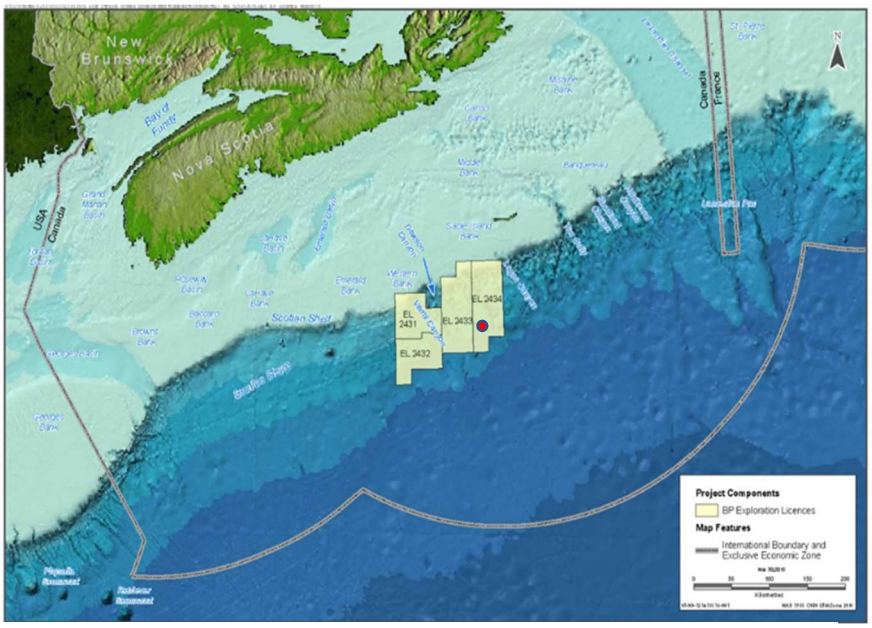
Scotian Basin Exploration Program

WELL CONTROL AND SPILL RESPONSE PLANNING

BP's Scotian Basin Exploration Program involves drilling an initial well on Exploration Licence (EL) 2434 in 2777 metres water depth, approximately 330 kilometres southeast of Halifax, Nova Scotia. BP has contracted the *West Aquarius* rig, operated by Seadrill, to drill the well. Drilling is planned to commence in April 2018 and it is estimated that it will take approximately 120 days to drill the well. The supply base is located in Halifax Harbour (approximately 20 hours sailing time to the drill rig) and the helicopter fleet base is located at Halifax Stanfield International Airport (approximately 1 hour, 20 minutes helicopter flight time to the drill rig).

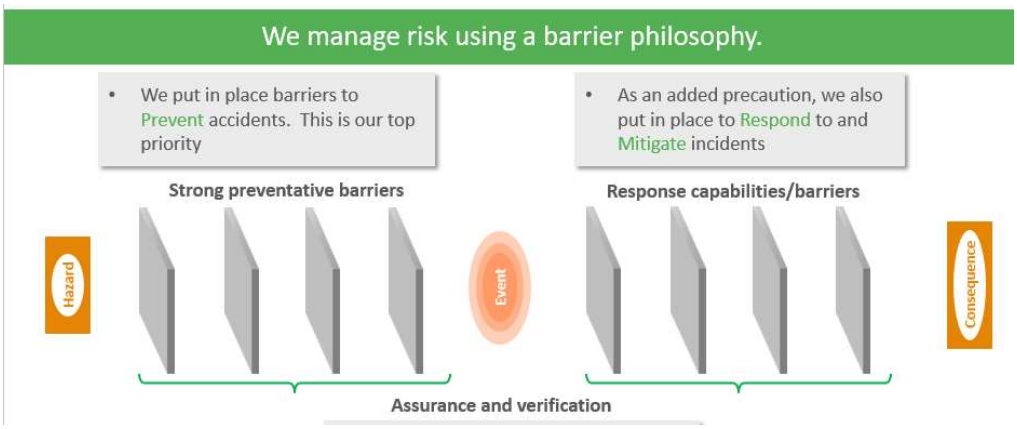


Scotian Basin Exploration Program Location

West Aquarius Semi-Submersible Drill Rig

Risk Management Philosophy

Safety is the foundation of everything BP does, every single day. The company's goals are clear: no accidents, no harm to people and no damage to the environment. BP uses multi-layered barriers to prevent conditions from arising that could allow a hazard to become an undesirable event. If an undesirable event does occur, further barriers are put in place to mitigate negative consequences.



