be initiated if a MODU/equipment failure occurred during the loss of well control making it impossible to disconnect or drive-off or if a significant fire and explosion occurred.
- Additionally, abandonment procedures should include securing hatches and watertight doors if possible to prevent possible flooding during the firefighting operations.

- After MODU evacuation or emergency disconnect, set-up Command Post in Safe Area (e.g., standby or supply vessel or on MODU if disconnected) and initiate necessary immediate actions.
  - Activate/enforce initial third party exclusion zone (1 to 2 mi radius from MODU) and/or uncontrolled release point (if broached away from MODU or if MODU is disconnected). This to include oil slick, potential ignition LEL and H2S hazards (2 miles if H2S identified).
  - Define access and egress routes and safety procedures for vessels re-entering the hot zone.
  - Evaluate voluntary ignition of the well/effluent if pollution is massive or H2S threatens third parties.

- Evaluate immediate asset protection options (e.g., spraying water) if the MODU was abandoned; direct vessel firefighting response -

  It is not recommended for the standby/supply boat to attempt immediate asset protection with shipboard firefighting monitors until a safety and action plan has been established, particularly if the well has not ignited (If not on fire it may ignite unexpectedly endangering crew from explosive debris or H2S, even if it is on fire there may be secondary explosions, or it may go out) or if there is a gas plume on the sea. The gas may automatically shut down the vessel engines.

  If the well/MODU is on fire and a safety and action plan is devised then the vessels may apply firewater to protect the MODU. It may not be advisable to extinguish the fire.
- Evaluate immediate control options - if well is blowing to surface, control attempts prior to arrival of specialists is not recommended. Control attempts must be approved by IC.
- Maintain log of events. Assign responsible person to begin documentation of events and compile onsite data for the IMT. Interview personnel who witnessed the events.
- Maintain open communication as practical with IC.
- Continuously monitor and manage the stress and potential panic levels in i) himself; ii) others in Emergency Team(s); Hi) personnel at muster.
- Evacuate non-essential personnel as soon as practical.

❑ Continuously review the situation, holding regular Time-outs' to structure the 'Management of the Emergency':

- Receive - Incoming information and updates from team members.
- Assess - Changes and developments on Threats and Action Plan. Plan - Decide appropriate actions.
- Delegate - Actions to team members.
- Communicate with Emergency Coordinator.

❑ If conflicting orders are received always use the following guide:

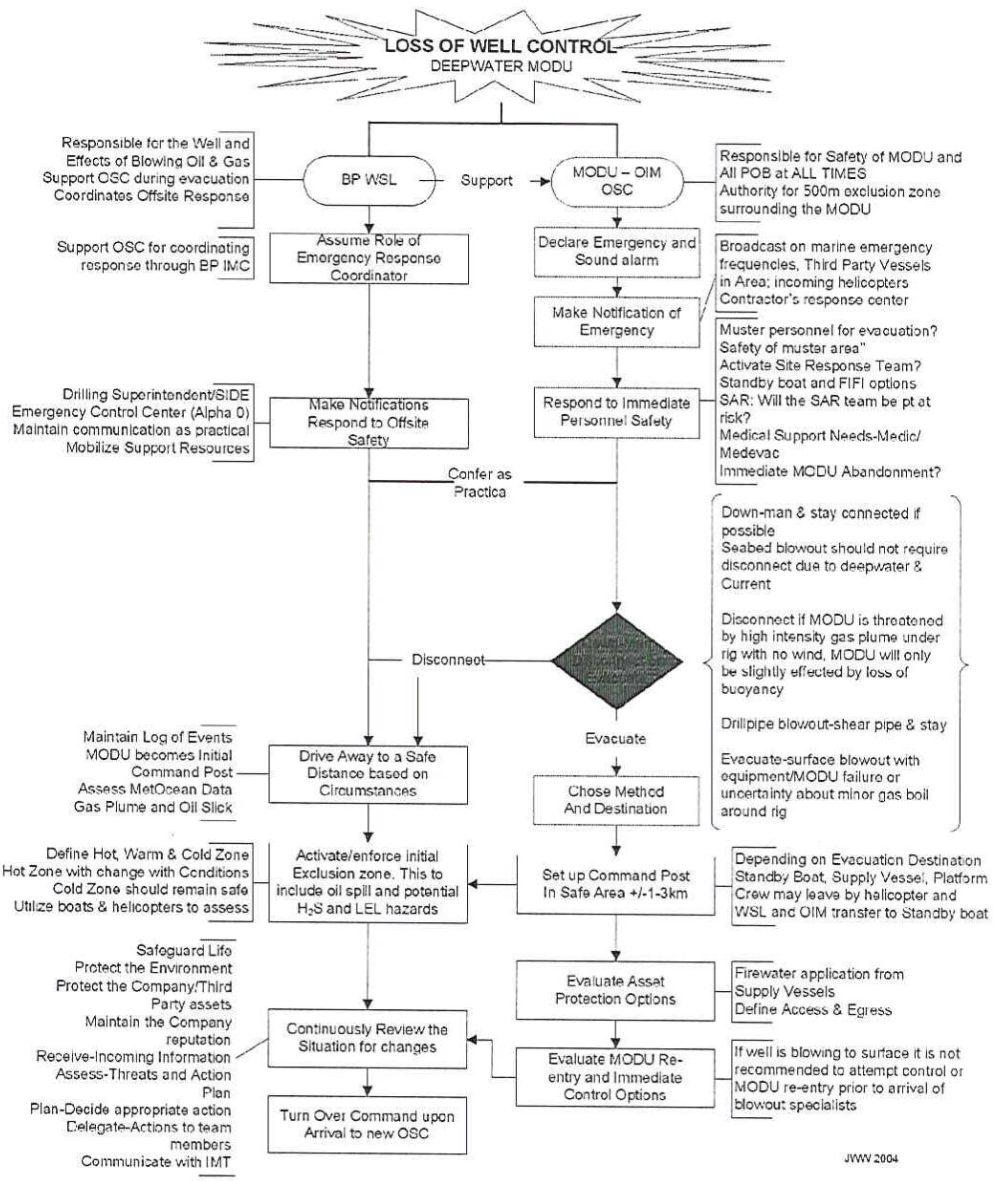
Safeguard life.
Protect the environment.
Protect the company/third party assets.
Maintain the company image and reputation.

❑ Turn over On-scene Command to Source Control Team for solution when relieved. Figure 8-3 WSL Initial Response Guide for a Stand Alone MODU Loss of Well Control.

❑ Brief Well Control First Responder.

❑ Implement GoM - Incident Notification, reference Figure 7.5.

Figure 8-3 WSL Initial Response Guide for Loss of Well Control



8.3 MODU/Site/Facility OIM Roles and Responsibilities Guide

8.3.1 LEVEL 1: ROUTINE WELL CONTROL

- ☐ Make notifications as per MODU/Site/Facility ERP and BP IMS.
- ☐ Assess the incident with the support of the WSL
  - ☐ Evaluate escalation potential and consequences for the MODU/Site/Facility for, personnel, environment, asset, control cost, business/schedule disruptions, and reputation damage.
  - ☐ Assess response level (1 or 2) based on the MODU/Site/Facility risk assessment.
  - ☐ Evaluate mitigation procedures if escalation occurs.
    - ☐ Determine if any current or planned simultaneous operations should be stopped or delayed.
    - ☐ Determine if non-essential FOB should be down manned until recovery is complete.
- ☐ Form a TRT, assume OSC role with the WSL as the Source Control Branch Director
- ☐ Follow IMS procedures and protocol until recovery is complete

8.3.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ☐ Make notifications as per MODU/Site/Facility ERP and BP IMS.
- ☐ Make Initial assess the incident with the support of the WSL
  - ☐ Evaluate incident potential and consequences for the MODU/Site/Facility for, personnel, environment, asset, control cost, business/schedule disruptions, and reputation damage.
    - ☐ Complete Incident Potential Worksheet
    - ☐ Assess response level based on the MODU/Site/Facility risk assessment.
  - ☐ Evaluate mitigation procedures if escalation occurs.
    - ☐ Determine if any current or planned simultaneous operations should be stopped or delayed.
    - ☐ Determine if non-essential POB should be down manned until recovery is complete,
- ☐ Assume OSC role with the WSL as the Source Control Branch Director
  - ☐ Hold Initial Incident Briefing with TRT
  - ☐ Institute the following using IMS protocol
    - ☐ Site Control and Management
      - ☐ Form TRT based on situation
        - ☐ Manage span of control for personnel and resources
        - ☐ Assure key responders are trained
        - ☐ Mobilize specialists as necessary

- ☐ Maintain a TCP and information center
- ☐ Isolate the incident hot zones (separate people from the hazards)
- ☐ Initiate personnel protection actions
- ☐ Maintain a staging area, manage efficient use of resources
- ☐ Size up situation, assess strategic and tactical objectives
  - ☐ Strategic
    - ☐ Define the problem(s) not just the observable symptoms
    - ☐ Perform diagnostics to assess possible scenarios
    - ☐ Use software tools to simulate scenarios to establish boundary conditions and to determine equipment and resource requirements
    - ☐ Plan.solutions to milestones where additional information may be gained
    - ☐ Strategic Plan must solve the problem not just mitigate the symptoms
    - ☐ Constantly assess for change, the hazards and the potential effects
    - ☐ Hold daily strategy meeting with TRT
    - ☐ Prepare daily Situation Status reports
  - ☐ Tactical
    - ☐ Break work into manageable tasks
    - ☐ Work toward milestones
    - ☐ Assure all safety aspects are considers
    - ☐ Hold pre and post shift tactical meetings
    - ☐ Approve all IAP

☐ Site Safety

- ☐ Maintain a Site Safety Officer reporting to the OSC
- ☐ Maintain ongoing site characterization with respect to hazards and risk (hot zones, MODU/Site/Facility, access to and from)
- ☐ Manage safety procedures during control and recovery
- ☐ Assist in defining hazard control zones (e.g., hot, warm, cold)
- ☐ Assist in HAZID and HAZOP meetings to include simultaneous operations
- ☐ Assure adequate escape and accountability procedures implemented for all IAPs
- ☐ Assure only essential personnel are used to implement IAPs the hot zone
- ☐ Challenge un-necessary IAPs inside the hot zone
- ☐ Assure essential personnel are properly trained to implement IAP
- ☐ Assure essential personnel have proper PPE when entering the hot zone
- ☐ Assure adequate evacuations contingencies are implemented

☐ Site Communication

- ☐ A command network which links the OSC with the Operations Section Chief
- ☐ A tactical network which links the OSC with TRT
- ☐ A supply network which links Staging Area Manager with supply unit in IMT logistics

- ☐ A source control network which links the Source Control Section Chief with the Source Control Branch Director (used for communications relating to the technical aspects of source control operations)
- ☐ Follow IMS procedures and protocol until recovery is complete

❑ Maintain open communication with FS and WSL until recovery is completed.

8.3.3 LEVEL 3: Loss of Well Control

❑ Follow MODU Specific ERP depending on situation

8.4 Sr. WSL Roles and Responsibilities

8.4.1 LEVEL 1: ROUTINE WELL CONTROL

- ❑ Mobilize to well site and assist WSL as directed by WTL or DIC.
- ❑ Close in other producing wells on pad, drain condensate tanks and depressurize pipelines, where applicable.
- ❑ Assure BP policies are implemented. Review STP well control procedures.
- ❑ Liaison with WTL or Superintendent Designate and Engineer until response is complete.

Refer to Figure 8-4

8.4.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Initial Phone Call
  - ❑ Debrief WSL: current situation, actions taken and actions planned. Provide immediate advice and support.
  - ❑ Review classification of the incident with WTL to insure correct severity level has been assigned.
  - ❑ Act as primary communication link with WSL until advised otherwise by WTL.
  - ❑ Review and approve operations actions proposed by WSL.
  - ❑ Make log of events for Initial Incident Briefing.
- ❑ Make notifications: ___ WTL; ___Eng.
- ❑ Mobilize to well site. Meet with WSL and staff for incident briefing.
  - ❑ Define with WSL and confirm with WTL objectives for next 12 hours.
  - ❑ Assign personnel to compile incident data, with diagrams as necessary, into a report for distribution to other Task Force Members. Supply sufficient technical details for diagnostics.
  - ❑ Review onsite resources (equipment, material, personnel); are they adequate? Support with additional resources as required.
  - ❑ Support WSL as required.
- ❑ Maintain open communication with WTL and WSL until recovery is completed.

8.4.3 LEVEL 3: Loss of Well Control

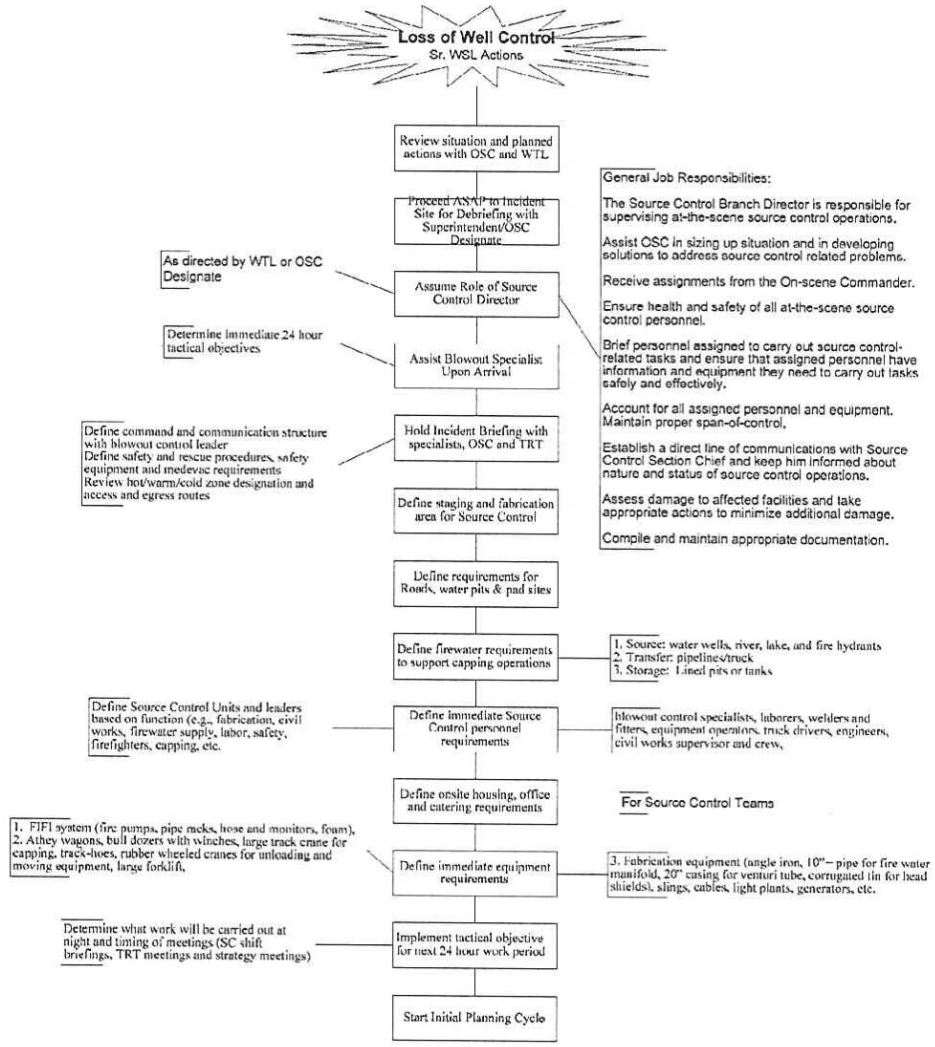
- ❑ Proceed immediately to well site as directed. Confer with WTL and staff for incident briefing enroute as needed.