Well Control Strategies

BP's intent is to maintain well control throughout the duration of the drilling program and prevent well control incidents from occurring in the first instance. BP's Houston monitoring center will provide round-the-clock support for the Nova Scotia drilling operations including identifying potential well control situations. In the event of a loss of well control, several strategies would be implemented to shut-in, cap, or contain the well to stop the flow of hydrocarbons. Many of these strategies would be implemented at the same time as spill response. Source control response priorities include:

Capping and Containment

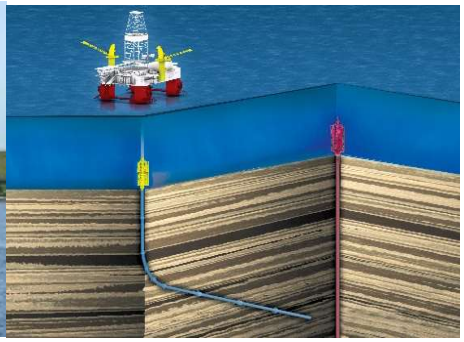
- Direct intervention on the original blowout preventer (BOP)
- Capping stack installation

Relief Well

- Involves drilling of contingency well to intersect the blowout well and stop the flow of hydrocarbons

Direct intervention on BOP

Capping stack installation



Relief well intersection

If a loss of well control incident were to occur, remote operated vehicles (ROVs) from the on-site Emergency Response and Rescue Vessel (ERRV) would be used to attempt to directly activate the BOP. The BOP is a mechanical device which contains a series of hydraulically-operated valves and sealing mechanisms designed to seal off a well at the wellhead when required. BP would also immediately commence the mobilization of a capping stack to the site. While the capping stack is in transit, the following activities would be conducted so that cap installation could begin immediately upon arrival at the wellsite: various subsea preparation activities (site surveys, debris and well equipment removal, installation of equipment to support capping stack connection); assessment of well integrity; mobilization of supporting equipment and specialists; and obtaining necessary regulatory approvals.

A relief well may also be required to stop the flow and permanently plug the well. BP plans contingency relief wells prior to starting drilling by identifying surface locations, suitable rig and materials, and conducting preliminary well designs. A relief well is typically drilled as a vertical hole down to a planned "kick-off" point where it is turned toward the incident well using directional drilling. Once the incident well is intersected, drilling fluid (and sometimes concrete) is pumped into the incident well to stop the flow and permanently plug the well.

Oil Spill Response Strategy

BP's response philosophy is to (over)respond to the incident *and its potential*. BP's Oil Spill Response Strategy involves using a combination of different response techniques at different times and in different locations. The response techniques may include:

- Surveillance
- Containment and Recovery
- In-situ (ISB) or Controlled Burning
- Dispersant Application (surface or subsea application)
- Nearshore Response/Shoreline Protection and Recovery

Decisions on when, where and how these tactics will be used in a response are informed by the Spill Impact Mitigation Assessment (SIMA) and consider the following factors:

- Location of spill and direction/rate of oil movement
- Oil properties and volume of oil spilled
- Timing of spill and meteorological conditions
- Sensitive biological and socio-economic resources
- Regulatory requirements
- Stakeholder priorities

The SIMA is a tool that can be used to help evaluate scientific and policy related inputs to assess benefits/drawbacks of spill response tools and arrive at reasoned decisions as to which response tool(s) should be used under a particular set (or range) of circumstances with the goal of minimizing overall harm once a spill has occurred. The SIMA developed for the Scotian Basin Exploration Program considered resources of concern along the Nova Scotia and Sable Island shorelines, the Scotian Shelf, and the Scotian Slope including birds, invertebrates, corals and sponges, fish eggs and larvae, fish, plankton, vegetation, marine mammals, sea turtles, and fisheries. In the unlikely event a spill was to occur, an incident-specific SIMA would be developed to reflect conditions and resources of concern present at the time in order to confirm or modify the response strategy for that specific incident.

BP would implement a "tiered" response, based on the nature of the spill. BP maintains contractual relationships with key oil spill response organizations such as Eastern Canada Response Corporation, Oil Spill Response Limited and Marine Spill Response Corporation to supplement BP's response capabilities and support BP's Oil Spill Response Strategy.