- ❑ Assist OSC in Surface Control tasks and act as deputy OSC upon arrival on-scene (as applicable). Assume role as Source Control Branch Director or as assigned by WTL. Immediate focus on surface control.
- ❑ Gather data about the site, bathymetry rig, well, wellheads, trees, BOPs, etc., and relevant maps for a one mile radius around the well.
- ❑ Assist well control specialist upon arrival:
  - ❑ Determine immediate 24 hour tactical objectives
  - ❑ Hold Incident Briefing with specialists, OSC and TRT
  - ❑ Define command and communication structure with Well Control Team Leader
  - ❑ Define safety and rescue procedures, safety equipment and Medevac requirements
  - ❑ Review hot (red) / warm ( ) / cold (green) / safe (blue) zone/ designation and access and egress routes
  - ❑ Define staging area, fabrication area, and construction requirements
  - ❑ Define firewater requirements for FIFI in support of capping operations.
  - ❑ Define immediate personnel requirements, e.g.: well control specialists, laborers, welders and fitters, equipment operators.
  - ❑ Define Source Control Groups and leaders based on function *(e.g., fabrication, firewater supply, labor, safety, firefighters, etc.)*
  - ❑ Define off - site housing, office and catering requirements
  - ❑ Define immediate equipment requirements, *e.g.: FIFI system (fire pumps, pipe racks, hose and monitors, foam), Athey wagons, crane for capping, cranes for unloading and moving equipment, large forklift, fabrication equipment (angle iron, 10"+ pipe for fire water manifold, casing for venturi tube, corrugated steel for head shields), slings, cables, light plants, generators, etc.*
  - ❑ Implement tactical objective for next 24 hour work period. Determine what work will be carried out at night and timing of meetings *(SC shift briefings, TRT meetings and strategy meetings)*
- ❑ General Job Responsibilities:
  - ❑ The Sr. WSL will serve as Source Control Branch Director *(appointed by WTL)*, and is responsible for supervising at-the-scene source control operations (As Applicable).
  - ❑ Assist Sr. WSL #2/Superintendent Designate (OSC) in sizing up situation and in developing solutions to address source control related problems. Receive assignments from OSC.
  - ❑ Ensure health and safety of all at-the-scene source control personnel.
  - ❑ Brief personnel assigned to carry out well kill (source control) related tasks and ensure that assigned personnel have information and equipment they need to carry out tasks safely and effectively.
  - ❑ Account for all assigned personnel and equipment. Maintain proper span-of-control,
  - ❑ Establish a direct line of communications with WTL (Source Control Section Chief) and keep him informed about nature and status of source control operations.

- ❑ Assess damage to affected facilities and take appropriate actions to minimize additional damage.
- ❑ Compile and maintain appropriate documentation.

Figure 8-4 Sr. WSL Response Guide Loss of Well Control.

Figure 8-4 Sr. WSL Response Guide Loss of Well Control



8.5 Sr. WSL #2/Superintendent Designate – Checklist

8.5.1 LEVEL 1: ROUTINE WELL CONTROL

- ❑ On order (WTL), be prepared to support/assist WSL or Sr. WSL #1 as directed by WTL.
- ❑ Be prepared to act as a Superintendent Designate as appointed by the WTL or DIC
- ❑ Review classification of the incident with WTL to ensure the right severity level has been assigned with respect source control complications.
- ❑ Review onsite source control resources (equipment, material, personnel) as directed by the WTL; are they adequate?
- ❑ Review complicating circumstances with WTL; advise WSL as directed.
- ❑ If directed by WTL, work with DE to evaluate and document kick recovery procedure; maintain communication with the WSL during the recovery process; mobilize to the location if judged necessary by WTL.
- ❑ Be prepared to liaison with OIM or Rig Contractor's Manager (MODU) during recovery. If directed by WTL, mobilize resources as required.
- ❑ Follow IMS procedures and protocol until recovery is complete.

Refer to Figure 8-5

8.5.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ☐ Initial Phone Call from WTL
  - ☐ Be prepared to debrief WSL or Sr. WSL as applicable: current situation, actions taken and actions planned. Provide immediate advice and support.
  - ☐ How long will mud and chemical supplies last under current circumstances?
  - ☐ Review onsite resources (equipment, material, personnel). Are they adequate? Support with additional resources as required.
  - ☐ Review classification with the WTL of the incident to insure correct severity level was assigned.
  - ☐ Be prepared to act as primary communication link with WSL on behalf of the WTL.
  - ☐ Review operations actions proposed by WSL with the WTL.
  - ☐ Document all instructions issued to the WSL in writing following IMS protocol.
  - ☐ Make log of events for Initial Incident Briefing Report.
- ☐ Make notifications as per ERP procedures
- ❑ Make Notifications as directed by the WTL; __ Other Support Staff
- ❑ Review situation with WTL; be advised of *Incident Briefing* time and location.
  - ☐ Assist WTL to notify Source Control Team of Incident Briefing time and location.
- ☐ Mobilize to designated conference room. Attend Incident Briefing with Asset and Wells Team

to review situation, define problem, help define IMT Source Control organization, assess risk and probability of success, required outside resources and proposed action plans.

- ☐ Review the current situation with the WTL and Source Control Team.
- ☐ What other personnel/contractors need to be here? Rig manager, mud/cement specialists, cementing contractor representative, geologists/petrophysics, reservoir, well control and hydraulic modeling specialists, logging specialist, stake holders, others.
- ☐ Assist WTL with evaluation of immediate tactical actions; e.g. mobilize support personnel, equipment, materials.
  - ☐ Review all IAP with WTL
- ☐ Size up situation, assess strategic objectives
  - ☐ Define the problem(s) not just the observable symptoms
    - ☐ Is the basic problem identified?
      - ☐ Yes - Can the existing team implement the recovery with available resources?
        - ☐ Yes - document IAP and proceed with control and recovery operations
        - ☐ No - Organize alternate TRT which can implement the solution
      - ☐ No - Can additional data be taken to help identify the problem (diagnostic logs -temperature, noise, log, nuclear, spinner, pump tests, sonar, ROV, seismic etc).
        - ☐ Use specialist resources help define the problem (e.g., reservoir/production engineers, geologists, geophysics, well control or hydraulic specialists, equipment engineers, service company specialists, partner specialists, etc).
        - ☐ Perform diagnostics to assess possible scenarios
        - ☐ If complicated diagnostics are required for downhole problem contact hydraulic specialists for modeling current situation and proposed recovery actions.
        - ☐ Use software tools to simulate scenarios to establish boundary conditions and to determine equipment and resource requirements
  - ☐ Assist in preparation of General Strategic Source Control Plan
    - ☐ Does the Strategic Plan solve the problem not just mitigate the symptoms
    - ☐ Plan solutions to milestones where additional information may be gained. The well control problem may be changing or may be uncertain with several scenarios requiring different actions to control after each milestone is reached
    - ☐ Participate in formal HAZID on the General Plan to challenge it for probability of success, Potential for Escalation (can the proposed action makes things worse?
      - ☐ Avoid actions that might jeopardize future control options if they fail
      - ☐ Do you have backup plan if the primary plan fails
    - ☐ Attend daily strategy meetings as directed by WTL, or as required, with IMT. Modify Strategic Plan as required
      - ☐ Constantly assess for change in situation or improved understanding of the problem, the hazards and the potential effects on strategy
- ☐ Assist in organization of IMT as directed by WTL to assist WSL in control and recovery operations based on situation and recovery plan. The DWP Wells Manager will choose the Source Control Section Chief. An engineering team may be required for diagnostics and planning unconventional control options.
- ☐ Follow IMS procedures and protocol until recovery is complete

❑ Attend routine meetings as directed by WTL and maintain open communication until recovery complete.

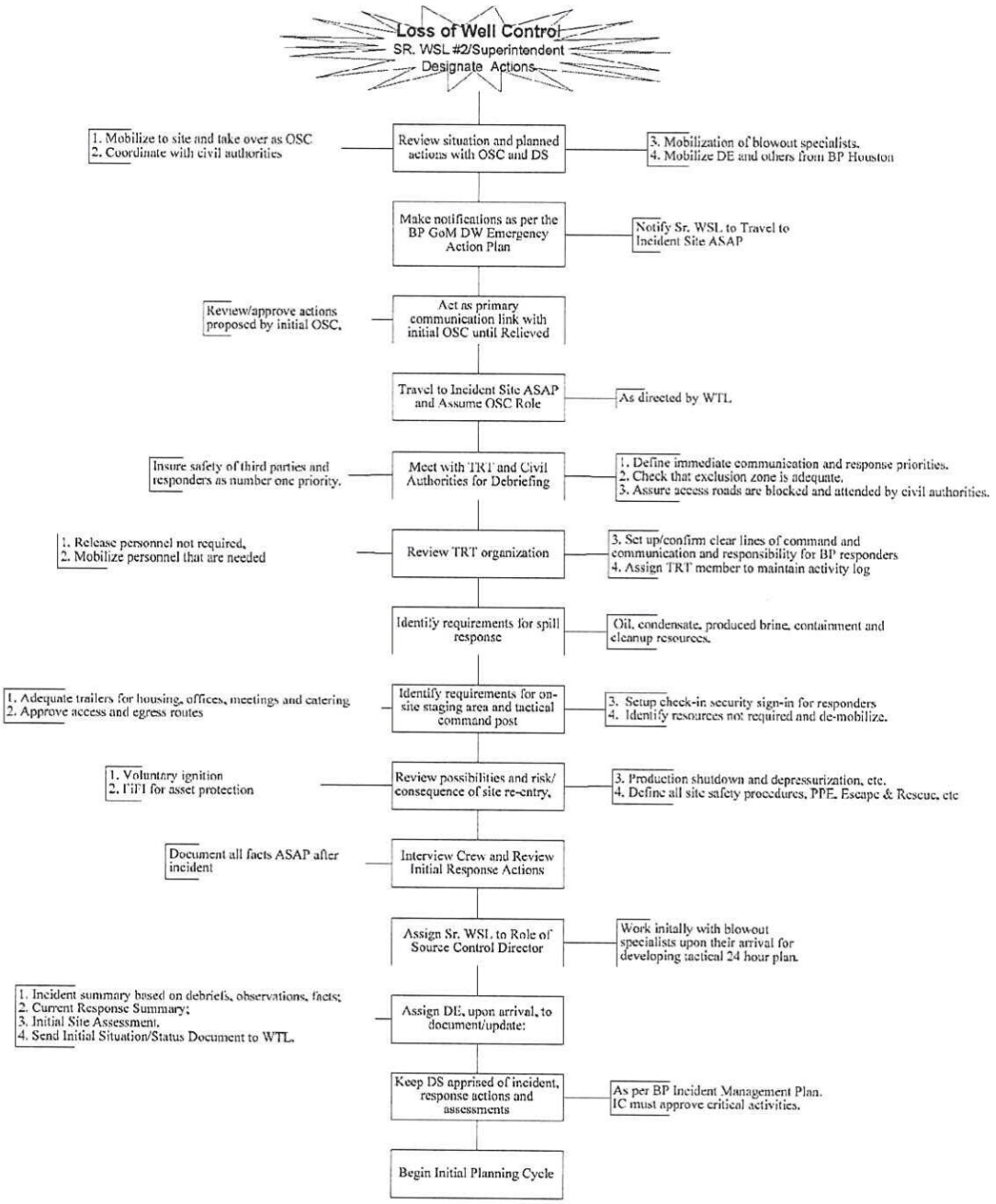
8.5.3 LEVEL 3: Loss of Well Control

- ❑ If a MODU/Site/Facility loss of well control incident occurs, follow MODU/Site/Facility specific ERP and IMS GoM Guideline
- ❑ For MODU - Initial Call - Review situation with BP – WSL and WTL (follow GoM IMS protocol)
- ❑ Are there any General Emergencies? If there are general emergencies, the IC must direct all aspects of the response. Record e.g.,
  - Name, date/time, method of contact, and who is in command.
  - Description of current situation (only facts not speculation).
  - Loss of well control scenario and description (pollution, gas cloud, ignition, H2S, plume).
  - Personnel status, i.e. casualties, missing.
  - Emergency disconnect or evacuation.
  - If MODU is to be abandoned, by what method (helicopter, boats, escape capsules)?
  - Any restriction on approaching MODU by boat or helicopter?
- ❑ Determine immediate onsite assistance as required (medivac, helicopters, fifi vessels, oil spill, H2S safety, Coast Guard, Navy, operation team, etc.)
- ❑ Any third parties, vessels or personnel potentially threatened by the uncontrolled release? If so, have they been notified? Has a gas plume been identified? Has an oil slick been identified?
- ❑ What are the planned immediate response actions: (SAR, firefighting, setup new command post, secure exclusion zone, etc)?
  - Take no control or mitigation action without safety plan and approval from IC.
- ❑ What is the best method of communication and means of contact?
- ❑ Support WSL as directed by WTL.
- ❑ As directed by WTL, be prepared to act as primary communication link with and review actions proposed by initial WSL/OSC along with the WTL with respect to source control until directed otherwise.
- ❑ As appropriate make Notifications as per BP GoM Incident Management Plan, see Figure 9-2.
- ❑ Review situation with Line Manager, WTL and WM.
- ❑ Assist in notification of potential Source Control team members
- ❑ Assume role in Source Control Team as directed by WTL.
- ❑ Review situation and planned actions with Initial OSC then WTL:
  - ❑ Mobilize to site and take over as OSC (or duties as directed by WTL)
  - ❑ Coordinate with civil authorities
  - ❑ Mobilize well control specialists and personnel from BP Houston to assist as required.
- ❑ Make notifications as per the GoM DWP Emergency Action Plan.

- ❑ Meet with WSL. Sr. WSL #1 and Sr. contractor personnel for a debriefing. Review response actions taken.
- ❑ As directed by the WTL or DIC, assume command after debrief. Inform TRT that you are in command.
- ❑ Review procedures as per BP Incident Command System Plan for the GoM DWP field.
- ❑ Meet with civil authorities and define immediate communication and response priorities.
- ❑ Review TRT organization. Release personnel not required, mobilize personnel that are needed.
- ❑ Insure safety of third parties and responders as number one priority.
- ❑ Check that exclusion zone is adequate. Coordinate with Coast Guard to ensure there will be no deliberate or accidental entry of exclusion zone by unauthorized persons/vessels.
- ❑ Set up/confirm clear lines of command and communication and responsibility for BP responders.
- ❑ Assign on-scene support staff member to maintain minute-by-minute log of all incident activities.
- ❑ Review possibilities and risk/consequence of site re-entry, voluntary ignition, asset protection, production shutdown and depressurization, etc.
- ❑ Identify requirements for spill response *(oil/condensate/produced brine)*, containment and cleanup resources.
- ❑ Identify staging area and tactical command post on-site, setup check-in security sign-in for responders.
- ❑ Identify resources not required and de-mobilize.
- ❑ Assign Sr. WSL to work with well control specialists upon their arrival for developing tactical 24 hour plan.
- ❑ Assign resources to document/update:
  - Incident summary based on debriefs, observations, facts;
  - Current Response Summary;
  - Initial Site Assessment. Send Initial Situation/Status Document to WTL.
- ❑ Keep WTL apprised of incident, response actions and assessments as per BP Incident Management Plan. IC must approve critical activities.
- ❑ Begin Initial Planning Cycle.

Refer to Figure 8-5 Sr. WSL #2/ Superintendent Designate Response Guide – Loss of Well Control.

Figure 8-5 Sr. WSL #2/ Superintendent Designate Response Guide Loss of Well Control



8.6 Wells Team Leader Roles and Responsibilities

8.6.1 LEVEL 1: ROUTINE WELL CONTROL

- ❑ WTL will raise the alarm in the well engineering group.
- ❑ WTL will form an Incident Management Team (IMT) organization required for recovery and if support personnel should be mobilized to site.
- ❑ WTL will, upon evaluation of situation, take on role of IMT Leader or assign that role to FS. In the absence of WTL, IMT Leader would be Wells Ops Manager or designee of the WTL.
- ❑ WTL will notify relevant line management if the Incident is due to loss of Primary Well Control.
- ❑ Liaison with FS on action plans and progress.
- ❑ Evaluate risk and consequence of escalation.
- ❑ Review incident classification level.
- ❑ Inform line management.
- ❑ Determine and mobilize additional resources as necessary including formation of IMT.

Refer to Figure 8-6

8.6.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ WTL will inform Wells Program Leader of a Level 2 well control incident.
- ❑ WTL will assume the role of IMT Leader. He will form IMT based on the incident situation for recovery.
- ❑ WTL may mobilize to well site and assume OSC role or support WSL / FS as directed by Wells Ops Manager or designate.
- ❑ Review situation with FS.
  - ❑ Are there any General Emergencies?
  - ❑ Is the exclusion zone secured?
  - ❑ Have adjacent production facilities or 3rd party work sites been notified.
  - ❑ Do civil authorities need to be notified?
  - ❑ Determine urgency to respond immediately. Is there time to plan a response with the support of an IMT?
- ❑ Make Notifications: __ Line manager; __ GoM DWP Wells Team, ___Well Control Specialists
- ❑ Mobilize to designated conference room. Hold / attend Incident Briefing with Wells Team to review situation, define IMT organization, define problem, assess risk and probability of success, required outside resources and proposed action plans.

- ❑ Organize IMT to assist WSL and OSC in recovery operations. IMT to be organized based on situation and recovery plan. An engineering team may be required for diagnostics and planning unconventional control options. An operations team may need to mobilize to the well site to support the WSL *(e.g., WTL and / or Sr. Engineer)*, also logistics support, HSE support, procurement, service contractor, and service company personnel.
- ❑ Request assistance from well control specialists or stakeholders as required.
- ❑ Are complicated diagnostics required for down hole problem? If so contact hydraulic specialists for modeling current situation and proposed recovery actions.
- ❑ Once response plan is approved, hold informal HAZID on the plan to challenge it for probability of success, Potential for Escalation, and safety. What is the response procedure if plan fails? Evaluate weather forecast effects on actions.
- ❑ Assess the impact of escalation: H_2S, personnel and 3rd party safety, pressure, flow rates, assets at risk, shut-in of adjacent production, ability to recover, production sale disruption, impending severe weather, etc.
- ❑ Provide support resources from drilling / completions group as required based on potential impact.
- ❑ Are additional accommodations required?
- ❑ Liaise with area OCM (if affected) on potential emergency procedures, ESD, blow down of pipelines, shutdown non-essential operations/personnel in area, etc.
- ❑ Is an emergency accounting code required for emergency expenditures?
- ❑ Hold scheduled meetings and maintain liaison with TRT until recovery complete.

Refer to Figure 8-6.

8.6.3 LEVEL 3: Phase 1 – Initial Response

- ❑ Upon receiving call from FS review situation:
- ❑ Are there any General Emergencies?
- ❑ Have civil authorities been mobilized?
  - ❑ Have regulatory agencies identified on Emergency Contact List been contacted and notified of current situation?
  - ❑ Are all affected 3rd parties evacuated or notified?
  - ❑ Is the exclusion zone identified and secured?
  - ❑ Should voluntary ignition be performed?
  - ❑ Status of initial TRT organization.
  - ❑ Location of Tactical Command Post (TCP).
  - ❑ Required initial support from BP Houston.
  - ❑ Mobilization of Well Control Service Provider First Responder.
- ❑ Review situation with Wells Ops Manager (WPM will assume role as Deputy Incident Commander)

- ❑ Define WTL role in the Incident Management Team (IMT) - WTL would logically be Source Control Section Chief (SCSC).
- ❑ Define immediate objectives for Source Control and location of WPM (GoM DWP/Houston).
- ❑ Notify GoM DWP Wells Team, well control engineers, service company representatives.
- ❑ Check-in to Incident Command Post and receive instructions. Assume role of Source Control Section Chief or as directed by the DIC.
- ❑ Communicate with Operations Team Leader and confirm that Emergency Well Control Response Teams have been contacted and advised of Level 3 status.
- ❑ Mobilize to designate conference room. Hold Incident Briefing with GoM DWP Wells Team:
  - ❑ Brief team on what is currently known about the situation.
  - ❑ Review notifications and attendees. Who else needs to be informed or be in future meetings? Partners, service companies, petroleum engineering, geophysics, production, HSE, other.
  - ❑ Define Functional Organization and Incident Action Plans for next 24 hours, for example:
    - ❑ Assign Engineer # 1 to mobilize to site and assist the Sr. WSL (Source Control Branch Director), make Initial Site Assessment and assist with surface capping operations.
    - ❑ Assign Engineer # 2 to begin strategic planning for kill operation after capping. Work with hydraulic engineers, mud, pumping and snubbing contractors (cap/bullhead or cap/divert/snub kill).
    - ❑ Assign Engineer # 3 to begin strategic planning for a relief well. What rigs are available for relief well? Begin evaluation for relief well surface location. Work with well control intervention specialists on procedures for intersection and kill.
    - ❑ Assign Technical Support Engineer to gather onsite and archived data about the loss of well control incident. Compile data in format that can be easily accessed by IMT and TRT, both paper and electronic (post on server or website). Setup and maintain information center.
    - ❑ Evaluate mobilizing technical resources required outside of GoM DWP Wells Team both within and outside BP (petroleum engineering, geology and geophysics, well control engineering specialists, service company specialists). Mobilize as required. If warranted, Business Support Team (BST) will be activated.
    - ❑ Define communication procedures to the site, between team members and third parties.
    - ❑ Define work schedule and meeting schedule.
- ❑ Setup an emergency accounting code required for emergency expenditures.
- ❑ Start Initial Planning Cycle.
- ❑ Mobilize to well location to handle direct supervision of well control operations or designate assignee.

8.6.4 LEVEL 3: Phase 2 – Surface Intervention

- ❑ Supervise and manage surface intervention operations at the well site / office.
- ❑ Maintain constant communications with Well Control Service Provider Team Leader directly or through delegate.
- ❑ Communicate with WPM daily as to current status of well and ongoing well control operations.
- ❑ Review insurance coverage for well.
- ❑ Review Master Service Agreements in effect with servicing contractors.
- ❑ Make decisions as to well control operations.

8.6.5 LEVEL 3: Phase 3 –Sub-Surface Intervention

- ❑ Supervise and manage well control operations at the well site / office.
- ❑ Maintain constant communications with Well Control Service Provider Team Leader directly or through delegate.
- ❑ Communicate with WPM daily as to current status of well and ongoing well control operations.
- ❑ Make decisions as to well control operations.
- ❑ Attend all meetings.
- ❑ Confirm that Contingency Plan is being followed.
- ❑ Provide answers and solutions to any questions that arise.
- ❑ Maintain communications with management as to the status of the well.
- ❑ Assume responsibility for control of total project.

8.6.6 LEVEL 3: Phase 4 – Well Recovery

- ❑ Attend all meetings.
- ❑ Confirm that Contingency Plan is being followed.
- ❑ Provide answers and solutions to any questions that arise.
- ❑ Maintain communications with management as to the status of the well.
- ❑ Assume responsibility for control of total project.
- ❑ Supervise and manage well control operations at the well site / office.
- ❑ Maintain constant communications with Well Control Service Provider Team Leader directly or through delegate
- ❑ Communicate with WPM daily as to current status of well and ongoing well control operations.
- ❑ Make decisions as to well control operations.

8.6.7 LEVEL 3: Phase 5 – Post-Incident Evaluation

- ❑ Review all Post Incident Reports with WPM and IC and Well Control Service Provider Team Leader.
- ❑ Review all Post Incident Reports with Operations Team Leader and all Team Leaders of the Emergency Well Control Response Teams.
- ❑ Advise management of final findings.

8.6.8 LEVEL 3: WTL (Source Control Section Chief, WTL) General Responsibilities

WTL, acting as Source Control Section Chief (SCSC), as shown in Figure 3.4, above, is responsible for organizing and managing all IMT activities related to source control operations. WTL will provide the Logistics Section Chief or Supply Unit Leader with information on personnel, equipment, material, and supply needs. WTL (SCSC) is responsible to:

- ❑ Discuss incident with WPM and agree that current well conditions warrant activation of Level 3 status of Contingency Plan for Emergency Well Control Response.
- ❑ size up the incident, identify source control section problems and solutions, and break down work of source control section into manageable tasks
- ❑ Review report from BP Field Representative and evaluate current well conditions.
- ❑ provide regular (at least daily), comprehensive updates to Wells Ops Manager (DIC), particularly when conditions change
- ❑ Supervise and manage well control operations at the well site / office. Assign tasks to appropriate source control section personnel and maintain proper span-of-control
- ❑ assume responsibility for tasks delegated by the WPM (OSC)
- ❑ assist the Deputy Incident Commander in preparation of strategic objectives and response priorities
- ❑ address strategic objectives and priorities of the WPM (OSC) as they relate to the work of source control section
- ❑ serve as primary IMT contact person for the Sr. WSL (Source Control Branch Director (SCBD)) on all tactical matters relating to source control operations
- ❑ review and ensure the appropriateness of the strategy and tactics being employed by the Sr. WSL (Source Control Branch Director)
- ❑ provide the Planning Section Chief or Situation Unit Leader with up-to-date information on nature and status of source control operations
- ❑ represent Source Control Section at all formal IMS meetings and brief the WPM (DIC) and members of command and general staff on nature and status of work being done by Source Control Section
- ❑ assist Planning Section Chief or small team preparing incident action plans (IAPs) in preparation of objectives and field assignments for IAPs
- ❑ assist Planning Section Chief or small team preparing general plan in preparation of general plan
- ❑ supervise preparation of plans for relief well drilling, salvage, and lightering operations, as relevant

- ❑ ensure personnel involved in source control operations have the personnel, equipment, material, and supplies needed to carry out those operations in a safe, effective, and efficient manner
- ❑ ensure that personnel are aware of and follow company policies and appropriate government agency directives
- ❑ keep Sr. WSL (Source Control Branch Director) informed of changing weather conditions
- ❑ provide regular briefings on nature and status of source control operations
- ❑ coordinate source control operations with Operations Section Chief
- ❑ ensure that Finance Section Chief is, or time and cost unit leaders are, advised of all cost commitments
- ❑ ensure that appropriate documentation is compiled by Sr. WSL (SCBD) and forwarded to the Planning Section Chief or Documentation Unit Leader
- ❑ consider the need for an alternate or backup person for extended (24-hour) coverage and
- ❑ compile and maintain appropriate documentation

8.6.9 LEVEL 3: WTL (SCSC) General Checklist (from BP-IMS)

Get Organized

- ❑ Check in to Incident Command Post (ICP); report to WPM (DIC); receive briefings from WPM (DIC).
- ❑ Assume responsibility for tasks delegated by WPM (DIC)
- ❑ Meet with Source Control Section personnel; prepare an organization chart for Source Control Section
- ❑ Identify and define work that must be done to address Source Control Section problems and solutions; break work down into manageable tasks
- ❑ Delegate responsibilities for tasks to be performed by Source Control Section personnel
- ❑ Establish direct line of communications with Sr. WSL (Source Control Branch Director)
- ❑ Establish a communications protocol with Sr. WSL (Source Control Branch Director)

Set Up and Maintain Information Center

- ❑ Provide Planning Section Chief or Resource Unit Leader with initial and, as necessary, updated organization chart for Source Control Section
- ❑ Utilize field reports to provide Planning Section Chief or Situation Unit Leader with initial and, as necessary, updated incident facts related to description of source and source control operations
- ❑ Utilize field reports to provide Planning Section Chief or Situation Unit Leader with initial and, as necessary, updated information for situation map, including location of source
- ❑ Utilize field reports to provide Planning Section Chief or Situation Unit Leader with initial and, as necessary, updated information on "available" resources by staging area, "assigned" resources by task and location, and "out-of-service" resources by location

Conduct Initial Incident Briefing Meeting

Before Meeting:

- ❑ Review ICS 201 Initial Incident Briefing Document
- ❑ Meet with Planning Section Chief or Situation and Resource Unit Leaders to update situation map and status boards in Information Center
- ❑ Meet with Deputy Incident Commander to review:
  - ❑ Timing, location, and objectives of meeting
  - ❑ Information to provide during report
  - ❑ Identify Source Control Section problems and solutions to be raised during meeting
  - ❑ Prepare meeting report

During Meeting:

- ❑ Present report; focus on overall strategy of source control operations, tasks being performed to implement strategy, progress being made, problems being encountered, and help needed from IMT
- ❑ Pay attention to reports made by other meeting attendees; ask questions, as appropriate
- ❑ Assume responsibility for action items delegated by Incident Commander

After Meeting:

- ❑ Brief other Source Control Section personnel in ICP and Sr. WSL (Source Control Branch Director) on items discussed during meeting; assign Action Items, as appropriate
- ❑ Address assumed Action Items

Analyze Incident Potential

- ❑ If requested, assist Planning Section Chief in preparation of Incident Potential Worksheet
- ❑ If requested, participate in meeting with Incident Commander to review worksheet

Establish Strategic Objectives

- ❑ Receive information on problems being addressed by source control personnel and solutions being implemented to address problems from Sr. WSL (Source Control Branch Director)
- ❑ Ensure WPM (DIC) is comfortable with TRT strategy as it relates to source control operations
- ❑ Size up incident and source control personnel's response to incident to identify any additional problems not currently being addressed by source control personnel
- ❑ Identify solutions to additional problems
- ❑ Prepare solution-based strategic objectives
- ❑ Provide objectives to Planning Section Chief

Conduct Periodic Assessment Meetings

Before Meetings:

- ❑ Work through Operations Section Chief to receive updated Field Reports from Sr. WSL (Source Control Branch Director) 30 to 45 minutes before meetings

- ❑ Meet with Planning Section Chief or Situation and Resource Unit Leaders to update situation map and status boards in Information Center
- ❑ Meet with Deputy Incident Commander to review:
  - ❑ Timing, location, and objectives of meetings
  - ❑ Information to be provided during reports
- ❑ Identify Source Control Section problems and solutions to be raised during meetings
- ❑ Prepare meeting reports

During Meetings:

- ❑ Present reports; focus on nature and status of work related to strategic objectives, tasks delegated by WPM (DIC), and Source Control Section-specific tasks
- ❑ Pay attention to reports made by other meeting attendees; ask questions, as appropriate
- ❑ Assume responsibility for Action Items delegated by WPM (DIC)

After Meetings:

- ❑ Brief other Source Control Section personnel in ICP and Sr. WSL (Source Control Branch Director) on items discussed during meetings; assign Action Items, as appropriate
- ❑ Address assumed Action Items

Prepare Incident Action Plans

Define Objectives for Next Operating Period (NOP)