Spill	Geographical Reach of Response Capability	Personnel and Equipment
Tier 1	Local	• Local BP Incident Management Team and BP equipment • May include local Eastern Canada Response Corporation (ECRC) personnel and equipment
Tier 2	Regional or National	• Global BP Mutual Response Team • ECRC
Tier 3	International	• Global BP Mutual Response Team • ECRC • Oil Spill Response Limited (OSRL) • Marine Spill Response Corporation (MSRC)

Summary of Spill Response Tactics

Response Tactic	Description	Equipment/Resources	Considerations
Surveillance	Surveillance of the oil spill (location, condition and movement of oil) is used to assist with trajectory modelling and inform tactical response	• Rig and platform supply vessels (PSVs) are equipped with satellite tracking buoys • Aerial assets available, including public and private fixed-wing aircraft; satellites	• Conducted for all spills; surveillance platform(s) depends on scale of spill
Natural Attenuation (no intervention)	Without mitigation, spilled oil gradually weathers until it evaporates, dissolves, and disperses into water column or strands on the shoreline; sometimes considered the "monitor and wait" approach	• No equipment required; see above for surveillance	• May be appropriate for spills that do not threaten worker health and safety, species of importance, shorelines, or potentially sensitive environmental areas • Public acceptability may be low due to impression that "nothing is being done"
Containment and Recovery	Booms and skimmers are used to contain oil for recovery or removal	• BP-owned high-speed sweep systems on ERRV and PSVs • Additional resources available through ECRC and OSRL • May use vessels of opportunity	• Booms are limited by sea state and current • Boom size must be appropriate for conditions
In-situ or Controlled Burning	Oil is contained within oil-resistant booms and ignited to reduce volume of oil on water surface	• Available from ECRC (Halifax) • May use vessels of opportunity	• Best used for fresh oil away from populated areas • Can only be conducted in calm conditions
Dispersant Application	Chemical agents are applied to the water surface (using boats or aircraft) or at the wellhead (subsea dispersant injection [SSDI]), to reduce the droplet size of oil, promoting natural biodegradation of the oil and reduction of oil on the surface and shoreline	• Corexit 9500A only dispersant approved for use in Canada • Approx. 40m^3 currently stored in Halifax, BP has access to OSRL and BP global dispersant stocks • ERRV and PSVs equipped with spray kits; aerial dispersant capability from OSRL aircraft • SSDI application and monitoring equipment available from BP and global suppliers, on location in 7-10 days	• Can be used in rough seas • Possibility of rapid, large scale response • Ineffective in calm seas • Usually not appropriate in shallow nearshore waters • Requires regulatory authorization prior to application • SSDI can be conducted 24/7, using less dispersant per volume of oil than surface application
Nearshore/Shoreline Response	Priority shoreline sites identified with stakeholder input. Where practical, protection strategies implemented to prevent/minimize shoreline oiling; shoreline response includes implementing various shoreline recovery techniques informed by SIMA and Shoreline Cleanup Assessment Team (SCAT) based on shoreline type, safety of work, degree of oiling, access, etc.	• ECRC would be engaged for shoreline protection, diversion, collection, cleanup	• Best way to respond to oiling of shoreline is to prevent oil from reaching it • Different shorelines have varied recovery potential and sensitivity to oil • Shoreline cleanup likely to utilize numerous techniques on different shorelines, applied in stages, beginning with gross removal of oil, through "polishing"

Spill Response Plan

BP has drafted a Spill Response Plan as part of its Operations Authorization application with the Canada-Nova Scotia Offshore Petroleum Board. This draft plan was tested during a spill response exercise in December 2017 and is currently undergoing revision and review. Additional desktop exercises will be conducted to ensure familiarity with roles and procedures and overall response readiness. This Plan will undergo periodic review and be updated as required to reflect changes in operations, regulatory updates, and input from consultations and exercises. An outline of the Plan is presented below.

Spill Response Plan Outline

- Policy, Responsibility and Planning Systems
- Initial Response Actions
- Notification Procedures
- Response Resources
- Unified Coordination
- Spill Response Tactics and Strategies
- Wildlife Response*
- Waste Management
- Decontamination and Demobilization
- Compensation Claims Management
- Incident Termination and Debrief
- Training and Exercise Program
- Annexes / Tactical Response Plans
  - Offshore Containment & Recovery
  - Surface Dispersant Application
  - In Situ Burning
  - Shoreline Response Program
  - Waste Management
  - Monitoring and Sampling

*Wildlife response is addressed in a stand-alone Wildlife Response Plan which identifies resources at risk, describes roles and responsibilities with respect to wildlife response planning, and describes personnel, facilities, and activities associated with wildlife monitoring, capture, transport and rehabilitation operations.