- ❑ If requested by WPM (DIC), designate representative to assist Planning Section Chief or small team preparing IAP
- ❑ Provide Source Control Branch Director information on duration of NOP
- ❑ Obtain from Source Control Branch Director a projection on:
  - ❑ Tasks currently underway that will continue into NOP, and progress that will be made on these tasks through to completion of current operational period (COP)
  - ❑ New tasks that will be initiated before end of COP and continue into NOP
  - ❑ New tasks that should be initiated during NOP
- ❑ Provide Planning Section Chief or small team preparing IAP information obtained from Source Control Branch Director
- ❑ Be available to answer questions from Planning Section Chief or small team preparing IAP

Prepare Field Assignments for NOP

- ❑ Obtain list of tasks Planning Section Chief or small team preparing IAP believes will continue into NOP; provide Planning Section Chief or small team preparing IAP feedback on list and guidance on any new tasks that should begin during NOP to fully address objectives
- ❑ Review list of tasks with Sr. WSL (Source Control Branch Director) to gain Branch Director's concurrence; provide Planning Section Chief or small team preparing IAP feedback from Sr. WSL (SCBD)
- ❑ Be available to answer questions and provide information to Planning Section Chief or small team preparing IAP

Perform Logistics, Safety, and Environmental Reviews

- ❑ Be available to answer questions and provide information to Safety Officer, Environmental Unit Leader, and Logistics Section
- ❑ Use field assignments for NOP to develop organizational assignments for tactical response operations; coordinate with Sr. WSL (SCBD)
- ❑ Provide Planning Section Chief or Resource Unit Leader with Source Control Section Organizational Assignments for NOP, including those for source control tasks

Assemble, Approve, and Implement IAP

- ❑ Assume responsibility for distribution of relevant portions of approved IAP for NOP to Sr. WSL (SCBD); brief Sr. WSL (SCBD) on plan contents
- ❑ Supervise implementation of approved IAP by Source Control Section personnel

IMT Operations for NOP

- ❑ Identify IMT-level Source Control Section task that will continue into, or start during, NOP
- ❑ For each IMT-level task, define what Task Leader will be asked to achieve during NOP
- ❑ Prepare verbal or written handover report for incoming Source Control Section personnel
- ❑ Supervise handover activities

Prepare General Plan

Define Objectives

- ❑ Work with Planning Section Chief or small team preparing general plan to identify critical tasks and milestones for completion of Source Control Section tasks
- ❑ Work with Planning Section Chief or small team preparing general plan to identify Source Control Section-directed tasks to be covered by general plan

Perform Detailed Assessment

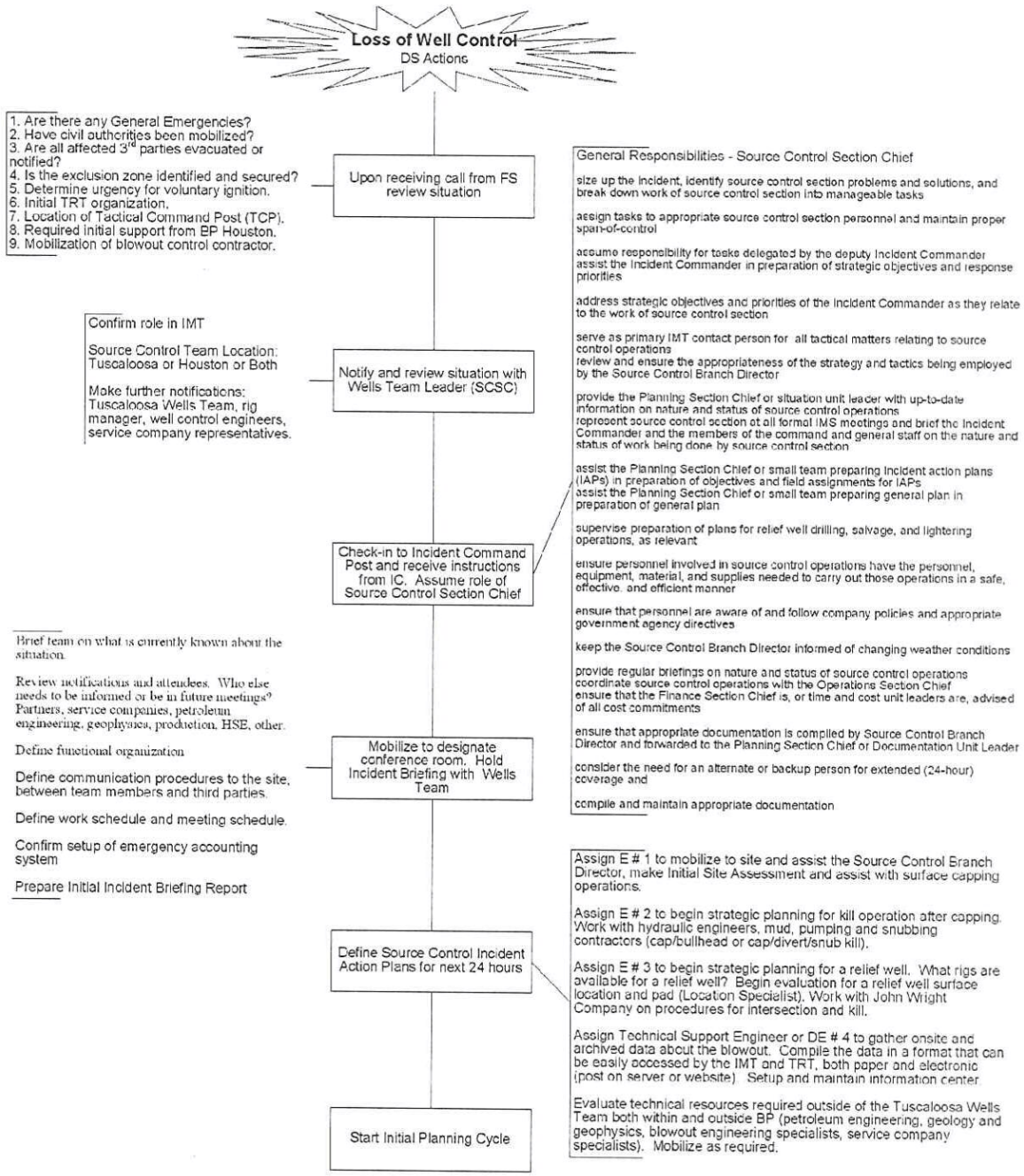
- ❑ Provide Planning Section Chief or small team preparing general plan information on response techniques that will be utilized to carry out source control operations
- ❑ Provide Planning Section Chief or small team preparing general plan guidance on kind and quantity of resources needed to complete Source Control Section-directed tasks within milestone time frame

Approve and Implement Plan

- ❑ Review Source Control Section tasks covered by general plan; provide Planning Section Chief or small team preparing general plan comments on plan

Refer to Figure 8-6 Wells Team Leader Response Guide - Loss of Well Control.

Figure 8-6 Wells Team Leader Response Guide - Loss of Well Control



8.7 PU Well ControlTA – Checklist

8.7.1 LEVEL 1: ROUTINE WELL CONTROL

- ❑ Initial Phone Call from WTL.
- ❑ Review classification of the incident with WTL to ensure the right severity level has been assigned with respect source control complications.
- ❑ Review onsite source control resources (equipment, material, personnel) as directed by the WTL; are they adequate?
- ❑ Review complicating circumstances with WTL; advise WSL as directed.
- ❑ If directed by WTL, work with DEs to evaluate, review and document kick recovery procedure;
- ❑ Follow IMS procedures and protocol until recovery is complete.

Refer to Figure 8-5

8.7.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ☐ Initial Phone Call from WTL
  - ☐ Review onsite resources (equipment, material, personnel). Are they adequate? Support with additional resources as required.
  - ☐ Review classification with the WTL of the incident to insure correct severity level was assigned.
- ☐ Notify Segment Well Control TA
- ❑ Make other notifications as directed by the WTL; __ Other Support Staff
- ❑ Review situation with WTL; be advised of *Incident Briefing* time and location.
- ☐ Mobilize to designated conference room. Attend Incident Briefing with Asset and Wells Team to review situation, define problem, help define IMT Source Control organization, assess risk and probability of success, required outside resources and proposed action plans.
  - ☐ Review the current situation with the WTL and Source Control Team.
  - ☐ What other personnel/contractors need to be here? Rig manager, mud/cement specialists, cementing contractor representative, geologists/petrophysics, reservoir, well control and hydraulic modeling specialists, logging specialist, stake holders, others.
  - ☐ Assist WTL with evaluation of immediate tactical actions; e.g. mobilize support personnel, equipment, materials.
    - ☐ Review all IAP with WTL
  - ☐ Size up situation, assess strategic objectives
    - ☐ Define the problem(s) not just the observable symptoms
      - ☐ Is the basic problem identified?
        - ☐ Yes - Can the existing team implement the recovery with available resources?

- ☐ Yes - document IAP and proceed with control and recovery operations
- ☐ No - Organize alternate TRT which can implement the solution

☐ No - Can additional data be taken to help identify the problem (diagnostic logs -temperature, noise, log, nuclear, spinner, pump tests, sonar, ROV, seismic etc).

- ☐ Use specialist resources help define the problem (e.g., reservoir/production engineers, geologists, geophysics, well control or hydraulic specialists, equipment engineers, service company specialists, partner specialists, etc).
- ☐ Perform diagnostics to assess possible scenarios
- ☐ If complicated diagnostics are required for downhole problem contact hydraulic specialists for modeling current situation and proposed recovery actions.
- ☐ Use software tools to simulate scenarios to establish boundary conditions and to determine equipment and resource requirements

☐ Assist in preparation of General Strategic Source Control Plan

- ☐ Does the Strategic Plan solve the problem not just mitigate the symptoms
- ☐ Plan solutions to milestones where additional information may be gained. The well control problem may be changing or may be uncertain with several scenarios requiring different actions to control after each milestone is reached
- ☐ Participate in formal HAZID on the General Plan to challenge it for probability of success, Potential for Escalation (can the proposed action makes things worse?
  - ☐ Avoid actions that might jeopardize future control options if they fail
  - ☐ Do you have backup plan if the primary plan fails
- ☐ Attend daily strategy meetings as directed by WTL, or as required, with IMT. Modify Strategic Plan as required
  - ☐ Constantly assess for change in situation or improved understanding of the problem, the hazards and the potential effects on strategy

☐ Assist in organization of IMT as directed by WTL to assist WSL in control and recovery operations based on situation and recovery plan. The DWP Wells Manager will choose the Source Control Section Chief. An engineering team may be required for diagnostics and planning unconventional control options.

☐ Follow IMS procedures and protocol until recovery is complete

❑ Attend routine meetings as directed by WTL and maintain open communication until recovery complete.

8.7.3 LEVEL 3: Loss of Well Control

- ❑ If a MODU/Site/Facility loss of well control incident occurs, follow MODU/Site/Facility specific ERP and IMS GoM Guideline
- ❑ For MODU - Initial Call - Review situation with BP – WSL and WTL (follow GoM IMS protocol)
- ❑ Notify Segment Well Control TA of Level 3.
- ❑ Are there any General Emergencies? If there are general emergencies, the IC must direct all aspects of the response. Record e.g.,
  - Name, date/time, method of contact, and who is in command.
  - Description of current situation (only facts not speculation).
  - Loss of well control scenario and description (pollution, gas cloud, ignition, H2S, plume).
  - Personnel status, i.e. casualties, missing.
  - Emergency disconnect or evacuation.
  - If MODU is to be abandoned, by what method (helicopter, boats, escape capsules)?
  - Any restriction on approaching MODU by boat or helicopter?
- ❑ Determine immediate onsite assistance as required (medivac, helicopters, fifi vessels, oil spill, H2S safety, Coast Guard, Navy, operation team, etc.)
- ❑ Any third parties, vessels or personnel potentially threatened by the uncontrolled release? If so, have they been notified? Has a gas plume been identified? Has an oil slick been identified?
- ❑ What are the planned immediate response actions: (SAR, firefighting, setup new command post, secure exclusion zone, etc)?
  - Take no control or mitigation action without safety plan and approval from IC.
- ❑ What is the best method of communication and means of contact?
- ❑ As directed by WTL, be prepared to review actions proposed by initial WSL/OSC along with the WTL with respect to source control until directed otherwise.
- ❑ As appropriate make Notifications as per BP GoM Incident Management Plan, see Figure 9-2.
- ❑ Review situation with Segment Well Control TA, WTL and WM.
- ❑ Assist in notification of potential Source Control team members
- ❑ Assume role in Source Control Team as directed by WTL.
- ❑ Review situation and planned actions with Initial OSC then WTL:
  - ❑ Mobilize well control specialists and personnel from BP Houston to assist as required.
- ❑ Make notifications as per the GoM DWP Emergency Action Plan.
  - ❑ If directed by the WTL or DIC, assume command after debrief. Inform TRT that you are in command.
  - ❑ Review procedures as per BP Incident Command System Plan for the GoM DWP field.

- ❑ Meet with civil authorities and define immediate communication and response priorities.
- ❑ Review TRT organization.
- ❑ Insure safety of third parties and responders as number one priority.
- ❑ Check that exclusion zone is adequate. Coordinate with Coast Guard to ensure there will be no deliberate or accidental entry of exclusion zone by unauthorized persons/vessels.
- ❑ Review possibilities and risk/consequence of site re-entry, voluntary ignition, asset protection, production shutdown and depressurization, etc.
- ❑ Identify requirements for spill response *(oil/condensate/produced brine)*, containment and cleanup resources.
- ❑ Identify resources not required and de-mobilize.
- ❑ Be prepared to work with well control specialists to assist in developing tactical 24 hour plan.
- ❑ Verify resources to document/update:
  - Incident summary based on debriefs, observations, facts;
  - Current Response Summary;
  - Initial Site Assessment. Send Initial Situation/Status Document to WTL.
- ❑ Keep Segment Well Control TA apprised of incident, response actions and assessments as per BP Incident Management Plan. IC must approve critical activities.
- ❑ Provide technical support to the WTL/SCSC in the Initial Planning Cycle.

8.8 Segment Well Control TA

8.8.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.8.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Notification of Level 2 incident by SPU Well Control TA or WTL as appropriate.
- ❑ Situational awareness within standard drilling report distribution and periodic updates (i.e. every 4 hours or significant events) as needed. Be available for consultation or update as necessary.
- ❑ Review action plans with WTL and SPU WC TA as appropriate.
- ❑ Review Level 3 Contingency Plans.

8.8.3 LEVEL 3: Phase 1 – Initial Response

- ❑ After notification of Level 3 incident by DIC, WTL or SPU WC TA , move to conference room for initial incident briefing.
- ❑ Consult with DIC and WTL on Initial Tactical Response Plan. Advise DIC and WTL on role of SPU WC SPA.

8.8.4 LEVEL 3: Phase 2 – Surface Intervention

- ❑ Attend all meetings.
- ❑ Serve as a key technical authority on establishing strategic well control objectives.
- ❑ Provide technical assistance and consultation with DIC and SCBC/WTL.
- ❑ Provide answers and solutions to any questions that arise.
- ❑ Maintain communications with management as to the status of the well.
- ❑ Assist Incident Commander and DIC as needed.

8.8.5 LEVEL 3: Phase 3 – Sub-Surface Intervention

- ❑ Serve as a key technical authority on establishing strategic sub-surface intervention objectives.
- ❑ Review recommendations and justifications for sub-surface intervention.
- ❑ Review budgeting and acquisition requirements for relief well(s) as appropriate.
- ❑ Consult with management as to the status and resource requirements for sub-surface intervention plans..

8.8.6 LEVEL 3: Phase 4 – Well Recovery Operations

- ❑ Verify well condition is under control and return to normal operations are appropriate.
- ❑ Consult with management as to the status of the well.
- ❑ Begin process of capturing lessons learned for post incident evaluation phase.

8.8.7 LEVEL 3: Phase 5 – Post Incident Evaluation

- ❑ Review final report from Well Control Service Provider.
- ❑ Review the findings of internal lessons learned investigations and studies.
- ❑ Maintain communications with management as to the status of the well and post incident evaluations/lessons learned.

8.9 Engineer #1 (Primary TRT Engineering Support)

8.9.1 LEVEL 1: ROUTINE WELL CONTROL

- ❑ Liaison with TRT on action plans and progress.
- ❑ Evaluate risk and consequence of escalation.
- ❑ Review incident classification level.
- ❑ Assist/review kick circulation/removal calculations and recovery procedures.
- ❑ Liaise with WTL until recovery is complete.

Refer to Figure 8-7

8.9.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Liaison with TRT on action plans and progress.
  - ❑ Assist Source Control Section Chief as directed.
  - ❑ Initial focus is on diagnostics and problem identification.
- ❑ Evaluate risk and consequence of escalation.
- ❑ Assist IMT/TRT as directed by the WTL.
  - ❑ Make detail schematic of situation for team members.
  - ❑ Compile all relevant data (just the facts)
  - ❑ Involve all relevant team members (geology, reservoir, geophysics, specialists, rig TRT).
  - ❑ Analyze the data.
    - Does it make sense?
    - Review diagnostics chart.
  - ❑ Evaluate the requirement for additional data before devising solutions.
  - ❑ Evaluate the requirement for expert assistance before devising solutions.
  - ❑ Make pressure gradient drawings in Excel to assist in understanding problem.
  - ❑ Get hydraulic modeling specialists involved if there is a significant unknowns in problem identification.
  - ❑ Second focus is on engineering aspects related to solving the problem.
  - ❑ What can be done practically with the current mechanical configuration?
  - ❑ What can be done if the current configuration can be changed, e.g.:
    - Barite plug, high concentration LCM, gunk plugs, cement.
    - Is it possible to strip out of well to change BHA?
      - Trip out with losses (continuous bullhead).
      - Set wireline plug in BHA if there is not a working float.
      - Set plug below bit above loss zone (cement, gunk, sodium silicate/cement).
      - Consider fluid swapping due to density differences.
    - Is it possible to sever the BHA with a colliding charge explosive?
    - Will perforating the string or casing assist in solving the problem?
  - ❑ If the event is underground crossflow related see **Figure 8-4**.
  - ❑ Assist in HAZID for proposed options (many loss of well control incidents were initiated from a Level 2 event).

What can go wrong? How bad can it be? What are the consequences?
- Personnel safety
- Environment
- Assets at risk (MODU/Spar, rig, well(s), template, other)
- Control costs (rig time, materials, extra resources, production shut-in, etc.)
- Business and schedule disruption
- Reputation damage

How can the risks be mitigated?
Compare options based on risk.
Avoid options that eliminate or jeopardize future control attempts.

- ❑ Document options, logic and suggested go forward plan for IMT assessment.
  Always get buy-in from the rig TRT on attempted control options.
- ❑ If requested by Source Control Section Chief, travel to rig site and assist in operations TRT
- ❑ Liaise with WTL until recovery is complete.

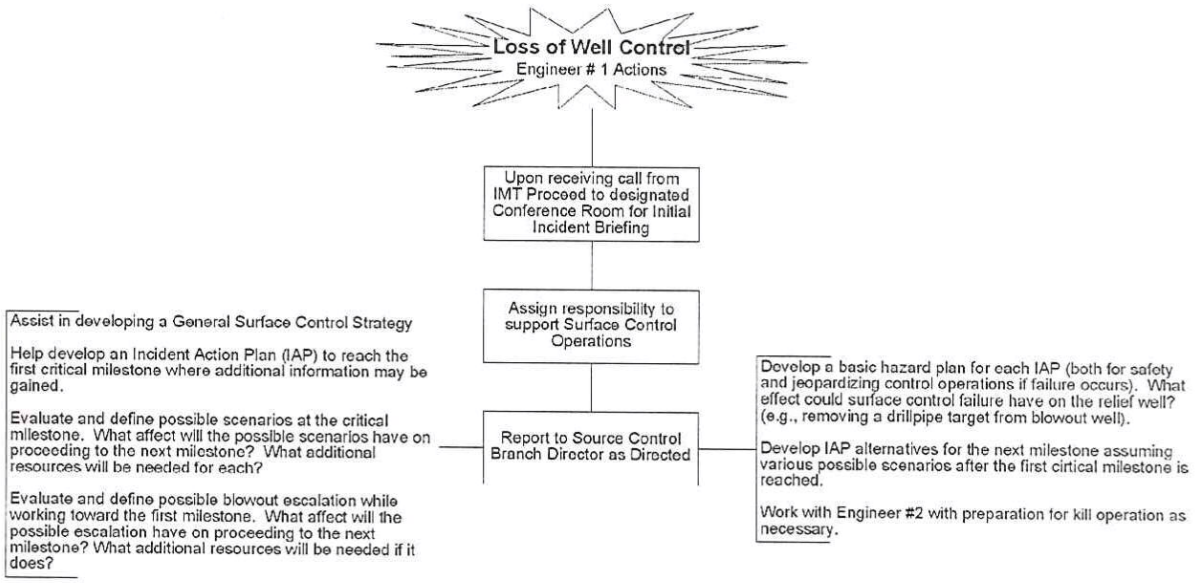
Refer to Figure 8-7.

8.9.3 LEVEL 3: Phase 2 Surface Intervention

- ❑ Proceed immediately to the designated Conference room. Meet with WTL, SCSC and staff for incident briefing.
- ❑ Support Source Control Branch Director in tactical preparation for capping operations.
  - ❑ Assist Source Control Branch Director as directed. For example:
  - ❑ Document initial site assessment for the IMT
  - ❑ Assist in developing General Surface Intervention Strategy.
  - ❑ Develop an Incident Action Plan (IAP) to reach the first critical milestone where additional information may be gained.
  - ❑ Evaluate and define possible scenarios at the critical milestone. What affect will the possible scenarios have on proceeding to the next milestone? What additional resources will be needed for each?
  - ❑ Evaluate and define possible event escalation while working toward the first milestone. What affect will the possible escalation have on proceeding to the next milestone? What additional resources will be needed if it does?
  - ❑ Develop a basic hazard plan for each IAP (both for safety and jeopardizing control operations if failure occurs). What effect could surface control failure have on the relief well? (e.g., removing a pipe target from the well).
  - ❑ Develop IAP alternatives for the next milestone assuming various possible scenarios after the first critical milestone is reached.
  - ❑ Work with DE # 2 on the preparation for kill operation as necessary.
  - ❑ Make daily report for Source Control Branch.

Refer to Figure 8-7.

Figure 8-7 Engineer #1 Response Guideline – Loss of Well Control



8.10 Engineer #2 (Kill Team)

8.10.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.10.2 LEVEL 2: No SOP, Non-routine Well Control Event

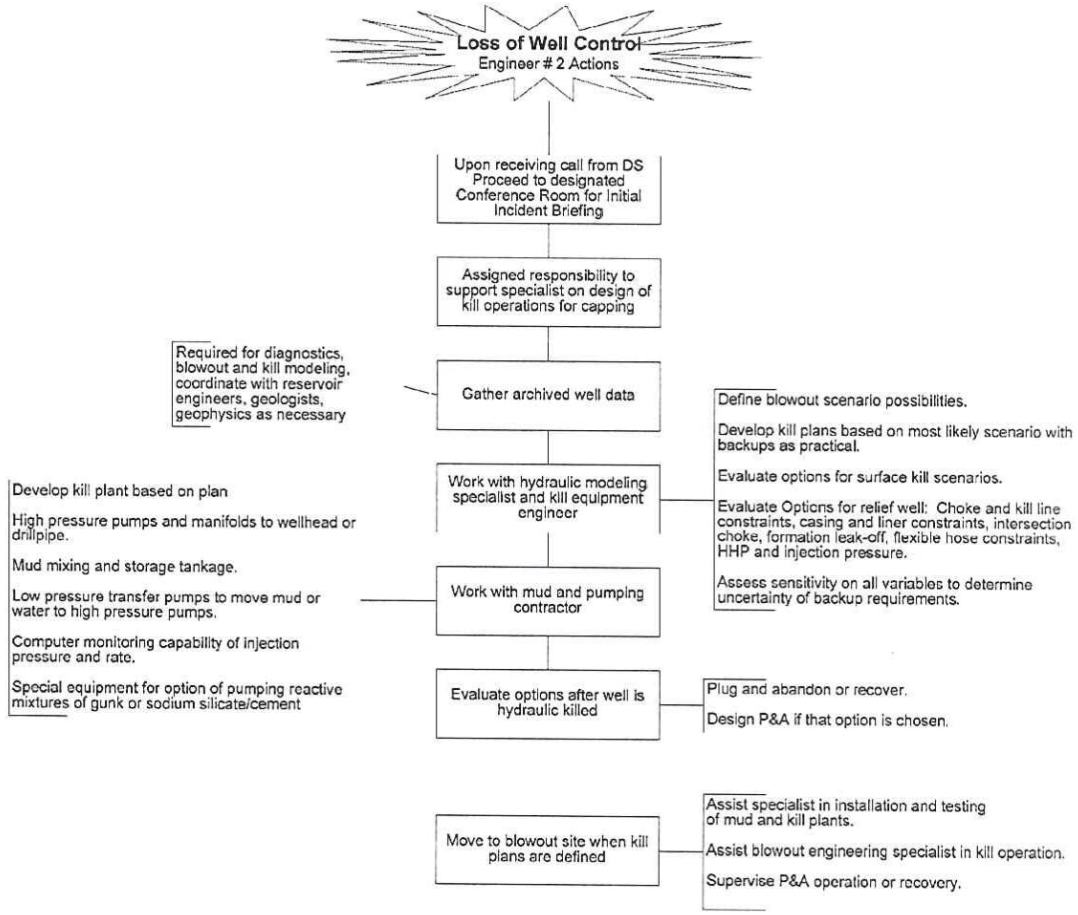
- ❑ Situational awareness within standard drilling report distribution unless Incident Management Team is activated. Be available for consultation or update as necessary.
- ❑ Review Level 3 Contingency Plans.

8.10.3 LEVEL 3: Phase 2 Surface Intervention – Kill Operations

- ❑ Proceed immediately to designate Conference room. Meet with WTL and Team for incident briefing.
- ❑ Primary responsibility will be for assisting specialist in developing kill strategy for surface capping.
- ❑ Gather archived well data required for diagnostics, well flow and kill modeling, coordinate with reservoir engineers, geologists, geophysics as necessary.
- ❑ Work with hydraulic modeling specialist and kill equipment engineer upon arrival to define well control scenario possibilities.
- ❑ Develop kill plans based on most likely scenario with backups as practical.
- ❑ Evaluate relief well kill scenarios.
- ❑ Work with mud and pumping contractor to develop kill plant based on plan
- ❑ Evaluate options after well is hydraulic killed: plug and abandon or recover.
- ❑ Design P&A if that option is chosen.
- ❑ Move to well site when kill plans are defined and assist specialist in installation and testing of mud and kill plants.
- ❑ Assist well control engineering specialist in kill operation.
- ❑ Supervise P&A operation or recovery.

Refer to Figure 8-8 Engineer #2 (Kill Team) Response Guide – Loss of Well Control.

Figure 8-8 Engineer #2 (Kill Team) Response Guide – Loss of Well Control



8.11 Engineer # 3 (Relief Well Team)

8.11.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

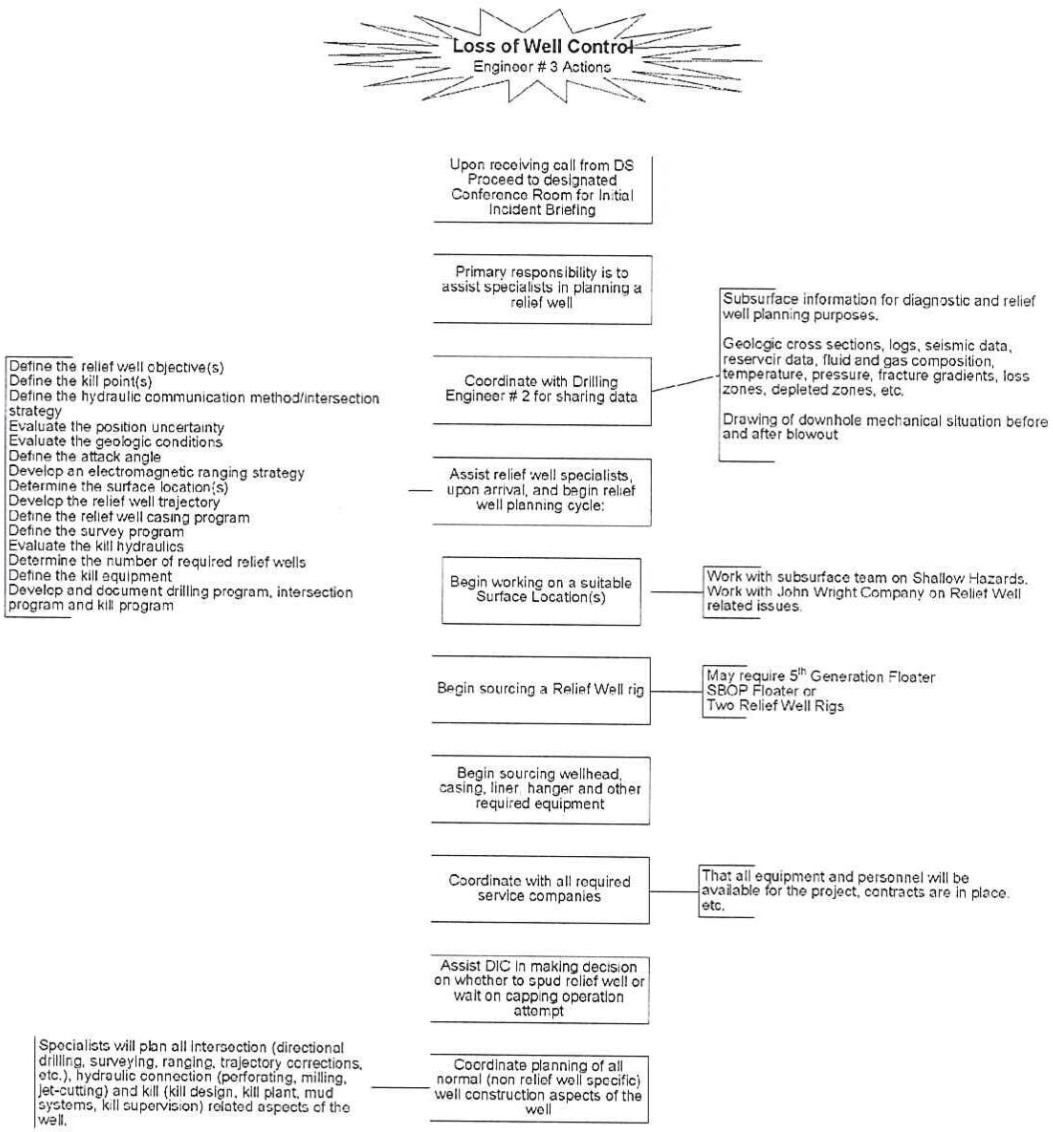
8.11.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Situational awareness within standard drilling report distribution unless Incident Management Team is activated. Be available for consultation or update as necessary.
- ❑ Review Level 3 Contingency Plans.

8.11.3 LEVEL 3: Phase 3 – Sub-Surface Intervention - Relief Well

- ❑ Proceed to designated Conference room. Meet with WTL, SCSC and staff for Incident Briefing.
- ❑ Primary responsibility will be for assisting relief well specialists in planning and executing a relief well.
- ❑ Coordinate with Engineer #2 for sharing data from subsurface information for diagnostic and relief well planning purposes.
- ❑ Assist relief well specialists, upon arrival, and begin relief well planning cycle:
- ❑ The critical path will be locating a suitable relief well rig or locating a replacement BOP stack.
- ❑ Begin defining the surface location. Work on usual bathymetry and shallow hazard issues.
- ❑ Begin sourcing relief well rig. May be necessary to suspend other GoM DWP well to use that rig.
- ❑ Begin sourcing wellhead, casing, liner, hanger and other required equipment.
- ❑ Coordinate with all required service companies that all equipment and personnel will be available for the project.
- ❑ Assist WTL in making decision on whether to mobilize rig and spud relief well or wait on surface capping operation depending on probability of success.
- ❑ Plan all conventional well related *(non-relief well specific)* aspects of the relief well. Specialists will plan all intersection *(directional drilling, surveying, ranging, trajectory corrections, etc.)*, hydraulic connection *(perforating, milling, jet-cutting)* and kill *(kill design, kill plant, mud systems, kill supervision)* related aspects of the well. Refer to Figure 8-9.

Figure 8-9 Engineer #3 (Relief Well Team) Response Guide – Loss of Well Control



8.12 Engineer #4 (Capping Team)

8.12.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.12.2 LEVEL 2: No SOP, Non-routine Well Control Event

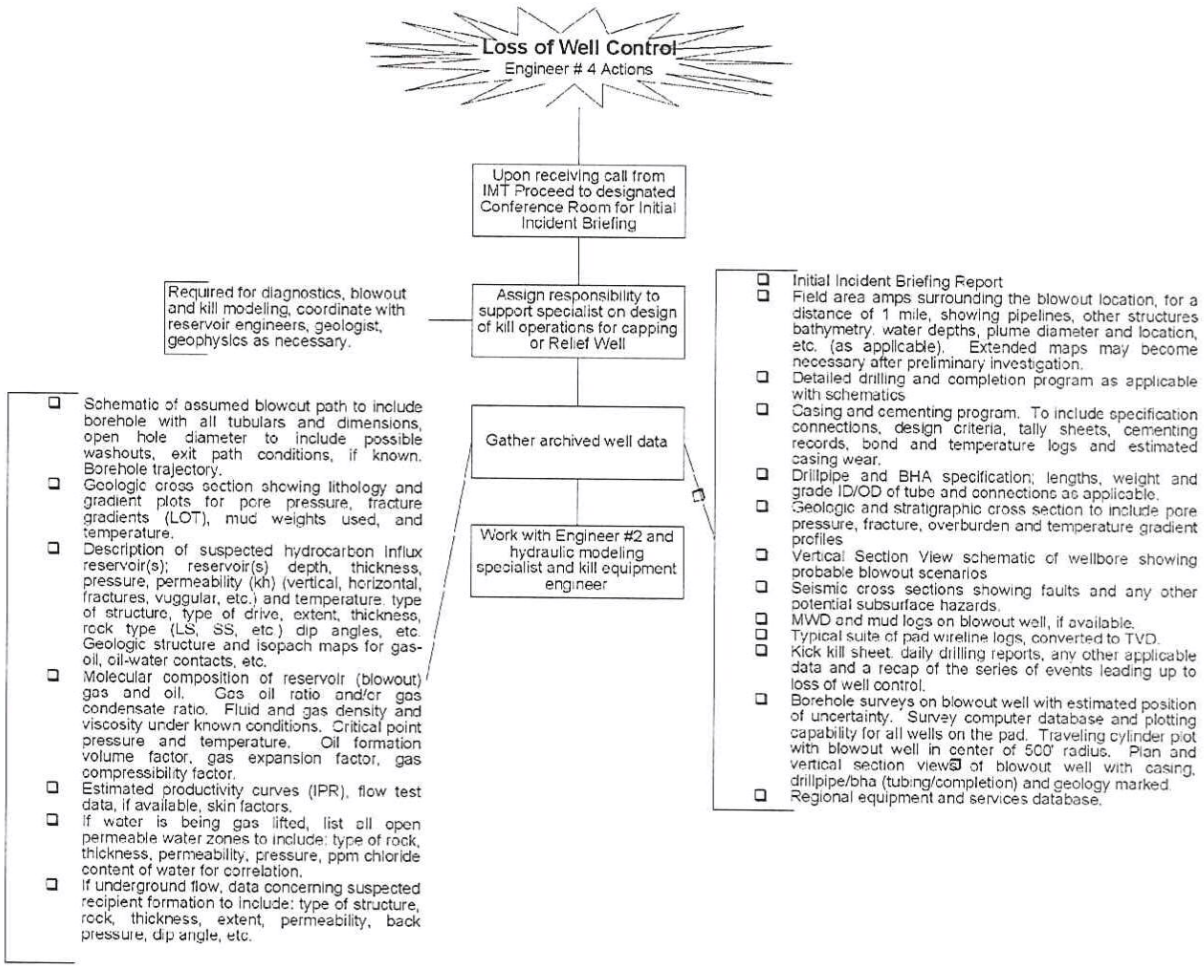
- ❑ Situational awareness within standard drilling report distribution unless Incident Management Team is activated. Be available for consultation or update as necessary.
- ❑ Review Level 3 Contingency Plans.

8.12.3 LEVEL 3: Phase 2 – Surface Intervention - Capping

- ❑ Proceed immediately to the designated Conference room. Meet with WTL, SCSC and staff for incident briefing.
- ❑ Support Source Control Branch Director in tactical preparation for capping operations.
  - ❑ Assist Source Control Branch Director as directed. For example:
  - ❑ Document initial site assessment for the IMT
  - ❑ Assist in defining firewater system for capping support. Define size and number of pumping units will be required operating 24 / 7.
  - ❑ Assist in engineering support for fabrications for: firewater manifolds, heat shields, Venturi tubes, etc.
  - ❑ Assist in sourcing capping and related equipment: Jet-cutter; capping stack, diverter lines, side outlet valves, closing unit, choke manifold, snubbing unit, wellhead, etc.
  - ❑ Assist in developing General Surface Intervention Strategy.
  - ❑ Work with DE #1 and # 2 on the preparation for kill operation as necessary.
  - ❑ Make daily report for Source Control Branch.

Refer to Figure 8-7 Engineer #1 Response Guideline – Loss of Well Control.

Figure 8-10 Engineer #4 (Capping) Response Guideline – Loss of Well Control



8.13 Incident Commander Checklist for Level 3 – Blowout

8.13.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.13.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Situational awareness within standard drilling report distribution and periodic updates (i.e. every 4 hours or significant events) as needed. Prepared to assume IC duties if Incident Management Team is activated. Be available for consultation or update as necessary.
- ❑ Review action plans with WPM/WTL as appropriate.
- ❑ Review Level 3 Contingency Plans.

8.13.3 LEVEL 3 – Loss of Control

8.13.4 Role

The Incident Commander is responsible for the overall management of incident response operations, and for serving as the Incident Management Team's (IMT's) primary contact person with all involved or interested external parties.

8.13.5 Responsibilities

The Incident Commander will ensure that personnel safety is accorded the highest priority during conduct of incident response operations. The Incident Commander is responsible to;

- establish and maintain an organization that is capable of providing management direction to, and support for, at-the-scene tactical response operations,
- supervise incident response operations and ensure that they are carried out in a manner consistent with company policy, appropriate government directives, and the needs and concerns of impacted areas,
- analyze incident potential,
- establish strategic objectives and response priorities and ensure IMT and tactical response personnel are carrying out incident response operations in a manner consistent with objectives and priorities,
- ensure that all required and appropriate notifications have been made to BP senior management (i.e., business and BST), government agencies, and BP's partners,
- keep BP senior management informed of nature and status of incident and incident response operations,
- serve as primary on-site contact person for BP senior management, government representatives, and BP's partners,

- review and approve requests for non-BP owned response resources, allocated critical resources, and authorize demobilization of resources,
- ensure that source control and response operations are carried out safely and closely coordinated,
- monitor and evaluate effectiveness of source control and response operations,
- serve as BP's primary spokesperson with news media,
- review and approve press releases and statements as they relate to incident response operations,
- approve and authorize implementation of incident action plans,
- approve and authorize implementation of general plan,
- consider need for an alternate or backup person for extended (24-hour) coverage
- compile and maintain appropriate documentation.

8.13.6 Incident Commander – Well Blowout – Source Control Considerations

The generic IMS/ICS was originally designed to manage the response to large forest fires covering multiple jurisdictions and later adapted for large-scale oil spills, which has many similarities. The current BP IMS is patterned after the oil spill model and has been shown to work effectively for that purpose. The term "source control" is a term generated by oil spill responders which basically means stopping the oil at the source, for example isolating a pipeline or repairing a ship leak. The current plans where developed by spill responders with experience in these types of incidents, and the source control functional duties reflect that experience. Major oil spills in conjunction with a well blowout are rare so there has not been the same effort in adapting the current oil spill plan to effectively managing a well blowout which may or may not have a spill involved. Because of this several things should be considered when using the IMS checklists as a guide during a major blowout incident. For example;

- Evaluate the incident and the response priorities after the initial evacuations and SAR are complete. If the blowout is far from shore or there is no oil spill evolved, Source Control will be the primary focus. This should be the case for most of DWP.
- If Source Control is the primary focus, the Operations Section Chief should also be the Source Control Section Chief and the On-scene commander should also be the Source Control Branch Director. In almost every major sustained offshore blowout where there is a surface control operation a very senior (usually VP level) company representative is on board the TCP assuming the role of OSC.
- If Source Control is considered to not be the primary focus, consider the Source Control Section Chief as the Operations SC deputy and the Source Control Branch Director as the Deputy OSC. In this way communications should be more efficient.
- If surface control operations are attempted, most tactical plans and many strategic plans are made on-scene. This is due to the specialized nature of the work and the fact that the blowout specialists are on-scene (thus the requirement for a senior OSC). So IAP are commonly coming from the scene for approval rather than being generated by the IMT in the office and sent to the OSC.
- Many of the strategic planning team, those planning how the well will be killed and those planning the relief well should mobilize offshore to help implement the plans as part of the tactical teams.
- A well blowout may change its scenario or additional information may be gained during intervention that will require a change in strategy. If changes occur, challenge the current strategy.
- Make sure operations are not attempted that do not have a recovery plan if failure occurs (Do not allow the tactical team to just try things and see what happens).
- Do not allow potentially dangerous operations that are not essential. For example, five blowout responders where burned to death, attaching a pump-in sub to a broached blowout while relief wells

where being drilled. It was nice to have the ability to pump into the blowout as well as intersect with a relief well, but it was not essential.

- Long term staffing issues must be addressed for all key personnel and contractors if the recovery is going to take more than 30 days. Working 24/7 with little sleep will quickly cause burn-out, poor decision making, anxiety, agitation and confrontation between team members. Each person's personality will dictate how long this may take. Supervisors must assess their team members and rotate as required. When practical, work personnel no longer than 12 hr shifts and provide rotation personnel or at least breaks within 30 days, particularly for those personnel stationed offshore.

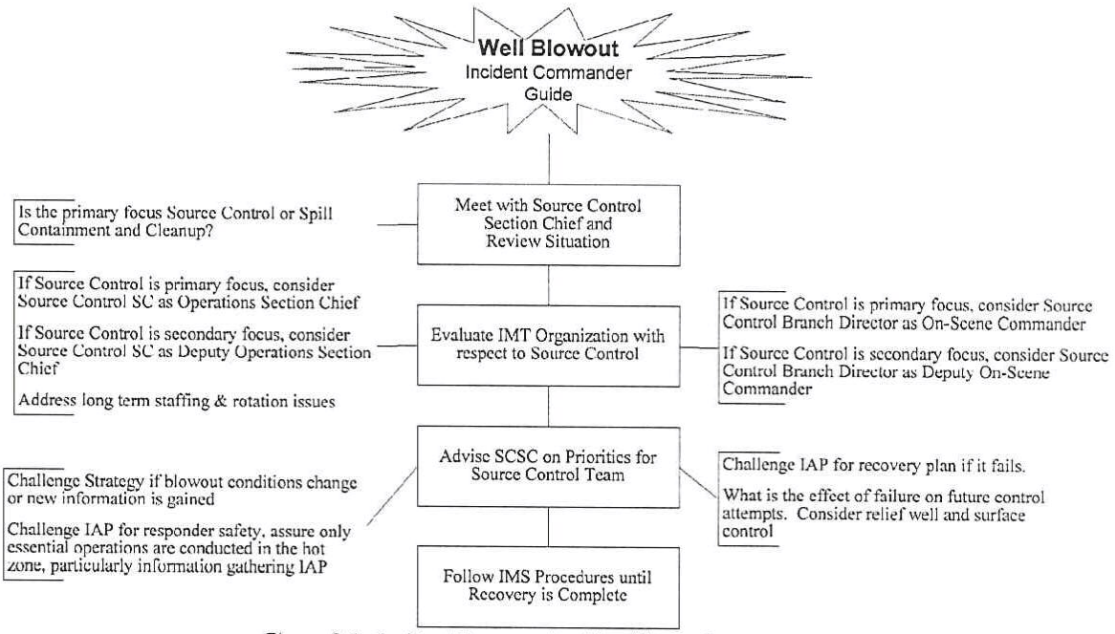


Figure 8-1: Incident Commander Checklist for Source Control

8.14 Wells Ops Manager - Deputy incident Commander (DIC)

8.14.1 LEVEL 1: Routine Well Control

❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.14.2 LEVEL 2: No SOP, Non-routine Well Control Event

❑ Situational awareness within standard drilling report distribution and periodic updates (i.e. every 4 hours or significant events) as needed. Prepared to assume DIC duties if Incident Management Team is activated. Be available for consultation or update as necessary.

- ❑ Review action plans with WTL as appropriate.
- ❑ Review Level 3 Contingency Plans.

8.14.3 LEVEL 3: Phase 1 – Initial Response

- ❑ After conferring with direct report, approve activating of Level 3 status of Contingency Plan for Emergency Well Control Response.
- ❑ Notify Performance Unit Leader (PUL) that Level 3 Emergency Well Control Response has been activated. Notifies required management of situation.

8.14.4 LEVEL 3: Phase 2 – Surface Intervention

- ❑ Attend all meetings.
- ❑ Confirm that Contingency Plan is being followed.
- ❑ Provide answers and solutions to any questions that arise.
- ❑ Maintain communications with management as to the status of the well.
- ❑ Assume responsibility for control of total project.

8.14.5 LEVEL 3: Phase 3 – Sub-Surface Intervention

- ❑ Attend all meetings.
- ❑ Review recommendations and justifications for sub-surface intervention.
- ❑ Review/Approve budgeting and acquisition requirements for relief well(s) as appropriate.
- ❑ Maintain communications with management as to the status and resource requirements for sub-surface intervention plans..
- ❑ Assume responsibility for control of total project.

8.14.6 LEVEL 3: Phase 4 – Well Recovery Operations

- ❑ Attend all meetings.
- ❑ Verify well condition is under control and return to normal operations are appropriate.
- ❑ Ensure coordination of re-start of other operations suspended as result of the well control incident .
- ❑ Maintain communications with management as to the status of the well and status of return to normal operations of affected wells/facilities.
- ❑ Begin process of capturing lessons learned for post incident evaluation phase.

- ❑ Assume responsibility for control of total project.

8.14.7 LEVEL 3: Phase 5 – Post Incident Evaluation

- ❑ Review final report from Well Control Service Provider.
- ❑ Review the findings of internal lessons learned investigations and studies.
- ❑ Maintain communications with management as to the status of the well and post incident evaluations/lessons learned.

8.15 Leader Designate

8.15.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.15.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Situational awareness within standard drilling report distribution unless Incident Management Team is activated. Be available for consultation or update as necessary.
- ❑ Review Level 3 Contingency Plans.

8.15.3 LEVEL 3: Phase 1 – Initial Response

- ❑ Once notified by Source Control Section Chief (SCSC), contact all Team Leaders of Emergency Well Control Response Teams and notify them that Level 3 status of Contingency Plan for Emergency Well Control Response has been activated.
- ❑ Schedule and conduct a meeting of all Team Leaders as soon as possible to brief everyone on the emergency situation.

8.15.4 LEVEL 3: Phase 2 – Surface Intervention

- ❑ Assist Source Control Section Chief (SCSC), with communications to various Team Leaders.
- ❑ Schedule meetings on a regular basis (recommended minimum of daily meetings during well control operations) for updates from various Team Leaders.
- ❑ Keep Source Control Section Chief (SCSC), informed of any developments at well location or within teams.

8.15.5 LEVEL 3: Phase 3 – Subsurface Intervention

- ❑ Assist Source Control Section Chief (SCSC), with communications to various Team Leaders.
- ❑ Schedule meetings on a regular basis for updates from various Team Leaders
- ❑ Keep Source Control Section Chief (SCSC), informed of any developments at well location or within teams.

8.15.6 LEVEL 3: Phase 4 – Well Recovery

- ❑ Assist Source Control Section Chief (SCSC), with communications to various Team Leaders.
- ❑ Schedule meetings on a regular basis for updates from various Team Leaders.
- ❑ Keep Source Control Section Chief (SCSC), informed of any developments at well location or within teams.

8.15.7 LEVEL 3: Phase 5 – Post-incident Evaluation

- ❑ Review all Post Incident Reports with Source Control Section Chief (SCSC), and Team Leaders.

8.16 BP Field Representative - Operations

8.16.1 LEVEL 1: ROUTINE WELL CONTROL

- ❑ At the occurrence of a well control incident, the BP Field Representative determines that the situation warrants a Level 1 status. The Field Representative quickly responds to the situation:
  - ❑ Follows standard operating procedures to resolve the situation
  - ❑ Notifies immediate supervisor.

8.16.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ At the occurrence of a well control incident, the BP Field Representative determines that the situation warrants Level 2 status. Alternatively, the incident may be a Level 1 event that deteriorated into Level 2 category. The BP Field Representative quickly responds to the situation with the following protocol:
  - ❑ Follow standard operating procedures (where these exist) to resolve the situation
  - ❑ Notify immediate supervisor.
  - ❑ Contact Wells Team for consultation regarding situation.
- ❑ Act before the situation escalates to a Level 3 status.

8.16.3 LEVEL 3: Loss of Well Control

At the occurrence of a well control incident, the BP Field Representative determines that the situation warrants a Level 3 status. Alternatively, the incident begin as a Level 1 event that deteriorated into Level 3 category, either from Level 2 or directly from Level 1.The BP Field Representative quickly responds to the situation.

8.16.4 LEVEL 3: Phase 1 – Initial Response

- ❑ Follow the Initial Response Checklist at Well site for Level 3 Emergency.
- ❑ With the assistance of the personnel on location, the following actions are taken:

1. Evacuate all well site personnel to the designated Safe Area.
2. Account for all personnel.
3. Determine injuries, if any, and assess the need for medical assistance.
4. Establish Hot (red) Zone area around well or rig per this document

NOTE: Do not re-enter the Hot (red) zone for any reason unless directed by responsible party.

5. Notify local authorities, including the Police/Sheriff's Department, Fire Department, and ambulance/hospital as directed by supervisor.
6. Secure the location. Prevent access to the location.
7. Contain fire by eliminating possible ignition sources and using available FiFi equipment for protective water spray if conditions are deemed safe.

Note: Do not attempt to extinguish fire.

8. Notify BP office of well conditions. Using Communications Record, record all conversations and events at well site.
9. Complete *Initial Status Report* and fax with Emergency Dispatch Information immediately to Well Control Service Provider
10. Contact Emergency Support Services as identified in this document.
11. Contain pollution and/or spill if can be done safely.
12. Monitor well conditions. Report any changes in well conditions.
13. Brief First Responder upon arrival on location.
14. Relinquish control of well site to OSC or designate upon arrival.
15. Assist as directed by OSC or designate.

8.16.5 LEVEL 3: Phase 2 – Surface Intervention

❑ Assist as directed by OSC or designate.

8.16.6 LEVEL 3: Phase 3 – Subsurface Intervention

❑ Assist as directed by OSC or designate.

8.16.7 LEVEL 3: Phase 4 – Well Recovery

❑ Assist as directed by OSC or designate.

8.16.8 LEVEL 3: Phase 5 – Post-incident Evaluation

❑ Assist OSC or designate with Post Incident Review and Evaluation.

8.17 Well-Control Response Team: Engineering Team Leader

8.17.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.17.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Situational awareness within standard drilling report distribution unless Incident Management Team is activated. Be available for consultation or update as necessary.
- ❑ Review Level 3 Contingency Plans.

8.17.3 LEVEL 3: Phase 1 – Initial Response

- ❑ Complete Well Control Worksheet and fax to Well Control Service Provider.
- ❑ Attend initial meeting of Team Leaders to be briefed on well situation.

8.17.4 LEVEL 3: Phase 2 – Surface Intervention

- ❑ Complete compilation of field/well information as outlined in Required Well/Field Information. Send information to the attention of Well Control Service Provider Team Leader.
- ❑ Assist with any engineering requirements for well control.

8.17.5 LEVEL 3: Phase 3 – Subsurface Intervention

- ❑ Assist with any relief well planning/engineering requirements.

8.17.6 LEVEL 3: Phase 4 – Well Recovery

- ❑ Assist with any engineering requirements for well recovery operations
- ❑ Assist with gathering information for internal reviews and lessons learned for post incident evaluation.

8.17.7 LEVEL 3: Phase 5 – Post-incident Evaluation

- ❑ Review all Post Incident Evaluations with SCSC.

8.18 Logistics/Procurement Team Leader

8.18.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.18.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Situational awareness within standard drilling report distribution unless Incident Management Team is activated. Be available for consultation or update as necessary.
- ❑ Review Level 3 Contingency Plans.

Pre-Operational (Transition from Level 2 to Level 3)

- ❑ Complete Emergency Support Services, working with the BP WSL.
- ❑ Determine scope of Emergency Support Services listing—
  - ❑ Identify support services that may be required.
  - ❑ Identify support services and identify potential suppliers.
  - ❑ Identify support services, identify suppliers, and negotiate contract with suppliers to provide support services.
- ❑ Confer with Administration Team Leader and Risk Management Leader to determine proper procedures for handling third party charges incurred due to well control incident. Identify any special invoicing requirements, approvals, etc. that will be required in processing insurance claims.

8.18.3 LEVEL 3: Phase 1 – Initial Response

- ❑ Attend initial meeting of Team Leaders to be briefed on well situation.
- ❑ If required, arrange transportation of well control service providers to well site.
- ❑ If required, arrange transportation of well control equipment to well site.
- ❑ Arrange housing and catering for well control employees and other support personnel.
- ❑ Mobilize team members to well site to arrange housing, etc. for any local residents that were evacuated from their homes.
- ❑ Keep insurance provider informed as appropriate.

Assist BP WSL with contacting third party vendors on Emergency Support Services listing and either putting them on Standby Alert status or authorize them to begin mobilizing to the well site.

8.18.4 LEVEL 3: Phase 2 – Surface Intervention

- ❑ Locate and secure services and products as ordered by SCSC and Well Control Service Provider Team Leader. Work with Risk Management Team Leader and Administrative Team Leader to maintain control over costs incurred.
- ❑ Keep insurance provider informed as appropriate.

8.18.5 LEVEL 3: Phase 3 – Relief Subsurface Intervention

- ❑ Locate and secure services and products as ordered by SCSC and Well Control Service Provider Team Leader. Work with Risk Management Team Leader and Administrative Team Leader to maintain control over costs incurred.
- ❑ Keep insurance provider informed as appropriate.

8.18.6 LEVEL 3: Phase 4 – Well Recovery

- ❑ Locate and secure services and products as ordered by SCSC and Well Control Service Provider Team Leader. Work with Risk Management Team Leader and Administrative Team Leader to maintain control over costs incurred.
- ❑ Keep insurance provider informed as appropriate.

8.18.7 LEVEL 3: Phase 5 – Post-incident Evaluation

- ❑ Review all Post Incident Evaluations with Well SCSC.

8.19 Regulatory Team Leader

8.19.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.19.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Situational awareness within standard drilling report distribution unless Incident Management Team is activated. Be available for consultation or update as necessary.
- ❑ Review Level 3 Contingency Plans.

8.19.3 LEVEL 3: Phase 1 – Initial Response

- ❑ Confer with SCSC and confirm that proper notifications have been given to all required regulatory agencies.

Attend initial meeting of Team Leaders to be briefed on well situation.

8.19.4 LEVEL 3: Phase 2 – Surface Intervention

- ❑ Mobilize team members to well site to assess potential risks that may have been incurred.
- ❑ Complete any additional status reports to various regulatory agencies as may be required.
- ❑ Confer with Communications Team Leader and confirm that all public news releases meet any special reporting requirements of the various regulatory agencies.
- ❑ Notify SCSC of any potential problems or risks that may be incurred.
- ❑ Confer with Environmental Team Leader regarding current status of pollution containment and control.
- ❑ Keep the various regulatory agencies informed as to the current status of well conditions and the ongoing well control efforts

8.19.5 LEVEL 3: Phase 3 – Subsurface Intervention

- ❑ Keep the various regulatory agencies informed as to the current status of well conditions and the ongoing well control efforts.

8.19.6 LEVEL 3: Phase 4 – Well Recovery

- ❑ Keep the various regulatory agencies informed as to the current status of well conditions and the ongoing well control efforts.

8.19.7 LEVEL 3: Phase 5 – Post-incident Evaluation

- ❑ Complete all final reports to the various regulatory agencies as required.
- ❑ Review all Post Incident Evaluations with SCSC.

8.20 Communications Team Leader

Note: All news releases must be approved by the Regulatory Team Leader, Risk Management Team Leader, and Incident Commander, Deputy Incident Commander and Source Control Section Chief.

8.20.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.20.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Situational awareness within standard drilling report distribution unless Incident Management Team is activated. Be available for consultation or update as necessary.
- ❑ Review Level 3 Contingency Plans.

8.20.3 LEVEL 3: Phase 1 – Initial Response

- ❑ Attend initial meeting of Team Leaders to be briefed on well situation.
- ❑ Prepare initial news release regarding current well conditions and company's response to the well control situation.
- ❑ Immediately issue news release after receiving proper approval.

8.20.4 LEVEL 3: Phase 2 – Well Control

- ❑ Prepare daily news releases regarding current well conditions and status of well control operations.
- ❑ Coordinate all news conferences, company statements, news releases, interviews, etc. between the BP / well control service provider personnel and the news media.

8.20.5 LEVEL 3: Phase 3 – Relief Well

- ❑ Prepare daily news releases regarding current well conditions and status of well control operations.
- ❑ Coordinate all news conferences, company statements, news releases, interviews, etc. between the BP / well control service provider personnel and the news media.

8.20.6 LEVEL 3: Phase 4 – Well Recovery

- ❑ Prepare daily news releases regarding current well conditions and status of well control operations.
- ❑ Coordinate all news conferences, company statements, news releases, interviews, etc. between the BP / well control service provider personnel and the news media.

8.20.7 LEVEL 3: Phase 5 – Post-incident Evaluation

- ❑ Review all Post Incident Evaluations with SCSC.

8.21 Risk Management Team Leader

Pre-Operational

- ❑ Verify insurance coverage in effect with SCSC.
- ❑ Confirm and review all Master Service Agreements in effect with all contractor, well service companies, etc. that may be performing their services on BP's well.

Confer with Logistics/Procurement Team Leader and Administration Team Leader to determine proper procedures for handling third party charges incurred due to well control incident. Identify any special invoicing requirements, approvals, etc. that will required in processing insurance claims.

8.21.1 LEVEL 3: Phase 1 – Initial Response

- ❑ Attend initial meeting of Team Leaders to be briefed on well situation. Provide other Team Leaders with overview of insurance coverage in effect.
- ❑ Contact insurance broker, advise of well situation.
- ❑ Provide written recap of insurance coverage in effect and Master Service Agreements (with contractors, servicing company, etc.) to Incident Commander and SCSC.
- ❑ Review and approve initial news releases prepared by Communications Team Leader.

8.21.2 LEVEL 3: Phase 2 – Well Control

- ❑ Mobilize to well to assess damages and review current well conditions with insurance adjuster.
- ❑ Investigate chain of events leading up to Level 3 status being activated. Get census of well site personnel at time of well control incident from BP Field Representative. Conduct interviews and take statements from all well site personnel.
- ❑ Review all medical injuries.

- ❑ Meet with local residents that may have been evacuated from well site area due to well conditions. With Insurance Adjuster, explain claim process and advise whom they can contact with the Risk Management Team Leader for any further questions.
- ❑ Confer with SCSC regarding any questions related to insurance coverage.
- ❑ Work with Logistics / Procurement Team Leader and Administration Team Leader to maintain daily estimate of total costs incurred to date on well control incident. Also, work with Environmental Team Leader to determine estimated costs to contain and control any pollution, plus estimated costs for soil remediation. Provide estimated total costs to SCSC and insurance adjuster on a daily basis.

8.21.3 LEVEL 3: Phase 3 – Relief Well

- ❑ Confer with SCSC regarding any questions related to insurance coverage.
- ❑ Work with Logistics/Procurement Team Leader and Administration Team Leader to maintain daily estimate of total costs incurred to date on well control incident. Provide estimated total costs to SCSC and insurance adjuster on a daily basis.

8.21.4 LEVEL 3: Phase 4 – Well Recovery

- ❑ Confer with SCSC regarding any questions related to insurance coverage.
- ❑ Work with Logistics/Procurement Team Leader and Administration Team Leader to maintain daily estimate of total costs incurred to date on well control incident. Provide estimated total costs to well SCSC and insurance adjuster on a daily basis.

8.21.5 LEVEL 3: Phase 5 – Post-incident Evaluation

- ❑ Complete final report of insurance coverage vs. total costs incurred in well control operations.
- ❑ Review all Post Incident Evaluations with SCSC.

8.22 Administrative Team Leader

8.22.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.22.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Situational awareness within standard drilling report distribution unless Incident Management Team is activated. Be available for consultation or update as necessary.
- ❑ Review Level 3 Contingency Plans.

Pre-Operational

Confer with Logistics/Procurement Team Leader and Risk Management Team Leader to determine proper procedures for handling third party charges incurred due to well control incident. Identify any special invoicing requirements, approvals, etc. that will be required in processing insurance claims.

8.22.3 LEVEL 3: Phase 1 – Initial Response

- ❑ Attend initial meeting of Team Leaders to be briefed on well situation.
- ❑ With the approval of the SCSC mobilize an Administration Team member to the well location to work with Logistics/Procurement Team in setting up process to properly account for costs incurred in the well control efforts.

8.22.4 LEVEL 3: Phase 2 – Well Control

- ❑ Maintain communications with Risk Management Team Leader and insurance adjuster regarding proper handling of third party vendor invoices.
- ❑ Process all third party vendor invoices as received for services/products provided in completing well control operations.
- ❑ Maintain detailed cost analysis of all costs incurred in well control operations.

8.22.5 LEVEL 3: Phase 3 – Relief Well

- ❑ Maintain communications with Risk Management Team Leader and insurance adjuster regarding proper handling of third party vendor invoices.
- ❑ Process all third party vendor invoices as received for services/products provided in completing well control operations.
- ❑ Maintain detailed cost analysis of all costs incurred in well control operations.

8.22.6 LEVEL 3: Phase 4 – Well Recovery

- ❑ Maintain communications with Risk Management Team Leader and insurance adjuster regarding proper handling of third party vendor invoices.
- ❑ Process all third party vendor invoices as received for services/products provided in completing well control operations.
- ❑ Maintain detailed cost analysis of all costs incurred in well control operations.

8.22.7 LEVEL 3: Phase 5 – Post-incident Evaluation

- ❑ Provide detailed cost analysis of all costs incurred in well control project to Deputy Incident Commander, SCSC, and Risk Management Team Leader.
- ❑ Review all Post Incident Evaluations with SCSC.

8.23 Environmental Team Leader

8.23.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.23.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Situational awareness within standard drilling report distribution unless Incident Management Team is activated. Be available for consultation or update as necessary.
- ❑ Review Level 3 Contingency Plans.

Pre-Operational

Identify all regulatory agencies that must be contacted in the event of a spill or release.

8.23.3 LEVEL 3: Phase 1 – Initial Response

- ❑ Attend initial meeting of Team Leaders to be briefed on well conditions.
- ❑ Confirm with SCSC and Regulatory Team Leader that all required regulatory agencies have been contacted and advised of the well situation.
- ❑ Mobilize Environmental Team members to well location to:
  - ❑ Assess damages caused by pollution
  - ❑ Ensure that all measures are being used to contain and control pollution.
- ❑ Monitor environmental impact.

8.23.4 LEVEL 3: Phase 2 – Well Control

- ❑ Work closely with SCSC and Well Control Service Provider Team Leader to contain spill/pollution without interfering with well control efforts.
- ❑ Make assessment of damages caused by pollution. Advise Risk Management Team Leader of estimated costs to be incurred to complete clean-up action.
- ❑ Confer with Logistics/Procurement Team Leader regarding requirements for cleanup.
- ❑ Begin clean-up efforts.

8.23.5 LEVEL 3: Phase 3 – Relief Well

- ❑ Continue clean-up efforts.

8.23.6 LEVEL 3: Phase 4 – Well Recovery

- ❑ Continue clean-up efforts.

8.23.7 LEVEL 3: Phase 5 – Post-incident Evaluation

- ❑ Complete all final reports as required by environmental regulatory agencies.
- ❑ Review all Post Incident Evaluations with SCSC.

8.24 HSSE Team Leader

8.24.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.24.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Situational awareness within standard drilling report distribution unless Incident Management Team is activated. Be available for consultation or update as necessary.
- ❑ Review Level 3 Contingency Plans.

8.24.3 LEVEL 3: Phase 1 – Initial Response

- ❑ Attend initial meeting of Team Leaders to be briefed on well situation.
- ❑ Mobilize Safety Team members to well location to:

1. Assist with securing the location
2. Set up monitors for air quality, H_2S, and LEL as required
3. Maintain current and accurate census of well site personnel
4. Assist with any medical emergencies

8.24.4 LEVEL 3: Phase 2 – Well Control

- ❑ Assist Well Control Service Provider Team Leader with conducting daily Safety Meetings.
- ❑ Review Work Zone boundaries around well daily with ell Control Service Provider Team Leader and make changes as required due to weather conditions, well conditions, etc.
- ❑ Arrange for Emergency Medical Technicians/Ambulance service to be at well site during entirety of well control operations.
- ❑ Maintain current and accurate census of all personnel at well site.
- ❑ Monitor air quality, H_2S, and LEL, and keep SCSC informed of situation.
- ❑ Confirm that all personnel providing services within the various work zones are wearing proper personal safety equipment.
- ❑ Ensure that all third party vendors meet all safety requirements.
- ❑ Monitor weather conditions and advise SCSC of any impending weather that may affect current well control operations.

8.24.5 LEVEL 3: Phase 3 – Relief Well

- ❑ Assist the Control Service Provider Team Leader with conducting daily Safety Meetings.
- ❑ Review Work Zone boundaries around well daily with the Control Service Provider Team Leader and make changes as required due to weather conditions, well conditions, etc.
- ❑ Arrange for Emergency Medial Technicians/Ambulance service to be at well site during entirety of well control operations.
- ❑ Maintain current and accurate census of all personnel at well site.
- ❑ Monitor air quality, H_2S, and LEL, and keep SCSC informed of situation.
- ❑ Confirm that all personnel providing services within the various work zones are wearing proper personal safety equipment.
- ❑ Ensure that all third party vendors meet all safety requirements.
- ❑ Monitor weather conditions and advise SCSC of any impending weather that may affect current well control operations.

8.24.6 LEVEL 3: Phase 4 – Well Recovery

- ❑ Assist the Control Service Provider Team Leader with conducting daily Safety Meetings.
- ❑ Review Work Zone boundaries around well daily with Well Control Service Provider Team Leader and make changes as required due to weather conditions, well conditions, etc.
- ❑ Arrange for Emergency Medial Technicians/Ambulance service to be at well site during entirety of well control operations.
- ❑ Maintain current and accurate census of all personnel at well site.
- ❑ Monitor air quality, H_2S, and LEL, and keep SCSC informed of situation.
- ❑ Confirm that all personnel providing services within the various work zones are wearing proper personal safety equipment.
- ❑ Ensure that all third party vendors meet all safety requirements.
- ❑ Monitor weather conditions and advise SCSC of any impending weather that may affect current well control operations.

8.24.7 LEVEL 3: Phase 5 – Post-incident Evaluation

- ❑ Complete final Safety Report for Deputy Incident Commander and SCSC.
- ❑ Review all Post Incident Evaluations with SCSC.

8.25 Well Control Service Provider Team Leader

Pre-Operational

- ❑ Review Contingency Plan

8.25.1 LEVEL 1: Routine Well Control

- ❑ Be available for consultation with BP WSL as necessary.

8.25.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Be available for consultation with BP WSL as necessary.

8.25.3 LEVEL 3: Phase 1 – Initial Response

Once Level 3 status has been activated, Well Control Service Provider Team Leader is contacted by SCSC and advised of well control situation. Well Control Service Provider Team Leader is assigned by Well Control Service Provider.

- ❑ Well Control Service Provider Team Leader receives Emergency Dispatch Information and completed Initial Status Report from BP's WSL at the well location.
- ❑ Reviews and evaluates information.
- ❑ Contact nearest Well Control First Responder. Direct the First Responder to mobilize to well site immediately.
- ❑ Contact additional Well Control Specialists and put on alert status for possible mobilization to well location.
- ❑ Receive initial report from Well Control First Responder after reaching location. Evaluate data to determine personnel and equipment needs.
- ❑ Consult with SCSC regarding current situation and make recommendations for personnel and equipment needs.
- ❑ Mobilizes additional Well Control Specialists and well control equipment to well location as agreed upon.
- ❑ Mobilize to well location to supervise well control operations.

8.25.4 LEVEL 3: Phase 2 – Well Control

- ❑ Upon arrival at well location, review current well situation with Well Control First Responder, SCSC, and BP's WSL.

- ❑ Manage well control operations. Determine water needs for firefighting and capping operations.
- ❑ Receive Well Control Incident Worksheet and Required Well/Field Data Information received from the Engineering Team. Evaluate information and determine recommendations/options for review with SCSC.
- ❑ Maintain constant communications with SCSC.
- ❑ Work with HSSE Team Leader to conduct daily safety meetings at well location.
- ❑ Establish work zone areas for well control operation.
- ❑ Monitor work zone boundaries and make adjustments as needed. Post the Emergency Response Map at the Forward Command Center daily.
- ❑ Maintain daily census of personnel on location.
- ❑ Approve all support personnel that must enter designated Work Zones.
- ❑ Complete daily field report.
- ❑ Determine charges to BP and approves all invoicing of well control operations to BP.

8.25.5 LEVEL 3: Phase 3 – Relief Well

- ❑ Oversee intervention operations

8.25.6 LEVEL 3: Phase 4 – Well Recovery

- ❑ Discuss well control operations and determine well control options with BP.
- ❑ Supervise well recovery operations.

8.25.7 LEVEL 3: Phase 5 – Post-incident Evaluation

- ❑ Prepare Post Incident Review and Evaluation for BP.
- ❑ Review all Post Incident Reports with all Well Control Specialists who worked on Job.
- ❑ Identify areas for improvement
- ❑ Identify new equipment needs.

8.26 Well Control First Responder

8.26.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates from HSSE Team Leader.

8.26.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Situational awareness within standard drilling report distribution unless updated by OIM/WSL (As Appropriate) Be available for consultation or update as necessary.
- ❑ Review Level 3 Contingency Plans and Spar/Platform/Facility ERP.

8.26.3 LEVEL 3: Phase 1 – Initial Response

- ❑ Mobilize to well location as soon as directed by SCSC or designate Leader.
- ❑ Complete initial assessment of well situation on site using the First Responder checklist.
- ❑ Complete evacuation of rig personnel to Safe Area. If required, make initial plans for search and rescue of Hot (red) Zone for any missing personnel. **Do not** attempt search and rescue until qualified assistance is available.
- ❑ Evaluate severity and complexity of well control situation.
  - ❑ Identify risks.
  - ❑ Identify and eliminate possible ignition sources.
  - ❑ Determine status of well control situation—deteriorating, stable, or improving?
  - ❑ Determine time window for effective responding.
  - ❑ Assess general damage to location.
  - ❑ Employ all available safety measures.
- ❑ Determine what resources will be required to successfully regain control of well, as pertains to:
  - ❑ Well control personnel
  - ❑ Well control equipment
  - ❑ Third party services
  - ❑ Other resources.
- ❑ Communicate findings to Well SCSC or designate as soon as possible.

- ❑ Review needs for third party services companies from Emergency Support Services' list with the BP WSL.
- ❑ Review and confirm placement of Safe (blue) Zone for well control operations.
- ❑ Review and establish preliminary boundaries of Hot (red) Zone.
- ❑ Set up initial fire suppression measures.
- ❑ Take necessary steps to contain and control pollution.
- ❑ Identify water source and begin work in setting up for water storage on location.
- ❑ Brief Well Control Service Provider Team Leader of current well situation upon arrival at well location.
- ❑ Assist wherever needed.

8.26.4 LEVEL 3: Phase 2 – Well Control

- ❑ Assist as directed by SCSC or designate

8.26.5 LEVEL 3: Phase 3 – Relief Well

- ❑ Assist as directed by SCSC or designate

8.26.6 LEVEL 3: Phase 4 – Well Recovery

- ❑ Assist as directed by SCSC or designate

8.26.7 LEVEL 3: Phase 5 – Post-incident Evaluation

- ❑ Assist SCSC in developing Post Incident Review and Evaluation.

8.27 Well Control Response Team – Relief Well Intervention

8.27.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.27.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Situational awareness within standard drilling report distribution unless Incident Management Team is activated. Be available for consultation or update as necessary.
- ❑ Review Level 3 Contingency Plans.

8.27.3 LEVEL 3: Phase 1 – Initial Response

- ❑ Under directions of Well Control Service Provider Team Leader, mobilize to well location as quickly as possible.
- ❑ Review Initial Status Report from BP WSL and Well Control First Responder.
- ❑ Confer with Well Control Service Provider Team Leader at well location.

8.27.4 LEVEL 3: Phase 2 – Well Control

- ❑ Review Well Control Worksheet furnished by Engineering Team.
- ❑ Review, with Well Control Service Provider Team Leader, the Required Well/Field Information as furnished by Engineering Team.
- ❑ Review designated Safe Area and make any recommendations for changes to Well Control Service Provider Team Leader. After receiving approval, make necessary changes in size and position.
- ❑ Set up Forward Command Center in the Safe (blue) Zone.
- ❑ Determine immediate needs and confer with Logistics/Procurement Team Leader as to priorities for support services.
- ❑ Work with Well Control Service Provider Team Leader to lay out location for:
  - ❑ water storage
  - ❑ equipment staging
  - ❑ firefighting pumps

- ❑ Conduct well control operations:
  - ❑ Analyze options provided by Well Control Response Team - Engineering
  - ❑ Develop surface intervention strategy
  - ❑ Coordinate firefighting efforts
  - ❑ Supervise / participate removal of debris from wellhead area
  - ❑ Design capping assembly to be used. Work with Logistics/Procurement to provide the assembly
- ❑ Cap well, regaining control of well flow.

8.27.5 LEVEL 3: Phase 3 – Relief Well

None

8.27.6 LEVEL 3: Phase 4 – Well Recovery

None

None

8.27.7 LEVEL 3: Phase 5 – Post-incident Evaluation

- ❑ Submit final report on well control operations to SCSC or designate.
- ❑ Review all Post Incident Evaluations with SCSC or designate.

8.28 Well Control Response Team – Sub-surface Intervention

8.28.1 LEVEL 1: Routine Well Control

- ❑ Routine situational awareness within standard drilling report distribution or periodic updates.

8.28.2 LEVEL 2: No SOP, Non-routine Well Control Event

- ❑ Situational awareness within standard drilling report distribution unless Incident Management Team is activated. Be available for consultation or update as necessary.
- ❑ Review Level 3 Contingency Plans.

8.28.3 LEVEL 3: Phase 1 – Initial Response

- ❑ Review Initial Status Report completed by BP WSL.
- ❑ Review Well Control Worksheet completed by Engineering Team.
- ❑ Review Required Well/Field Information completed by Engineering Team

8.28.4 LEVEL 3: Phase 2 – Well Control

None

8.28.5 LEVEL 3: Phase 3 – Relief Well

- ❑ Under direction of SCSC, begin engineering and planning for relief well.
- ❑ Determine optimum relief well profile using various software programs.
- ❑ Discuss and explain all options for relief well to Well Control Service Provider Team Leader and the SCSC.
- ❑ If required, develop kill program for relief well.

8.28.6 LEVEL 3: Phase 4 – Well Recovery

- ❑ Develop options for recovering the well bore once the well has been brought under control.
- ❑ Discuss options for well recovery with Well Control Service Provider Team Leader and the SCSC.

8.28.7 LEVEL 3: Phase 5 – Post-incident Evaluation

- ❑ Review all Post Incident Evaluations with SCSC.

9 Appendix 1 – Thunder Horse

10 Appendix 2 – Atlantis

11 Appendix 3 – Holstein

12 Appendix 4 – DW Horizon

13 Appendix 5 – Development Driller II

14 Appendix 6 – Development Driller III

15 Appendix 7 – Discoverer Enterprise